PUBLIC DEBT AND ECONOMIC GROWTH IN INDONESIA
1991-2011

THESIS

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BACHELOR DEGREE OF ECONOMIC DEPARTMENT
FACULTY OF ECONOMICS
ANDALAS UNIVERSITY
PADANG 2013

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Public Debt and Economic Growth in Indonesia 1991-2011
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ABSTRACT

This research empirically examines Public Debt and Economic Growth in Indonesia During periods 1991-2011. The research used secondary data from Bureau Statistic of Indonesia and Directorate General of Debt Management in Indonesia. Ordinary least square (OLS) is the method used in this research. The result show that public debt did not significantly affect the economic growth since public debt not has been allocated to productive sector expected to push economic growth but more to cover the budget deficit. Moreover, this reseach also found that investment and government expenditures have positively and significantly affected the growth.

Keyword: Economic Growth, Public debt, Investment, Government Expenditure and OLS method

This thesis has been presented in the thesis examination and succesfully passed the thesis examination on June, 7th 2013. The abstract has been approved by the advisor and the examiners :

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Faculty Alumnus Registration No :	Name : Signature :

PREFACE

All praise to be on Allah SWT, Lord of the world. The writer would like thank to God for its guidance and mercy therefore my thesis entitled **"Public Debt and Economic Growth In Indonesia 1991-2011"** has finally been accomplished on time without matter problem. This thesis is submitted as a patial requirement to acquire Bachelor Degree at Economic Department of Economic Faculty of Andalas University.

The writer realize that this thesis still far from perfection. It needs to be improved. For that reason, the writer would gladly welcome constructive critics and suggestions for perfection. Hopefully this thesis can be helpful and give benefit to anyone who read it, especially to academicians and students. In the process of completion, there are many people who have involved either directly or indirectly. I would like to express my gratitude to those people who made it possible for me to complete this thesis. Wit all of the humility, my infinitely gratitude I express to:

1. Allah SWT. The most merciful, the most forgiveness and all praises only for You, Thank you for answering my prayers, Thank You for blessing me, Thank You for Loving me every time anytime everywhere, You have given me strength, so that I can finish this thesis well. I really wish that I can fully love You as You always Loving me.

2. I would like to express my sincere and profound gratitude to my thesis supervisor and also academic supervisor Dr. H. Hefrizal Handra, M.soc. Sc, thank's for everything sir. Without your advice, supervision and

exceptional support this thesis would never had become a reality. You are the best supervisor that i have.

3. Thanks to Prof. Dr. H. Sofyardi, SE.MA and Drs. H. Masrizal, M.soc. Sc who have been pleased as expert examiners on my thesis. Thank you for your opportunity, critics, suggestions and give some advices to my thesis.

4. A special appreciation also goes to Honorable Head of Economic Department of Faculty of Economic of Andalas University Dr. H. Hefrizal Handra, M.soc. Sc and Edi Ariyanto, SE. M.Si, as the Head International Program Economic Department and Dra. Leli Sumarni, MS. M.Si as secretary Economic department of Faculty of Economics of Andalas University. Thanks for your guidance during my lecture here.

5. Most importantly, I wish to express my greatest thanks to my lovely parents, especially for my lovely Papa and Mama, Amril (Alm) and Ermi. Papa your daughter finally get a tittle, and although you not here with me, but i believe you always see me in the heaven, thank's for every praying, your support and i can realize your wish before you gone. I miss u so much papa. And for lovely mother " *The wonder of my life is born from your womb*", thank's for everything mama, thanks for understand my condition, give me strength, love me and always pray for me so that finally I have titled *Sarjana Ekonomi*. You are the best mother that i ever had until now and forever. Love you deeply! ☺☺☺. And for my step father bapak Khairul (Alm) thank's for love me like your child, and alhought just 4 mounth you become my step father but you always give me support to me to make a thesis. Special thank's for my lovely brother Mayamer

Tiatoly has given me strength and spirit when I'am on depressed ☺, and hope you quickly get a tittle. You are the best brother that i have. And also to all my families, uwo salmi, ayek rakinas, ante gadih, Romi, Agi, Dini, Pak Idap, ante yessi, my uncles and aunts and families who give me advice, and always support me. And thank's to Om kudun's families, pak uwo's families and Om iwan, i really want to say thank's to helped my mom.

6. I would like to say thank for my lovely Rizki Ilham Firdaus, Amd, thank's for everything beb, thank's to support me and understand my condition, always heard my problem, and i know not easy to face my ego, but you can, more than seven years beside me and you always make me laugh when i depressed, thank's you so much beb. Finally i get tittle like you. i love u so much beb. *In love, no need to find someone perfect, but someone who loves what they are, who make you feel perfect.*☺☺

7. I also would like to thank to my roommate and also my classmate Dea Kurnia SE (Nying-nying). Finally we can pass it together. Many thing which we pass like make coboy hat in ospek, studied and make the thesis together, seminar also together and pass together. And for my fellow soldier Mutiara Mayang Sari, SE (Uunn), and Ratih Ramadhani SE (Ayuk). Thank's for everything friends for your time, patient, spirit, help, understanding and your prayers guys. Finnally we could wear the toga together in September.

8. For all member of Economics Int'09. I am proud to have you guys, Abi Randi SE and Ami Elisa SE, thank's for teach me about E-views. Anggi

SE, Puput SE, Lydia SE, Givy SE. Pipit, Halimah, Fanny, Amel, Dyane, Eby, Dayat, Fadil, Efri, Emil. I'm gonna miss all of moments with you. And i hope we can success together. And thank's to my senior kakak Yolit SE to helping me to process my data, and also to kak Melki and kak Suci i hope you can finish your thesis, and we can graduation together.☺

9. For my best friends Rahman Ghany Mulki SE, thank's for everything maman, you always support me, share our experiances together, always listen and provide solution for my problem. And i hope you can realize your dream become Governor of BI. For Sandisa putra thank's for support me also and hope September we can wear Toga together and finish your thesis quickly. And also Rahmat Taufik Hidayat although we not studied in the same University you always support me and i hope you can pass in your study. I miss the moment with you guys, and hope we can travelling together again.

10. Most importantly, I would like to say thousands thanks to my boarding house Leni Elvina Amd (Pinuk), you are the best roommate that i have, always patient, understant my condition and support me. Thank's to kak Yanie Maris, hope you can finish your thesis quickly. I know not easy to make a reseach, but i believe you can. Thank's to support me. And thank's to Irma Mutiara Insani Amd (Alm), Icim we love you...until know i don't believe you was gone, happy in heaven cim and hope you can meet your father there, i will miss every moment with you, For Febri Wahyuningsih Amd (Ipeb), thank's for always pray for me, i miss the moment we dance at night. Thank's to Kak Riyani Vadilla S.Hum (kak Enek), Ika Laone

Amd, Suci Ramadhani S.Si, Ovie Amd, and also for my junior in boarding house Elfi rahmi, Silvia, Nora, Lita, Eva mella, Ipit abang Thank's for everything guy make my life colorful ☺, and success for us.

11. For KKN friend's uda Ruri thank's to lead me to seminar.haha..☺, Tekong, Nining, Uda Riri, Uda Deri, Alan, Mami ita, Inang, Raber, Eta, Tiwi, Almas,Kak Ari, Ica, Rico, Puji. I am happy can meet you guys.

12. For Dormitory friend's Zelvi Afiza (Bopeng), i really want to say thank's for everything. For Dwi, Ica, Media, Nanda, Sulas, Laras hope you can finish your study. And for Riri congrat for your graduation.

13. I also would like to say thank you very much to the assistance of Administration Bureau: Kak Rina, Buk Nurhayati. Most importantly Bapak Pustaka (Pak Suryadi) for his kind welcoming..

14. Last, but not least, I thank to all people who ever meet me and pray me ! hahahah

Final word, the author of the almighty god hope is pleased reply all good all parties whose have helped the settlement thesis. Author of open feedback and suggestions for improvement this thesis. Thesis may provide benefits for the development of this science.

Padang, Juni 2013

Syofia Elency

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CHAPTER I

INTRODUCTION

1.1 Background of The Reseach

Economic development is a continous activity that should be done by every nation to improve the walfare of society. In the implementation, economic develompent is never apart from the incresed in income or economic growth. Economic growth and economic development are two terms used interchangeably, but they are fundamentally different. Economic growth is the growts of average income of an economy, while economic development is the increase in welfare of people of that economy (Rais, 2012).

Economic growth is one of the most important indicators to analyze economic development that occurs in a country. Economic growth shows the extent of economic activity to increase income in a given period. Basically economic activity is basically a process of using the factors of production to produce output, as measure by the Gross Domestic Product indicators (Anwar, 2011).

Indonesia as a developing country wants to build the national and their own country. Of course this had been tried, but difficult for indonesia to survive in the middle of the swift currents of globalization that continues to grow rapidly. Under these condition, indonesia finally forced to follow the flow, which is trying to open up to cooperation with other countries to increase economic growth (Anwar, 2011).

Indonesia actually ever had an economic condition that is promising in the early decades of 1980s to the mid 1990s. Based on data from indonesian statistics, Indonesian economy growth since 1986 until 1989 continued to increase, respectively 5,9% in 1896, then 6,9% in 1988 and become 7,7% in 1989. But in 1990 and 1991, Indonesia's economic growth rate recorded at 7,0%, then 1992, 1993, 1994, 1995, and 1996, each of which is economic growth rate of 6,5%, 6.8%, 8,0%, 8,2%, and 7,8 %. Stable inflation rate, unemployment is quite low due to the conducives investment climate characterized by increasing employment opportunities, and so on. But, the indonesian economic finally collapsed by the global crisis in 1997-1998 with increasing of inflation and weak of rupiah exchange rate to dollar. This happens because there is no strong support for micro, the increasing practice of corruption, collusion and nepotism (KKN), human resources are less competitive, unstable political condition and so on (Abimanyu, 2000).

When economic crisis happened in Indonesia, indonesia government expenditure in real term shows the increasing. The same with government expenditure, budget deficit also increased rapidly in 1997-1998 from 563,03 billion rupiah to 1.575,50 billion rupiah, rise in budget deficit is consequence of the increased government expenditure in an effort to stabilize the economy during the crisis (Wahyuningtyas, 2010).

And to cover the budget deficit when the economic crisis happened in indonesia, public debt is one way that government choosed to increase economic growth after crisis in 1998, cause domestic source of funds obtained from the various types of taxes, foreign exchange export proceeds, and other internal funds

are still limited. Government often face a problem where their spending is grather than the revenue, is needed debt to cover deficit. Debt used as a sources for finance to cover capital scarcity (Sihombing,2010). Public debt increased significantly from more than 283 triliun rupiah in 1997 to more than 553 triliun rupiah in 1998 mainly due to a lot depreciation of rupiah (DJPU,2009).

Public debt is a variable that could have pushed the economy while inhibiting economic growth. Meant to stimulate the economy if the debt are used to create jobs and investment in the field of development which can push an economy. While inhibiting the growth of the debt if not used optimally due to the lack of oversight and integrity of the debt. Now the debt has been many cases of misuse of government funds like at the time of new orde.

After crisis in1998 one of economic burden that must be considered by the government is a swelling of debt, not only domestic debt but also external debt. Moreover, when Indonesia got a windfall from the abundant oil boom, external debt remains a major component of revenue in the budgets of government spending. Even as Indonesia has begun adopting a budget deficit / surplus since 2005, external debt financing component is large enough. Whereas in the economic policy of the government has always said that external debt is only a mere appendages (Boediono, 2008 in Sihombing, 2010). Attachment Decree of the Minister of Finance No. 447/KMK.06/2005 about Debt Management Strategy for 2005-2009 mentions to date, debt is still the main source of financing to cover the state budget deficit and for repayment of debt refinancing.

The relationship between public debt and economic growth is a much debated issue. Some experience and empirical evidance show that a number of countries that can used public debt to carry out its development can be successful. But in the regression analysis models, rarely found positive effects of public debt on economic growth. Even with certain models, its appears that public debt actually have a negative impact on economic growth (Barik, 2011).

But undeniable, indonesia as a developing country that is building, indonesia need funds to finance its budget deficit and give contribute to economic growth. Although debt is helpful to cover the short run in the cost of budget, but the issue mortgage payments and interest into a continuous load should be carried out, let alone the value of the rupiah against the dollar tend to be unstable every day even every year (Sihombing, 2010).

Beside of public debt, there are actually other alternatives the government could do to promote economic growth is investment. According to (Kuncoro,1994) investment come from four sources, namely domestic saving, foreign assistance, export and foreign investment. In 1997 investment in Indonesia decreased. It was happen because unstable political condition, whereas stable political condition is one factor that increase economic growth.

Investment slump in Indonesian occurred when economic crisis in 1997-1998 and the period 2001-2004. Then increased in 2005 and decreased again in the next year ie 2006. However, a sharp increase that occurred a year later in 2007, while the following years the development of investment is still fluctuating. But on the other side of macroeconomic indicators in Indonesia after the economic crisis

shows the improving trend, the national economic growth has been above 5% since 2004, even in 2007 has reached 6,3%. Development investment credit rate in the country from year to year is also declining, as well as an inflation indicator shows more conducive condition (Anwar, 2011).

Currently, various investment problems being faced by the world are less conducive employment, investment and sectored policies overlap, both between regions and between the center and the regions which are mainly related to the implementation of regional autonomy, security condition are not conducive in some areas, the procedure is lengthy and convoluted bureaucracy, as well as inadequate infrastructure and other issues such as the rule of law (Budiman, 2005). This is the factors that inhibit the growth of investment in Indonesia, which in turn slows the multiplier effect of investment in influencing economic growth.

Because of public debt, investment and government expenditure has contributed to economic growth. So in this study the author will investigate the relationship between public debt, investment and government expenditure to economic growth. Then, based on the following explanation, author conduct the research entitled *"Public Debt and Economic Growth in Indonesia 1991-2011"*.

1.2 Research Question

Based on the above description, then there are problems that can be taken as the study of this research. This is done to further simplify and have a clear systematic in this thesis. In addition, the formulation of the problem is necessary as a way to take the final decision of the thesis. The main research questions related to this thesis are:

1. How was the public debt in Indonesia from 1991-2011?

2. What is the effect of public debt on economic growth in Indonesia from 1991-2011?

3. What is the effect of investment and government expenditure on economic growth in Indonesia from 1991-2011?

1.3 Research Objectives

Based on focus issues that have been desribe, this study aims to determine:

1. To know the condition of public debt in Indonesia from 1991-2011

2. To analyze the effect of public debt on economic growth in Indonesia

3. To analyze the effect of Investment and government expenditure on economic growth in Indonesia.

1.4 Research Advantage

The advantages of this research are:

1. To fulfill requirements of Bachelor of economics at Economic Faculty, Andalas University

2. For I and myself, to improve my ability in writing report and doing research, especially in Public Debt and Economic Growth.

3. For the reader is expected to add understanding regarding economic problem especially about the public debt and economic growth.

1.5 Limitation of Study

The limitations of the study are those characteristics of design or methodology that impacted or influenced the application or interpretation of the results of study. Based on the background and objectives that the author want to achieve from the research and to limit the discussion is not out of the topic discussed, in order to

obtain the solution of the problem solving in this study, the authors limit the scope

of discussion, focuses on Public Debt and Economic Growth in Indonesia. Some

discussion of the limitations such as;

1. The research conducted in the Indonesia

2. GDP based on constant price 2000 to illustrate the economic growth in
   indonesia

3. Public Debt in Indonesia, the total of government liabilities include
   domestic and external.

4. Investment, the total foreign direct investment and total domestic direct
   investment

5. Total government expenditure, illustrate in actual government expenditure

6. Discussion period is 21 years (1991-2011)

7. Another factor that affects the variable, are considered to constant, in other
   words, this variable was not included in the analysis.

1.6 Organization of Writing

In writing this research, it is grouped into six chapters, which are details as the

following:

Chapter I : *Introduction*

An introductory chapter provides background on issues

concerning the selection of research title, problem question,

research objectives, research advantages, and writing systematic.

Chapter II : *Theoretical Framework and Reviews of Previous Reseach*

The literature review chapter describes basic theory, concepts

related with Economic Growth in Indonesia, Public Debt,

Investment and Government Expenditure in Indonesia. The theories obtained will be the basis for discussion and writing to make conclusions about the title that the author chosen.

Chapter III : *Methodology and Research*

This chapter is describing the research methods and operational definitions of research variables, types and sources of data, data collection methods and data analysis methods.

Chapter IV : *An Overview to Indonesian Economy*

This chapter analysis the an overview to Indonesian economy like Public Debt, Economic Growth, Investment, and Government Expenditure.

Chapter V : *Empirical Result and Analysis*

This chapter outlining the results and discussion of the research object description, data analysis, and discussion.

Chapter V1 : *Conclusions and Recommendations*

This is a closing chapter describes the conclusions of the analysis carried out and the implications that arise from the conclusion as an answer to the question of the problem.

CHAPTER II

THEORETICAL FRAMEWORK AND REVIEW OF PREVIOUS RESEARCH

2.1 Theoretical Framework

There are four variables used in which economic growth, public debt, investment and government expenditure. According to the theory, public debt, investment and government expenditure are giving impact on economic growth. In this chapter each variable will be explained specifically.

2.1.1 Economic Growth

Economic growth is defined as an explanation of the factors that determine the increase in output per capita in the long run, and the explanation of the interaction of these factors with each other resulting in the growth process (Boediono, 1999 in Sihombing, 2010).

Briefly economic growth is a process of rising per capita output in the long run. This understanding emphasizes three things: process, output per capita and long term. Describe the process of economic development from time to time a more dynamic, linking aspects of output per capita total output (GDP) and aspects of population, while the long term trend changes in the economy indicates a period of time that the economy is driven by internal processes (self generation). Economic growth also be interpreted simply as an increase in total output (GDP) in the long run regardless of whether the increase was smaller or larger than the

population growth rate or whether it was followed by growth structure of the economy or not.

According Sukirno (2004), growth and economic development has a different definition, namely economic growth is the increase in output per capita is constant in the long run. Economic growth is one indicator of the success of development. Thus the increase of economic growth is usually the higher the welfare of the community, although there are other indicators of income distribution. While economic development is an attempt to increase per capita income by way of processing the potential economic power into the real economy through capital investment, the use of technology, the addition of knowledge, skills enhancement, the addition of organizational and management capabilities.

Then the economic growth of a country can also be seen from the rate of economic growth gross domestic product (GDP). To calculate the rate of economic growth can use the formula:

The rate of economic growth: $\dfrac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \times 100\%$

Then the national income accounts divide GDP into four broad categories of spending:

Consumption (C)

Investment (I)

Government purchases (G)

Net exports (NX)

Thus, letting Y stand for GDP:

$$Y = C + I + G + NX$$

GDP is the sum of consumption, investment, government purchases, and net exports. (Mankiw, 2003)

Economic growth requires the provision and allocation of factors of production efficiently. Capital as one production factor for national development finance basically comes from two sources, namely sources of domestic capital and foreign capital sources. Sources of domestic capital in the form of savings created and compiled in a way to save current consumption or increase acceptance from both the public and private sectors. While the sources of capital from abroad in the form of grants, external debt and investment (Anwar, 2011).

To get understanding about economic growth, the theoretical reviews are needed in this study. There are 3 theories of economic growth i used, which are :

1. *Classical economic theory*

Most of classical economist concerned with macro issue of growth, and the distribution income between wage and profit. The classical economic include those of adam smith, thomas maltus, david ricardo, jhon stuart mill, and karl marx.

The person who first systematically discusses the economic growth is Adam Smith (1723 -1790) who discusses economic issues in his book *An Inquiry Into the Nature and Causes of the Wealth of Nations*. Smith assumes that economic growth actually relies on the existence of population. With the increasing population there will be increase output or outcome. The core teachings of the smith is an area that people are given freedom - in determining the extent of economic activity what he felt the best thing to do.

The prevailing classical view after smith provide more caution about the process of economic development and growth.it starts from thomas maltus who claim that there would be imbalance betweeen food supply and population, because polpulation grows much faster than thet of food availability. Which result in living standard oscillating around a subsistence level.

The importance of investment is emphasized by david ricardo in order to increase percapita income. However david ricardo identifies the diminishing return process is due to the scarcity of natural resources. And argued that the growth factor to the greater population to double pad a time will cause the amount of labor is abundant. Excess wages of labor would result in a fall. Wages can only be used to finance the minimum living standard so that the economy will experience stagnation2 (stationary state). David Ricardo's theory outlined in his book *The Principles of Political and Taxation.*

Pursuing ricardo, karl marx sees the importance of investment in machinery and capital accumulation to generate per capita income. It's different with jhon stuart mill, who beliave the importance of education and science as the engine of growht.

2. *Harrod- Dommar Theory*

Harrod-Domar theory emphasizes the importance of the role of capital accumulation in the growth process. Where each economy can set aside a certain proportion of national income if only to replace capital goods are faulty. However, to grow the economy, the required new investments in addition to capital stock. Harrod-Domar emphasize that the accumulation of capital, it has a dual role,

namely to grow revenue and on the other hand can also increase production capacity by increasing the capital stock.

In simple Harrod-Domar theory is for example at a time to create a balance in the level of full employment income, in order to maintain a balance from year to year needs some expenditure. Because of the investment must be sufficient to meet the resulting increase in output. Therefore, the investment must always be a balance that is not disturbed, because if not per capita income will decline because of population increases (Sihombing, 2010).

3. *Solow – Swan Theory*

The theory developed by Robert Solow (1956) and Trevor Swan (1956), known as the classical theory. According this theory the increase in output of goods and services in the gross domestic product can occur through increase provisison of factor production (capital, labor, and productivity). This view based classical analysis that the economy will continue to have full employment and capacity of capital equipment will remain fully in use all the time.

Further according to this theory, the capital output ratio (COR) maybe change and dynamic nature. To create a given amount of outputs can be used different capital with the help of workers whose different number. If more capital in used so little labor is needed on the country if the capital used less then more labor in used. With this flexibility on an economy have unlimited freedom in determining the combination of capital and labor that will be used to produce a given output.

Solow growth theory used production approach developed by charles cobb and paul douglas, known as cobb-douglas production function. These funtions are written with the following equation

$$Y=A_tF(K_t,L_t)$$

Where: Y= output

L_t= labor

K_t= capital stock

A_t= factor of productivity

T= time

This equation state that output in production will depend on amount of factor input in the form of capital, labor and factor productivity of existing techology so that the output of goods and services in the mirror with GDP can occur trough increase supply of labor, capital increase and the increase in productivity over time (Amrini,2009).

2.1.2 Public Debt

Sources of government revenue are the most important of taxes, borrowing, and printing money. In addition there are other revenue sources that play an important role in the public debt. public debt are sources of additional funding from the government, both domestically and from abroad in the form of state loans. This funding source is used to cover the budget deficit that can be created by government (Suparmoko, 1992).

By source of acquisition, the country's debt can be divided into two, namely:

1. Domestic debt

Domestic debt is a loan that comes from people or institutions as a resident of the state itself or within the country itself. Domestic debt may be forced or voluntary.

2. Foreign debt

Foreign debt is a loan that comes from the people and institutions of other countries. Foreign debt usually voluntary, except when there is a power of a country over other countries

Institutions are a source of debt or borrowing countries can be grouped into four, namely:

a. Individual In Society

Individual lending by buying government bonds. This can affect patterns of consumption and savings patterns of the individual concerned.

b. Non-Bank Financial Institutions

Government may also sell state bonds to insurance companies and so on are not a bank. Bond purchases by the company of this type carried out using funds owned unemployed.

c. Commercial Banks

With the purchase of government bonds, banks generally have an additional 20% reserve requirement. This condition enables commercial

banks to create demand deposits fivefold and did not reduce national income.

d. Central Bank

Government can sell bonds to the Central Bank. This action also creates more power as well as when the government sells bonds to commercial banks.

Public debt is the factor affecting economic growth, there are some empirical theory found by economist, which are:

1. *Neoclassical theory*

Rossen (2002) suggests that intergenerational models discussed so far do not indicate the fact that economic decisions may be influenced by government lending policies, and changes in these decisions have consequences for those who bear the burden loan. However, it was thought that the taxes imposed to pay the debt does not affect the work behavior or savings.

The neoclassical model of lending emphasize that when the government started a project, whether funded by taxes or borrowing, natural source of power transferred from the private sector. Someone usually assume that when tax funding is used, most of the sources are moving in on consumption expenditure. On the other hand, when the government borrows, he competed for these funds to individuals and companies who want money for projects of their personal investments. Therefore, in general, there is an assumption that the lender has the greatest effect on private investment. In terms of where these assumptions are

true, funding loans leaving future generations with a smaller capital stock, ceteris paribus (Rossen, 2002).

Thus the members of this generation are less productive and tend to have less real income than those existing today. hence, the loan gives a burden for future generations through its impact on capital formation. The assumption that government borrowing reduces private investment plays an important role in the neoclassical analysis. When the government increases the demand for credit, interest rate, which is the price of credit, increased. But if interest rates rise, private investment becomes more expensive and the subsequent effect will cause a decrease in the level of investment

2. *Ricardian theory*

When the government borrows, the members of the generation of 'old' to realize, that the offspring will be worse. Further assumption that the older generation will care about the welfare of their descendants and therefore do not want the level of consumption of the offspring will be reduced in the future. Barro provocative hypothesis about the irrelevance of the government fiscal policy has been the subject of much debate. Some rejected the idea based on the assumptions of this extraordinary. Information on the implications of the current budget deficit to be the tax burdens in the future is not easy to obtain. Because in reality, it is not even clear how much easier and the actual loan. Another fairly basic criticism is that people are not farsighted and will perform as expected in anticipation of this model.

On the other hand, it can be said that the ultimate test of this theory is not the logic of its assumptions, but whether this leads to predictions that are determined

by the data or not. By who tend to be skeptical of the view that in the early 1980's, there was a considerable increase in the budget deficit. If Ricardian models are correct, then it can be expected to increase personal or private savings commensurately. At the same time as well, increasing the federal budget deficit, however, saving / saving private / personal (relative to average national product) will fall anyway (Rossen, 2002).

3. *Keynesian theory*

The third group is the keynesian, who are argue that budget deficit affect the economy. Keynesian group assumes that economic agents have a short term view, relationships between generations are not tight, and all market in equilibrium position. One of the imbalance occured in the labor market, and unemployment in the economy is always happening. According to the keynesian, the budget deficit will increase income and consumption in the next period. The budget deficit will financed by debt, which mean that the tax burden on the present relative lower, will lead to an increase in disposable income.

According to the keynesian, the budget deficit will increase income and consumption in the next period. The budget deficit will financed by debt, which mean that the tax burden on the present relative lower, will lead to an increase in disposable income. Increasing disposable income will increase consumption and sides to the demand as a whole. If the economy is not full opportunity, increasing the demand will push production and subsequent increase in national income. In the next periods, the increase in national income will stimulate the economy through the keynesian multiplier effect. Due to increasing budget deficit and level income and consumption, the level of savings and capital accumulation also

increased. According to keynesian overall budget deficit in the short run will benefit the economy.

Source of financing national development can come from the country and abroad. Besides relying on financing from the domestic, indonesia also rely on development financing comes from abroad. This occurs because the inability of the domestic financing source, namely domestic saving in financing for development completely (Pramuji,2008).

4. *Classification of public debt*

Acoording to development of public debt, Public debt consists of loan and government bonds.

a. Loan consists of domestic loan and foreign loan

a. Foreign loan : World Bank, Asian Development Bank, Islamic Development Bank and creditor bilateral (Japan, Germany, France etc.), as well as export credit.

Loan Program: For budget support and disbursements associated with the fulfillment of Policy Matrix in the field of activity to achieve the MDGs (poverty alleviation, education, eradication of corruption), community development, policy related to climate change and infrastructure.

Loans project: For financing infrastructure projects in various sectors (transport, energy, etc.); projects in the framework of poverty alleviation (PNPM). Domestic Loans

✓ Government Regulation (PP) No: 54 Year 2008 on Procedures for the Procurement and Forwarding Domestic Loans by the Government;

✓ Derived from State-Owned Enterprises (SOEs), the Local Government, and Company region;

5. *Function and debt management objective*

Functions of public debt

1. Cover the budget deficit

2. Cover cash shortfalls over the short-term cash needs in the implementation of expenditure that can not be postponed.

3. Portfolio management solutions in public debt that is certainly intended to reduce the burden of debt to finance spending in the state budget in the years following.

Debt management objectives

a. Long-term goals

1. Securing the state budget through debt financing needs with minimal cost at a controlled

level of risk, so that fiscal sustainability can be maintained

2. Supporting efforts to create a market of state securities (SBN) is an active and liquid

b. Short-term goals

Make sure the funds to cover the deficit and debt principal repayment obligations appropriately and efficiently

6. *Relationship between public debt and economic growth*

Sources of financing national development can come from the country and abroad. Besides relying on financing from the domestic, Indonesia also rely on

development financing comes from abroad. This occurs because of the inability of the domestic financing sources, namely domestic savings in financing for development completely. Domestic savings needed to finance investment. The amount of savings that is not balanced with planned investment activity (investment saving gap) leads to the implementation of investment activities do not go according to plan. The gap between savings and investment can then be closed by the inflow of funds from abroad. One alternative financing is through foreign debt. In addition, external debt also plays a role in the import-export gap tackle that debt provides needed additional income countries due to export proceeds are not sufficient to raise capital for national development.

With the public debt as an alternative to development financing, it is expected to increase the number of domestic savings and be able to spur investment, which in turn can increase economic growth. But in many empirical studies also show the relationship between public debt and economic growth generally negatively correlated, although there are a number of studies that reject it. Cause public debt is still part of the investment that is also a positive impact on economic growth. Meanwhile, the basic purpose of the public debt is not the substance, but the issue of the allocation and utilization is proportional or not.

2.1.3 Investment

Investment is the company's expenditure to purchase capital goods and production tools they need to add the ability to produce goods and services available in economics. Investment or capital formation is a second component that determine the level of agregate expenditure (Sukirno,2004).

The growth of foreign direct investment that is a direct investment funds used to carry out business activities or procurement of equipment or production facilities such as buying land, open factories, bringing the machines, purchase of raw materials and so on, (to distinguish investment portfolio) went so fast especially the period before the economic crisis. In fact, foreign investment funds will always be drawn to countries or areas that promise the level of financial results and a high level of certainty.

Basically, investment (capital investment) directly is much more complex than just a capital transfer or establishment of a factory building in the territory of a foreign company developing countries. Giant companies are also carrying techniques or more advanced production technology, tastes and lifestyles, managerial services, as well as a variety of business practices, including the implementation of cooperation agreements and arrangements, and so on (Anwar, 2011).

1. *Classical theory*

According to the classical theory, investment spending is intended to impove sosiety's ability to increase production. So investment is expenditure that will increase the amount of equipment production in society. The classical also consider capital accumulation as a necessary condition foe economic development. So indirectly can be said that by doing investment can increase income. Investment is expenditure by private sector for the purchase of goods and services used to add stock or for plan expansion (Boediono,1992). Dornbusch and

Fischer argue that investment is demand for goods and services to create or increase the production capacity or income in the future.

According to Sukirno (2000) allow a investment activities continue to increase economic activity and employment, increase national income and improve the prosperity of society. This role comes from three important functions of investment activities, namely (1) the investment is one component of aggregate expenditure, so that the increase in investment will increase aggregate demand, national income and employment opportunities, (2) increase of capital goods as a result of the investment will increase the capacity production, (3) the investment is always followed by the development of technology.

From the description above shows that investment is an important macroeconomic variable, because with the investment, the production can be done technically, in addition to the quality of goods and services can be improved. Thus investment can accelerate the rate of economic growth of a country / region.

In terms of implementation of the investment, can be done by:

1. Government (Public Investment), which generally do not with intent to profit but its main purpose is to meet the needs of society, such as roads, irrigation, ports, and so on, which is often referred to as economic overhead capital (EOC) as well as the need for home hospitals, schools, and others. The advantage of this new investment was occur when increase demand in the community. Increasing effective demand will also increase revenue will benefit the public investment. Public investment is also

referred to as autonomous investment, namely investment not cause of the increase in revenue.

2. Private Investment, is the type of investments made by private and intended for profit and because of the increase was driven by income. When income increases, consumption also increases and so does the demand effectively. Increasing investment demand generated source lies in the addition of so-called investment income is affected or induced investment.

2. *Keynesian theory*

According to Keynesians, the investment made by employers are not completely determined by the interest rate. Although interest rates have continued to recognize a crucial role in determine the investment, but the other factors such as the ongoing economic situation, the future economic development and technological progress, can not be ignored.

Investment is often modeled as a function of Income and Interest rates, given by the relation $I = f(Y, r)$. An increase in income encourages higher investment, whereas a higher interest rate may discourage investment as it becomes more costly to borrow money. Even if a firm chooses to use its own funds in an investment, the interest rate represents an opportunity cost of investing those funds rather than lending out that amount of money for interest.

3. *Neo Classical Theory*

According to this theory the amount of capital that will be invested in the production process is determined by the marginal productivity compared to the cost level. An investment will be made if the investment income greater than the interest rate. So there are 3 elements to be considered in determining the investment are: 1. Level cost of capital goods. 2. Interest rate. 3. The high revenue to be received. According Jhingan (1994) investment or capital formation "people do not use the entire current production activities to the needs and desires of consumption, but use part of it for capital formation, utensils and tools, machinery, and public transport facilities and equipment, all kinds of capital tangible benefits can quickly increase production efforts ". Meanwhile, according to Mankiw (2000) that the investment can be divided into, business fixed investment, residential investment (residential investment), and inventory investment. Investments can also be classified by the institution conducting investment and capital flows is based on the source of Foreign Direct Investment and Domestic Investment.

4. *Factor Affecting investment*

❖ Interest Rate

The interest rate is important in determining the level of investment that occurs within a State. If the interest rate is low, the level of investment that happens to be high due to the credit of the bank is still profitable to hold investments. Conversely a high interest rate, then the investment is bank credit is not strong

In the literature there is a term that can be used to look at the interest rate of the investment are:

1. Marginal efficiency of investment (MEI), a portrait of the relationship between the interest rate the investment which is in fact made by the employer within a certain period.

2. Marginal efficiency of capital (MEC), which describes the relationship between interest rates of investments should be made for those businesses, rate of return (rate of return) is greater than the interest rate applicable.

Keynes said that investment both in terms of determining the amount and the opportunity to hold the investment itself, based on the concept of marginal efficiency of capital (MEC). MEC is an expected profit rate of investment made (Return on investment).

❖ Increased Economic Activity

Expectations of an increase in the economy in the future to come, is one of the deciding factors to hold the investment or not. If no estimate of the expected increase in the economy in the future, although the interest rate is greater than the level of MEC (as a determinant of investment), investment will probably still be done by investors instincts sharp saw the opportunity to earn greater profits in the future.

❖ Technological Progress

Which determines the amount of investment that will be made by entrepreneurs is the activity of entrepreneurs to use inventions new technologies

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in the production process. Activities of entrepreneurs to use developed in the production or management of the so-called hold renewal or innovation.

❖ Level of benefits to be derived

Predictions about future profits will provide an overview on employers to invest now or in the future.

5. *Relationship between investment and economic growth*

Economic growth has yet to reap the same point of view. That is because each of the experts give a definition based on the condition that occurs when the master of life. But here are some expert give a definition of economic growth at this time. That economic growth is as a process of increase in output per capita in the long term (Boediono, 1985).

If a country is able to provide a growing number of economic goods to its population grow it in accordance with the technological capabilities and institutional adjustments necessary ideology role in order to increase economic growth as a long-term (Kuznets in Jinghan, 1994).

Economic growth as a process of increasing the production of goods and services in economic activities (Djoyohadikusumo in Inna, 2000). Meanwhile, according to (Kunarjo in Hasanuddin, 2003) that the investment required to achieve adequate growth while achieving the desired growth required a more systematic development mechanism is the movement forward of a dimensionless system on production, income, level of living, institutional and wisdom. So the

connotation of dynamic economic growth or development that changes from time to time which means inside a process, time and people as economic actors.

3.1.4   Government Expenditure

There are three main post on the expenditure side namely, (Boediono, 1999), expenditures for the government to purchase goods and services, government spending for salary employees, government spending for transfer payments. Payment is government transfer payments to individuals who are not government used to produce goods and services in return (Samuelson and Nordhaus, 1994). Government spending in the form of subsidies or direct aid payments to the various segments of society.

Governments can influence the balance of income levels according to two separate ways. First, government purchases of goods and services (G) which is a component of aggregate demand. Second, taxes and transfers affect the relationship between output and income (Y) and a Regional Transfer to funds from the State Budget allocated to the regions in the framework of the implementation of decentralization and the Balanced Fund and the Special Autonomy Fund.

Adjustment disposable income, net income that is ready for consumption and savings, obtained by the private sector. (Dornbusch and Fischer, 1999) Changes in government spending and taxes will affect the level of income. This raises the possibility that fiscal policy can be used to stabilize the economy. If the economy is in recession, taxes should be reduced or increased spending to raise output. If in

this time of prosperity boom, tax should be raised or reduced government spending in order to return to the use of full employment.

1. Rostow and Musgrave theory

They connect with the government spending stage of economic development. In the early stages of economic development, according them, the ratio of government expenditure to national income is relatively large. This is because at this early stage the government should provide various facilities and infrastructure. In the middle stages of economic development, public investment is still required in order to spur growth in order to take off. Along with the position of private investment has also increased. But the magnitude of the role of government is because at this stage of market failure that caused a lot of economic development itself, namely the case of negative externalities, such as environmental pollution.

According to Musgrave in a development process, the ratio of total investment to national income grew, but the ratio of government investment to national income will be increasingly smaller. Meanwhile, Rostow argued that in the advanced stage of development occurs transitional government activity, from the provision of economic infrastructure to expenditures on social services like health and education.

2. Wager theory

Wagner make the observation of European countries, the United States and Japan in the 19th century which show that activity in the economy tend to

increase. Wagner measure of the ratio of government expenditure to national product.

According to Wagner, there are five things that cause government spending is always increasing demands increased security protection and defense. The increase of income levels, urbanization that accompanies economic growth, democratic development and the inefficiency of government bureaucracy that accompanies development.

3. *Keynesian Theory*

In the general theory keynes proposed that an economic's total income was in short run, determined largely by the desire to spend by households, firms and government. The more people want to spend, the more goods and services firm can sell. The more firm can sell, the more output they will choose to produce and the more worked they will choose to hire.

The keynesian cross and the theory of liquidity preference explain that when the government increase its purchases of goods and services, the economy's planned expenditure rises. The increase in planned expenditure stimulate the production of goods and services, which causes total income Y to rise (Mankiw,2003).

3.1.5 Relationship Among Budget Deficits, Public Debt, Investment and Economic Growth

From the macroeconomic theory, the government expenditure should have positive relationship with the level of economic growth. This theory is then supported by Freeman and Wabber (2009), in which found that the productive

type of expenditure such as education, health. Those expenditure give direct impact to the improvement of well being and basic walfare of the citizen. It then contributes significantly to an increase in labor productivity. As a result the higher level of economic growth can be achived (Hayati,2012).

With increase of government expenditure become high budget deficit, because in indonesia government expenditure higher than government revenue. High budget will definitely reduce the level of economic growth due to the crowd-out effect in loanable fund market. With the higher budget deficit government need debt to cover public deficit.

Based on the public debt perspective, high public debt may result to a financial crisis. If a country experiancing a trend of an increasing public debt, the investors may be worried about the capabilities of that country to pay its debt to creditor (Hayati,2012).

Figure 2.1

Theoretical Framework
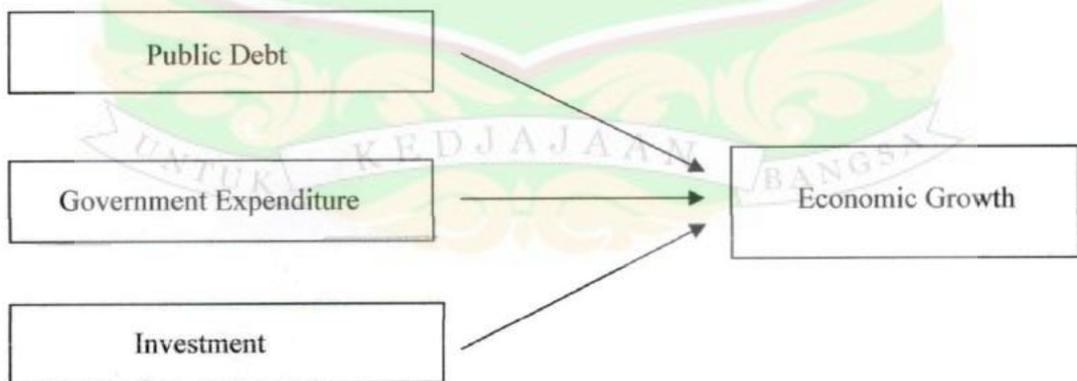
2.2 Review of Previous Reseach

Kragol(1999) who studied *"External Debt and Economic Growth Relationship Using the Simultaneous Equations",* he explain the interaction among economic growth, external debt service and capital inflow using time series data for Turkey and using a multi-equation model.The results show that the relationship between debt service and economic growth should be analysed with a simultaneous equation model, because there is a two-way relationship between debt service and growth. This study shows that loan payments associated with total loans a year earlier and exports and capital inflows influenced by economic growth, also demonstrated a direct influence loan payments to economy is negative.

Cholifihani (2008) on the *"A cointegration Analysis of Public Debt Service and GDP in Indonesia".* The analysis was conducted through stationarity tests, cointegration and ECM to see the balance period length between the observation variables. The study shows that GDP, debt service, capital stock, labor force and human capital have a relationship long-term equilibrium. the ratio between exports, debt service shows significant negative relationship with GDP in the long run.

And malik (2010) also the same with Cholifihani (2008), the study about *External Debt and Economic Growth: Empirical Evidence from Pakistan.* To analyze he used ordinary least square method and the result is external debt considered a significant source of income in developing country. There have negative relationship with economic growth Debt servicing has also significant

and negative impact on GDP growth. As the debt servicing tends to increase, there will be less opportunities for economic growth.

Fosu (1996) examine *"the relationship between economic growth and external debt for the sample of sub-Saharan African countries for the period 1970-1986"*. By using ordinary least square the result is there are a negative relationship between debt and economic growth. The study also shows that a rather weak negative impact of debt on investment levels.

Meena (2008), try to analize *"domestic debt and it's impact on the economy :the case of kenya"*, and the periode during 1996-2007. Using a modified Barro growth regression incorporating a domestic debt variable, the results indicated that domestic debt expansion had a positive but insignificant effect on economic growth during the period.

Accourding to Rais and Tanzeela Anwar (2011) they studied *"Public Debt and Economic Growth in Pakistan: a time series analysis from 1997 to 2010"*, and the method that used is Ordinary Least Square, analyze say the have negative relationship between public debt and economic growth. Investment and government expenditure have positive impact on economic growth.

And different with Rais and Tanzeela Anwar, Barik Anirudha he studied about *"Government Debt and Economic Growth in India"*, he find there are positive relationship between government debt and economic growth. Hence debts have positive effects in developing economies because they are used for investment. And government expenditure have positive effects to increase economic growth.

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Saleh (2008) study on *"factors affecting the Indonesian Government's foreign debt and their impact on the State Revenues and Expenditures Budget (APBN) based on annual data from 1970 to 2008"*. The researceh employs the Error Correction Model (ECM) approach by applying the Ordinary Least Square (OLS) method. And the result is The research results indicate that within a long-term period, there was a balance between changes in the Indonesian Government's foreign debts and macro-economic variables, i.e. budget deficit, exchange rate, export, GNP level, and dummy variables for the 1997 economic crisis, despite the fact that the budget deficit variable did not significantly affect the Indonesian Government's foreign debts within the observed period.

Syaparuddin and heri hermawan (2005) examine *"governement external debt: demand side study and its influance toward gross domestic product of indonesia during period 1980-2002"*. Reseach using simultaneous equation model with double log model using 2SLS method. And the result concluded that deficit government budget, deficit on investment, deficit current transaction and gross domestic product had significant effect of government external debt demand.

Safdari and Mehrizi (2011) studied *external debt and economic growth in iran period 1974-2007*. The reseach using vector autoregresion model (VAR). And the result of this reseach showed that the external debt had a negative effect on gross domestic product and private invesment, also public investment positive relation with private investment.

In a recent study by Qureshi (2010) on *public debt burden and economic growth evidance from pakistan*. By using OLS method, the sample study is 1981-2008, the result is negative impact of public debt on the economy of pakistan. And

the same with Qureshi, Cunningham (1993) investigate the relationship debt burden and economic growth for sixteen countries for the period of 1971- 2007. The study shows that growth of a country's debt burden has a negative effect on the economic growth. He also argued that when a country is significantly to foreigners this adversely affect both labor and capital productivity.

Panitza and Andrea F Presbitero (2012) the studied about *public debt and economic growth: is there a causal effect?*. By using OLS method, and the result of the reseached is public debt as causal effect on economic growth in a sample of OECD country found a negative correlation between public debt and economic growth. And Egert (2012) on *public debt and economic growth and non linear effect : myth or reality?*. By using data panel method he finded strongly negative nonlinear effect of public debt on economic growth.

Ballaseno (2011) studied *public debt and economic growth in italia,* by using VECM method he finded the public debt negative retationship and economic growth, and The effect of public debt on growth appears to work mainly through reduced investment.

Jayaraman (2006) study on *Public Debt And Economic Growth In The South Pacific Islands: A Case Study Of Fiji.* By using VAR method he finded that economic growth had a long-run relationship with public debt, real interest rate and ratio of government recurrent expenditures to total expenditure. Second, vector error correction modeling procedure established that in the long run term causality was only unidirectional and that it was from debt, interest rate and ratio of government recurrent expenditures to total expenditures, to GDP. In the short run, the causality ran from debt to GDP. The other two variables, interest rate and

ratio of government recurrent expenditure to its total expenditure in the short run had no effect on real GDP. Thus, we have the result that debt influenced economic growth, both in the long and short runs.

Heinemann (2002), he studied about *Factor Mobility, Government Debt and the Decline in Public Investment.* By using VAR method he find a high debt level is associated with a low level of public investment. Although investment might be a useful instrument to attract mobile factors (demand effect), its financing burden deters mobile factors (supply effect). According to these results, the supply effect dominates the demand effect.

2.3 Hypothesis

Hypothesis is the temporary answer for the question of this study that needs more collected data. So, based on the study, the hypotheses are:

1. It is assumed that public debt has negative relationship with economic growth.

2. It is assumed that investment has positive relationship with economic growth.

3. It is assumed that government expenditure has positive relationship with economic growth.

CHAPTER III

RESEARCH METHODS

3.1 Types and Data Sources

This research used quantitative data and secondary data use time series for 21 years from 1991 to 2011 based on estimation. Secondary data was chosen because those data are internationally and available in several online sources. Data consist of two types. There are primary data and secondary data. This research work with comprehensive data set or what we called secondary data that includes the information about all variable that used for the methodology. The data that author collect for this research is Gross Domestic Product, Public Debt, Investment, and Government Expenditure, obtained from:

1. Central Bureau Statistics of Indonesia (various edition)

2. Directorate General of Debt Management and Ministry of Finance Republic Indonesia (various edition)

3. Books, Thesis, Economic Jurnal and Internet (various source).

3.2 Variables

3.2.1 Dependent Variable: Gross Domestic Product (GDP) by Constant Price 2000

Gross Domestic Product (GDP) is the sum of value added goods and services produced of all economic activity in Indonesia. For calculating GDP there are two kinds of data namely: current prices and constant prices. GDP based on current prices is a value-added goods and services these data are calculated using the

prevailing price in the relevant year, while GDP at constant prices is calculated using the prices in a given year as the base year and now use year of 2000. This data is in Trilliun Rupiah.

3.2.2 Independent Variable

1. Public Debt

The variable of public debt as proxy the outstanding public debt include domestic and external debt but not include private debt in trillion rupiah.

2. Investment

The variable of investment include the foreign direct investment and domestic direct investment in trillion rupiah.

3. Government Expenditure

The variable government expenditure as the other variable which influance the economic growth. To size government expenditure in this reseach the writter used total routine expenditure and development expenditure in trillion rupiah.

3.3 Analyzing Method and Methodology

3.3.1 Analyzing Method

To analyze the Gross Domestic Product (GDP) as dependent variable and Public Debt, Investmeny and Government Expenditure in Indonesia as independent variable in this research a regression analysis using Ordinary Least Square (OLS). In the process of testing model the equations in this research used E-views 6.

3.3.2 Analysis of the model

There are basically four variables that will be used for regression. These variables include Gross Domestic Product in Indonesia, Public debt, Investment and Government Expenditure. Which adopt the model from Barik (2011) this model attempts to analyze "Public Debt and economic Growth In India", where Gross Domestic Product as dependent variable, and Public debt, Investment, Government Expenditure and Human Capital as independent variable. Based on above model in this study author use the following model:

$$Y = \beta_0 + \beta_1 D + \beta_2 I + \beta_3 G + e \dots\dots\dots\dots\dots\dots(3.1)$$

Where:

Y = Gross Domestic Product in Indonesia at Constant Price 2000

(Trillion Rp)

D = Public Debt (Trillion Rp)

I = Investment (Trillion Rp)

G = Government Expenditure (Trillion Rp)

β_1, β_2, β_3 = **Regression Coefficient**

e = residual value

3.4 Hypothesis Testing

To investigate whether the model applied is good or not, there are several criteria for statistical testing namely: t-test, F-test and the coefficient of determination or R-Sq.

3.4.1 t- test

According to Nachrowi and Usman (2002), t test is a test to find out whether or not a significant regression coefficient. t test used to see whether the explanatory variables individually significant effect or no effect on the dependent variable.

Based on the data, value of β will be tested, if $\beta = 0$. It means that coefficient of independent does not have significant effect with dependent variable. If $\beta \neq 0$, it means that coefficient of independent variable has significant effect with dependent variable. The formula to calculate t value is:

$$\{t_{test}\} \frac{\beta j}{SE(\beta j)} \dots\dots\dots(3.2)$$

If t-test > t-table, means that H_0 rejected, it means that $\beta \neq 0$ or β is statistically significant. So, this hypothesis test is to test the significance effect of independence variables to dependence variable.

3.4.2 F test

F test used to see whether the explanatory variables together (simultaneously) gave a significant effect or no effect on the dependent variable. The first step that we have to do is create the hypothesis (Nachrowi and Usman, 2002).

The formula to find F value is:

$$F = \frac{R^2/k-1}{(1-R^2)/(n-k)} \dots\dots\dots (3.3)$$

Where:

R^2 = determination coefficient

k   = parameters

n   = total sample

If F-test > F-table, Ho is rejected and we accept Ha. It means that all of independent variables together significantly affect dependent variable.

3.4.3   The Coefficient of Determination

According to Nachrowi and Usman (2002), to measure the adequacy of regression models, can be seen from the coefficient of determination (R-Sq). The value of determination coefficient is a measure that shows the large contribution of the explanatory variables against response variables. The greater the coefficient of determination, then the model better. R^2 is used to measure how well the regression fits the data. The higher the R squared (closed to 1), the more probable the data can be explained by the model. The R squared is usually converted into percentage in order to make the analysis easier.

The coefficient of determination (R_2) is used to see or know the contribution of independent variables in explaining the dependent variable. According to Gujarati (1999) test can be searched by using the formula:

$$R^2 = 1 - \frac{\sum ui^2}{\sum yi^2} \quad\text{...(3.4)}$$

Where:

R^2 = coefficient of determination

ui^2 = confounding variables

yi^2 = Total sum of squares

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The coefficient of determination (R^2) value lies between 0 and 1 ($0 < R^2 < 1$). If the value of $R^2 = 1$ means the percentage of the dependent variable that can be explained by the independent variable X_1, X_2, X_3, and X_4, is 100%. If $R^2 = 0$ means that the dependent variable is explained by the independent variable is 0%.

3.5 Classical Assumptions

3.5.1 Multikolinearitas

Ragner Frish created double multikolinearity. It means there is a perfect linear relationship among independent variables in regression model. There is some reasons why multikolinearity happens in regression. Those are:

a. Error theory in regression function formation

b. Total observations that will be analyzing in regression model are too small.

There are several methods to investigate the multikolinearity:

a. Using Variance Inflation Factor (VIF), if the value of VIF < 10, so there is no problem with multikolinearity.

b. Compare the value of individual coefficient determination (r^2) with (R^2)

c. Through eigen value and condition index.

According to Gujarati (2004) Multicollinearity is an existence of a perfect (nearly exact) linear relationship between independent variables in the model. There are methods to detect multicollinearity:

> ➢ Multicollinearity happens when there is high R squared and significant F statistic in the regression, but some t statistic appears to be statistically not significant.

> If correlation between variables exceeds 0.96, multicollinearity appears in regression.

3.5.2 Autocorrelation

The term autocorrelation is defined as correlation between residual of one observation ordered in time (as in time series data) or space (in cross sectional data). This problem arises because the disturbance term is not freely to move from one observation to another. If there is autocorrelation in the model, it will raise the value of residual and the impact is the number of t test, F test and R^2 will decline (Aliman, 2002). Method to measure the existence of autocorrelation are :

1. Durbin – Watson
2. Breusch – Godfrey

> **Durbin Watson test**.

The most celebrated test for detecting serial correlation is developed by statisticians Durbin-Watson d statistic:

1) If $0 < dw < dL$ Reject null hypothesis

                          Positive autocorrelation

2) If $dL < dw < du$ No decision

                          No positive autocorrelation

3) If $4- dL < dw < 4$ Reject null hypothesis

                          Negative correlation

4) If $4-du < dw < 4-dL$ No decision

                          No negative autocorrelation

5) If $du < dw < 4-du$ Do not reject null hypothesis

                          No autocorrelation, positive or negative

No autocorrelation, positive or negative

Figure 3.1

Durbin Watson Decision
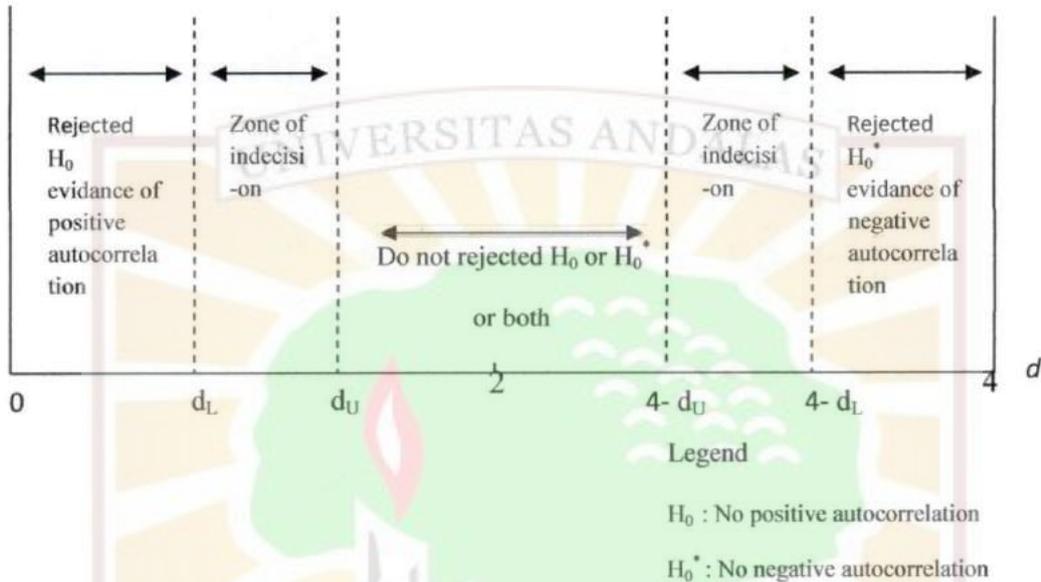
DW test is relatively easy, but there are some weaknesses that must be known. The disadvantage is:

- Test DW independent valid only when the variables are random (stochastic).

- Test DW cannot be used in moving average models (moving average)

To overcome the drawbacks mentioned above, can be used Breusch-Godfrey test (BG)

> **Breusch-Godfrey.**

In this way, we only see the value of R2 probability.

- If the value probability> $\alpha = 5\%$, meaning there is no autocorrelation.

- If the value probability $\leq \alpha = 5\%$, meaning there is autocorrelation.

3.5.3 Heteroscedastisity Test

Heteroscedasticity test used to determine whether there is any deviation heteroscedasticity classical assumption, namely the inequality of the residual variance for all observations in the regression model. A prerequisite that must be fulfilled in the regression model is the absence of symptoms of heteroscedasticity. There are several testing methods that can be used such as the Park Test, Test Glesjer, Seeing Patterns Regression Graphics, and Spearman Correlation Coefficient Test.
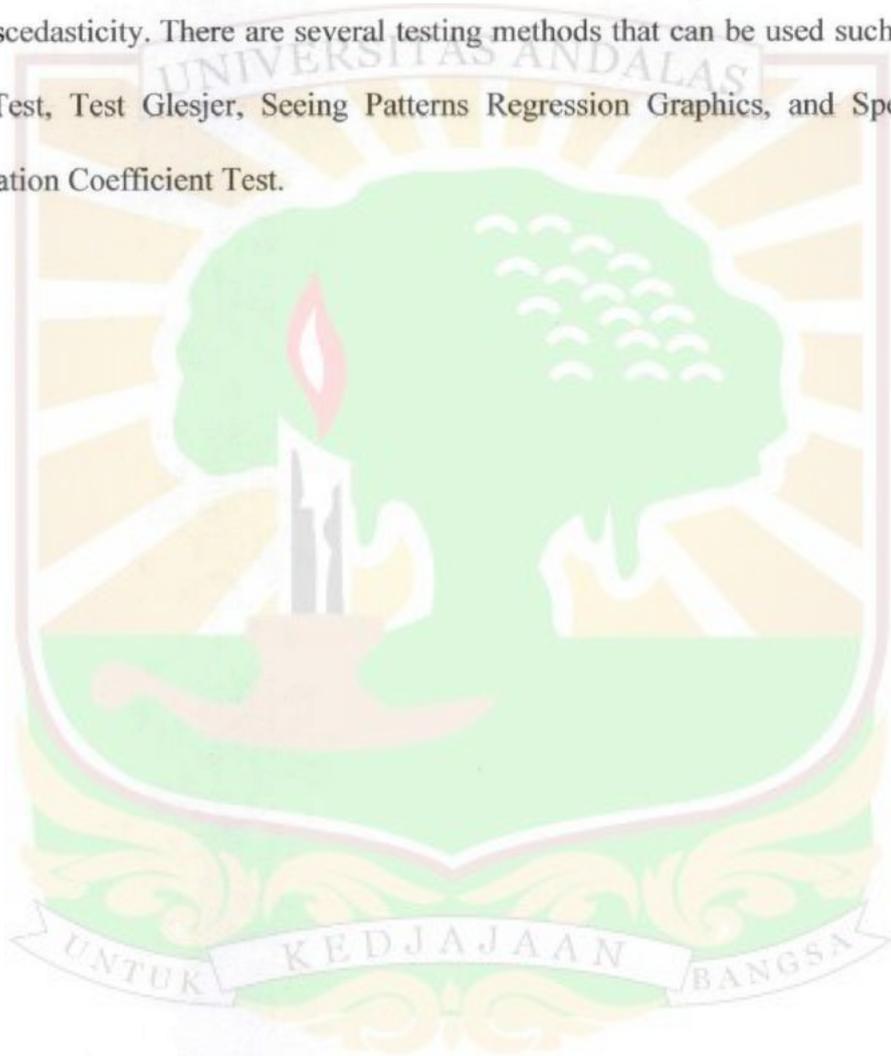
CHAPTER IV

AN OVERVIEW OF INDONESIAN ECONOMY

4.1 Economic Growth

Economic growth is one important indicator in measuring the success of economic development policies by a country. Economic growth has signifies one of development indicator in national economy. Such a development is actually a true reflection of economic growth level in year which as depicted through Gross Domestic Product based on constant price 2000 in accordance with continual business activity. If positive economic growth occur, this matter indicated the increase growth of economy compare to last year. Conversely, if the show negative, indicator a decline of economy compared to last year. The GDP growth in Indonesia since 1991-2011 based on constant price in 2000 is depicted in table 4.1.

Based on table below, GDP increased from 1008.47 trillion rupiah in 1991 to be 1073.61 trillion rupiah in 1992. In 1993 was 1146.79 trillion rupiah, morever in 1994 was 1237.69 trillion rupiah or an increased 6.82 percent in 1993 and 7.95 percent in 1994. Then in 1995 Indonesia's economic growth reached 8.19 percent. This was the highest increased in GDP occured.

Table 4.1

Indonesian GDP at Constant Price 2000 During Period 1991- 2011

Year	GDP (Trilion Rp)	Growth %
1991	1008.47	-
1992	1073.61	6.5
1993	1146.79	6.8
1994	1237.97	8.0
1995	1339.35	8.2
1996	1444.05	7.8
1997	1512.03	4.7
1998	1324.02	-13.1
1999	1323.94	0.8
2000	1389.77	4.9
2001	1442.98	3.8
2002	1506.12	4.4
2003	1579.56	4.9
2004	1660.58	5.1
2005	1750.82	5.4
2006	1847.13	5.5
2007	1964.33	6.3
2008	2082.46	6.0
2009	2177.74	4.6
2010	2310.69	6.1
2011	2463.24	6.6

Source : *Central Bureau Statistic of Indonesia*

In 1996 Indonesian's GDP was 1444.05 trillion rupiah or an increased of 7.95 percent. In 1997 the Indonesia's GDP was 1512.03 trillion rupiah, increased up to 4.71 percent. In 1998, Indonesia's GDP has decreased drastically from 1512.03 trillion rupiah to 1324.02 trillion rupiah or experiencing negative growth of -13.1 percent from the previous year. But in the next years Indonesia has improve economic growth. Even though the Indonesian economic recovery is relatively slower compared to other Asian country are experiencing similar economic crisis.

However, 1999 the government of Indonesia through new cabinet began to restructure the joints to be stable and the economy better. In 1999 the economic growth still relatively small 0.8 percent. Before Indonesian crisis, the growth rate of gross domestic product 7% per year. Achiving a high level of economic growth is also supported by the use of debt funding and outward orianted economic policy. Economic growth peaked in 1995 with GDP 1339.35 or 8.19 percent. This increased was largely driven by an increased in consumption and the impact of the investment boom that occured in 1995, with an investment of 39914.7 million USD. (Indonesian Economic Report, 1998)

Entering the year 2000, the Indonesian economy was characterized by optimism that is high enough, during 2000 the Indonesia economy showed a strong economy recovery with a pattern of more balance economic growth, the mark with the increase of rupiah, declining inflation and interest rate on the real sector. Economic growth in Indonesia in 2000 amounted to 4,9 percent by value of GDP of 1323.94 trillion rupiah (Indonesian Economic Report,2000). But in 2001 was the lowest economic during the year 2000-2011, the GDP growth just 3.83 percent.

In period from 2002 economic growth continues to increase along with improvement in macro-monetary indicators such as exchange rate, inflation and interest rate then the economy in general is still identifying the process of economic recovery. Economic growth in 2002 only 4,38 percent by value of GDP 1506.12 trillion rupiah. (Indonesian Economic Report, 2002)

In 2003 economic growth increased to 4,88 percent with the value of GDP amounted to 1579.56 trillion rupiah and even in 2004 and 2005 getting up from 5.13 percent to 5.43 percent with the value of GDP of 1660.58 trillion rupiah and 1750.80 trillion rupiah. The increase was due to the Indonesian economy grow by improving the pattern of expansion, market by the difficulty of total consumption which has been dominanr and the increase domestic economic activity and economic growth.(Indonesian Economic Report, 2005)

Indonesian economic growth in 2006 generally increased, the preformance of economy growth by 5.50 percent, the GDP amounted to 1847.13 trillion rupiah. The Indonesian economy in 2007 recorded an encouraging achivement despite pressure from the external side. For the first time since the crisis of ecomic growth above the rate of 6.35 percent.with GDP 1964.33 trillion rupiah.however, the Indonesian economy showed better resistance to support economic growth (Indonesian Economic Report, 2007)

Entering 2008, the Indonesian economy recorded a fairly good growth amaid global turmoil. Where economic growth reached 6.01 percent, support by private consumption and export. (Indonesian Economic Report, 2008). However, when entering in 2009, Indonesian economy decline due to the global economic contraction the peaked in the finan quarter of 2008. There condition resulted in monetary and financial system in the first quarter of 2009 were under heavy pressure, so that economic groth shows a downward trend. This is was due to the effect of negative growth in exports and slower growth impact of investment so that economic growth was only growth at 4.58 percent. (Indonesian Economic Report, 2009)

Furthermore, in 2010 the Indonesian economy improved where Indonesia's growth at 6.01 percent. This is support by solid domestic demand, favorable external condition and an increase in exports and the role of non up investment, particularly investment in machinery (Indonesian Economic Report, 2010). And in 2011 Indonesia's growth increased at 2463.24 trillion rupiah or up by 6,60 percent. The folling figure illustrate the value of GDP in indonesia during 1991-2011

Chart 4.1

Economic Growth of Indonesia During Period 1991-2011

Source : Table 4.1

From figure 4.1 showed that economic fluactuation. Decreasing of economic growth in economic crisis years 1997-1998, while the year before and after economic crisis the GDP average increase. Inflation concern for the Indonesian economy in 2008. However, in 2009 the GDP decrease, but Indonesian economy relatively stable due to the shock of the global crisis is not very big impact and this condition persisted until the end of year.

4.2 Indonesian Public Debt

Basically, in the implementation process of economic development in developing countries such as Indonesia, the accumulated of public debt is a common reasonable. This is due to the low domestic savings so as not allow for adequate investment, so the other alternative is to withdraw funds or borrowing from domestic and foreign. Public debt consists of external debt and domestic debt. Domestic debt is a term used to refer to government borrowing in the form of debt securities or bonds. And external debt not include the private debt.

Public debt basically have a positive impact on economic growth in Indonesia, but also one of the main causes of the economic slump Indonesia. This is because the size of the debt burden must be borne by the Indonesian government. Without debt relief, especially in the form of removal of part of the burden of public debt, Indonesia is forecast to plunging into a larger crisis.

Based on the table below we can see the public debt was fluctuated. In 1991 to 1994 the public debt in Indonesia increased from 87.43 trillion rupiah to 138.84 trillion rupiah in 1994. But in next year public debt was decrease -1.48 percent or become 136.78 percent. In 1996 the total public debt decrease to 129.00 trillion rupiah or decrease -5.69 percent. The total of public debt in this year totally come from external debt of the public sector. And in 1997 the public debt become 238.00 trillion rupiah or increased 84.45 percent.

Table 4.2

Indonesian Public Debt during period 1991- 2011

Year	Public Debt(Trillion Rp)	Public Debt % of GDP
1991	87.43	37.3
1992	105.54	37.3
1993	118.80	36.0
1994	138.84	36.3
1995	136.78	30.1
1996	129.00	23.9
1997	238.00	38.0
1998	553.00	58.0
1999	940.00	85.5
2000	1234.28	89.0
2001	1273.18	77.0
2002	1225.15	67.4
2003	1232.04	61.3
2004	1299.50	56.6
2005	1313.29	47.5
2006	1302.16	39.0
2007	1389.41	35.1
2008	1636.74	33,0
2009	1590.66	28.3
2010	1681.66	26.0
2011	1808.95	24.9

Source : *Directorate General Debt Management Indonesia*

When the Asian economic crisis happen, the total public debt in Indonesia increased significantly from 238.00 to 553.00 trillion rupiah in 1998, or increased 132.35 percent. And the public debt come from state security 100 trillion rupiah and external debt 452 trillion rupiah. in 1999 the public debt increased agaian becomes 940.00 trillion rupiah, it's the total amount of external debt and state security (DJPU, 2009).

In 2000 to 2002 the public debt increase from 1234.28 trillion rupiah to 1273.18 trillion rupiah. Moreover, in 2000 the public debt in Indonesia decreased

-3.77 percent or becomes 1225.15 trillion rupiah. According to pocked guide of public debt development from 2003 until 2005 the public debt increase, 1232.04 trillion rupiah in 2003 with the external debt 583 trillion rupiah and state security 649 trillion rupiah. In 2004 increased to 1299.50 trilliun rupiah and 1313.29 trillion rupiah in 2005.

Chart 4.2

Public Debt In Indonesia During Period 1991-2011
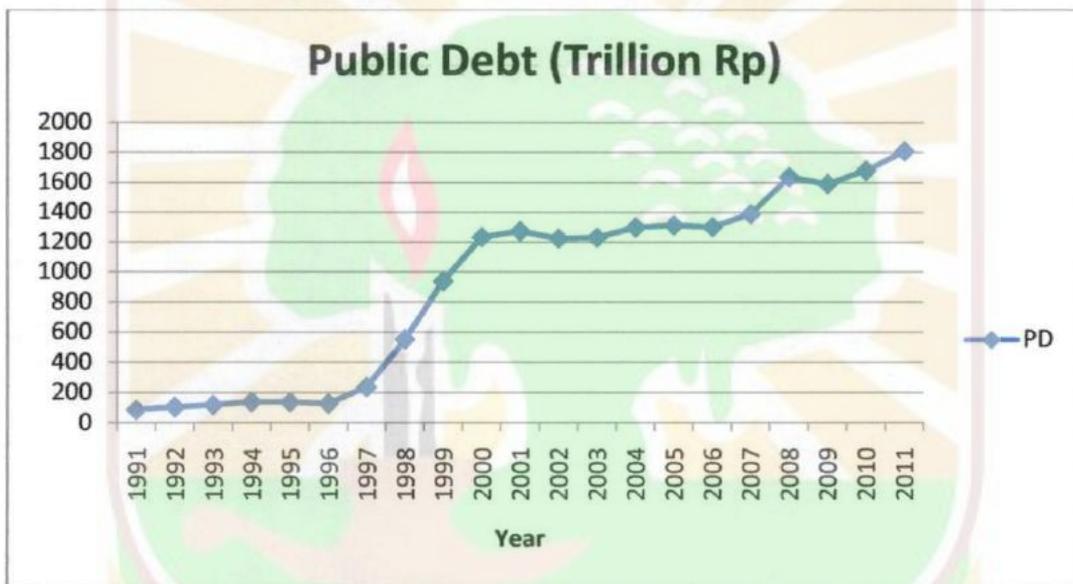
Source : Table 4.2

In 2006 the total of public debt decrease -0.84 percent or becomes 1302.16 trillion rupiah. but in 2007 to 2008 public debt back to increase from 1389.41 trillion rupiah in 2007 to 1636.74 trillion rupiah. In 2009 public debt decrease -2.81 percent, the total public debt 1590.66 trillion rupiah. And from 2010 to 2011 public debt increased from 1681.66 trillion rupiah in 2010 to 1808.95 trillion rupiah in 2011.

When is the average over the period 2001-2010, the amount of public debt drawn every year to Rp104.83 trillion. While the period of the year 2011 the amount of debt drawn Rp241.50 trillion. These data demonstrate the high growth in the number of public debt in recent years to be touched Rp2000 trillion, due to the increasing desire for the government own as much as three times compared to the period 2001-2010. In addition to the terms of the total public debt drawn increasingly large, the government owes desire can also be seen in the number of debt drawn each year (Economic Journal Idiologis).

Over the last 11 years, the state has paid the debt of Rp1596.1 trillion and 54% of them or about Rp864.67 trillion debts is to pay the interest due. The total government debt is more than 7.8 times the revenue budget 2000, 4.7 times revenue Budget 2003, Budget 2006 was 2.5 times revenue and 1.6 times the 2010 budget revenue. This amount is almost equal amount of state debt this year Rp1667.7 trillion. When the total government debt interest payments larger than this year's budget tax revenues Rp743.3 trillion. Although Indonesia has paid a debt of Rp1667.7 trillion over the last 11 years, Indonesia's debt does not fall precisely swell of total debt in 2000 which Rp1.235 trillion. Even when compared to the amount of government debt in 1998 amounted to Rp553 trillion, the number of Indonesian government debt this year increased 3-fold since the financial crisis (Welijati.blogspot.com).

4.3 Indonesian Investment

The characteristic of developing countries is a lack of capital or low levels of saving and investment. Not only a very small stock of capital but also a very low saving rate. Average gross investment only 5% - 6% of the gross domestic bruto. Whereas developed countries range from 15% - 20%. The rate of saving is low it was not enough to rapid population growth. (M.L.Jhingan,2000).

Developing country like Indonesia have a shortage of capital in the economic overhead and directly needed to facilitate investment (M.L.Jinghan,2000). Investment is expected to increase economic growth and expanding employment. In an effort to create a condusive investment, the government publish the deregulation policy, debirocratization and decentralization in investment. Deregulation in real sector in investment realized by the issuence of government regulation No.20/1994 which allows each investor owns 95% of stock in its business in Indonesia (Indonesian Economic Report, 2000)

With respect to the stimulation of investment in Indonesia, the government announced a policy of investment an integrated manner. This include all activities from the planning, promoting of target and effective in serviceto the ongoing monitoring of the implementation. UU No.1 of/1967 about foreign investment and UU No.6/1968 about domestic investment, and is the basis for this policy. To refine both of UU above, the government enacted UU No.11 and 12/1967 which refers to the implementation of the UU No.1/1967 and UU No.6/1968 about foreign investment and domestic investment (Irwan Purba,2009). The

development of foreign investment and domestic investment can we see in table above.

<div align="center">

Table 4.3

Indonesian Investment during period 1991- 2011

</div>

Year	DDI (Trillion RP)	growth (%)	FDI (Trillion RP)	growth (%)	Total Investment
1991	410.85	-	174.86	-	585.70
1992	293.42	-28.58	212.66	17.48	506.07
1993	394.50	34.45	171.79	-21.05	566.29
1994	532.89	35.08	521.93	191.38	1054.82
1995	698.53	31.08	921.23	68.24	1619.76
1996	1007.15	44.18	713.27	-25.01	1720.41
1997	1198.73	19.02	1573.21	13.03	2771.94
1998	607.49	-49.32	1088.44	-59.91	1695.93
1999	517.79	-14.76	773.23	-19.7	1291.02
2000	924.10	78.47	1479.55	41.58	2403.65
2001	586.73	-36.5	929.74	-41.45	1516.47
2002	253.08	-5686	912.15	-8.43	1165.22
2003	484.85	91.58	1132.25	34.91	1617.10
2004	371.40	-23.39	918.50	-22.16	1289.90
2005	306.65	-17.43	1318.69	32.09	1625.33
2006	207.88	-32.2	547.91	-55.98	755.79
2007	348.79	67.77	944.79	73.01	1293.57
2008	203.63	-41.61	1439,55	43.8	1643.18
2009	378.00	85.62	1059.06	-31.51	1437.05
2010	606.26	60.38	1473.11	59.19	2079.37
2011	760.01	25.35	1709.67	20.1	2469.67

Source : *Central Bureau Statistic of Indonesia*

4.3.1 Domestic Direct Investment

Domestic investment is contribute to the economic growth mobilization. Is is show from the table above. From 1991 to 1992 decreased drastically on domestic investment from 410.85 trillion rupiah to 293.42 trillion rupiah or decreased -28.58 percent. But this condition not longer decrease, cause in 1993 to 1997 the

domestic investment increased from 394.50 trillion rupiah to 1198.79 trillion rupiah follow by fluactuate of total projects in 1993 for 548 project and 718 projects in 1997.

Since Indonesia attacked by financial economic crisis by the end of 1998 until 1999, amount of domestic investment decrease significantly become 607.49 trillion rupiah with the number of project 324 to 517.79 trillion rupiah with the number of project 210. The decreased of investment from -49.32 percent in 1998 to -14.76 percent in 1999.

Chart 4.3

Domestic Investment In Indonesia During Period 1991-2011

Source : Table 4.3

In 2000, as long economic recovery in Indonesia followed but increase of domestic investment for 942.10 trillion rupiah or increasing 78.47 percent with the number of project around 355. Indonesia economic recovery has not done, in

the two next year domestic investment decreased from 586.73 trillion rupiah to 253.08 trillion rupiah follow by decreased total number of project from 249 to 184 projects.

Domestic investment fluctuated in the next two year, in 2003 domestic investment increase from 484.85 trillion rupiah with total project 181 or increased 91.58 percent. Then in 2004 domestic investment decreased again become 371.40 trillion rupiah with the total project 178, or decreased -23.39 persent. In 2005 to 2007 domestic investment fluctuated again, the domestic investment 306.65 trillion rupiah in 2005 or decreased -17.43. In 2006 total domestic investment 207.88 trillion rupiah or decreased -32.20. But in 2007 the domestic investment increase from 207.88 to 348.79 trillion rupiah or increased 67.77 percent. In the next year the domestic investment become decreased 203.63 trillion rupiah or decreased -41.61 percent with the total project 239.

In 2009 until 2011, the condition of domestic invastment increased, where 378.00 trillion rupiah in 2009 with the total project 248 to 606.26 trillion rupiah in 2010 or increased 60.38 percent with the total of project 875. And in the last of 2011 the domestic investment increased, the total domestic debt in 2011 is 760.01 trillion rupiah or increased 25.35 percent.

4.3.2 Foreign Direct Investment

Indonesia as a developing country needs substantial funds to finance the construction. Beside the mobilization of domestic fund, the foreign funds outside of the borrowing also needed. One of them is foreign direct investment. To attract investors to invest in indonesia, the government should increase the promotion,

either through increase cooperation between the national private sector and foreign private sector and also deliveries massenger abroad.

Chart 4.4

Investment In Indonesia During Period 1991-2011
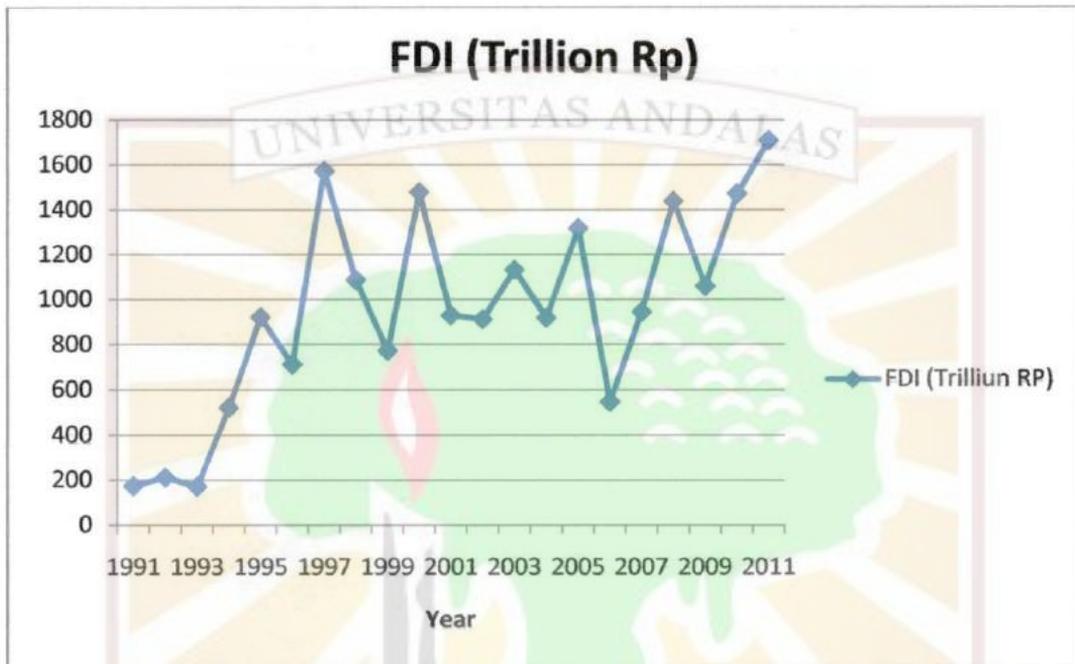
Source : Table 4.3

Foreign direct investment in Indonesia is fluctuated year by year, it is show from 1991 until 2011. In 1991 to 1992 the foreign direct investment in Indonesia increased from 174.86 trillion rupiah in 1991 become 212.66 trillion rupiah in 1992 or increased 17.48 percent. In 1993 the foreign direct investment decreased to 171.79 trillion rupiah or -21.05 percent, although number of project approvals increased 329.

In 1995 to 1995 , FDI inflows increased significantly from 521.93 trillion rupiah become 921.23 trillion rupiah, follow by increasing in the number of project approvals from 449 to 799 project. In 1996, FDI inflow decreased to

713.27 trilliun rupiah or decreased -25.01 percent, with the number of project increased from last year becomes 959 projects.

When the crisis in 1997 and 1998 foreign direct investment fluctuate from1573.21 trillion rupiah in 1997 becomes 1088.44 trillion rupiah in 1998 or decreased -59.91 percent, different with the FDI inflow the number of project approvals is increased from 790 to 1035. In 1999, foreign direct investment tried to recover after crisis, government tried to build investors trust to invest. But the value of FDI at the time still decreased -19.7 percent or 773.24 trillion rupiah. next year, indonesia is able to make the investors trust since the increasing on value of foreign direct investment for 1479.55 trillion rupiah with the number of project 1524.

In the 2001 until 2005, the FDI in Indonesia always fluctuated, in 2001 the total of FDI is 929.74 trillion rupiah or decreased -41.45 percent compared with last year and the next year decreased again becomes 912.15 trillion rupiah. in 2003 the number of foreign direct investment in indonesia increased becomes 1132.23 trillion rupiah or increased 34.91 percent. But in 2004 FDI came to decrease to 918.50 trillion rupiah or decreased -22.16 percent. In 2005 the foreign direct investment increased to 1318.69 trillion rupiah.

In 2006 to 2007 the foreign direct investmen increased from 547.91 trillion rupiah in 2006 becomes 944.79 trillion rupiah or increased 73.01 percent. In the next year the condition of foreign direct investment increased 43.80 percent or 1439.55 trillion rupiah,with total of projects is 1138. In 2009 the total FDI in indonesia 1059.06 trillion rupiah or decreased -31.51 percent, but the total of

project increased to 1221. In 2010 to 2011 the FDI in indonesia increased from 1473.11 to 1709.67 trillion rupiah.

4.4 Government Expenditure

The government as the institution which controls and manages huge number of nation based activities is actually a consumers of domestic goods and service. The government expenditure is controlled in two categories, routine expenditure and developement expenditure. The government aimed at meeting the needs in running the government and indonesia's development. In this poin, the routine expenditure is concerned with the salaries of civil servants, whereas the expenditure for development is intended to finance the process of development of indonesia improving the walfare of the society. The development of government expenditure during period 1991-2011 can we see in table 4.4

Based on the table below, the government expenditure always increase every year during 1991-2011. The government expenditure for nation during 1991-1994 we called REPELITA V, the government expenditure always increase, the lowest raise at 5.28 percent in 1994, the expanse in this year was 72.34 trillion rupiah, whereas the highest rate of increase was in 1992 at 16.39 percent.

In 1995 to 1996, the governement expenditure increased from 79.22 to 98.51 trillion rupiah. the raise of indonesian government's expenditure in 1997 and 1998 was caused by global economic crisis. In 1997, the government's expenditure increased at 33.53 percent, and in 1998 the government expenditure increased significantly become 251.59 trillion rupiah or increased 63.89 percent. The increase was primarily due to higher spending on interest payments on external

debt (Putriani, 2011). In 1999 the govenment expenditure 266.88 trillion rupiah or decreased -22.59 percent.

Table 4.4

Indonesian Government Expenditure during period 1991- 2011

Year	Government Expenditure (Trillion Rp)	Growth %
1991	51.99	-
1992	60.51	16.39
1993	68.72	13.56
1994	72.34	5.28
1995	79.22	9.5
1996	98.51	24.36
1997	131.54	33.53
1998	215.59	63.89
1999	166.88	-22.59
2000	221.47	32.71
2001	341.56	54.23
2002	322.18	-5.67
2003	376.51	16.86
2004	436.41	13.46
2005	509.42	19.3
2006	699.10	30.9
2007	752.37	13.57
2008	985.79	30.1
2009	937.40	-4.9
2010	1042.13	20.14
2011	1202.04	6.74

Source : *Central Bureau Statistic of Indonesia*

In 2000, the total government's expenditure was 221.47 trillion rupiah. it was mainly consumed by operational cost, and the rest was for to find the development. The biggest expenditure was for the subsidy at 26.7 percent of total expenditure. Higher expense was consumed by petrol subsidy caused by the increased of global petrol price, rupiah depreciation, the increase of petrol import affected by the problem of domestic petrol ptoduction. And in 2001 the amount of

government expenditure 341.57 trillion rupiah and in 2002 at 322.18 trillion rupiah, moreover in 2002 there was a decreased on government expenditure at -5.67 percent affected by the government regulation to reduce the subsidy for the society.

In 2003 the total expense of governemnt 376.51 trillion rupiah, and in 2004 the government expenditure increased 436.41 trilliun rupiah. then in 2005, the governement expense was again consumed by the routine expenditure. Fuel subsidy on the expense to respon in tsunami in aceh, the expanse for civil servant and goods, and the payment for the interest of overseas loan were the main components which affect the expenditure in 2005. It was recorded that the government expenditure reached 509.42 trillion rupiah, and it was raised at 19.30 percent (Rizky R,2010).

In 2006 and 2007, the government expenditure was recorded 699.10 trillion rupiah and 752,37 trillion rupiah in 2007. In 2008 to 2011, the government expenditure was no profoundly different from the previous year. In 2008 the total expanse was 985.79 trillion rupiah and decreased 937.40 in 2009. In 2010 the government expenditure was increased 1042.13 trillion rupiah, and in 2001 the government expenditure was 1202.04 trillion rupiah or increased 6.74 percent. The following figure is the increased government expenditure during period 1991-2011.

Chart 4.5

Government Expenditure in Indonesia During Period 1991-2011

Govenment Expenditure (Trillion Rp)
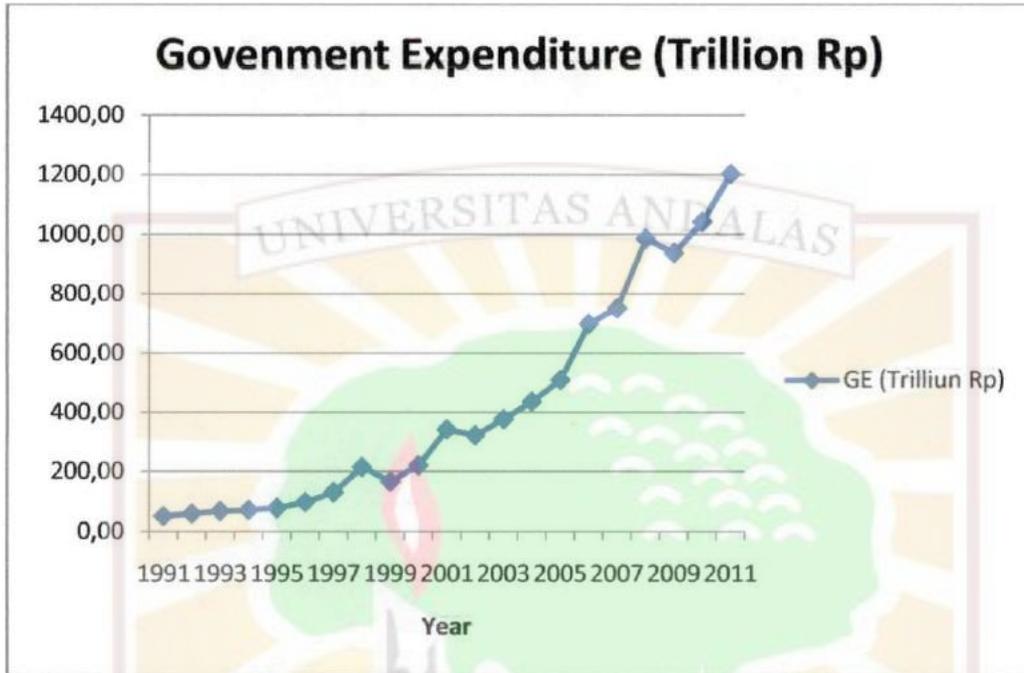
Source : Table 4.4

CHAPTER V

EMPIRICAL RESULTS AND ANALYSIS

5.1 Research Description.

This chapter describes reseach result and secondary testing data collected from many sources to study "Public Debt and Economic Growth in Indonesia 1991-2011". Analysis descriptions are based on the secondary data collected from several sources. The main sources are:

1. Central Bureau of Statistic (BPS)
2. Directorate General Debt Management Indonesia (DJPU)

The observed data are from 1990 until 2009, in other words, in this research the writer uses 21 numbers of observations by using Ordinary Least Square method.

5.2 Reseach Findings

5.2.1 Regression Result Analysis

The first step to analyze the data is by regress the data using the computer program which is competent and compatible with the research. A software is used to process the data.

5.2.2 Public Debt and Economic Growth Determination

This shows the regression results between the public debt, investment, government expenditure and economic growth. The regression is shown in table 5.1 below:

<div align="center">

Table 5.1

Regression Result

</div>

Dependent Variable: Y
Method: Least Squares
Date: 03/04/13   Time: 16:01
Sample (adjusted): 1992 2011
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	997.2334	44.24436	22.53922	0.0000
D	-0.060878	0.052241	-1.165336	0.2610
I	0.130345	0.028344	4.598610	0.0003
G	1.137160	0.095445	11.91433	0.0000

R-squared	0.969488	Mean dependent var		1556.120
Adjusted R-squared	0.963768	S.D. dependent var		366.1506
S.E. of regression	69.69612	Akaike info criterion		11.50302
Sum squared resid	77720.80	Schwarz criterion		11.70217
Log likelihood	-111.0302	Hannan-Quinn criter.		11.54190
F-statistic	169.4639	Durbin-Watson stat		1.272552
Prob(F-statistic)	0.000000			

Process by author using e-views 6.0

See Appendix II

Based on the result of regression, the regression models for the economic growth (Y), public debt (D), investment (I) and government expenditure (G) the the estimation equation for the economic growth is :

$$Y = \beta_0 + \beta_1 D + \beta_2 I + \beta_3 G + \varepsilon$$

$$Y = 997.2334 - 0.060878\ D + 0.130345\ I + 1.137160\ G$$

$$(22.53922)\ (-1.165336)\quad (4.598610)\qquad (11.91433)$$

R^2 = 0. 969488

Adjusted R^2 = 0. 963768

DW = 1.272552

F-stat = 169.4639

1. t -Test

The t-test is used to test the correlation between the dependent variable and independent variables individually. From the regression result, it shows that the t-statistic of each independent variable is compared with the value of t-table. The way to find the critical t value is: T table = t α df (n-k), where: α is level of significance, degree of freedom (df) is 17, using 21 number of data and 4 number of parameters.

By using t-test analysis at definite degree of freedom, the significant correlation between dependent and independent variables can be determined.

From the regression result, the significance or insignificance from each computed t value of independent variables can be seen in table 5.2 below:

Table 5.2
The Comparison Value of t-statistic and t-table

Variable	t- statistic	t-table (5%)	t-test	Hypothesis
D	1.165336	1.740	two tail-negative	Not significant
I	4.598610	1.740	two tail-positive	Significant
G	11.91433	1.740	two tail-positive	Significant

Process by author by using e-views 6.0

i. **t-test on Production to Public Debt**

$$H_o : \beta_1 = 0$$

$$H_a : \beta_1 < 0$$

t- Statistic is 1.165336

t- Table with α = 5% and df = 19 is 1.740, with two tail-negative test and not significant.

After resereach the result above, it can be concluded that the t-statistic is greater than t-table (t-statistic < t-table), so H_o is accepted or H_a is rejected statistically. It means that public debt have a negative and not significant effect on the GDP. In other words, every increase of public debt will make decreasing GDP in Indonesia. There is a negative relationship between independent and dependent variables.

ii.   **t-Test on Investment**

$$H_o : \beta_1 = 0$$

$$H_a : \beta_1 < 0$$

t- Statistic is 4.598610

t- Table with $\alpha = 5\%$ and df = 19 is 1.740, with two tail- positive test and significant.

After observing the result above, it can be concluded that the t-statistic have positive significant, which is the same as the sign of it hypothesis, and the t-statistic is greater than the t-table (t-statistic > t-table), so H_o is rejected or H_a is accepted statistically. It means that investment have significant and positive effect to the GDP. In other words, there is a positive relationship between independent and dependent variables.

iii.   **t-test on Government Expenditure**

$$H_o : \beta_1 = 0$$

$$H_a : \beta_1 < 0$$

t- Statistic is 11.91433

t- Table with α = 5% and df = 19 is 1.740, with two tail- positive test and significant.

After observing the result above, it can be concluded that the t-statistic has a positive sign which is the same as the sign of it hypothesis, and the t-statistic is greater than the t-table (t-statistic > t-table), so H_o is rejected or H_a is accepted statistically. It means that the Government Expenditure have significant and positive effect to the GDP. In other words, there is a positive relationship between independent and dependent variables.

2. F Test

F test is used to detect the correlation between dependent variable and all the independent variables (simultaneously). The using of F test is similar as the using for t test. Hypotheses are formulated as follows:

This decision will use parameter at 5% (α = 5%) based on the following rules:

1) If F-statistic < F-table

Ho is accepted and Ha is rejected, (not significant) in other world, the independent variables simultaneously do not have any effect on the dependent variable.

2) If F-statistic > F-table

Ho is rejected and Ha is accepted, (significant) in other world, the independent variables simultaneously have effect on the dependent variable.

The F test is similar to the t test that comparing the value of the F- statistic and the F-table value. To find the F-table value, we must get the degree of freedom for numerator (k-1) and the degree of freedom for denominator (n-k). With the level of significance α = 5%, the degree of freedom for numerator is 3=

(4-1) and the degree of freedom for denominator is 17 = (21-4). It can be found that value of F table in point (3 : 17) is 3.20

It is already known that F- statistic from the regression is 169.4639. We proceed to compare the F-statistic value and F-table value. From the comparison, it can be concluded that the F- statistic value is higher than the F-table value (F-statistic > F-table). It means that H_o is rejected and H_a is accepted (significant). The independent variables simultaneously have effect on dependent variable. In other words, Public debt, Investment, Government Expenditure have effect on the economic growth in Indonesia.

Table 5.3
The Comparison Value of F-statistic and F-table.

F-Statistic	α	F-Table	Result
169.4639	5%	3.20	Significant

Process by author using e-views 6.0

5.2.3 Goodness of Fit (R^2)

From the regression done by the writer, the value of coefficient of determination (R^2) is 0.96. This value shows a high measurement for the independent variables to explain their effect on the dependent variable in the model. It means that the variation of the dependent variable can be explained by the independent variables about 96 %, when the rest 4 % are explained by factors outside the model.

5.3 Classical Assumption Test

1. Multicollinearity

To test the multicollinearity, the writer uses correlation matrix test. In this test, the writer detects multicollinearity by comparing the correlation among the

independent variables. To detect the Multicolinearity, we can use the correlation (r) method as the best one. The correlation is r < 0.96, we suspect no multicolinearity, and there will be multicollinearity if r > 0.96.

With the help of Eviews computer program, the writer can search the value of each r and the result is shown on table 5.3 below:

Table 5.4
Correlation Matrix Multicollinearity Result

	G	I	D
G	1.000000	0.168369	0.857315
I	0.168369	1.000000	0.253256
D	0.857315	0.253256	1.000000

Process by author using e-views 6.0

See Appendix III

From the table above, it can be concluded that the values of the correlation among the independent variables are relatively high. According to the result of the data above, r < 0.96, it means that there is no multicollinearity on the model.

2. Autocorrelation

An autocorrelation is defined as correlation between residual of one observation ordered in time (as in time series data) or space (in cross sectional data). If there is autocorrelation in the model, it will raise the value of residual and it has an effect on the number of t test, F test and R^2 will decline.

i. Durbin-Watson

Criteria of autocorrelation testing with k = 3; n = 21, and α = 5 %, in Durbin-Watson Significance Table, dL = 1.0262 and dU =1.6694, are shown on the figure 5.1 below

| 0 | d_L 1.02 | d_U 1.66 | 2 | 4- d_U 2.97 | 4- d_L 2.33 |
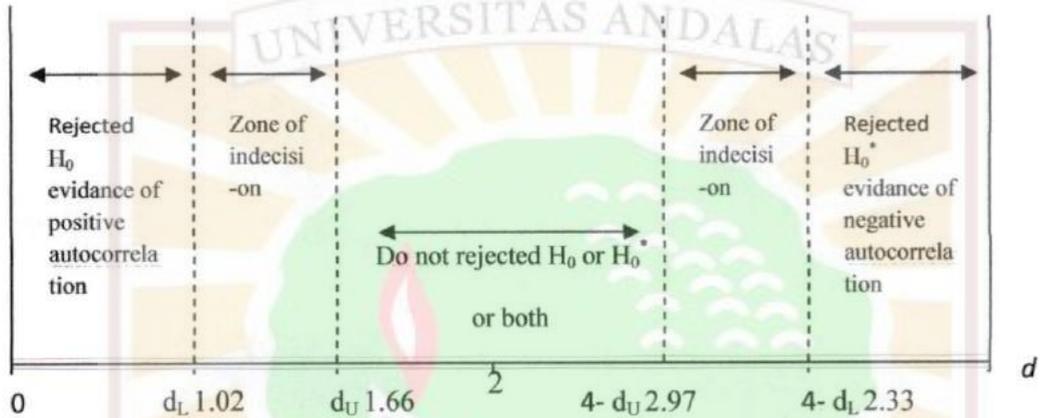
Based on D-W d Stat figure above, from analysis result of D-W for 1.272, it is located on $d_L < d_W < d_U$ or between 1.02 (d_L) of lower border 1.27 (d_W) and lower border 1.66(d_U). In other words, analysis of D-W do accepted H_0. It means there is no positive autocorrelation or no decision.

ii. Breusch Godfrey (Lagrage Multiplier)

If probability Obs* R-Square > 0.05 there is no indication of autocorrelation and if probability Obs* R-Square < 0.05 there is indication autocorrelation.

Table 5.5

Breusch Godfrey

Breusch-Godfrey Serial Correlation LM Test:

| F-statistic | 0.829803 | Prob. F(2,14) | 0.4565 |
| Obs*R-squared | 2.119602 | Prob. Chi-Square(2) | 0.3465 |

Process by author using e-views 6.0

See Appendix IV

From table 5.5 the result that value of probability Obs* R-Square greater than 0.05 the value is 2.119, it means there is no indication of autocorrelation.

5.3.3 Heterocedasticity

In this research, to detect Heterocedasticity problem on regression equation we use white Heterocedasticity without cross term method. If the value of Chi-square is greater than 5%, indicate there is no Heterocedasticity on regression equation model.

Table 5.6

Heterocedasticity

Heteroskedasticity Test: White

F-statistic	0.561562	Prob. F(9,10)	0.8005
Obs*R-squared	6.714542	Prob. Chi-Square(9)	0.6668
Scaled explained SS	2.890491	Prob. Chi-Square(9)	0.9685

Process by author using e-views 6.0

See Appendix V

From estimation result, writer got the value of Chi-squares probability for 0.6668, which is greater than 5%. It means there is no Heterocedasticity problem on regress equation model.

5.4 Estimation Result

5.4.1 The Influence of Public Debt to GDP

The resulted elasticity coefficient for public debt to gross domestic product in indonesia is -0.060. It shows that if the public debt increases by 1 trillion rupiah,

the gross domestic product will decrease by -0.060 trillion rupiah and t-statistic grather than t-table (t-statistic$_{(1.165336)}$ > t-table $_{(1.740)}$), so H_o is rejected or H_a is accepted statistically. This shows a negative relationship but not singnificant, provided all variables held constant.

The estimation result also indicate that Indonesian Public debt was not allocated to productive sector expected to push the economic growth. Another implication is that public debt was partially used to pay it back. And it is observed by looking the ratio of interest of debt. For example in 2006, Indonesian revenue was 636,153 billion rupiah and expenditure was 667,129 billion rupiah and interest of debt was 79,083 billion rupiah (Public Debt Development, 2011).

The increasing of public debt with compound interest indicated that sometimes public debt used to pay back debt previously overdue, or to cover budget deficit.

The above results are in line with many previous research by done economists who study the debt of many countries. Most studies show that public debt has negatively and not significantly related to growth economy. For example, Rais (2012) reseach the public debt and economic growth in Pakistan by using OLS method found that between external and dometic debt have negative relationship with economic growth (Rais,2012).

5.4.2 The Influence of Investment to GDP

The resulted elasticity coefficient for investment to gross domestic product in Indonesia is 0.130. It shows that if the investment increases by 1 trillion rupiah, the gross domestic product will increase by 0.130 trillion rupiah and t-statistic grather than t-table (t-statistic$_{(4.598610)}$ > t-table $_{(1.740)}$), so H_o is rejected or H_a is

accepted statistically. This shows a positive relationship and singnificant relationship between the investment and gross domestic product in Indonesia, provided all variables held constant.

The above results are in line with many previous research done by economists who study the investment of many countries. Most studies show that investment has positive and significantly related to growth economy. For example, Barik (2012) reseach the government debt and economic growth in india by using OLS method found that investment have positive relationship with economic growth (Barik,2012).

5.4.3 The Influence of Government Expenditure to GDP

The resulted elasticity coefficient for government expenditure to gross domestic product in Indonesia is 1.137. It shows if the government expenditure increase by 1 trillion rupiah, the gross domestic product will increase by 1.137 trillion rupiah, and t-statistic grather than t-table (t-statistic$_{(11.91433)}$ > t-table $_{(1.740)}$), so H_o is rejected or H_a is accepted statistically. This shows a positive relationship and singnificant relationship between the government expenditure and economic growth in Indonesia, provided all variables held constant.

The abovet results are in line with many previous research done by economists who study the goverment expenditure of many countries. Most studies show that government expenditure has positive and significantly related to growth economy. For example, Ibrahem (2012) the reseach the government expenditure and economic growth in Jordan by using VAR method found that government expenditure have positive relationship with economic growth (Mohamed,2012).

The effect of government expenditure in economic growth is positive relationship because when the government increase its purchases of goods and services, the economy's planned expenditure rises. The increase in planned expenditure stimulates the production of goods and servives, and will increase income Y (Keynesian Theory).

CHAPTER VI

# CONCLUSIONS AND RECOMMENDATIONS.

6.1 Conclusion

Based on the estimation that explained in the previous chapter, the conclusion are :

- Economic Growth of Indonesia during the period of 1991-2011 shows fluctuations, it was sharply shocked in 1998 following the Asian Financial Crisis.

- The public debt of Indonesia during the period of the study also shows fluctuations. Based on the data, the public debt did not significantly affect economic growth.

- The development of investment in Indonesia during the period of the study also shows fluctuations. The estimation shows that investment has positively affected the growth.

- The government expenditure in Indonesia during the period of the study also shows fluactuations. The estimation shows that government expenditure has positively affected the growth.

6.2 Recommendations

- The government need to reduce the public debt since it does not significantly affect the growth. Management of public debt has to be more transparant so public debt will be more effective and efficient.

- Indonesian investment is still relatively small compared with other countries, the government should further clarify the rule of law regarding investment, the stability, and improving infrastructure facillities, because investment has a positive impact on economic growth.

- The government should be more efficient in expenditure, Althought government expenditure has a positive impact on economic growth, the Indonesian government expenditure always higher than government revenue, so that Indonesia need more debt to cover bugdet deficit

- Advice to other reseachers, better and more complete data regarding public debt in relation to economic growth. So it can be known in detail the distribution of fund from public debt to finance the development.
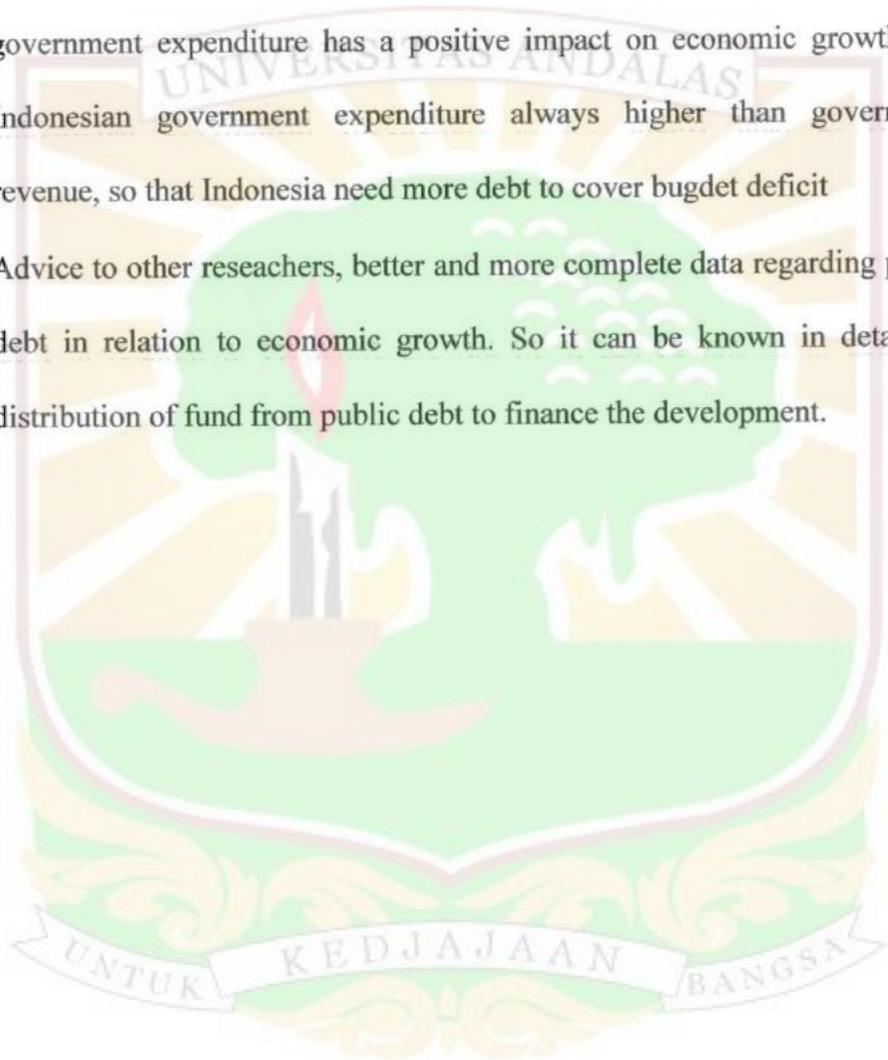
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APPENDIX I

Year	Y	D	I	G
	Gross Domestic product	Public Debt	Investment	Government Expenditure
1991	1008.47	87.43	585.70	51.99
1992	1073.61	105.54	506.07	60.51
1993	1146.79	118.80	566.29	68.72
1994	1237.97	138.84	1054.82	72.34
1995	1339.35	136.78	1619.76	79.22
1996	1444.05	129.00	1720.41	98.51
1997	1512.03	238.00	2771.94	131.54
1998	1324.02	553.00	1695.93	215.59
1999	1323.94	940.00	1291.02	166.88
2000	1389.77	1234.28	2403.65	221.47
2001	1442.98	1273.18	1516.47	341.56
2002	1506.12	1225.15	1165.22	322.18
2003	1579.56	1232.04	1617.10	376.51
2004	1660.58	1299.50	1289.90	436.41
2005	1750.82	1313.29	1625.33	509.42
2006	1847.13	1302.16	755.79	699.10
2007	1964.33	1389.41	1293.57	752.37
2008	2082.46	1636.74	1643.18	848.73
2009	2177.74	1590.66	1437.05	995.27
2010	2310.69	1681.66	2079.37	1042.13
2011	2463.24	1808.95	2469.67	1202.04

Source:

Public Debt from Directorate General Debt Management Indonesia

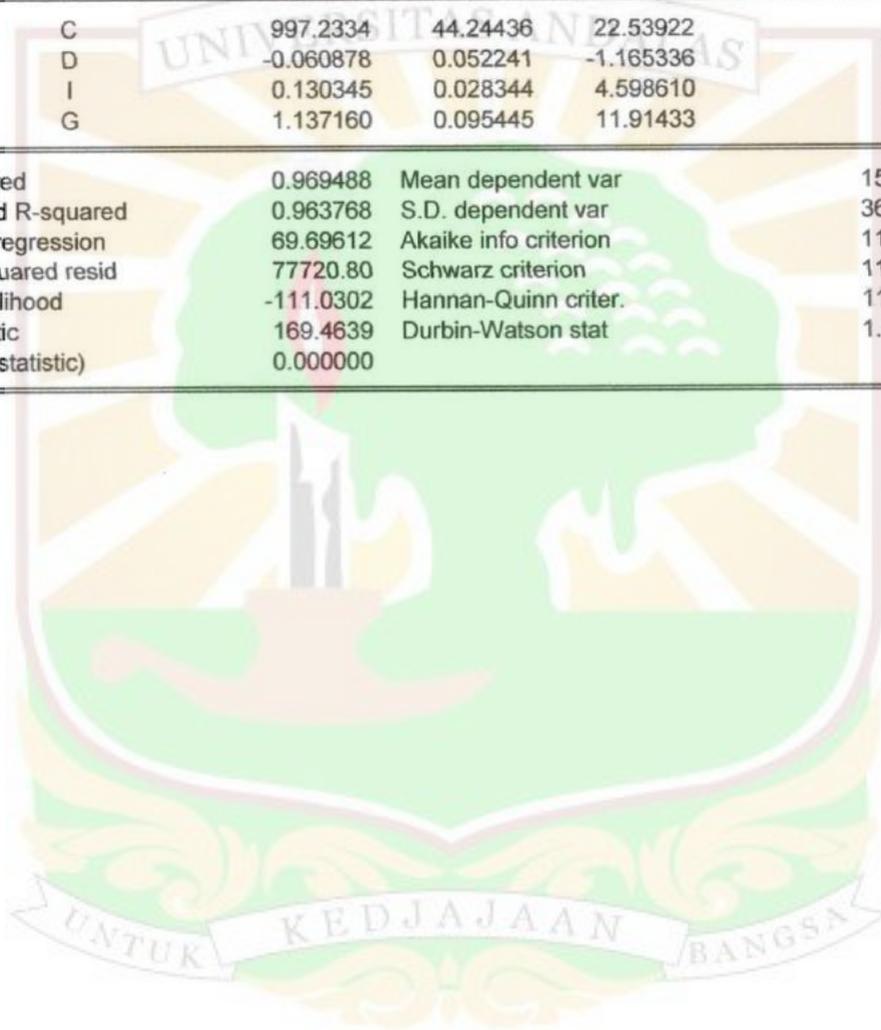*GDP, Investment and Government Expenditure from Indonesian financial*

Statistic and Bureau statistic of indonesia

APPENDIX II

The Result of Linear Regression

Dependent Variable: Y
Method: Least Squares
Date: 03/13/13   Time: 12:21
Sample (adjusted): 1992 2011
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	997.2334	44.24436	22.53922	0.0000
D	-0.060878	0.052241	-1.165336	0.2610
I	0.130345	0.028344	4.598610	0.0003
G	1.137160	0.095445	11.91433	0.0000

R-squared	0.969488	Mean dependent var	1556.120
Adjusted R-squared	0.963768	S.D. dependent var	366.1506
S.E. of regression	69.69612	Akaike info criterion	11.50302
Sum squared resid	77720.80	Schwarz criterion	11.70217
Log likelihood	-111.0302	Hannan-Quinn criter.	11.54190
F-statistic	169.4639	Durbin-Watson stat	1.272552
Prob(F-statistic)	0.000000		

APPENDIX III

Multicollinearity Test

	G	I	D
G	1.000000	0.168369	0.857315
I	0.168369	1.000000	0.253256
D	0.857315	0.253256	1.000000

APPENDIX IV

Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.829803	Prob. F(2,14)	0.4565
Obs*R-squared	2.119602	Prob. Chi-Square(2)	0.3465

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 03/18/13   Time: 13:08
Sample: 1992 2011
Included observations: 20
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G	-0.031771	0.106802	-0.297477	0.7705
I	-0.023613	0.034235	-0.689725	0.5016
D	0.019723	0.057002	0.346000	0.7345
C	27.70002	49.94124	0.554652	0.5879
RESID(-1)	0.404657	0.314139	1.288148	0.2186
RESID(-2)	-0.045172	0.285500	-0.158222	0.8765

R-squared	0.105980	Mean dependent var	0.000000
Adjusted R-squared	-0.213313	S.D. dependent var	63.95755
S.E. of regression	70.44955	Akaike info criterion	11.59100
Sum squared resid	69483.94	Schwarz criterion	11.88972
Log likelihood	-109.9100	Hannan-Quinn criter.	11.64931
F-statistic	0.331921	Durbin-Watson stat	1.815977
Prob(F-statistic)	0.885288		
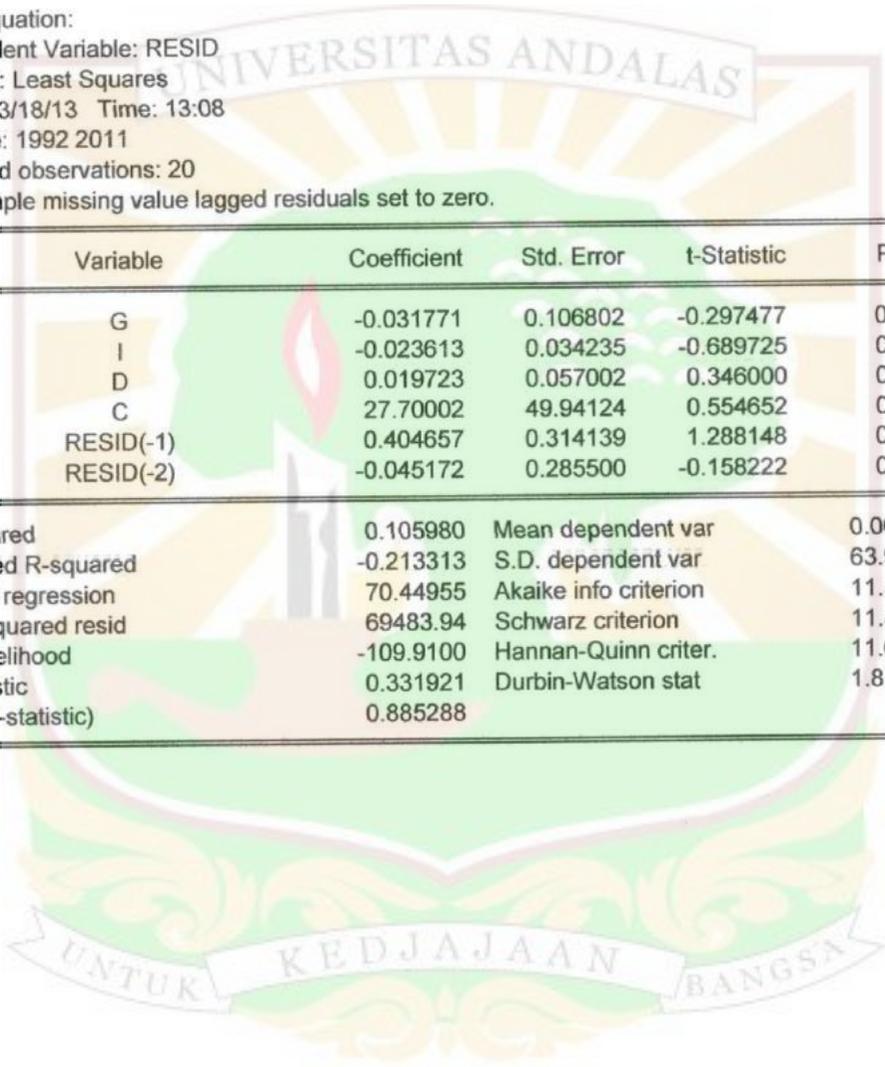
APPENDIX V

Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	0.561562	Prob. F(9,10)		0.8005
Obs*R-squared	6.714542	Prob. Chi-Square(9)		0.6668
Scaled explained SS	2.890491	Prob. Chi-Square(9)		0.9685

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/13/13   Time: 12:29
Sample: 1992 2011
Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-835.3396	7119.695	-0.117328	0.9089
G	119.3933	97.34704	1.226471	0.2481
G^2	0.084187	0.085017	0.990236	0.3454
G*I	0.002256	0.021397	0.105418	0.9181
G*D	-0.159039	0.144678	-1.099266	0.2974
I	7.421412	10.58949	0.700828	0.4994
I^2	-0.003391	0.003208	-1.056888	0.3154
I*D	0.005074	0.008942	0.567426	0.5829
D	-45.40744	35.99836	-1.261375	0.2358
D^2	0.041865	0.042695	0.980552	0.3499

R-squared	0.335727	Mean dependent var	3886.040
Adjusted R-squared	-0.262118	S.D. dependent var	4624.322
S.E. of regression	5195.150	Akaike info criterion	20.25569
Sum squared resid	2.70E+08	Schwarz criterion	20.75356
Log likelihood	-192.5569	Hannan-Quinn criter.	20.35288
F-statistic	0.561562	Durbin-Watson stat	1.943864
Prob(F-statistic)	0.800533		