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THE IMPACT OF MONETARY POLICY ON ECONOMIC GROWTH: CASE STUDY IN INDONESIA Daring Period 1981-2011

THESIS



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FACULTY OF ECONOMY ANDAIAS UNIVERSITY
PADANG 2012**

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**The Impact of Monetary Policy on Economic Growth: Case Study in Indonesia
During Period 1981-2011**

Thesis by : Mulyanis

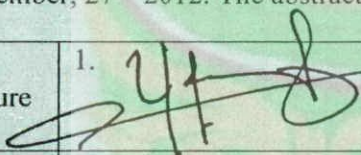
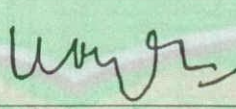
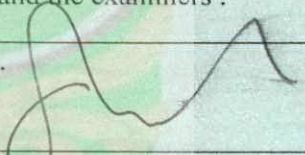
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ABSTRACT

This research empirically examines the impact of monetary policy on economic growth in Indonesia by using annual time series data from 1981 - 2011. Money supply and inflation are used as proxies of monetary policy, whereas government expenditure is used as another variable that influences economic growth. Moreover, Gross Domestic Product (GDP) is used as proxy of economic growth. OLS (Ordinary Least Square) is the method used in this research to analyze the impact of monetary policy on economic growth in Indonesia. The results show that the money supply positively and significantly has impacts on economic growth, whereas the inflation negatively and significantly affects the economic growth. Furthermore, the government expenditure positively and not significantly affects the economic growth in Indonesia. The finding in this research suggests that the policy makers should allocate money supply effectively and efficiently in order to stimulate economic growth and low or stable inflation. The increase in money supply has to be used for improving the number and activities of goods and services. It will undermine the inflation level.

Keyword: Economic Growth, Money Supply, Inflation, Government Expenditure

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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 “ **The Impact of Monetary Policy on Economic Growth: Case Study in Indonesia During Period 1981 -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. Thank you for answering my prayers. You has given me everything, so that I can finish this thesis well. Praise to be Allah, the Lord of the world. Hopefully I stay in your way and keep getting better.
2. I would like to express my sincere and profound gratitude to my thesis supervisor Mrs. Yessy Andriani, SE, MDEC because without her advice, supervision and exceptional support this thesis would never had become a reality

3. Thanks to Dra. Wahyuni Eloisa Marinda, ME and Maryanti, SE.M.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 Prof.Dr.H.Firwan Tan, SE, M.Ec.DEA.Ing and Edi Ariyanto, S.E, 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 own family, especially for my lovely Papa and Mama, Jasman and Masni for their unfailling and unconditional love throughout my life. Without them, I am Nothing. I love them dearly. Pa Ma Iya can make it so far. Love you! Special thanks to my sister Yulfa Rahmi, and my brother Mainanda Putra and Ibnul Hakiki thank you for the love that you share and spend with me. I love You All. And also my family uncles (odang As, tek Et, tek Ibas, tek Aman,tek Il) , my aunt (Tek Ani, ante Epi, ante Inaf, ante Ipet, uni Dila, ama Imis) and my cousins (uni Isra, Ipit, latif, Thifa, Andri, Fadel, Dinda, Veven, Venti, Isep) thanks for all of you guys, thanks for your prayers and spirit.
6. I also would like to thank to my lovely and my very best friend Sri Wahyuni, SE (Si Sol),thanks your suggestion every I am share someone with you hehhe...Yolit Permata Sari (Mak Uo) thanks your money

hahaha, Chintia Febri Kartika, SE (Ocinta) my claudy friend, share friend to my Abi and future, hohoho.. and Suci Rahmadani (Kucing) keep spirit Momo to get titled SE , Yulia Eka Putri, SE (Amak) thank you for your time, patient, spirit, help, understanding and your prayers guys. For all member of Economics Int'08. I am proud to have you guys, the lovely 'komting' Heranof Al Basir (uda) thanks for your support, pray and your time along our together and, Hari Setia Putra (Si boo') keep spirit boo' to get titled SE, I am sure you can do it, don't forget nasi sadakah boo',,hahahahaha, Yogi Ashari (Rang kampuang), D'Mentriez (Gita priyanti, SE, Fadhila Wahyuni, SE, Diana Safitri SE, Mailanindra Putri, SE, Melki Tidora and Tika Mardhatilah) Uci Ramadani, July Astuti, Puspita Delvia and Rati Korniat. I'm gonna miss all of moments with you. Wish we can make the awesome journeys like M.S.T. for the next moment. Have a great luck for all of my best classmates.

7. Most importantly, I would like to say thousands thanks to my very helpful of brilliant co- supervisors (hehhehe,,,) especially kak Athina Lenggogeni, SE thank you for your time and help me to translate my thesis until finish and thank you for your patiently towards my annoying phone calls, my nosy, my panic and my impatiently. Really thank you for the supports. Yeaah "kak Legi" I can make it! hahahha and thanks too kak Indah, have give me the solution about my problem and thank you for your patiently towards annoying phone calls and really thank you for the support. Although thank you bg Yorga, Kak Uri, Kak Didi, Kak vela, Kak Caca,

Mayang, thanks for your support and borrowing me the book along college.

8. Thank to all my friends in Economic regular class 2008 (Gani, Gita, Siska, Nani, Tika, Tita, Uri, Meli, Lisa, Eel, Vandra, Lovi and ect) It could be so nice to meet you guys. I found some unique characters on all of you. Thanks for the happiness that you give it to me. You are so awesome. And also thank you for my junior 09 and 010 in international program.
9. For ITI Friend's Bg Bayu Julianda Putra (Papa Mia) thanks for your time, spirit and prayers, Bg Riki, Bg Revi (Pak Uo), Adit, Rian and Nela. I am happy can meet you guys. hahaha
10. I also want to say thanks to my KKN friend's Pak Agung, Pak Yoyo, Buk Dila, Buk Nana, Buk lila, wide, Yessy, Retno, Ella, Wulan, Diya, Liza, Fitria, shinta, Gilang, Dedi, Toni. I will miss our time together during this moment, remember me forever guys. Hehehehe....
11. Especially Bg Zhulfadly BRI Syariah, Bg Andre, Kak Iya, Bg Aan Danamon thanks for your time, prayers and support me until my thesis finish. And also Bg Hadi and Bg Rian thanks for your time and help me to translate my thesis until finish. Thank you very much guys,,,
12. For my Dormitory Friend's, special Nita, Iin, Ica my bedroom friend's. Thanks for your time, patient, understanding and help me to learn English. I am proud and lucky can together you guys, and also thanks to Kak Rani, Rahmi, Mawar, Putri, Ana my neighbor friend's in Syaf 3,32, miss you guys hehehe. Sari Kaswinda my boardinghouse friend now, spirit Ai I am sure you can do it don't give up. Then, Special to Edyan Noveri,

thanks your time, patient, understanding and your love just a minute hehehe... I am happy meet you and can together with Yan during this moment. I will miss our time together guys. I love you All.

13. I also owe much to the assistance of Administration Bureau: Ni Nel, Buk Syam, Buk Nini. Most importantly Bapak Pustaka (Pak Suryadi) for his kind welcoming. Thanks for being so kind, friendly, and helpful since my entrance period at Faculty of economics.

14. Last, but not least, I thank to my dearest love of my life, my Abi Andi Putra Pratama thank you for being very kind, patient, warm, time and your love. Finally!!! I get that end titled honey!!! Hahahhha. Love U☺

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.

One word frees us of all the weight and pain in life, that word is love.

Padang, September 2012

Mulyanis

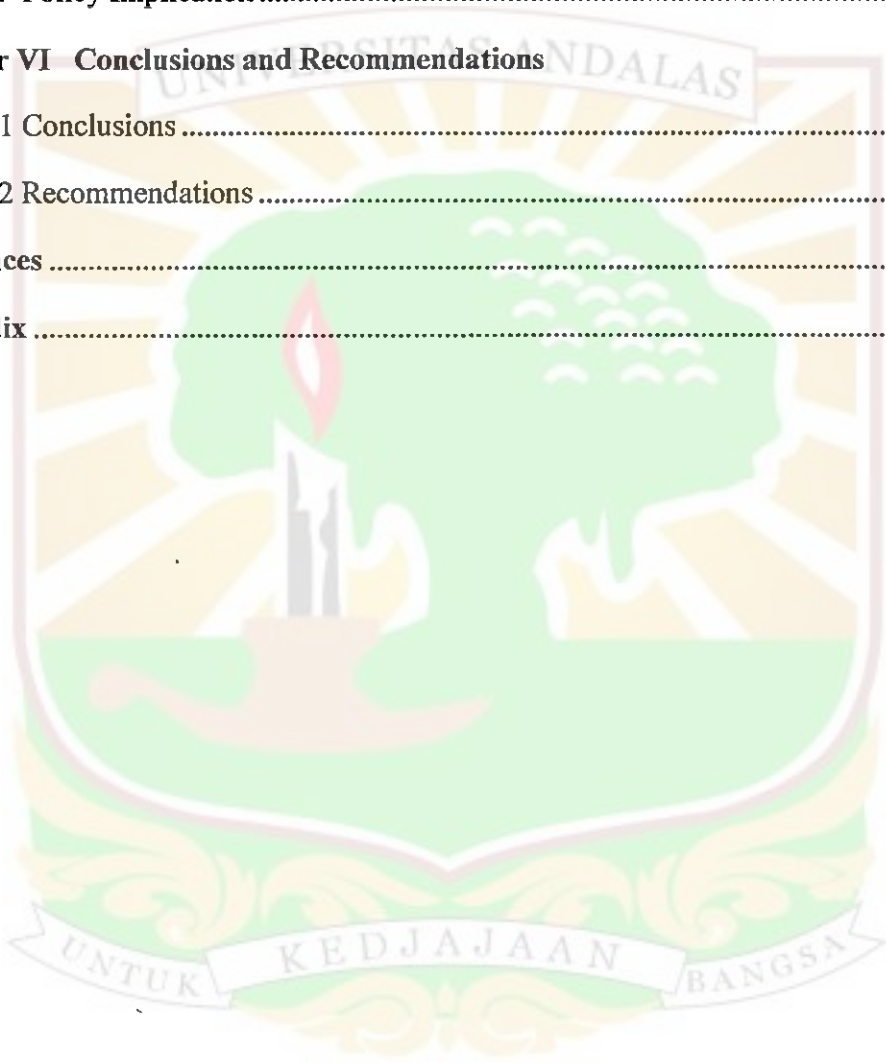
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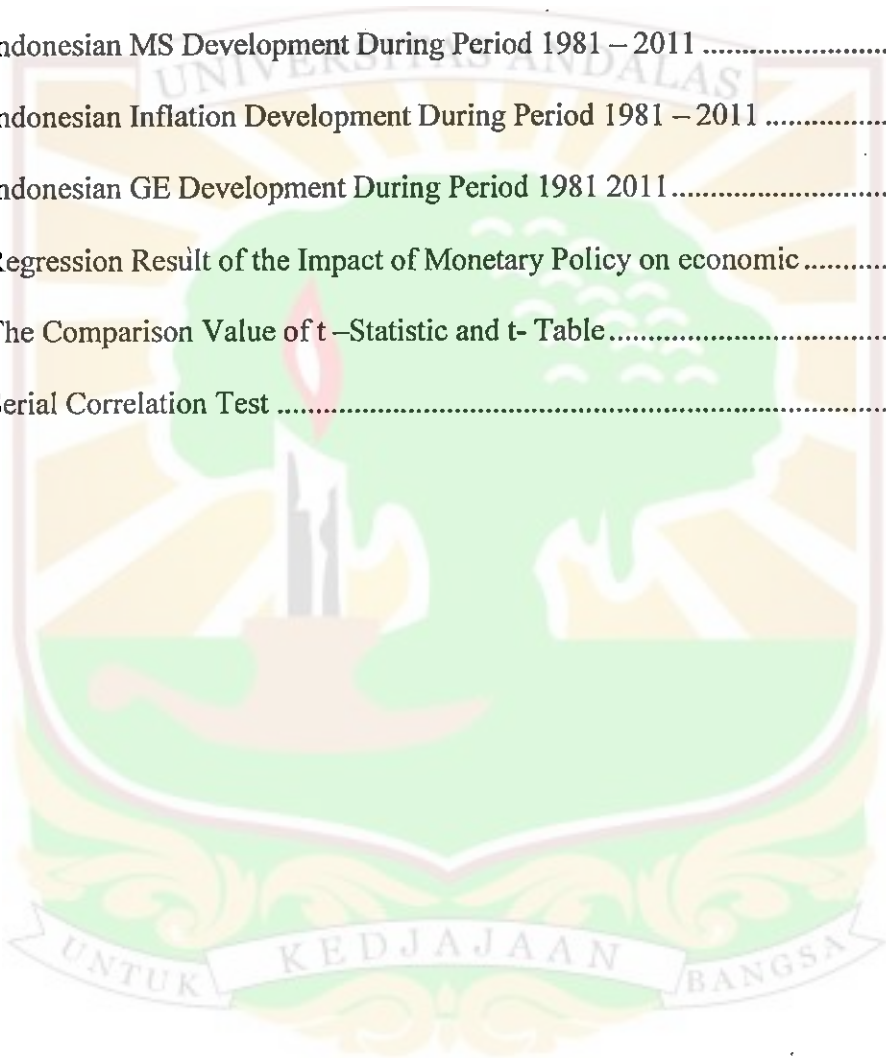
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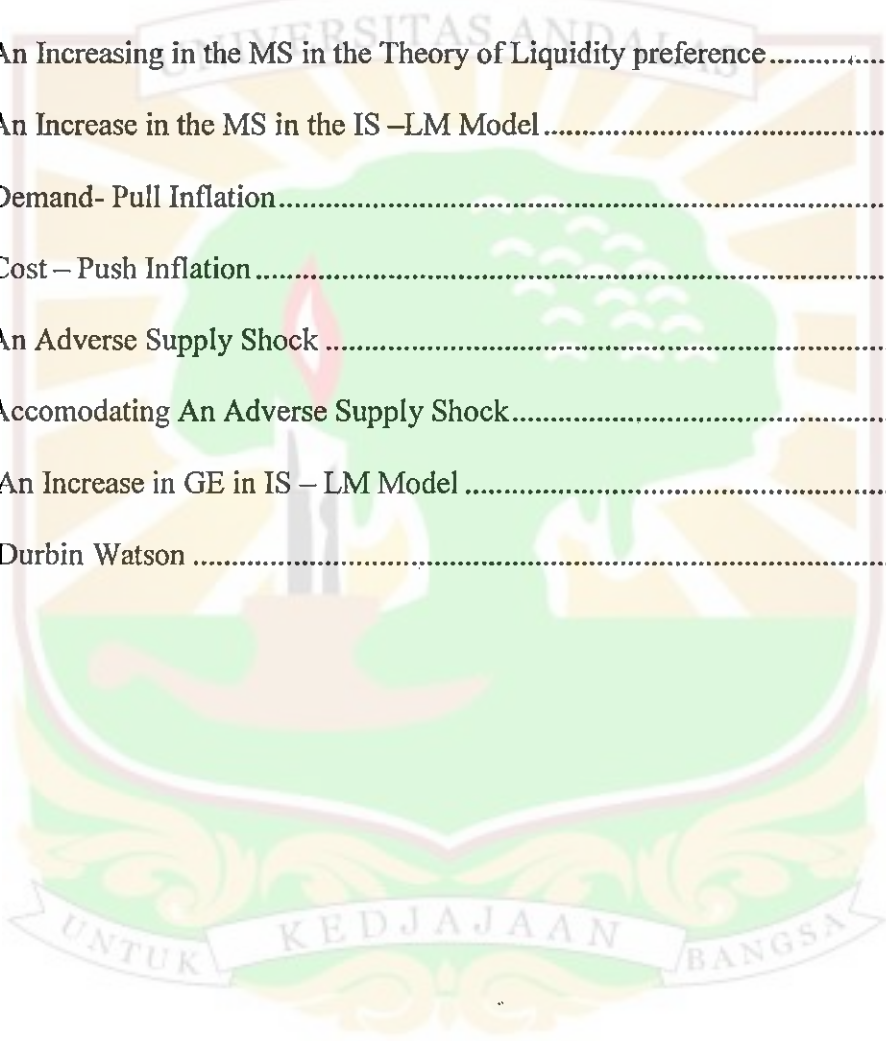
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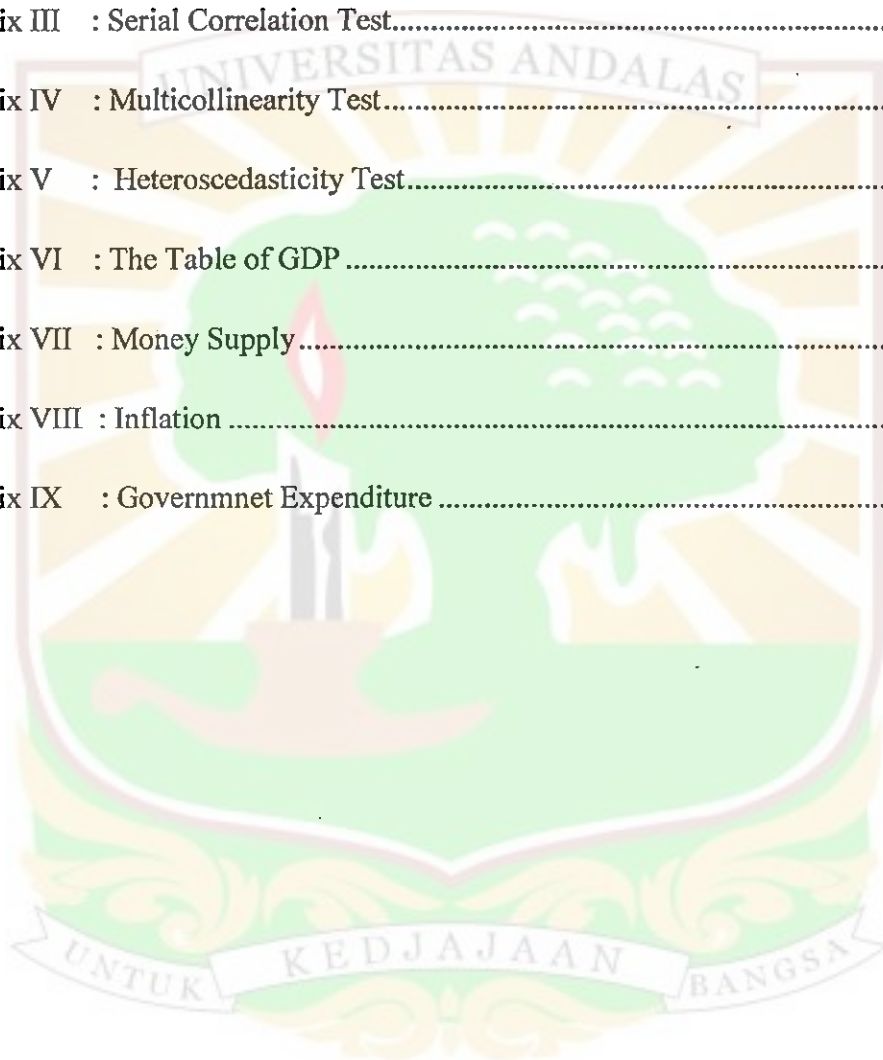
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CHAPTER I

INTRODUCTION

1.1 Background of the Research

One of the objectives of economic development of a country is to accelerate the economic growth of that country. Mudradjad Kuncoro (2004) stated that the economic development is one of the indicators of economic success. LPEM FE-UI (2005) research team stated that the increase and the balance growth of economic development can improve the prosperity of the society. Furthermore, Mangkoesobroto (1999) explained that there are three government's roles in driving the economy of the society as follow: the first, Allocating the main sources of economic activities. Second, distributing and stabilizing the economic activities and growth.

The analysis on economic growth development in consecutive years related to macro aspects is depicted in GDP based on constant price base. Positive economic growth actually shows the economic improvement. Contradictorily, negative growth affirms the decrease in economic growth. GDP is based on constant price base in which all goods productions and services are valued based on certain year price that is chosen as basic year. GDP based on this constant price reflects the growth of real goods productions and services in consecutive years. (Sadono Soekirno, 2004)

The main sectors as the components of gross domestic product (GDP) are needed in achieving particular level of economic growth which later become the

indicators of economic development. Therefore, the policy makers should regulate the policies to shape an adequate and appropriate situations and conditions to increase the gross domestic product (GDP). This is a kind of optimum conditions for the process of economic development.

The policy made by the government in achieving the economic growth is mainly monetary and fiscal policies that are exercised either all at once or separated (monetary – fiscal policy mix) by means of various instruments (Nopirin, 1998). In essence, the economic growth will be accomplished if the monetary and fiscal policies are exercised effectively in improving the economic growth. The effectiveness of the regulations are assessed through the increase of gross domestic product (GDP). This strategy is demanded to be able to achieve the economic objective and desired effects on long term economic growth (Hamburgert, 1973).

Moreover, the Indonesian government's policies on economic growth is not optimum yet in developing national economy holistically. Nevertheless, those policies have been oriented toward the main objective of economic development. This is proven through Indonesia's ability to overcome 1997 massive scales economic crisis. The development of various major economic indicators show the economic performance which exceeds the basic point. In 1998, the GDP experienced profound contraction, but it could develop in further consecutive years. The decrease of inflation level since October 1998 supported by the increase of rupiah's value is also a prove for this. Some adequate developments and advancements have been achieved concerned with banking and overseas credits restructuring. This

development plays an incisive role in stabilizing the economic condition, monetary situation, and banking.

The government faced that condition by various forms of policies in order to stabilize the monetary. The development of Indonesia's economy are obviously affected by the government's policies on monetary condition related to money supply and inflation. As Keynesian explain that a discretionary change in money supply permanently effects real output by lowering the rate of interest rate and through the marginal efficiency of capital, which stimulate investment and output growth. In fact, monetary policies depend on the economic condition in which different condition requires different policies as well.

The complexities of the problems and various economic or political constraints in exercising the policies actually have undermined the results of the policy itself. Thus, in order to develop the GDP, the roles of the government are significantly needed. The monetary policies on money supply and fiscal policies on government expenditure can stimulate the GDP through the increasing consumption and investment. Thus, in lower the inflation the government increase in money supply has to be used for improving the number and the activities of goods and services. It will undermine the inflation level. This aspect demands the design of policy which is able to massively contribute for next period GDP.

In fact in Indonesia the development of money supply, inflation and government expenditure in late five years (2007-2011) can stimulate the gross domestic product (GDP). See the following table:

Table 1:1: The Development of GDP; Money supply, CPI and Government Expenditure in Indonesia During Period 2007 -2011

YEAR	Gross Domestic Product	Money Supply	Consumer Price Index	Government Expenditure
2007	1964327	1649662	0,0641	757650
2008	2082456	1895839	0,0978	985731
2009	2177742	2141384	0,0481	937382
2010	2310690	2471206	0,0513	1126147
2011	2463242	2877220	0,0379	1202046

Source: Indonesian Financial Statistics BI and Bureau Statistic of Indonesia

Based on the above table, it is obvious that the money supply, government expenditure were increased every year. The inflation level as measure in consumer price index (CPI) was decreased every year. Furthermore, the increase of money supply and government expenditure, and the decrease of inflation level will tremendously escalate the economic growth and GDP. Since the roles of monetary policies are very significant in both before and post economic crisis, therefore, I am interested in conducting this research entitled “ *The Impact of monetary policy on Economic growth : Case study in Indonesia during period 1981 – 2011*”

1.2 Research Question

Based on the description of the background problem above, so the research question is does the monetary policy have an impact on economic growth in Indonesia during the period 1981 - 2011?

1.3 Research Objectives

The main objective of this study is to find out does the monetary policy have an impact on economic growth in Indonesia during the period 1981 - 2011.

1.4 Research Advantages

The advantages of this research are:

1. For academics and government, it is expected to know the effectiveness of monetary policy on the economic growth.
2. For practitioners, it is expected to give an understanding in economics analyze about the impact of monetary policy on economic growth.

1.5 Limitation of study

In order to focus the discussion, the author gives the following constraints: the first the variable of monetary policy are the amount of money supply (M2) and inflation as consumer price index (CPI) in Indonesia. Second the government expenditures as the other variable also influence the economic growth in Indonesia. Then the gross domestic product (GDP) at constant prices 2000 as economic growth in Indonesia. Although, In this research GDP as dependent variables and money supply (M2), consumer price index (CPI), government expenditure (GE) as

independent variables. The study trying to explore the question: does the monetary policy have an impact on economic growth in Indonesia during the period 1981 – 2011?

1.6 Writing Systematic

This thesis is written following the standard system. In chapter I, Introduction, consists of background, research problems, research questions, research objectives, and research advantage, limitation of study and writing systematic. Chapter II which is entitled Theoretical Framework, Literature Review, and Hypothesis will elaborate some theoretical frameworks and some literature reviews related to the study which deals with monetary policy, inflation, government expenditure and economic growth. In chapter III, Research Methodology, this chapter provides data, methodology, and other supporting concept used to test the model. In chapter IV, Economic Condition of Indonesia, provides description of economic growth, money supply, inflation and government expenditure during last 30 years. In chapter V, Analysis of impact monetary policy on economic growth, these provide empirical result and analysis of monetary policies interm of research object description, data analysis, and result explanation. As closing, chapter VI consists of Conclusions and Recommendations which is summarized in this chapter as well.

CHAPTER II

THEORITICAL FRAMEWORK AND LITERATURE RFEVIEW

2.1 Theoretical Framework

The significance of monetary policy on economic growth is profoundly related to the monetary policy as the regulation on controlling money supply to stimulate the economic growth. The increasing money supply can decrease the interest rate, which therefore stimulates the investment and increases the income.

2.1.1 Monetary Policy

2.1.1.1 Definition of Monetary Policy

Monetary policy is the process by which the monetary authority of a country controls the supply of money, often targeting a rate of interest for the goals of promoting economic growth and stability. Monetary policy is the process by which the government, central bank, or monetary authority of a country controls (i) the money supply , (ii) availability of money, and (iii) cost of money or rate of interest to attain a set of objectives oriented towards the growth and stability of the economy (Federal Reserve Board. January 3, 2006)

The official purpose usually include relatively stable prices and low unemployment. Monetary theory provides insight into how to craft optimal monetary policy. It is referred to as either being expansionary or contractionary, where an expansionary policy increases the total supply of money in the economy more rapidly than usual, and contractionary policy expands the money supply more slowly than

usual or even shrinks it. Expansionary policy is traditionally used to try to combat unemployment in a recession by lowering interest rates in the hope that easy credit will entice businesses into expanding. Contractionary policy is intended to slow inflation in hopes of avoiding the resulting distortions and deterioration of asset values. (wikipedia)

2.1.1.2 Instruments of Monetary Policy

In monetary policy the central bank controls the money supply indirectly by altering either the monetary base or the reserve – deposit ratio. To do this, the central bank has at its disposal three instruments of monetary policy : open market operation, reserve requirement and the discount rate. (in book Macroeconomic fourth edition, N. Gregory Mankiw)

1. Open market operation

The open market operation are the purchases and sales of government bonds by the central bank. When the central bank buys bonds from the public, the dollars it receives decrease the monetary base and thereby increase the money supply. When the fed sells bonds to the public, the dollars it receives decrease the monetary base and thus decrease the money supply.

2. Reserve requirement

The Reserve requirement are central regulations that impose on banks a minimum reserve – deposit ratio. An increase in reserve requirements raises the reserve deposit ratio and thus lowers the money multiplier and the money supply.

3. Discount rate

The discount rate is the interest rate that the central bank changes when it makes loans to banks. Banks borrow from central bank when they find themselves with too few reserves to meet reserve requirements. The lower the discount rate, the cheaper are borrowed reserves, and the more banks borrow at the central bank discount window. Hence, a reduction in the discount rate raises the monetary base and the money supply.

2.1.2 Money Supply

Money is an asset that is generally accepted as payment for goods and services or repayment of debt, as a way of avoiding the complexities and difficulties of barter, to pay for purchases and store wealth. The quantity of money available is called money supply. In an economy that uses commodity money, the money supply is the quantity of that commodity, such as most economies today, the government controls the supply of money: legal restrictions give the government a monopoly on the printing of money. Just as the level of taxation and the level of government purchases are policy instruments of the government, so is the supply of money. The control over the money supply is called **monetary policy**. (in Macroeconomic fourth edition, N. Gregory Mankiw).

2.1.2.1 Measuring Money

Because money is the stock of assets used for transactions, the quantity of money is the quantity of those assets. The assets included : (in macroeconomic fourth edition, N Gregory Mankiw)

1. Currency (C) , the sum of outstanding paper money and coins. Most day – to –day transactions use currency as the medium of exchange. M0 : base money.
2. M1, currency plus demand deposits, traveler’s checks, and other checkable deposits. $M1 \text{ (narrow money) } = M0 + \text{demand deposit}$
3. M2, M1 plus retail money market mutual fund balances, saving deposits (including money market deposit accounts), and small time deposits. $M2 \text{ (broad money) } = M1 + \text{time deposit}$
4. M3, M2 plus large time deposits, repurchase agreements, Eurodollars, and institution – only money market mutual fund balances.

2.1.2.2 The Money Market and the LM curve

The LM curve plots the relationship between interest rate and the level of income that arises in the market for money balances. To understand this relationship, we begin by looking at a theory of the interest rate, called the theory of liquidity preference.

1. Theory of Liquidity Preference

In his classic work *The general Theory*, Keynes offered his view of how the interest rate is determined in the short run. That explanation is called the theory of liquidity preference. Because it posits that the interest rate adjust to balance the supply and demand for the economy’s most liquid asset = money. just as the Keynesian cross is a building block for the IS curve, the theory of liquidity preference is a building block for the LM curve.

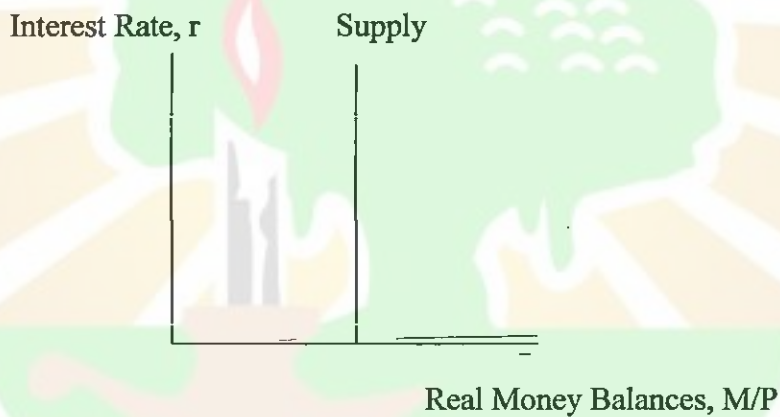
To develop this theory, we begin with the supply of real money balances. If M stands for the supply of money and P stands for the price level, then M/P is the supply

of real money balances. The theory of liquidity preference assumes there is a fixed supply of real balances. That is,

$$(M/P)_s = M/P$$

The money supply M is an exogenous policy variable chosen by a central bank. The price level P is also an exogenous variable in this model. These assumptions imply that the supply of real balances is fixed and, in particular, does not depend on the interest rate. Thus, when we plot the supply of real money balances against the interest rate in figure 2.1, we obtain a vertical supply curve.

Figure 2.1 : The supply of real money balances



Source : (Macroeconomics fourth edition, N Gregory Mankiw)

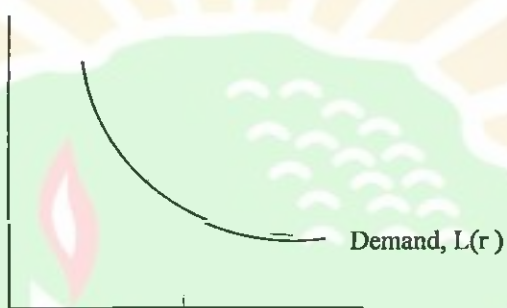
Next, consider the demand for real money balances. The theory of liquidity preferences posits that the interest rate is one determinant of how much money people choose to hold. The reason is that the interest rate is the opportunity cost of holding money: it is what you forgo by holding some your assets as money, which does not bear interest rate, instead of as interest – bearing bank deposits or bonds. When the interest rate rises, people want to hold less of their wealth in the form of money. Thus, we can write the demand for real money balances as

$$M/P)^d = L(r)$$

Where the function $L()$ shows that the quantity of money demanded depends on the interest rate. Figure 2.2 illustrates this relationship. This demand curve slopes downward because higher interest rates reduce the quantity of real balances demanded.

Figure 2.2 The Demand for Real Money Balances

Interest Rate, r



Real Money Balances, M/P

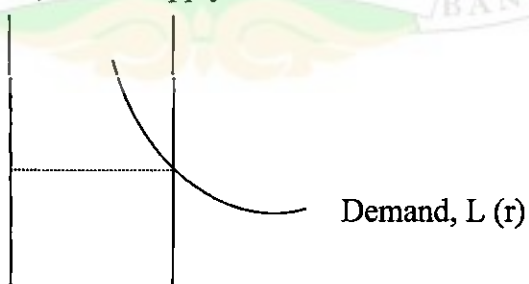
Source : (Macroeconomics fourth edition, N Gregory Mankiw)

According to the theory of liquidity preference, the interest rate adjust to equilibrate the money market. At the equilibrium interest rate, the quantity of real balances demanded the quantity equals the quantity supplied

Figure 2.3 : The theory of liquidity preference

Interest Rate, r

Supply



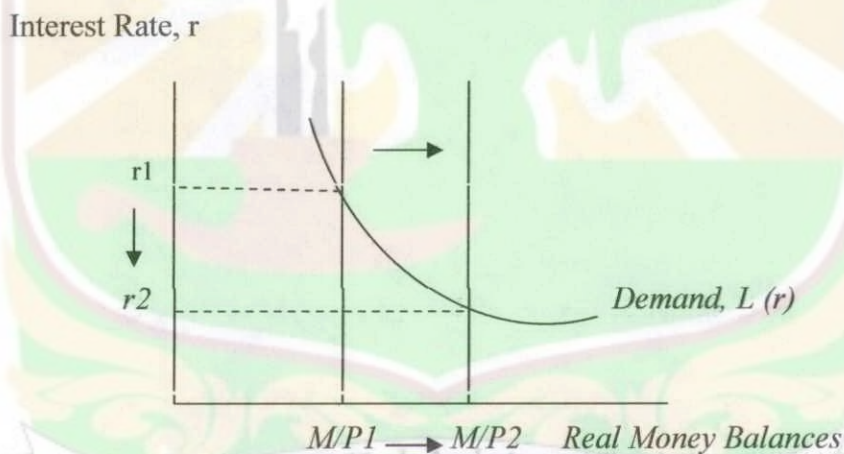
M/P

Real Money Balances, M/P

Source : (Macroeconomic fourth edition, N Gregory Mankiw)

Theory of liquidity preference to show how the interest rate responds to changes in the supply of money. Suppose, for instance, that the central bank suddenly increases the money supply. A high in M increase M/P , because P is fixed in the model. The supply of real balances shifts to the right, as in figure 2.4. The equilibrium interest rate from r_1 to r_2 , and the lower interest rate makes people satisfied to hold the higher quantity of real money balances. The opposite would occur if the fed had suddenly decreased in money supply. Thus, according to the theory of liquidity preference, a increase in the money supply lower the interest rate, and an decrease in the money supply raises the interest rate.

Figure 2.4 : A Increasing in the Money Supply in the Theory of Liquidity Preference



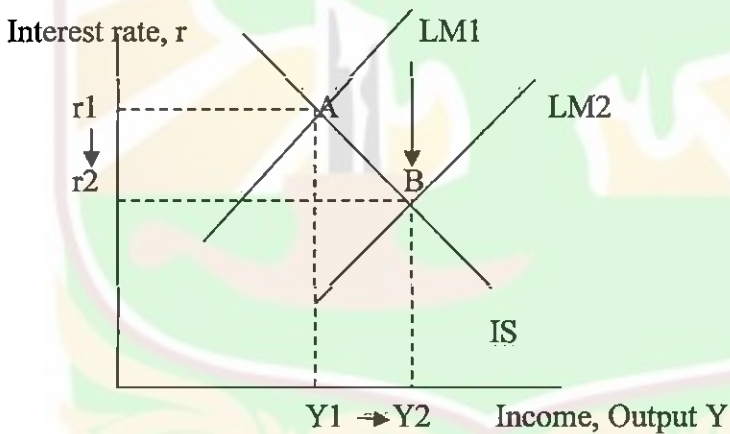
Source : (macroeconomic fourth edition, N gregory Mankiw)

2.1.2.3 IS –LM model

To examine the effects of monetary policy is a change in the money supply, so the IS – LM model can we use. The IS – LM model shows how a shift in the LM curve affects income and the interest rate.

An increase in M leads to an increase in real money balances M/P , because the price level P is fixed in the short run. The theory of liquidity preference shows that for any given level of income, an increase in real money balances leads to a lower interest rate. Therefore, LM curve shifts downward, as in figure 2.5. The equilibrium moves from point A to point B. The increase in the money supply lowers the interest rate and raises the level of income.

Figure 2.5 An increase in the money supply in the IS – LM model



Source : (Macroeconomics fourth edition, N. Gregory Mankiw)

2.1.3 Inflation

2.1.3.1 Definition of Inflation

Inflation is often defined as the tendency of rising prices in general continuously, within a certain time and place (Korteweg, 1973; Ackley, 1978;

Nopirin, 1997; and Boediono, 2001). Its presence is often interpreted as one of the main problems in the economy of the country, in addition to unemployment and balance of payments imbalances. However, despite being one of the major problems in the economy, most experts agree that positive impact of inflation will be maximum by the inflation rate is rather low, ranging between 5 percent – 6 percent per year (Glassburner, Chandra,1981:106). In other words, inflation is less or more than that number, will have a tendency to give impact to the economy.

2.1.3.2 Measuring Inflation

There are some role to measure the inflation, they are :

1. Fixed – weight index – CPI

The consumer price index (CPI) measures the cost of buying a fixed basket of goods and services representative of the purchases of urban consumers

2. Deflator – GDP or personal consumption expenditure deflator

the GDP deflator is the ratio nominal GDP in a given year to real GDP of that year

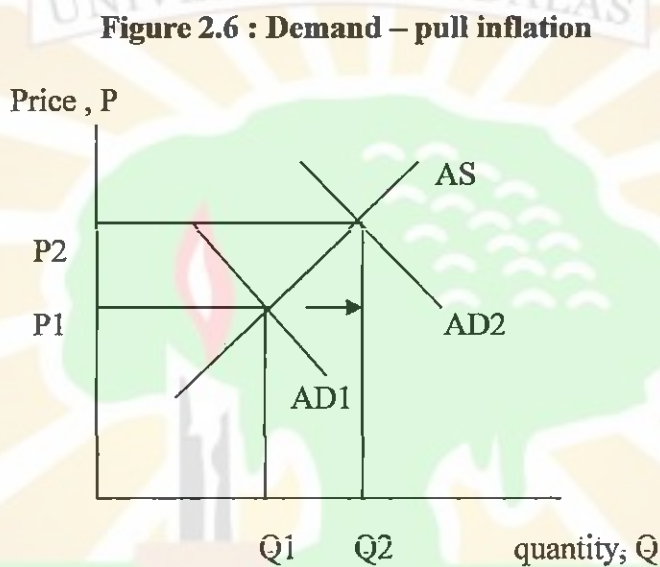
3. Chain – weight index – half way between fixed – weight and a deflator

2.1.3.3 Two Causes of Rising and Falling Inflation

Theoretically, the rise in inflation can be caused by several things. According Saediyono (2000 : 179), from the cause of inflation can arise due to an increased in demand (demand pull inflation), because the pressure rise in production cost (cost push inflation), as well as both (mixed inflation).

1. Demand – Pull Inflation

Inflation is caused by demand for some goods that are too strong. Therefore the price increases as a result of the rising demand to the level of production which has been in a state of full employment. Figure 2.6 illustrates the graph of demand – pull inflation. Initial equilibrium price level is P_1 and the Quantity of goods demanded is for Q_1 .



Source : Soediyono (2000)

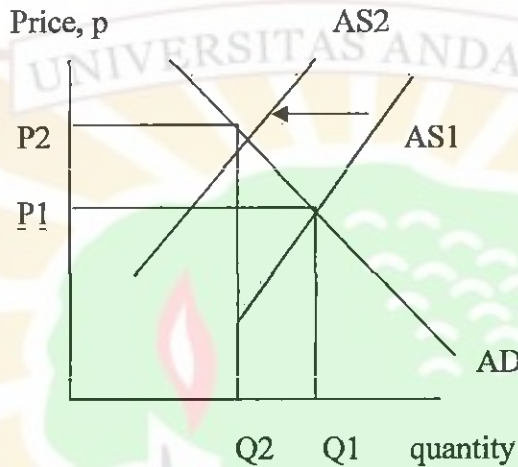
Due to public demand for goods (aggregate demand) increases, for example because of increased the government expenditure or increase in foreign demand for goods exports, the aggregate demand (AD) curve shifts to the right from the AD1 to AD2. As a result of shifting the AD curve, the rate of price rises from P_1 to P_2 and causing inflation

2. Cost Push Inflation

This inflation was caused by rising in production costs. The increase in production costs of goods and services will push the price increases. In figure 2.7

shows that when there is an increase in production costs, i.e. due to rising prices of raw materials for production, the aggregate supply (AS) curve will shift to the left from AS1 to AS2. As a result, production levels declined and led to price rising, i.e. from P1 to P2.

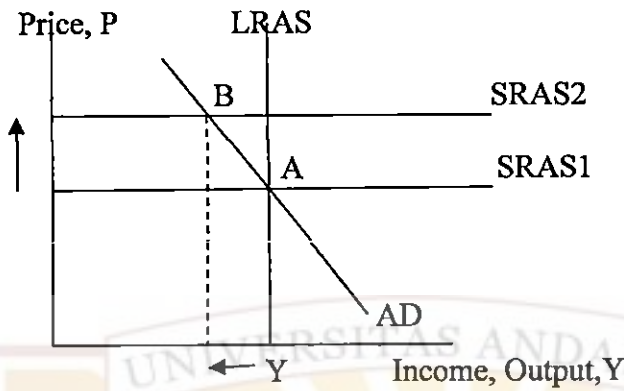
Figure 2.7 : Cost – push inflation



Source: Soediyono (2000)

The cost – push inflation occur because adverse supply shocks are typically events that push up the costs of production. A beneficial supply shock, such as the oil glut that led to a fall in oil prices in the 1980s, makes u negative and causes inflation to fall. The affect of adverse supply shock (push costs and prices upward) make the short run aggregate supply curve shifts upward, the supply shocks may also lower the natural level of output and thus shift the long – run aggregate supply curve to the left. (Macroeconomic fourth edition, N. Gregory Mankiw).

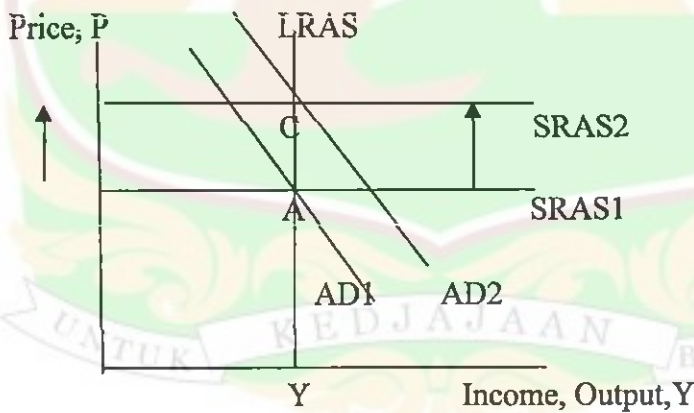
Figure 2.8: An adverse supply shock



Source: (Macroeconomic fourth edition, N. Gregory Mankiw)

Then in response to an adverse supply shock, the central bank can increase aggregate demand to prevent a reduction in output. The economy moves from point A to point C. the cost of this policy is a permanently higher level of prices. (Macroeconomic fourth edition, N Gregory Mankiw)

Figure 2.9: Accommodating an adverse supply shock



Source: (Macroeconomic fourth edition, N. Gregory Mankiw)

2.1.3.4 Theory of Inflation

According to monetarism, inflation is a monetary problem. The State that inflation is a monetary problem; it means that increasing the growth of the money supply causes increasing inflation. Thus, the quantity theory of money states that the central bank, which controls the money supply, has ultimate control over the rate of inflation. If the central bank keeps the money supply stable, the price level will be stable. If the central bank increases the money supply rapidly, the price level will rise rapidly.

2.1.4 Government Expenditure

2.1.4.1 Definition of Government Expenditure

Government expenditure are the goods and services bought by federal, state and local government. The federal government buys guns, missiles, and the services of government employees. Local government buy library books, build schools, and hire teachers. These purchases are only one type of government expenditure. The other type is transfer payments to households, such as welfare for the poor and social security payments for the elderly. Unlike government expenditure, transfer payments are not made in exchange for some of the economy's output of goods and services. Therefore, they are not included in the variable G .

Transfer payments do affect the demand for goods and services indirectly. Transfer payments are the opposite of taxes: they increase household's disposable income, just as taxes reduce disposable income. Thus, an increase in transfer payments financed by an increase in taxes leaves disposable income unchanged. If government expenditure equals taxes minus transfer, then $G = T$, and the government has a balanced budget. If G exceeds T , the government runs a budget deficit, which is

turns by issuing government debt that is, by borrowing in the financial markets. If G is less than T , the government runs a budget surplus, which it can use to repay some of its outstanding debt.

In general, government expenditure consists of routine expenditure and development expenditure. The routine expenditure is expenditure that is used for maintenance and operation of government that includes expenditure, shopping goods, debt interest payments, subsidies and other expenditures. Through routine expenditures, the government can fulfill its mission in order to maintain the smooth operation of government, operations and maintenance of state assets, the government obligation to a third party, the protection of the poor and underprivileged as well as maintaining economic stability. The development expenditure is expenditure that is used to fund the development in the field of economy, social, and public and community, which adds the capital of the society in the form of development in both physical and non-physical infrastructure, which is implemented in a certain period.

2.1.4.2 Theory of Government Expenditure

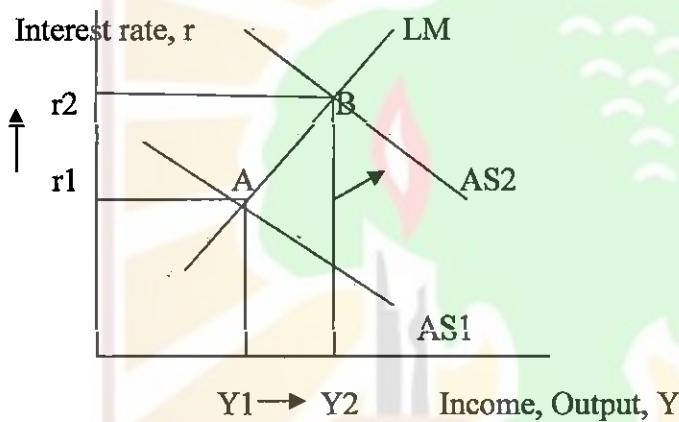
1. The Keynesian Cross

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

The Keynesian cross and the theory of liquidity preference explain that when the government increases its purchases of goods and services, the economy's

planned expenditure rises. The increase in planned expenditure stimulates the production of goods and services, which causes total income Y to rise. Then in IS – LM model shows how these shifts in the IS curve affect income and the interest rate when an increase in government purchases. An increase in government purchases shift the IS curve to the right. The equilibrium moves from point A point B. The increase in government purchases raises both income and the interest rate.

Figure 2.10: An increase in government expenditure in IS –LM model



Source: (Macroeconomics fourth edition, N.Gregory Mankiw)

2.1.5 Economic Growth

2.1.5.1 Definition of Economic Growth

The important lesson about economics is material standards of living have improved substantially over time for most families in most countries. This advance comes from rising incomes, which have allowed people to consume greater quantities of goods and services.

To measure economic growth, economist use data gross domestic product (GDP), which measures the total income of everyone in the economy. The GDP also

as the total expenditure on the economy's output of goods and services. So the definition of gross domestic product (GDP) is nation's total income and the total expenditure on its output goods and services.

In macroeconomic the sources of the economy's output and total income are the factors of production, capital and labor and the production technology. Thus, if occur difference income, it is cause the differences in capital, labor and technology. In theory of economic growth there are some theories. The first is Solow growth model. The Solow growth model shows how saving, population growth, and technological progress affect the level of an economy's. The Solow growth model is designed to show how growth in the capital stock, growth in the labor force, and advances in technology interact in an economy, and how they affect a nation's total output of goods and services.

The Solow growth model shows that in the long run, an economy rate of saving determines the size of its capital stock and thus it level of production. The higher the rate of saving, the higher the stock of capital and the higher the level of income. Then an increase in the rate of saving causes a period of rapid growth, but eventually that growth slows as the new steady state is reached. Thus, although a high saving rate yields a high steady state level of output, saving by itself cannot generate persistent economic growth. The Solow model shows that an economy's rate of population growth is another long run determinant of the standard living. The higher the rate of population growth, the lower the level of output per worker.

Second is endogenous growth theory. In endogenous growth theory, saving and investment can lead to persistent growth.

2.2 Literature Review

Based on the impacts of monetary policy on economic growth, in this research I used some literature reviews to show the results from previous researches and comparing them to mine. The first review is on Elliot's research (1975) which examined the relative importance of money supply changes compared to government expenditure changes in explaining fluctuations in nominal GNP. He gripped the opinion that this area of study had continued capacity to extend the debate among economists. He estimated St. Louis equation with the use of OLS technique. The result is the fluctuations in nominal GNP more importantly attach to monetary movements than to movements in federal government expenditure.

Different from the Elliot's opinion, the Chowdhury (1986) viewed the fiscal rather than monetary action had greater influence on economic activities. Then in analyzing his results he confirmed the results of some authors and concluded that fiscal actions exert greater impacts on economic activities in Bangladesh than monetary actions.

Review on Tan and Baharumshah (1999) show that the dynamic causal chain among money, real output, interest rate, and inflation is reexamined in the context of a small fast-growing economy using the recently developed techniques of Johansen's multivariate co-integration analysis followed by VECM, Granger causality, variance decompositions, and impulse response functions. The results of the multivariate co-integration tests suggested a stable long-run equilibrium relationship exists among these macroeconomic variables. The short-run results based on vector error-

correction modeling, on the other hand, support the New Keynesians' view that money is no neutral, at least in the short-run.

It also indicates that monetary policy can contribute to the stability of domestic prices. M1, among the various definitions of money stock, has been identified as the most effective intermediate monetary target to curb inflation. M3, in turn, has been suggested as the most appropriate intermediate target to promote sustainable economic growth with contained inflation. For this economy, the deviation of the macroeconomic activity from its long-run equilibrium is adjusted through changes in the money stock and prices. The conclusion the tan found M1 and M3 appear to have significant effect on output and prices using VECM but not in M2, because M2 does not lead prices in the short run, but instead responses to changes in prices.

Review on McPherson, and Rakowski (2000:9) is showing the investigation the effect of the money supply, inflation, and the exchange rate on the real output growth with use the single equation estimations and data (1970 to 1996) in Kenya. The result shows that inflation have a negative effect on real income growth, The real money growth have positive effect on real income growth, and the effect of the exchange rate on output growth is negative relationship in Kenya.

Review on Ajisafe's research (2002) monetary policy has significant effect on economic growth rather than fiscal policy in investigates the relative effectiveness of monetary and fiscal policy on economic growth in context of Nigeria using annual time series data during the year 1970 to 1998 with used ordinary least square (OLS) technique.

Review on Mahendra's research (2008) shows that the analysis of monetary policy and its influence of economic growth in Indonesia, with use time series data 1986 -2005. He also made use of the ordinary least square (OLS) and co-integration technique in his empirical investigation. The result are interest rate (SBI), loan and investment have significantly influence on the economic growth and loan is variable which significantly has a dominant influence on the economic growth. The variable of interest rate (SBI) have negative impact on economic growth, then variable of loan and investment have positive impact on economic growth in Indonesia.

Review on Naury's research (2005) show that the analysis of money supply, interest rate and economic growth, with used time series data 1970 – 2002 and test use granger causality. The result showed that the M2 have relationship with the interest rate and GDP have relationship with M2 significant. Where the increasing M2 will cause increasing the interest rate and then increasing of economic growth will cause increasing the money supply (M2).

Ali, Irum and Ali (2008) examine that whether fiscal stance or monetary policy is effective for economic growth in case of South Asian countries (Pakistan, India, Sri Lanka, and Bangladesh) using annual data series during 1990 until 2007. Gross domestic product, broad money (M2) and fiscal balance were considered. The researchers found the result with use Auto Regressive Distributed Lag (ARDL) and ECM there is long run relationship among the variables under consideration. Money supply appeared as a significant variable in both short run as well as in long run, while Fiscal deficit is insignificant in short run as well as in long run. The results

show that monetary policy is a powerful tool than fiscal policy in order to enhance economic growth in case of south Asian economies.

Review on Mohammad et al research (2009) examines the long run relationship among M2, inflation, government expenditure and economic growth in Pakistan by using annual time series data from 1977 to 2007. In his work, they estimated the variable using Johnson co-integration test to find out long run association and granger causality test to find out bilateral and unilateral causality. The result shows that public expenditure and inflation has significant and negative effect while M2 has significant and positive effect on economic growth in the long run. The reason behind the negative association among public expenditure, inflation and economic growth is the most of public expenditure is non development and inflation is due to adverse supply shock (cost push inflation) in case of Pakistan.

Review on Jawaid et al research (2010) shows that the investigates the comparative effect of fiscal and monetary policy on economic growth during period 1981 to 2009 in Pakistan. In analyzing his results they confirm the co-integration result suggests that both monetary and fiscal policy have significant and positive effect on economic growth. The coefficient of monetary policy is much greater than fiscal policy which implies that monetary policy has more concerned with economic growth than fiscal policy in Pakistan.

Review on Jawaid, Qadri and Ali research (2011) examines the effect of monetary, fiscal and trade policy on economic growth in Pakistan using annual time series data from 1981 – to 2009. Money supply (MS), government expenditure (GE) and trade openness (TO) are used as proxies of monetary, fiscal, and trade policy

respectively. They found the result of the money supply, government expenditure and trade openness are considered as proxies of monetary, fiscal and trade policy respectively co- integration and error correction model indicate the existence of positive significant long run and short run relationship of monetary and fiscal policy with economic growth.

Waliullah and Rabbi (2011) shows that the long run relationship amongst money, price level and the GDP are of significant importance for monetary policy formulation in a developing country like Pakistan. Time-series econometric techniques such as unit roots, ARDL and ECM are employed to quarterly data for the year 1972:1 to 2005: IV. They results clearly suggest that there is a stable long run relationship amongst money supply (M1), GDP and the CPI in Pakistan. It means that change in money supply positively affects the income growth, while the price level has a significant negative impact. Radical changes in monetary policy in the past have significantly affected the movement of the macro economy in the country.

Review on Husain and Abbas research (1999) show that the causal relationship between money and income and between money and prices during period 1949–50 to 1998–99 and employing Granger causality and Error Correction Models in Pakistan. The analyses indicate the long run relationship among money, income, and prices. The analyses further suggest one way causation from income to money implying that probably real factors rather than money supply has played a major role in increasing Pakistan's national income. This implies that monetary expansion increases, and is also increased by, inflation in Pakistan.

Review on Adefeso's research (2010) re-examines the relative effectiveness of monetary and fiscal policy on economic growth during the 1970 to 2007. The error correction mechanism and co-integration technique were employed to analyze the data and draw policy inferences. The result suggests that the effect of monetary policy is dominant than fiscal policy on economic growth in Nigeria. They analyzed that degree of openness exclusion does not weak the result. It is recommended that they should more focus on monetary policy in Nigeria for economic stabilization.

Review on Ogunmuyiwa and Ekone research (2010) investigated the relationship between money supply and economic growth during period 1980-2006 in Nigeria. The study employed OLS and Error correction mechanism in order to check the relationship while Granger causality tests for checking the causality. The results revealed that although money supply is positively related to growth but the result is however insignificant in the case of GDP growth rates on the choice between contractionary and expansionary money supply.

Chimobi and Uche (2010) the empirical relationship between Money, Inflation and Output in Nigeria with used Co-integration and Granger-causality test analysis. From the estimating the researcher findings revealed no existence of a co-integrating vector in the series used. Money supply was seen to Granger cause both output and inflation. The result suggest that monetary stability can contribute towards price stability in the Nigerian economy since the variation in price level is mainly caused by money supply and also conclude that inflation in Nigeria is too much extent a monetary phenomenon. Also, they find empirical support in context of the

money-prices-output hypothesis for Nigerian economy. M2 appears to have a strong causal effect on the real output as well as on prices.

Review on Khosravi and Karimi research (2010) investigate the relationship between monetary, fiscal policy and economic growth during period 1960 to 2006 in Iran. Gross domestic product, narrow money (M1), government expenditures, exchange rates and consumer price index have been considered. Bound testing (ARDL) approach and co = integration were used. From the estimation get the results confirm that there exists co-integration relation between growth, monetary and fiscal policy.

The results identify the effect of inflation and exchange rates on growth are negative, government expenditures have significant and positive effect on economic growth. It is suggested that the policy makers must have to diminish inflation rate and exchange rates to find the stability in the future. The estimated coefficients of the long – run relationship show that government expenditure has a very high significant impact on GDP growth). A 1 percent increase in capital investment leads to approximately 0.57 percent increase in GDP. The inflation and exchange rate variables have a negatively signed. This is indicating that increase of inflation and exchange rate should decrease economic growth in Iran. Considering the impact of money stock, it is not statically significant with wrong signed. Therefore, this variable has not a direct effect on GDP in Iranian economy so that must consider on indirect effect of this variable on GDP in Iran.

Review on Nouri and Samimi research (2011) shows that the impact of monetary policy on economic growth in Iran. In this study they are shows that the

relationship between money supply and economic growth in Iran adopting ordinary least square (OLS) technique and also use data obtained from the central bank of Iran during 1974 to 2008. They found that there is a positive and significance relationship between money supply and economic growth in Iran.

Review on Shalih Husni's research (2010) examines the impact of monetary policy on economic growth in Indonesia for the period 2004.8 – 2009.7 using at model of VAR. The result of analysis is impulse response function show there are relation of residual although small relative. While at model of VAR shows negative response of LPDB to existence of surprise of SBI. Inflation response positively to existence of surprise of SBI so that happened puzzle prize. Simply can be to told that by the existence of monetary policy which applied by government through monetary authority can improve National economic growth.

Review on Hossain's research (2011) shows that the causal relationship between money supply (M2) and nominal income during 1974 to 2008 in Bangladesh. The study found that nominal income and money supply are co-integrated, indicating that there is a stable long-term relationship between them. The implication of this result is that the monetary authority should try to provide long run price stability or a low average rate of inflation (Biswas and Sunders 1999).

This type of monetary policy can provide stable economic environment, which helps economic agents in their decision making (Eichenbaum 1997). Thus it can be concluded that changes in money supply will have an important implications for changes in Bangladesh's nominal income in the long run. The existence of co-integration leads us to examine the short run dynamics in the money income

relationship in Bangladesh. We applied the error correction models to make inference about the short run impact of monetary changes on nominal income. They indicate the feedback relationship between the two, which is consistent with some of the early studies.

Review on Ahmed and Suliman research (2011) investigated the long-run relationships between three macroeconomic variables (real Gross Domestic Product (GDP), money supply (MS) and price level (CPI)) during period 1960 to 2005 in Sudan. To explore the short-run direction of causality between GDP, MS and CPI, Granger Causality test has been applied and in order to investigate the existence of long-run relationship, co-integration analysis has been employed. Researcher get the result the direction of causation between real GDP and prices was found to be unidirectional from real GDP to CPI without any feedback.

Regarding the causal relationship between money and prices, the analyses suggests that the causation runs from money supply to prices, but price level does not causes money supply. Finally, there is no causality between real GDP and money supply in the case of Sudan during the period 1960 – 2005. Further, the co-integration analysis established that the real GDP, money supply and CPI were found to be co-integrated suggesting a existence of long-run relationship.

Review on Yadav's research (2009) show that the investigates empirically the existence of a long-run relationship between money supply (MS) and national income (GNP) during period 1950-51 to 2006-07 in India. The Granger causality results did not reveal a uniform direction of causality between money and income in India. The direction of causation between real money and real income was found to

be uni-directional from real GNP to real MS during the full period of analysis where as no direction of causation was found between real money and real income, during pre and post-liberalization periods.

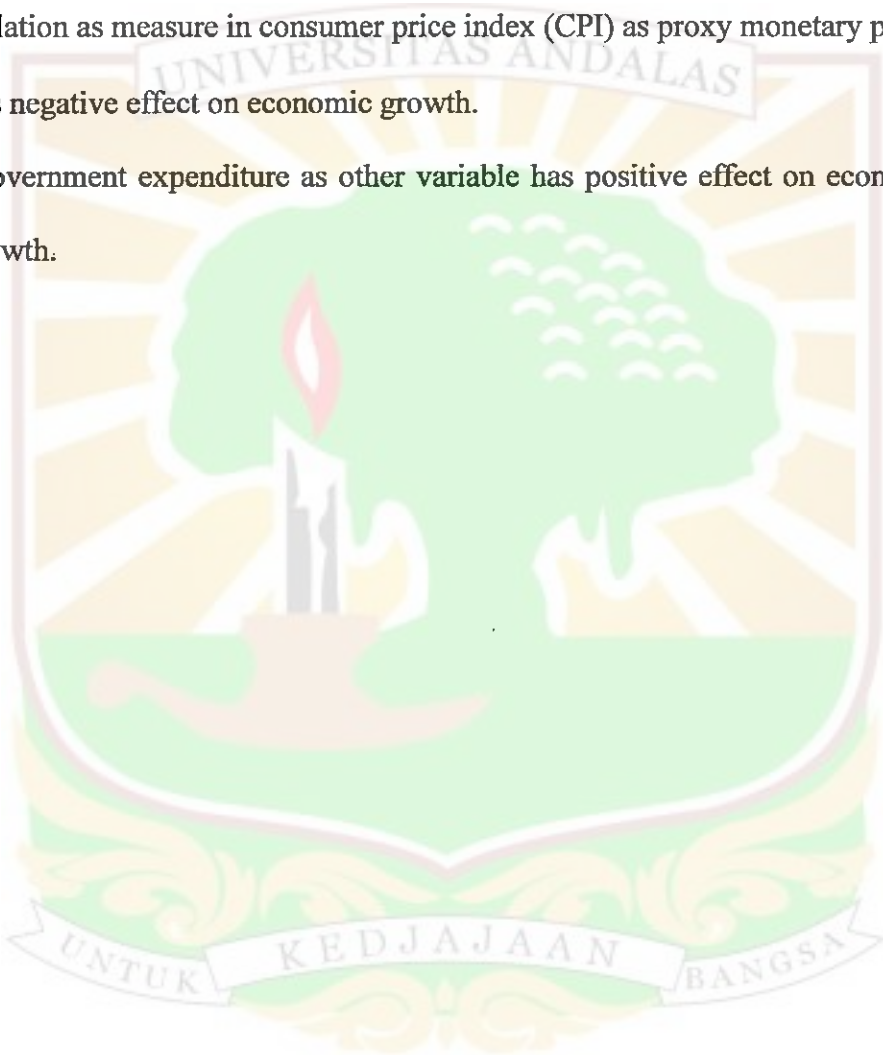
Hussain, Wijeweera, and Hoang, explores the dynamic inter-relationships among the macroeconomic variables money, fiscal, real exchange rate, foreign interest rate and output in the context of small open ASEAN economies using the recently developed Johansen's multivariate co-integration analysis followed by vector error correction model, Granger causality, and ergogeneity test. The estimation results of the multivariate co-integration tests implied a stable long-run relationship exists among these variables in all selected ASEAN countries. The long run Granger Causality relationship for money supply equation has been found for Malaysia and the Philippines. Only government expenditure has been found for long run Granger causality for Malaysia, Singapore and Thailand.

One way of causation between money supply and aggregate demand (or real output) of short run Granger causality have been found for only three countries Malaysia, Philippines and Singapore while there is no short run causality between government expenditure and aggregate demand in any country. The effect of financial liberalization on money supply is negatively significant for Philippines. In addition, the effects of the Asian financial crisis on the money equation are negatively significant only for Indonesia and Philippines. There is no effect of financial liberalization and the Asian financial crisis on government expenditure for all ASEAN economies. Only the Asian financial crisis effects on real exchange rate are positively significant for Philippines and Thailand.

2.3 Hypothesis

From several descriptions of the theory and previous research that has been described, it can be hypothesized as follows:

1. Money supply (M2) as proxy monetary policy has positive effect on economic growth
2. Inflation as measure in consumer price index (CPI) as proxy monetary policy has negative effect on economic growth.
3. Government expenditure as other variable has positive effect on economic growth.



CHAPTER III

RESEARCH METHODOLOGY

3.1 Types and Data Source

This research use quantitative data and secondary data as based on estimation. Secondary data was chosen because those data are available in several online sources.

Data consists of two types. There are primary data and secondary data. Primary data is the raw data that we use first to test the working hypothesis and then as evidence to support our claim. In history, for example, primary sources include document from the period or person we are studying, objects, maps, even clothing; in literature or philosophy, our main primary source is usually the text we are studying, and our data are the words on the page. In such fields we can rarely write a research paper without using primary sources (Wayne C. Booth et al: 2008).

Research reports that use primary data to solve research problems are written for scholarly and professional audiences. Researchers read them to keep up with their field and use what they read to frame problems of their own by disputing other researchers' conclusions or questioning their methods. We can use their data to support our argument, but only if we cannot find those data in a primary source (Wayne C. Booth et al: 2008).

This research works with comprehensive data set or what we called secondary data that includes the information about all variables that used for the methodology. It shows about GDP, money supply, inflation and goverment

expenditure. Data mentioned are taken from the *Statistik Ekonomi Keuangan Indonesia* from Central Bank of Indonesia various editions, Bureau Statistic of Indonesia, and other various relevant sources such as journals, Internet, newsletters, books, articles, newspapers, magazines and research results related to the research.

3.2 Variables

3.2.1 Dependent Variable: Gross Domestic Product (GDP)

The variable GDP as proxy economic growth measure based on the gross domestic product (GDP) at constant prices 2000 (in billion rupiah). Gross domestic product (GDP) is defined as the total value of final goods and services produced within a country during a certain period of time.

3.2.2 Independent Variable

1. Money Supply

The variable money supply as proxy monetary policy measure based on the (M2) in billion rupiah. M2 or broad money is defined as the amount of narrow money (M1) with the time deposit and saving deposit.

2. Inflation

The variable inflation as proxy monetary policy measure based on consumer price index (CPI) (annual %). The inflation is the tendency of prices to rise in general and continuous, inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.

3. Government Expenditure

The variable government expenditures as the other variable which influence the economic growth. To size government expenditures in this research the writer used total routine expenditures and development expenditures in billion rupiah.

4. Error Term

Error term is a variable in a statistical and mathematical model, which is created when the model does not fully represent the actual relationship between the independent variable(s) and the dependent variable. As a result of this incomplete relationship, the error term is the amount at which the equation may differ during empirical analysis.

3.3 Methods of Analysis Data and Model Analysis

3.3.1 Methods of Analysis Data

3.3.1.1 Descriptive Analysis

Data used in this research is data time series; begin from 1981 – 2011 year. To presentation of data on economic growth taken from GDP Indonesia in constant price 2000 from year to year. Then to money supply, data used is report M2 in Bank Indonesia. Inflation, data used based on consumer price index (CPI), then Government expenditures, used data from total the routine expenditures and development expenditures nation. Method based on this analysis is a description of factors related to the problems referred to as a supporter of the results of quantitative methods analysis.

3.3.1.2 Quantitative Analysis

This analysis aims to determine the presence or absence of influence between the dependent variable with three independent variables. Used as dependent variable is economic growth (GDP), and independent variable are M2, CPI and GE. To see the effect independent variable with dependent variable, estimation techniques used Ordinary Least Square (OLS). In the process of testing model the equations in this research used E-views 6.

3.3.2 Analysis Model

Model that used to analyze the pattern of relationships between variables in this study refers to the model used by Mohammad et al (2009) in study an empirical between money supply, government expenditure, output and prices in Pakistan. The equation of Mohammad et al model (2009) as following:

$$\text{GDP} = \beta_1 + \beta_2\text{M2} + \beta_3\text{CPI} + \beta_4\text{GE} + \mu \dots \dots \dots (3.1)$$

Where:

- GDP : Gross Domestic Product (in Constant Prices 2000)
- M2 : Money Plus Queasy Money
- CPI : Consumer Price Index
- GE : Government Expenditure
- β_1 : Constanta
- $\beta_2, \beta_3, \beta_4$: Regression coefficient
- μ : Error term

In discussing the effect between dependent and independent variables used to measure non-linear equations of variables in the regression is not too big and to avoid autocorrelation, the size of the variable usage is limited by Ln.

Considering the log – linear specification, equation (3.1) in its explicit form becomes:

$$\text{Ln_GDP} = \beta_1 + \beta_2 \text{Ln_M2} + \beta_3 \text{CPI} + \beta_4 \text{Ln_GE} + \mu \dots \dots \dots (3.2)$$

Where:

lnGDP : Ln from gross domestic product (GDP)

lnM2 : Ln from money supply

lnGE : Ln from government expenditures

CPI : Consumer price index

β_1 : Constanta

$\beta_2, \beta_3, \beta_4$: Regression coefficient

μ : Error term

3.4 Hypothesis Testing

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

3.4.1. The Coefficient of Determination

Due to Nachrowi and Usman (2002), to test the adequacy of regression models, can be seen from the coefficient of determination (R-Sq). The value of determination coefficient is a measurement which shows the large contribution of the

explanatory variables against response variables. The greater the coefficient of determination, then the model will be better.

3.4.2 F - test

According to Nachrowi and Usman (2002), 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:

H_0 = independent variable have no significant effect to the dependent variable

H_a = independent variable significantly affects to the dependent variable

$$F_{test} = \frac{R^2 / (k-1)}{(1-R^2) / (n-k)}$$

R^2 = determination coefficient

k = independent variable

n = total sample

F-table = $\{\alpha; df_1 = (n-1); df_2 = (n-k-1)\}$, then if F-test > F-table, H_0 is rejected and we accept H_a . It means that all of independent variables together significantly affect dependent variable.

3.4.3 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.

$$H_0 = \beta$$

$$H_a : \beta \neq 0$$

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

$$\{T_{test}\} = \frac{\bar{\beta}_j}{SE(\bar{\beta}_j)}$$

$$\{T_{table}\} = \{\alpha; df = (n - k)\}$$

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 of independence variables to dependence variables.

3.5 Statistical Testing

Due to Baltagi (2005), the assumption is needed for making multiple regression equation testing to see whether the regression model that was made could be applied.

3.5.1 Serial Correlation

To detect serial correlation through comparing the value X^2 calculate with X^2 table, check the following rules as follow (Rahmanta: 2009):

1. If X^2 calculation value > X^2 Table, thus the hypothesis which states that the free model of serial correlation problem is rejected.
2. If X^2 calculation value < X^2 table, thus the hypothesis which states that the free model of serial correlation problem is accepted.

3.5.2 Multicollinearity

Ragner Frish created double multicollinearity. It means there is a perfect linear relationship among independent variables in regression model. To test the multicollinearity, the writer uses correlation partial approach. In this test, the writer detects multicollinearity by comparing the value of R^2_1 and R^2_{11} , R^2_{12} , R^2_{13} . If the R^2_1 value $>$ R^2_{11} , R^2_{12} , R^2_{13} thus the model not found there is multicollinearity. If the R^2_1 value $<$ R^2_{11} , R^2_{12} , R^2_{13} thus the model found there is multicollinearity.

3.5.3 Autocorrelation

Autocorrelation test is used to determine whether there is any deviations classical autocorrelation assumption, namely the correlation between residuals in one observation with another observation on the regression model. Prerequisites that should be fulfilled are the absence of autocorrelation in the regression model. Testing method that often used is by Durbin-Watson test (DW test). Then Durbin-Watson test (DW test) with the following conditions:

- a. If d is smaller than d_L or greater than $(4-d_L)$ then the null hypothesis is rejected, which means there is autocorrelation.
- b. If d is in between d_U and $(4-d_U)$, the null hypothesis is accepted, which means there is no autocorrelation.
- c. If d is in between d_L and d_U or in between $(4-d_U)$ and $(4-d_L)$, it does not produce definitive conclusions.

Value of d_U and d_L can be seen from Table Durbin Watson statistics that depend with the number of observations and many variables that explain. Durbin Watson test formula is :

$$d = \frac{\sum(\hat{e}_n - \hat{e}_{n-1})^2}{\sum e_x^2}$$

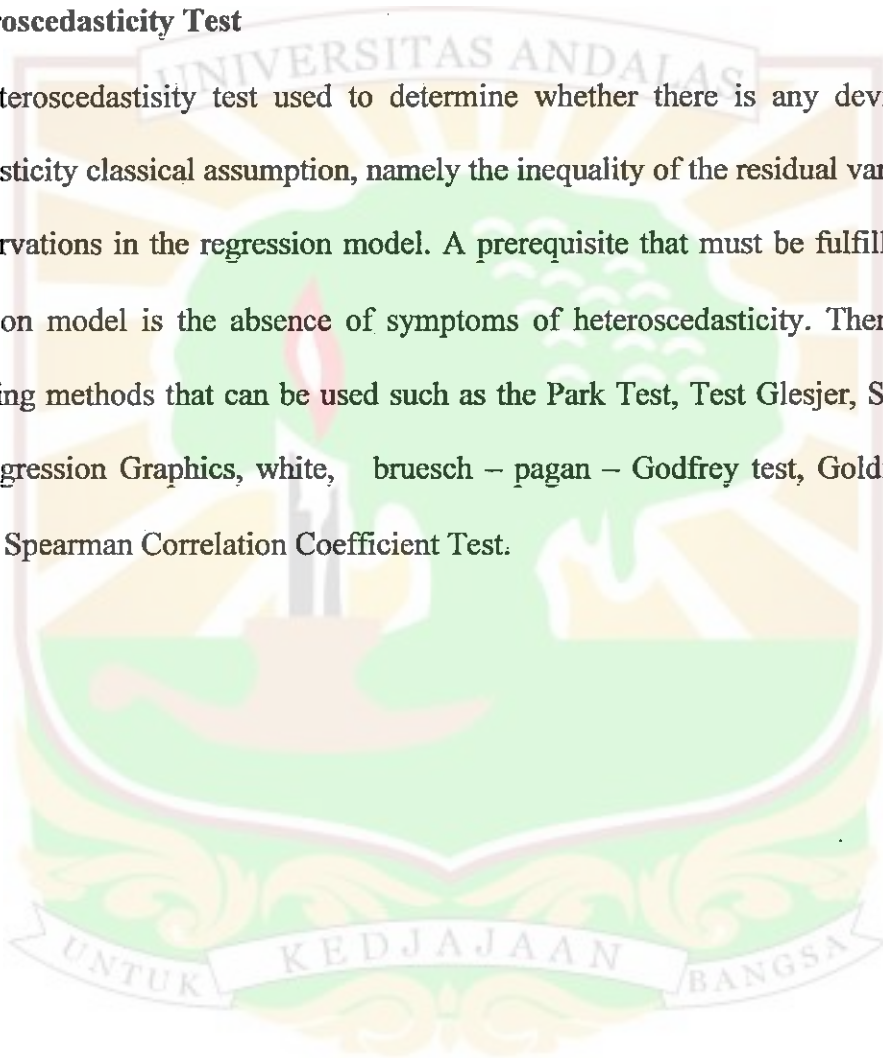
Which,

d = Durbin-Watson value

e = residual

3.5.4 Heteroscedasticity 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, white, bruesch – pagan – Godfrey test, Goldfeld - Quandt and Spearman Correlation Coefficient Test.



CHAPTER IV

AN OVERVIEW TO INDONESIAN ECONOMY

4.1 Indonesian GDP Development

Economic growth signifies one of development indicators in national economy. Such a development is actually a true reflection of economic growth level in years which is depicted through Gross Domestic Product (GDP) based on constant price 2000 in accordance with continual business activities. If positive economic growth occurs, this matter indicates the increase growth of economy compared to last year. Conversely, if the show negative, indicates a decline of economy compared to last year. The GDP growth in Indonesia since 1981-2011 based on constant price in 2000 is depicted in table 4.1.

Based on under table, during 1981-2011, the GDP of Indonesia increased at the rate 4,88 percent/year. In 1981-1997, the Indonesia's GDP increased each year although in the middle of 80's the instability of global economy occurred. Such a situation disturbs the global economy, particularly the economy of advanced countries, and obstructs the economy of developing countries. Indonesia experienced that situation as well, but since the endeavor of all Indonesians, the process of national development can continually be exercised.

One of Indonesia's economic development indicators is the increase of Gross Domestic Product every year. Based on the constant price in 2000, GDP increased from 596.302,2 billion rupiah in 1981 to be 609.697,8 billion rupiah in 1982, in 1983

was 635.262,3 billion rupiah, moreover, in 1984 was 679.570,1 billion rupiah or an increase of 4,19 percent in 1983 and 6,97 percent in 1984. Although, in 1989 the level of economic growth reached 7,47 percent. This growth is the highest growth rate during the period 1981 to 1989.

Table 4.1 : Indonesian GDP Development During Period 1981 -2011

YEAR	GDP (Billion Rp)	Growth (%)	YEAR	GDP (Billion Rp)	Growth (%)
1981	596302,235	-	1997	1512028,191	4,71
1982	609697,839	2,25	1998	1324018,401	-13,43
1983	635262,271	4,19	1999	1323940,225	0,01
1984	679570,142	6,97	2000	1389770,3	4,97
1985	696306,308	2,46	2001	1442984,6	3,83
1986	737217,843	5,88	2002	1506124,4	4,38
1987	773530,001	4,93	2003	1579558,9	4,88
1988	818238,886	5,78	2004	1660578,8	5,13
1989	879258,372	7,46	2005	1750815,2	5,43
1990	942929,454	7,24	2006	1847126,7	5,5
1991	1008466,476	6,95	2007	1964327,3	6,35
1992	1073610,669	6,46	2008	2082456,1	6,01
1993	1146787,796	6,82	2009	2177741,7	4,58
1994	1237696,392	7,93	2010	2310689,8	6,1
1995	1339349,622	8,21	2011	2463242	6,6
1996	1444053,81	7,82		AVERAGE	4,88

Source: Indonesian financial Statistics BI and Bureau statistic of Indonesia

In 1990 the growth showed down although still high. This is due to reduced growth in some sectors the role was quite large as the agricultural sector and the mining and quarrying sector. In 1992 only reached 6.46 percent. Compared with the economic growth in 1991, economic growth in 1992 looks somewhat decreased although still high. This is due to reduced growth in some sectors the role was quite

large as the mining and quarrying sector. Then, in 1995 Indonesia's economic growth reached 8.21 percent. This was the highest increase in GDP occurred.

In 1996 Indonesia's GDP was 1.444.054 billion rupiah or an increase of 7,82 percent. In 1997 the Indonesia's gross domestic product was 1.512.028 billion rupiah, increase up to 4,7 percent. GDP growth was smaller than the previous year. The basic thing that caused the decline in economic growth in 1997 was due to the economic crisis that hit Indonesia in mid-1997. Financial crisis continued to become worse in 1998 and exacerbated the economic foundations in Indonesia the joints Indonesian economy. This was a falling value of GDP in 1998 to 1,317,018 billion rupiah or in other words, Indonesia's economic growth in 1998 a negative 13.24 percent with oil and negative 14.3 percent without oil. In 1998 was the lowest GDP growth in the period 1981 to 2011

However, in 1999 the government of Indonesia through new cabinet began to restructure the joints to be stable and the economy better. This is evident from the economic growth in 1999 was no longer negative, although still relatively small when compared before the crisis with growth of 0.01 percent. In 2000, Indonesia's economic growth up to 4.97 percent, but in 2001 slowed down at 3.83 percent as the impacts of global crisis and first Bali Bomb on September 11 in the United States. In 2002, the growth of Indonesia's GDP was 4.38 percent, in 2003 it was 4.88 percent. Then in 2004, it was at 5.13 percent with a GDP growth 1,660,579 billion rupiah. The Growth in 2004 occurred in all economic sectors, except mining and quarrying.

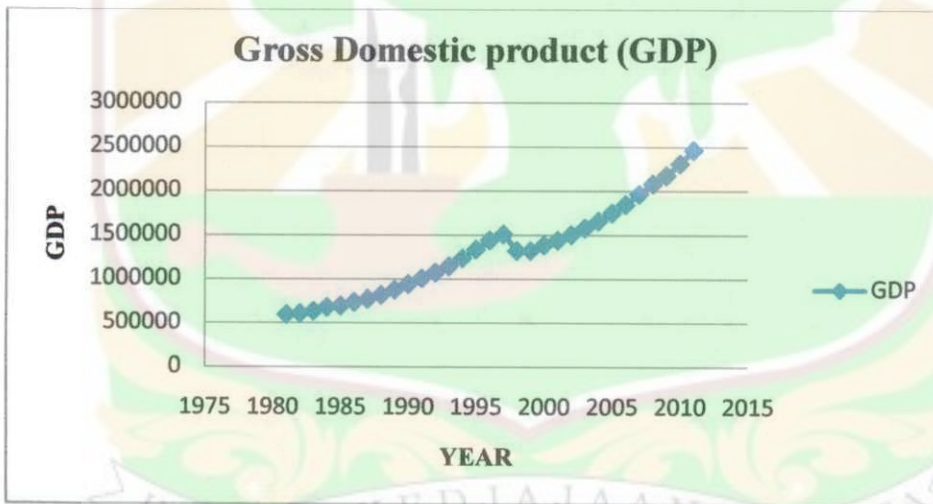
Over the past five years, Indonesia's economic growth has always demonstrated a positive number with developments fluctuated from year to year. In 2005 the performance of the economy growth by 5.43 percent, the GDP amounted to 1,750,815 billion rupiah. In 2006 it was 5.5 percent, in 2007 Indonesia's economy plus improved with growth of 6, 35 percent, before slowing in 2008 to 6.01 percent or in absolute the real Indonesian GDP at 2,082,456 billion rupiah. Indonesia's economic growth slowed down in 2008 due to the slowing world economy in 2007 as Indonesia's economy is very satisfying. Because for the first time since the crisis, economic growth is above the 6 percent, it was 6.32 percent, primarily from household consumption and high investment. In the second half of 2007, Indonesia again facing the challenges of the global economy, the subprime mortgage crisis in the U.S., and high international oil prices and other commodities. 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 amid global turmoil. Where economic growth reached 6.1 percent, supported by private consumption and exports. (Indonesian Economic Report 2008). However, when entering in 2009, Indonesia's economy decline due to the global economic contraction that peaked in the final quarter of 2008. These conditions resulted in monetary and financial system in the first quarter of 2009 were under heavy pressure, so that economic growth show a downward trend. This was due to the effect of negative

growth in exports and slower growth impact of investment so that economic growth was only growth at 4.5 percent. (Indonesian Economic Report 2009).

Furthermore, in 2010 the Indonesian economy improved where Indonesia's growth at 6.1 percent. This is supported by solid domestic demand, favorable external conditions and an increase in exports and the role of non-up investment, particularly investment in machinery. (Indonesian Economic Report 2010) and in 2011 Indonesian's growth increase at 2463242 billion rupiah or up by 6,6 percent. The following chart illustrates the value of GDP in Indonesia during period 1981 - 2011

Chart 4.1: The Development of GDP in Indonesia During Period 1981 - 2011



Processed by author

From chart 4.1 showed that economic fluctuation. Decreasing of economic growth occurred in economic crisis years 1997 -1998, while the year before and after economic crisis the GDP average increase.

4.2 Indonesian Money Supply Development

The development of money supply in certain period tends to affect the inflation in a country. It also depends on the needs of using the money supply in the society. The government has a significant role in controlling the money supply in the society. Moreover, the private sectors also contribute to the money supply through various forms of costs for their business.

Therefore, the increase of goods and services for the needs of the society must be balanced with the raise of money supply. If the equilibrium between both aspects is not achieved, the inflation will occur. Thus, the government has to commit and develop the surveillance on the supply of money.

The money supplied in the society consists of the following three kinds: currency, demand deposit, and quasi money. The currency consists of the valid cash and coins, but the cash at KPN and the bank are not included, whereas the demand deposit consists of checking accounts, remittances, saving deposits and periodical savings, and the savings in rupiah that have been due dated or outdated and belong to the society in monetary system. Moreover, the quasi money consists of periodical savings and the savings in either rupiah or foreign currency at the public banks. The development of money supply can see in table 4.2.

Based on the under table 4.2, it is obvious that during 1981-2011, the supply of money (M2) that consists of M1 and quasi money was increased significantly in every year. In 1981, the amount of M2 was Rp 7.619 billion, in 1982 increased at Rp

11.059 billion, up by 45,15 percent, in 1983 it was Rp 14.663 billion (32,59 percent), in 1984 the money supply increased to 17.937 billion rupiah, up by 22.33 percent from the previous year, in 1985 until 1990 it was developed at Rp 23.153 until 84.630 billion or up by 29,08 percent until 44,16 percent.

Table 4.2: Indonesian Money Supply Development During Period 1981-2011

YEAR	M2 (Billion Rp)	Growth (%)	YEAR	M2 (Billion Rp)	Growth (%)
1981	7619	-	1997	355643	23,22
1982	11059	45,15	1998	577381	62,35
1983	14663	32,59	1999	646205	11,92
1984	17937	22,33	2000	747028	15,6
1985	23153	29,08	2001	844053	12,99
1986	27661	19,47	2002	883908	4,72
1987	33885	22,5	2003	955692	8,12
1988	41998	23,94	2004	1033527	8,14
1989	58705	39,78	2005	1202762	16,37
1990	84630	44,16	2006	1382493	14,94
1991	99058	17,05	2007	1649662	19,33
1992	119053	20,19	2008	1895839	14,92
1993	145202	21,96	2009	2141384	12,95
1994	174512	20,19	2010	2471206	15,4
1995	222638	27,58	2011	2877220	16,43
1996	288632	29,64			

Source: Indonesian Financial Statistics BI and Bureau Statistic of Indonesia

In 1991, the amount of M2 was Rp 99.058 billion, in 1992 increased at Rp 119.053 billion (20,19 percent). In 1993, it was again escalated at 21,96 percent, in 1994, the economy activity was raised and therefore M2 was also lifted at 20,19 percent. In 1995 it was developed at 222.638 or was increased at 27,58 percent, moreover, in 1996, the supply of money was increased at 288.632 billion, in this year

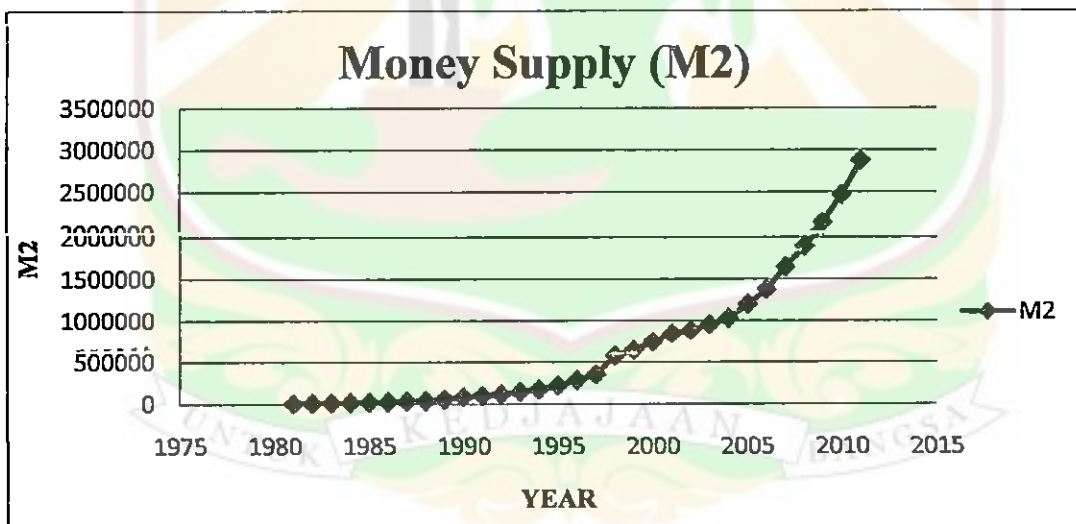
the amount of M2 was escalated higher than previous year at 29.64 percent. In 1997, when economic crisis hit Indonesia, the money supply (M2) was lower than that of in 1996 at 23,22 percent. In 1998, the economic crisis trembled the Indonesian economic system; therefore the society did not put any trust anymore on national banking. This problem induced M2 to be increased significantly. In 1998, the amount of M2 had achieved Rp 540.861 billion or was increased at 65,95 percent compared to August 1997. (Indonesia's economic report 1998)

In 1999, the amount of money supply (M2) achieved Rp 646.205 billion or increased at 11,92 percent, in 2000 it was developed Rp 747.028 billion or increased at 15,60 percent. Furthermore, in 2001 and 2002 the addition of money supply was quite stable. In 2001, the amount of money supply was recorded at the amount Rp.844.053 billion and in 2002, it was Rp 883.908 billion, it was actually increased 4,72 percent from 2001. The increase of money supply was affected by the significant raise in micro economic activities like small business and informal sectors which obviously used currency in their transaction.

Furthermore, in 2003, the money supply remained to increase. Based on its development, M2 showed the increasing growth at 8,12 percent compared to the previous year (2002). This was affected by the growth of economy. Moreover, in 2004, the growth of money supply reached Rp. 1.033.527 billion. It reached Rp.1.202.762 in 2005, increased at 16,37 percent. In 2006, the condition of liquidity in Indonesian economy (M2) grew well in real terms. The M2 grew at 14,87 percent. The increasing demand deposit occurred in accordance with the raise of balancing

fund. The growth of demand deposit was still dominated by local government fund, government institutions, government companies, and the companies owned by local government. In 2006, the money supply grew significantly and a foreign obligation was decreased after finishing the payment of account payable to IMF. Such a significant increase also happened in 2010 which reached 2.471.206 billion, or increased at 15,40 percent from the previous consecutive years 2007 (1.649.662 billion /19,33 percent), 2008 (1.895.839 billion /14,92 percent), and 2009 (2.141.384 billion/12,95 percent) and 2011 is 2877220 billion rupiah or up to be 16,43 percent. This following chart is figured amount of money supply for M2.

**Chart 4.2 : Development of Money Supply in Indonesia During Period
1981 – 2011**



Processed by author

4.3 Indonesian inflation development

The level of inflation constitutes one of the indicators of national economic growth and development. Actually, the fluctuation of inflation reflects the trembling economic situation in a country. There are some sectors which trigger this situation like the increase of petrol price, the increase of public services cost, and excessive consumptive credits, land speculation, and APBN expansion. The increasing expenditure as the impacts of additional income can also inflict the growth of inflation.

The high level of inflation is actually very detrimental for national economy. This problem affects various groups that have constant and continuing income. Moreover, non-oil export commodities will also be affected since the increasing cost which reduces the competitive capabilities of the company, the worst effect is devaluation. If depreciation of rupiah occurs, the trust in rupiah will decrease, this problem inflicts the people or the capital owners to take their capital abroad to secure their assets. This problem finally causes the increasing rate of interests that significantly reduce the investment. The development of inflation in Indonesia can we see in table 4.3.

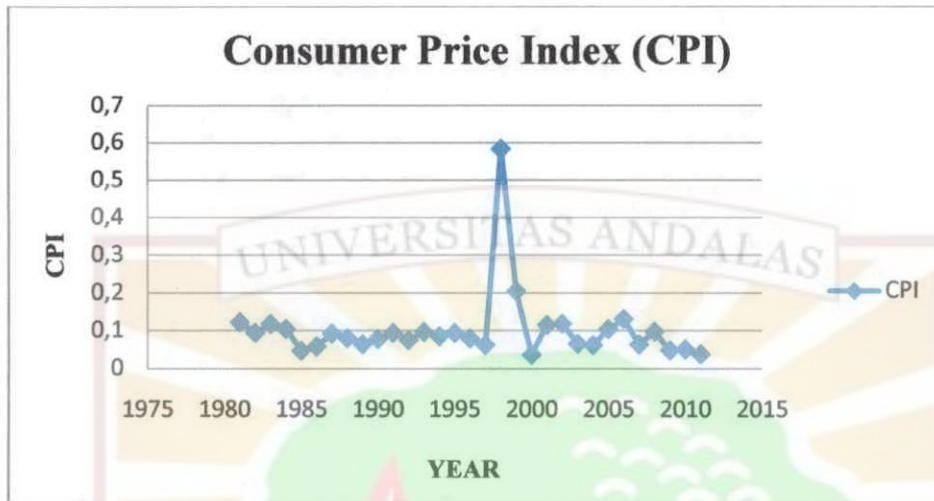
Table 4.3: Indonesian Inflation Development During period 1981 -2011

YEAR	CPI (%)	YEAR	CPI (%)
1981	0,1224	1997	0,0623
1982	0,0948	1998	0,5839
1983	0,1179	1999	0,2049
1984	0,1046	2000	0,0372
1985	0,0473	2001	0,115
1986	0,0583	2002	0,1188
1987	0,0928	2003	0,0659
1988	0,0804	2004	0,0624
1989	0,0642	2005	0,1045
1990	0,0781	2006	0,1311
1991	0,0942	2007	0,0641
1992	0,0753	2008	0,0978
1993	0,0969	2009	0,0481
1994	0,0852	2010	0,0513
1995	0,0943	2011	0,0379
1996	0,0797		

Source : Index Mundi

The level of inflation in Indonesia prior to the economic crisis was always manageable at one digit level. During the crisis, it was escalated to exceed two digits level, even in 1998 it achieved the peak level 58,39 percent. Check the following picture.

Chart 4.3 : Development of inflation Indonesia period 1981 – 2010



Processed by author

From the chart above it can be observed inflation Indonesia in 1981-2011. Inflation peaked in 1998, amounting to 58.39 percent. The increase in inflation was nearly 67 times the previous year's inflation rate. Then fell to 20.49 percent in 1999. New significant reduction occurred in 2000. In 2000, inflation was only 3.7 percent.

Fluctuations in high inflation during the years 1998-1999 due to economic and social conditions of political uncertainties, especially since the economic crisis hit Indonesia. And is also associated with a series of government policies such as the lifting of fuel subsidies and increase the basic rate electricity (TDL). After 1999, economic conditions gradually improved after the 1999 elections that produced a new government under the leadership of President K. H. Abdurrahman Wahid. Formation of new government elected in 1999 has led to a positive return on the public expectations on the economy of Indonesia in the future.

Next in 2001 until 2006, inflation happened with the high level, it was about 10 percent. Inflation in 2006 was 13,11 percent which the highest inflation post monetary crisis (1997/1998), depression in adjustment of BBM price supposed to be main factor of high inflation in 2006. High of oil price in international market caused government try to erase the BBM subsidy. That things was influence macroeconomic condition of Indonesia reminded the BBM consumption reached 3,72 percent in 2000 from the total energy consumption in Indonesia. Inflation in latest year moved in the number 6,2 percent in 2010 “ inflation in that latest year almost appropriated in planned target.

If only inflation in 2006 ignored with the reason that BBM was main factor that influenced inflation in the latest 5 year could control enough. Government in post reformation seems that have try hard to kept inflation rate, but vary of depression in domestic and abroad post reformation in 1997 still very high influenced the movement of economics Indonesia. Inflation in Indonesia still high compared with inflation in Malaysia and Thailand which shift to 2 percent, even Singapore that in under 1 percent. If domestic real sector cannot come up, then efforts in monetary sector to keep the stability of macroeconomic in the long term period just nothing.

In efforts to decrease inflation that occurred since 1998, government took a monetary policy through tight monetary policy in interest rate instrument with increased of interest rate, demand of credit decrease so that money supply decreased and people interest to saving money in the bank increased, so that inflation decreased that policy indirectly saw soon because needed time lag, (Sukendar (2000) in Adya Fadhila Annisa (2011)

The rate of inflation during 2001 showed a trend which trends to increase. However, at the end of quarter of 2001, the political and social conditions of international security experienced shocks with WTC and Pentagon attacks this also affects the national economy was under pressure because of the uncertainty of U.S bilateral relations increasing rate of inflation at the end of 2001 up to 11,50 percent.

The appreciation of rupiah was one of the fundamental factors that pushed the inflation rate down during 2003. Inflation rate fell to 6,59 percent . Other fundamental factors contributing to the low inflation were lower inflationary expectations and limited pressure arising from output gap. The higher achieved with macroeconomic stability being kept in check. Inflation did rise to 6,24 percent, yet it was still within the targets range. Following the fuel price hikes in October 2005, inflation rise again at last quarter at year 2005 reach 10,45 percent.

But the strengthened coordination between Bank Indonesia and the government has already lowered inflation expectations. Furthermore, declining inflationary pressure was also supported by stable rupiah throughout 2006. Besides that, minimal adjustment to administered prices and weaker people's purchasing power also contributed to the easing inflationary pressure. Lower inflation in mid – 2006 made Bank Indonesia toward lower the interest rate gradually BI rate this was a positive response to increase consumer confidence levels.

Increasing of inflation also occurred in the year from 2007 to 2008 were caused by the global economic crisis which hit almost the entire State. CPI reached its highest level up and still in its number for following months. The same thing happened in the year 2005, cumulatively in the increase of inflation due to rising oil

prices followed by rising inflation. Inflation became a major concern for the Indonesian economy in 2008. However, in 2009 and 2010, 2011 inflation in Indonesia is relatively stable due to the shock of the global crisis is not very big impact and this situation persisted until the end of the year.

4.4 Indonesian government expenditure development

The government as the institution which controls and manages huge number of nation based activities is actually a consumer of domestic goods and services. The government expenditure is controlled in two categories: Routine expenditure and development expenditure. The government expenditure is aimed at meeting the needs in running the government and Indonesia's development. On this point, 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 in improving the welfare of the society. The development of government expenditure during the period 1981-2011 can we see in table 4.4.

Based on the under table, the government expenditure always increased every year during 1981-2011. The government expenditure for national development during 1978-1994 was realized in the REPELITA (five years master plan of national development). During 1979-1984, the REPELITA III was done based on the major aim to increase the exports related to full works (*padat karya*) industries. In 1980, the government expenditure was 5.301,60 billion rupiah, it was increased 13.917,7 In

1981, the government expense always raised due to the instability of Indonesian economic condition in REPELITA III.

Table 4.4: Indonesian Government Expenditure Development During Period

1981 - 2011

YEAR	GE (Billion Rp)	Growth (%)	YEAR	GE (Billion Rp)	Growth (%)
1981	13917,7		1997	131545	33,53
1982	14355,9	3,15	1998	215586	63,89
1983	18311	27,55	1999	166881	-22,59
1984	19380,8	5,84	2000	221467	32,71
1985	22824,6	17,77	2001	341563	54,23
1986	21891	-4,09	2002	322180	-5,67
1987	26959	23,15	2003	376505	16,86
1988	32990	22,37	2004	427177	13,46
1989	38165	15,69	2005	509632	19,3
1990	47450	24,33	2006	667129	30,9
1991	51992	9,57	2007	757650	13,57
1992	60511	16,39	2008	985731	30,1
1993	68718	13,56	2009	937382	-4,9
1994	72343	5,28	2010	1126147	20,14
1995	79216	9,5	2011	1202046	6,74
1996	98513	24,36			

Source: Bureau Statistic of Indonesia and Indonesian Financial Statistic BI

REPELITA IV (1984=1989) was aimed at providing and creating the new work fields and industries. In 1984, the government expenditure was 19.380,8 billion rupiah and increased at 17,77 in 1985 to become 22.824,6 billion rupiah. The lowest increase happened in 1986 since the government expenditure only raised at -4,09 compared to the previous year.

In REPELITA V (1989-1994), the national development was focused on transportation, communication, and education sectors. In this REPELITA, the government expenditure always increased, the lowest raise at 5,28 percent in 1994, the expense in this year was 72,343 billion rupiah, whereas the highest rate of increase was in 1990 at 24,33 percent and the expense 47,450 billion rupiah.

After the REPELITA V was done, the government expenditure continued to increase. In 1995, the government's expenditure was 79.216 billion or increased at 24,36 percent in 2006. 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 63,89 percent in 1998.

Such an increase of expenditure caused by the BLBI and the payment for overseas loan. In 2000, the total government's expenditure was 221.467 billion. It was mainly consumed by operational cost, and the rest was for funding the national development. The biggest expenditure consumed by the subsidy at 26,7 percent of total expenditure followed by the interest of domestic and overseas credits (23,8 percent), and the expense of local and capital civil servants (21,3 percent). 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 processing and production, and the delay of increasing the petrol price which was previously planned to exercise in April 2000.

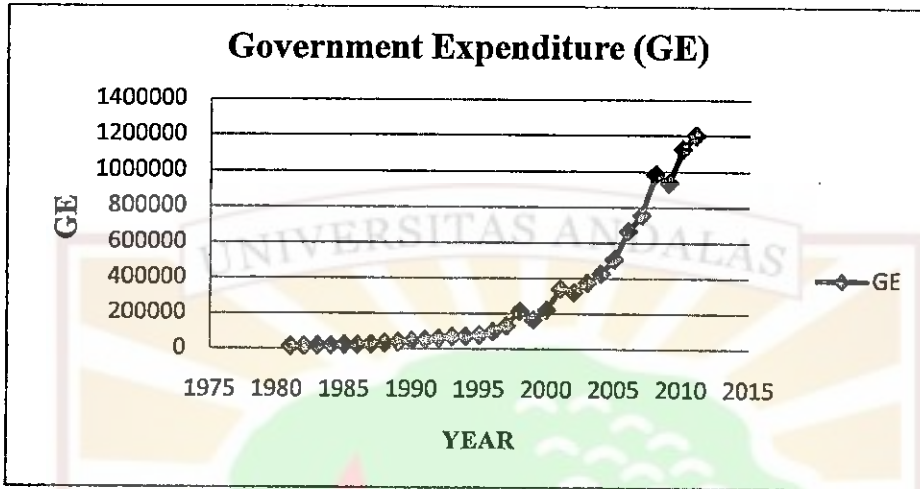
The realization of Indonesian expense in 2001 at the amount 341,564 billion rupiah and in 2002 at 322.180 billion rupiah were mainly consumed by routine central government expenditure which reached 232,8 trillion Rupiah or 65,7 percent from total expense, it is equal to 15,8 percent from GDP. Based on the component, the major expense or 84,3 percent from government expenditure was consumed by the obligatory expense like the interests, subsidy and the equivalence, the expense for civil servants. This low realization is deeply concerned with low payment for overseas loan. Moreover, in 2002, there was a decrease on government expenditure at 5,67 percent affected by the government regulation to reduce the subsidy for the society. The fund from this subsidy reducing was used to develop other sectors and it was expected to increase the national economy.

The raising price of global crude oil in 2004 deeply affected the national expense. The government expenditure exceeded its targets, and even surpassed the rate of national income. Based on the elements of components which affected the government expenditure, this raising expense was mainly caused by the raise of fuel subsidy. Other components like the interests of overseas loan which increased higher than the previous year (2003) effected by the weakening currency of Rupiah. Instead of higher subsidy, the exercise of some regulations on expense also inflicted the impacts on routine expense in 2004. Some those regulations are as follow: the expense to fund the general election (PEMILU) in 2004, national movement of rehabilitating the forests and land, and paying the 13th remuneration for the government apparatus and pensions. Total amount of government expense in 2004

was 427.177 billion rupiah. Then in 2005, the government expense was again consumed by the routine expenditure. Fuel subsidy and the regulation on the expense to respond the Tsunami in Aceh, the expense for civil servants and goods, and the payment for the interests of overseas loan were the main components which affect the expenditure in 2005. It was recorded that the government expenditure reached 509.633 billion rupiah, it was raised at 19,30 percent compared to the previous year. (Rizky R.:2010)

In 2006 and 2007, the government expenditure was recorded 667.129 billion rupiah and 757.650 billion rupiah in 2007, it was increased at 13,57 percent. In this year the raise in government expense was induced by fiscal stimulus and the recovery of buying power of the society. In 2008-2011, the government expense was no profoundly different from the previous year. In 2008, the government expense was 985.731 billion rupiah, in 2009, it was decreased 937.382 billion rupiah or there was a minus development at 4,1 percent and in 2010 there was an increase 1126.147 billion rupiah with the development at 20,14 percent. In 2011 the government expenditure is 120.204,6 billion rupiah or increase by 6,74 percent. The following picture is the increase of government expenditure during period 1981 – 2011

**Chart 4.4 : Development of Government Expenditure in Indonesia period
1981 - 2011**



Processed by author

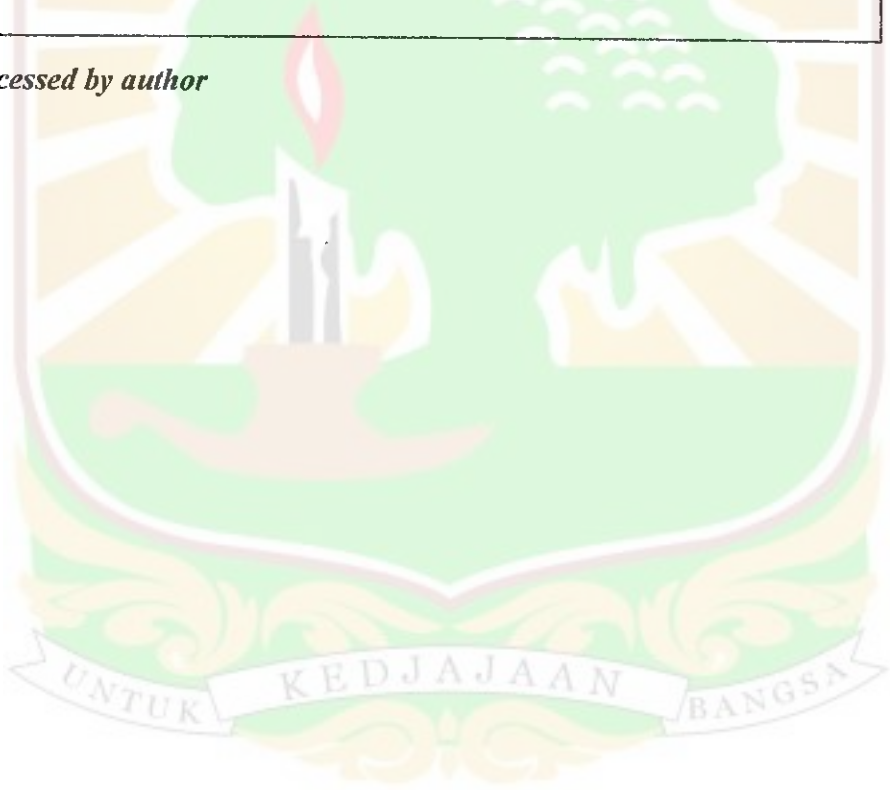
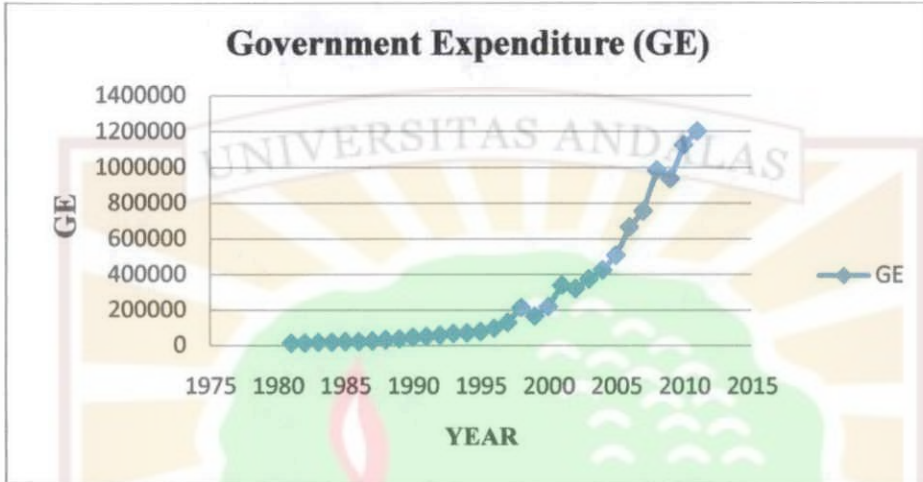


Chart 4.4 : Development of Government Expenditure in Indonesia period

1981 - 2011



Processed by author



CHAPTER V

RESULT ANALYSIS OF IMPACT MONETARY POLICY ON ECONOMIC GROWTH

5.1. Empirical Result

Based on the methodology explained in the previous chapter, where dependent variable is gross domestic product (GDP) and the independent variables are money supply (M2), inflation as (CPI), and government expenditure (GE), those are used to see the impact of monetary policy on economic growth in Indonesia.

The function can be written in equation form as follows:

$$\text{Ln_GDP} = \beta_1 + \beta_2 \text{Ln_M2} + \beta_3 \text{CPI} + \beta_4 \text{Ln_GE} + \mu \dots\dots\dots(5.1)$$

This research uses time series data along the period of 1981 to 2011 in Indonesia by using Ordinary Least Square (OLS) method.

5.1.1 Regression Result Analysis

The first step to analyze the data is regressing the data by using the computer program which is competent and compatible with the research. The computer program used by the writer is EVIEWS 6.0 in order to make the data estimation easier. The EVIEWS program also helps to reduce and avoid error computing. Table 5.1 shows the regression results between the gross domestic product, money supply, consumer price index and government expenditure. The regression result of ordinary Least Square is shown in table 5.1 below.

Table 5.1 Regression result of the monetary policy impact on economic growth in Indonesia

Dependent Variable: LN_GDP
 Method: Least Squares
 Date: 10/10/12 Time: 08:32
 Sample: 1981 2011
 Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_M2	0.191050	0.040449	4.723259	0.0001
CPI	-0.311943	0.140800	-2.215507	0.0353
LN_GE	0.049255	0.050475	0.975823	0.3378
C	11.11027	0.137807	80.62226	0.0000
R-squared	0.973192	Mean dependent var		14.01132
Adjusted R-squared	0.970214	S.D. dependent var		0.421418
S.E. of regression	0.072732	Akaike info criterion		-2.284170
Sum squared resid	0.142827	Schwarz criterion		-2.099139
Log likelihood	39.40463	Hannan-Quinn criter.		-2.223854
F-statistic	326.7231	Durbin-Watson stat		1.612447
Prob(F-statistic)	0.000000			

Processed by author

See Appendix II

Based on the result of the regression above, the regression models for the variables of this thesis; gross domestic product (GDP), money supply (M2), consumer price index (CPI), and government expenditure (GE), are shown by the estimation equation for economic growth in Indonesia that is:

$$\text{Ln_GDP} = \beta_1 + \beta_2 \text{Ln_M2} + \beta_3 \text{CPI} + \beta_4 \text{Ln_GE} + \mu$$

$$\text{Ln_GDP} = 11,110 + 0,191\text{Ln_M2} - 0,312\text{CPI} + 0,049\text{Ln_GE} + \mu$$

T- test (80,622) (4,723) (-2,216) (0,976)

$R^2 = 0.973$

Adjusted $R^2 = 0.970$

DW = 1,612

F-stat = 326,723

From the regression equation above, we can conclude that: when all independent variables are equal to zero (0), the level of the economic growth is 11,110 percent. The coefficient of determination test is to measure the effect of changes in the independent variables are used in the model whether it is able to explain its influence on the independent variable. These tests can be seen at the value of the coefficient of determination (R^2) of the equation in the regression. The value of R^2 from the model is 0,973, it means that 97,3 percent the economic growth rate for a future period is influenced by determinant variables in the model, while the remaining as amount of 2,7 percent influenced by other variables outside the model.

5.1.2 Statistical Result Analysis.

T-test

The t-test is used to test whether the partially independent variables have a marked influence on the dependent variables. From the regression result, it shows that the computed t-value of each independent variable is compared with the value of the computed t-table. The way to find the critical t-value is: $T \text{ table} = t \alpha \text{ df } (n-k)$, where: α is level of significance, degree of freedom (df) is 27, using 31 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 significant or insignificant 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	A	t-table	t-test	Hypothesis
ln(M2)	4,723	5%	1,703	One tail - positive	proven
ln(CPI)	-2,216	5%	1,703	one tail - negative	proven
ln(GE)	0,976	5%	1,703	one tail - positive	proven

A. T-Test on Money Supply

$$H_o : \beta_1 = 0$$

$$H_a : \beta_1 < 0$$

Based on observation above with t-statistic is 4,723 and t-table in level $\alpha = 5$ percent is (1,703), with one tail-positive and significant. So, it can be concluded that the t-test is greater than t-table (4,723 > 1,703), so H_o is rejected or H_a is accepted statistically. It means that money supply has a positive and significant effect on the economic growth in Indonesian. In other words, there is a positive relationship between independent and dependent variables.

B. T-test on Consumer Price Index

$$H_o : \beta_1 = 0$$

$$H_a : \beta_1 < 0$$

Based on observation above with t-statistic is (-2,216) and t-table in level $\alpha = 5$ percent is (1,703), with one tail-negative and significant. So, it can be concluded that t-test is greater than t-table (-2,216 > 1,703), so H_o is rejected or H_a is accepted statistically. It means that consumer price index has a negative and significant effect

on the economic growth in Indonesia. In other words, there is a negative relationship between independent and dependent variables.

C. T-test on Government Expenditure

$$H_0 : \beta_1 = 0$$

$$H_a : \beta_1 < 0$$

Based on observation above with t-statistic is (0,976) and t-table in level $\alpha = 5$ percent is (1,703), with one tail-positive and not significant. So, it can be concluded that t-test is smaller than t-table ($0,976 < 1,703$), so H_0 is accepted or H_a is rejected statistically. It means that government expenditure has a positive and not significant effect on the economic growth in Indonesian. In other words, there is a positive relationship between independent and dependent variables.

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 ($\alpha = 5\%$) based on the following rules:

- 1) If F-statistic < F-table

H_0 is accepted and H_a is rejected, the independent variables simultaneously do not have any effect on the dependent variable.

- 2) If F-statistic > F-table

H_0 is rejected and H_a is accepted, 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 computed value and the table value (critical F value). To find the critical F 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 $\alpha = 5$ percent, the degree of freedom for numerator is $3 = (4-1)$ and the degree of freedom for denominator is $27 = (31-4)$. It can be found that value of F table in point (3:27) is 2.96.

It is already known that F-value from the regression is 326,723 . We proceed to compare the computed F value and critical F value. From the comparison, it can be concluded that the computed F value is higher than the critical F value. It means that H_0 is rejected and H_a is accepted. The independent variables simultaneously have effect on dependent variable. In other words, money supply, consumer price index, and government expenditure have effect on the economic growth in Indonesia.

Table 5.3: The comparison value of F-statistic and F-table.

F-Statistic	A	F-Table	Result
326,723	5%	2,96	Significant

Goodness of Fit (R^2)

From the regression done by the writer, the value of coefficient of determination (R^2) is 0.973. 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 97 percent, when the rest 3 percent are explained by factors outside the model.

5.2 Classical Assumption Test

5.2.1 Serial Correlation Test

In this study, to detect serial correlation through comparing the value X^2 calculate with X^2 table, check the following rules as follow:

3. If X^2 calculation value $>$ X^2 Table, thus the hypothesis which states that the free model of serial correlation problem is rejected.
4. If X^2 calculation value $<$ X^2 table, thus the hypothesis which states that the free model of serial correlation problem is accepted.

With the help of E-views computer program, the writer can search the value of X^2 calculated (Obs* R-squared) and the result is shown on table 5.4 below:

Table 5.4: Serial Correlation result

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.81549	Prob. F(2,25)	0.7433
Obs*R-squared	2.24352	Prob. Chi-Square(2)	0.5994

*Processed by author
See Appendix III*

Based on the table 5.4 above, we can see that the value of Obs*R-squared (it is also called X^2 calculate) is 2,244 and X^2 table in accordance with the amount of its leg (v) = 2 and α = 5% is 5,991. Because $2,116 < 5,991$ thus, it can be concluded that the above model is free from serial correlation problem.

5.2.2 Multicollinearity test

To test the multicollinearity, the writer uses correlation partial approach. In this test, the writer detects multicollinearity by comparing the value of R^2_1 and R^2_{11} , R^2_{12}, R^2_{13} . If the R^2_1 value $> R^2_{11}, R^2_{12}, R^2_{13}$ thus the model not found there is multicollinearity. If the R^2_1 value $< R^2_{11}, R^2_{12}, R^2_{13}$ thus the model found there is multicollinearity.

With the help of E-views computer program, the writer can search the value of $R^2_1, R^2_{11}, R^2_{12}, R^2_{13}$ as follow (see appendix 4) :

1. On the equivalence (1) thus the R^2 value is 0,97, on the next equation it is called R^2_1
2. On the equivalence (2) thus the R^2 value is 0,96, on the next equation it is called R^2_{11}
3. On the equivalence (3) thus the R^2 value is 0,024, on the next equation it is called R^2_{12}
4. On the equivalence (4) thus the R^2 value is 0,96, on the next equation it is called R^2_{13}

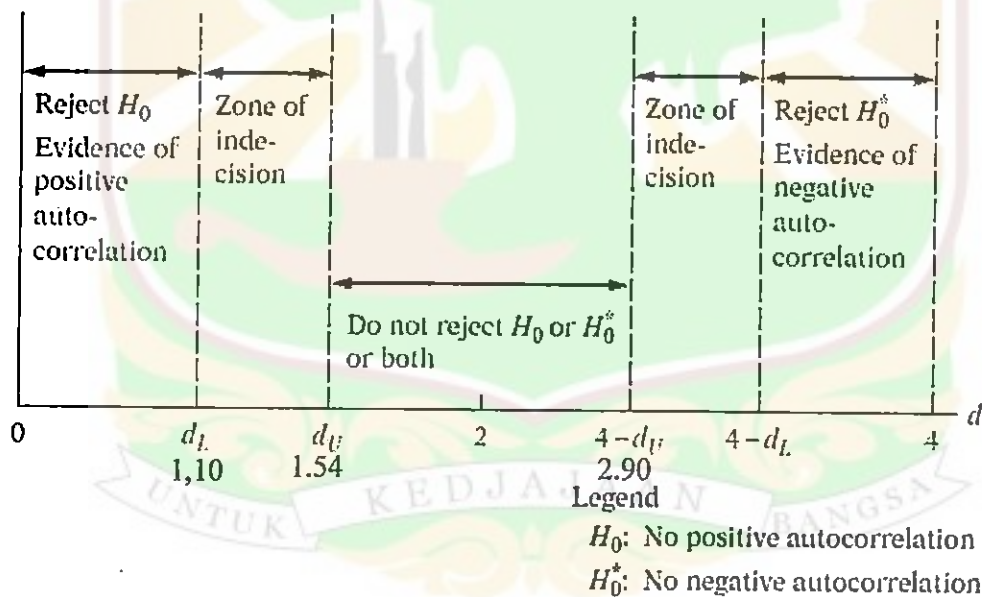
Based on the regression result above, we can see that the R^2 value $> R^2_{11}, R^2_{12}, R^2_{13}$ (0,97 $>$ 0,96, 0,024,0,96), thus the model not found there is multicollinearity problem.

5.2.3 Autocorrelation Test

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. In this research to see there is or not autocorrelation used Durbin Watson test.

Criteria of autocorrelation testing with $k = 4$; $n = 31$, and $\alpha = 5\%$ are shown on the figure 5.6 below:

Figure 5.5
Accepted and Unaccepted Hypothesis
For Autocorrelation Testing On $\alpha = 5\%$



Based on D-W d Stat figure above, from analysis result of D-W for 1,612, it is located on $d_U < d < 4 - d_U$ or between 1.54 (d_U) of lower border and 2.90 ($4 - d_U$) of

upper border. In other words, analysis of D-W do accepted H_0 . It means there is no indication of autocorrelation.

5.2.4 Heterocedasticity test

In this study, to detect Heterocedasticity problem on regression equation writer use Breusch-Pagan-Godfrey method. If the value of X^2 calculate $< X^2$ table, indicate there is no Heteroscedasticity on regression equation model. It can be show in table 5.6 as follow:

Table 5.6 : Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	7.161297	Prob. F(3,27)	0.0011
Obs*R-squared	13.73653	Prob. Chi-Square(3)	0.0033
Scaled explained SS	8.339914	Prob. Chi-Square(3)	0.0395

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 10/10/12 Time: 09:15

Sample: 1981 2011

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.019136	0.008831	2.166760	0.0392
LN_M2	0.011223	0.002592	4.329382	0.0002
CPI	-0.014014	0.009023	-1.553095	0.1320
LN_GE	-0.012941	0.003235	-4.000641	0.0004

R-squared	0.443114	Mean dependent var	0.004607
Adjusted R-squared	0.381238	S.D. dependent var	0.005925
S.E. of regression	0.004661	Akaike info criterion	-7.779233
Sum squared resid	0.000587	Schwarz criterion	-7.594203
Log likelihood	124.5781	Hannan-Quinn criter.	-7.718918
F-statistic	7.161297	Durbin-Watson stat	0.682744
Prob(F-statistic)	0.001092		

Process by author

See appendix V

To test heteroscedasticity, Breusch - Pagan – Godfrey (BPG) is used. BPG is an alternative test of the CQ method which requires sorting and removal of data. We calculate the γ^2 test = Sum squared Resid / 2 (0,000587/2= 0,000294). After that we calculate γ^2 table (7,815) with $\alpha = 5\%$ with degrees of freedom (df) = $m - 1(4-1=3)$, where m is the number of dependent and independent variables. If γ test $< \gamma$ table (0,000294 $<$ 7.815), it means there is no heteroscedasticity.

5.3 Estimation Result

5.3.1 The Impact of Money Supply on Economic Growth in Indonesia

Based on the table 5.1 above, we can see that the results of relationship estimating between money supply and economic growth. The result of elasticity coefficient for money supply is positive and significant with t-test is greater than t-table (4,723 $>$ 1,703). Then, the interpretation of the equation above is money supply has positive effect on economic growth amounting to 0,191 percent. It means that every 1 percent increase of the money supply, then economic growth will also increase at 0,191 percent. In other words, the higher the money supply, it cause the higher the level of economic growth.

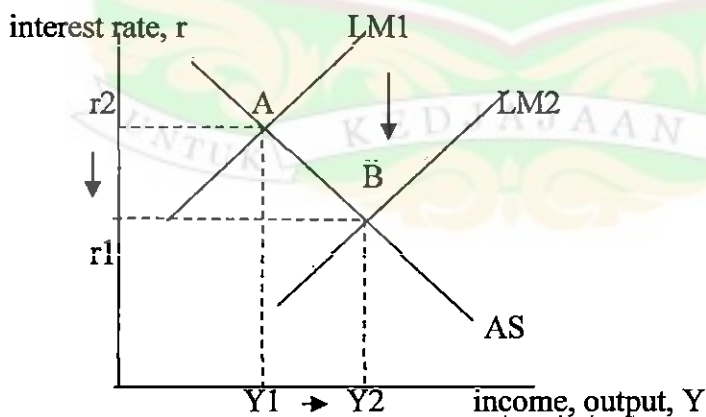
The impact of positive relationship between money supply and economic growth occur because when the government increase the money supply cause the lower interest rate, then with the lower interest rate make the increase investment and increase the income.

To more clear we can see the IS – LM model. The IS –LM model shows the effect of monetary policy on economic growth with shift in the LM curve and change income and the interest rate. An increase in money supply leads to an increase in real

money balances M/P , because the price level P is fixed in the short run. The theory of liquidity preferences shows that for any given level of income, an increase in real money balances leads to a lower interest rate. Therefore, the LM curve shifts downward, as in figure 5.2. The equilibrium moves from point A to point B. the increase in the money supply lowers the interest rate and raises the level of income.

The reason decrease the interest rate when the government increase the money supply is when the federal reserve increases the money supply, people have more money than they want to hold at the prevailing interest rate. As a result, they start depositing this extra money in banks or use it to buy bonds. The interest rate r then falls until people are willing to hold all the extra money that the fed has created, this brings the money market to a new equilibrium. The lower interest rate, in turn, has ramifications for the goods market. A lower interest rate stimulates planned investment, which increase planned expenditure, production, and income Y . Thus, the IS – LM model shows that an increase in the money supply lowers the interest rate, which stimulates investment and thereby expands the demand for goods and services.

Figures 5.2 : An increase in the Money Supply in the IS – LM model



Source : (Macroeconomics fourth edition, N Gregory Mankiw)

This study also supported by research of Mohammad et al (2009) in the long run examines relationship among M2, inflation, government expenditure and economic growth in Pakistan. Mohammad et al found, M2 has significant and positive effect on economic growth in the long run. McPherson, Rakowski (2000:9) study in Kenya, Ogunmuyiwa and Ekone (2010) in Nigeria, Nouri and Samimi (2011) in Iran also found money supply (M2) have positive significant with the economic growth. According to another study by Ali, Irum and Ali (2008) in study Asian country also supported this study that the money supply appeared as a significant variable in both short run as well as in long run.

In Indonesia, the results of this study supported by research of Naury (2005), who analyzed the money supply, interest rates and economic growth in Indonesia during 1970 to 2002, this study found that the Granger causality test finds that the money supply (M2) has a relationship with the interest rate (i) and economic growth (GDP) has a relationship with the money supply (M2) significantly.

5.3.2 The Impact of Consumer Price Index on Economic Growth

Based on the result table 5.1 above, we can see the impact of consumer price on economic growth. The result shows that consumer price index (CPI) has negative and significant effect on economic growth by 5 percent confidence level, where the $t\text{-test} > t\text{-table}$ ($-2,216 > 1.703$) and resulted elasticity coefficient for consumer price index is -0,312 percent. It means that if increase CPI by 1 percent, so it will decrease the economic growth by 0,312 percent.

The negative relationship between inflation as measure by consumer price index (CPI) and economic growth because occur adverse supply shock (cost push

inflation). When rate of inflation increase, it will make the general price for input and output increase. So aggregate supply (AS) curve will shift up or the make decrease income because the production output are very costly.

This finding also supported by McPherson, Rakowski (2000:9) investigation the effect of the money supply, inflation, and the exchange rate on the real output growth with use the single equation estimations and data (1970 to 1996) in Kenya. From estimating, they get result inflation have negative effect on real income growth. Then in study Mohammad et al (2009) also found that the inflation has significant and negative effect. The reason behind the negative association among inflation and economic growth is the inflation is due to adverse supply shock (cost push inflation) in case of Pakistan. While in research of Khosravi and Karimi (2010), shows the exists co-integration relation between growth and inflation. The results identify the effect of inflation on growth are negative effect. Although in research of Waliullah and Rabbi (2011) also found that there is a stable long run relationship amongst gross domestic product (GDP) and consumer price index (CPI) in Pakistan. It means that change in price level has a significant negative impact on economic growth.

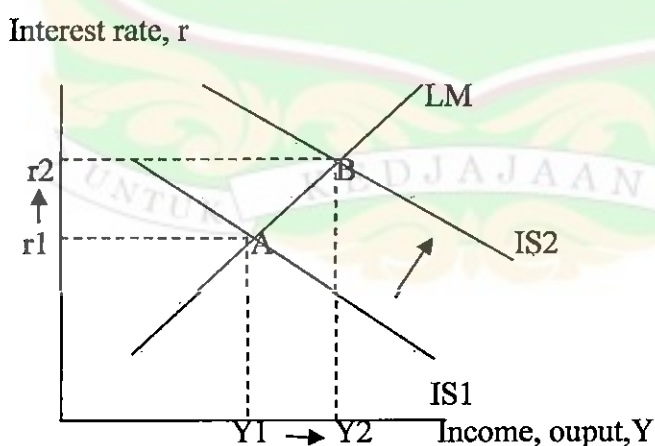
5.3.3 The impact of Government Expenditure on Economic Growth

The government expenditure variable also has positive impact and not significant influence on economic growth in level 5 percent, where $t\text{-test} < t\text{-table}$ ($0,976 < 1.706$). This problem occur actually, routine expenditure is particularly intended for funding the public affairs like civil servants' salary and government owned companies, offices and institutions to support the apparatus of the government. Thus development expenditure is also aimed at national development

expense related to building the facilities. Therefore, the impacts of such an expenditure do not directly affect the economic development. And resulted elasticity coefficient for government expenditure is 0,049 percent. It means that, if the increase the government expenditure by 1 percent, so the economic growth will increase by 0,049 percent (table 5.1).

The effect of government expenditure in economic growth is positive relationship because when the government increases its purchases of goods and services, the economy's planned expenditure rises. The increase in planned expenditure stimulates the production of goods and services, which causes total income Y to rises (Keynesian cross and the theory of liquidity preference). Then in IS – LM model shows how these shifts in the IS curve affect income and the interest rate when an increase in government expenditure. An increase in government expenditure shift the IS curve to the right. The equilibrium moves from point A point B. the increase in government purchases raises both income and the interest rate.

Figure 5.1: An Increase in Government Expenditure in IS –LM model



(Sources : (Macroeconomics fourth edition, N.Gregory Mankiw)

This study supported by Elliot (1975), Chowdhury (1986), Adefeso (2010), Khosravi and Karimi (2010), Jawaid et al (2010), the government expenditures has positive effect on economic growth.

5.4 Policy Implication to Indonesia

From the regression result shows that the monetary policy in variable money supply and consumer price index have significant effect on economic growth in Indonesia.

The effect of monetary policy when the increasing in money supply is increasing the level of income, because the increase in the money supply lowers the interest rate, which stimulates investment and thereby expands the demand for goods and services. So the central bank should allocate the money supply effectively and efficiently, in order to stimulate economic growth and low or stable inflation rate.

Then, in this research also found there is negative and significant relationship between inflation as CPI and economic growth in Indonesia. This means that the lower the consumer price index, it cause higher the level of economic growth. Thus the increase in money supply has to be used for improving the number and the activities of goods and services. It will undermine the inflation level. Thus, the government has to create more real economic activities like improving the agricultural production (rice) and industry like export.

Then Government expenditure (routine and development) affects the economic growth insignificantly since it has no direct relationships with economic activities. Actually, routine expenditure is particularly intended for funding the public affairs

like civil servants' salary and government owned companies, offices and institutions to support the apparatus of the government. Thus development expenditure is also aimed at national development expense related to building the facilities. Therefore, the impacts of such an expenditure do not directly affect the economic growth. The government is expected to assess the efficacy and efficiency of routine expenditure, thus, the next the expenditure for further development can be increased based on effective and appropriate accountability.



CHAPTER VI

CONCLUSION AND RECOMMENDATION

Based on the empirical results of research and discussion from the previous chapter, the main objective of this research is to examine the impact of monetary policy on economic growth: case study in Indonesia during period 1981 to 2011. In this paper, the author used OLS method to empirically test the impact of monetary policy on economic growth. From the analysis of data that has been done, it is obtained conclusions and recommendations.

6.1 Conclusion

The conclusions in this research are as follow: First, the estimation results indicate the money supply, consumer price index (CPI) and government expenditure significantly affect economic growth at 95 percent confidence level or $\alpha = 5$ percent with a coefficient of determination (R^2) is 97,3 percent. Second, the estimation results indicate the variable of money supply (M2) has positive and significant effects on economic growth in Indonesia. This means that the higher the money supply, it cause the higher the level of economic growth (*ceteris paribus*) and the lower of money supply, it cause the lower the level of economic growth of the nation. This finding is in accordance with Keynesian theory and the previous research.

Third, the consumer price index as inflation has negative significant impacts on economic growth in Indonesia. This means that the increasing in consumer price index will decrease the economic growth, because cost push inflation occurs,

Fourth, the government expenditure has positive on economic growth in Indonesia. This means that an increase in the government expenditure will increase the economic growth.

The last, based on the estimation in this thesis supported by the previous review, it shows that there is the impact of monetary policy on economic growth in Indonesia. Then government expenditure as another policy also has impact on economic growth.

6.2 Recommendation

In this thesis I suggest that the Money supply as a variable of monetary policy has positive and significant effect on economic growth, so the central bank should allocate the money supply effectively and efficiently in order to stimulate the economic growth and low or stable inflation. Then the consumer price index has negative relationship on economic growth, thus the increase in money supply has to be used for improving the number and the activities of goods and services. It will undermine the inflation level. Thus, the government has to create more real economic activities like improving the agricultural production (rice) and industry like export.

The last, in this study, it is found that the government expenditure has positive and insignificant effects on economic growth, So the government is expected to assess the efficacy and efficiency of routine expenditure. Thus, the next expenditure for further development can be increased based on effective and appropriate accountability.

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APPENDIX I

YEAR	GDP	M2	CPI	GE
	Gross Domestic Product	Money Supply	Consumer Price Index	Government Expenditure
	Billion Rp	Billion Rp	%	Billion Rp
1981	596302,235	7619	0,1224	13917,7
1982	609697,839	11059	0,0948	14355,9
1983	635262,271	14663	0,1179	18311
1984	679570,142	17937	0,1046	19380,8
1985	696306,308	23153	0,0473	22824,6
1986	737217,843	27661	0,0583	21891
1987	773530,001	33885	0,0928	26959
1988	818238,886	41998	0,0804	32990
1989	879258,372	58705	0,0642	38165
1990	942929,454	84630	0,0781	47450
1991	1008466,476	99058	0,0942	51992
1992	1073610,669	119053	0,0753	60511
1993	1146787,796	145202	0,0969	68718
1994	1237696,392	174512	0,0852	72343
1995	1339349,622	222638	0,0943	79216
1996	1444053,81	288632	0,0797	98513
1997	1512028,191	355643	0,0623	131545
1998	1324018,401	577381	0,5839	215586
1999	1323940,225	646205	0,2049	166881
2000	1389770,3	747028	0,0372	221467
2001	1442984,6	844053	0,115	341563
2002	1506124,4	883908	0,1188	322180
2003	1579558,9	955692	0,0659	376505
2004	1660578,8	1033527	0,0624	427177
2005	1750815,2	1202762	0,1045	509632
2006	1847126,7	1382493	0,1311	667129
2007	1964327,3	1649662	0,0641	757650
2008	2082456,1	1895839	0,0978	985731
2009	2177741,7	2141384	0,0481	937382
2010	2310689,8	2471206	0,0513	1126147
2011	2463242	2877220	0,0379	1202046

Source: Indonesian financial Statistics BI and Bureau statistic of Indonesia

Data in LN

YEAR	LN_GDP	LN_M2	CPI	LN_GE
1981	13,2985	8,9384	0,1224	9,540917
1982	13,32072	9,311	0,0948	9,571916
1983	13,36179	9,593083	0,1179	9,815257
1984	13,42922	9,794621	0,1046	9,872038
1985	13,45354	10,04988	0,0473	10,03559
1986	13,51064	10,22778	0,0583	9,993831
1987	13,55872	10,43073	0,0928	10,20207
1988	13,61491	10,64538	0,0804	10,40396
1989	13,68683	10,98028	0,0642	10,54967
1990	13,75675	11,34604	0,0781	10,76743
1991	13,82394	11,50346	0,0942	10,85885
1992	13,88654	11,68732	0,0753	11,01058
1993	13,95248	11,88588	0,0969	11,13777
1994	14,02876	12,06975	0,0852	11,18917
1995	14,10769	12,3133	0,0943	11,27993
1996	14,18296	12,57291	0,0797	11,49794
1997	14,22896	12,78168	0,0623	11,7871
1998	14,09618	13,26626	0,5839	12,28112
1999	14,09612	13,37887	0,2049	12,02504
2000	14,14465	13,52386	0,0372	12,30803
2001	14,18222	13,64597	0,115	12,74129
2002	14,22505	13,69211	0,1188	12,68287
2003	14,27266	13,77019	0,0659	12,83869
2004	14,32268	13,84849	0,0624	12,96495
2005	14,37559	14,00013	0,1045	13,14144
2006	14,42914	14,1394	0,1311	13,41074
2007	14,49066	14,31608	0,0641	13,53798
2008	14,54906	14,45517	0,0978	13,80114
2009	14,5938	14,57696	0,0481	13,75085
2010	14,65306	14,72022	0,0513	13,93431
2011	14,71699	14,87234	0,0379	13,99954

Processed by author

APPENDIX II

Regresian Analysis

Dependent Variable: LN_GDP

Method: Least Squares

Date: 10/10/12 Time: 08:32

Sample: 1981 2011

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_M2	0.191050	0.040449	4.723259	0.0001
CPI	-0.311943	0.140800	-2.215507	0.0353
LN_GE	0.049255	0.050475	0.975823	0.3378
C	11.11027	0.137807	80.62226	0.0000

R-squared	0.973192	Mean dependent var	14.01132
Adjusted R-squared	0.970214	S.D. dependent var	0.421418
S.E. of regression	0.072732	Akaike info criterion	-2.284170
Sum squared resid	0.142827	Schwarz criterion	-2.099139
Log likelihood	39.40463	Hannan-Quinn criter.	-2.223854
F-statistic	326.7231	Durbin-Watson stat	1.612447
Prob(F-statistic)	0.000000		

APPENDIX III

Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.81549	Prob. F(2,25)	0.7433
Obs*R-squared	2.24352	Prob. Chi-Square(2)	0.5994

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 10/10/12 Time: 08:45

Sample: 1981 2011

Included observations: 31

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_M2	-0.010746	0.019083	-0.563148	0.5784
CPI	-0.134778	0.067370	-2.000552	0.0564
LN_GE	0.015096	0.023985	0.629401	0.5348
C	-0.028867	0.064044	-0.450747	0.6561
RESID(-1)	1.271575	0.160091	7.942842	0.0000
RESID(-2)	-0.429753	0.174402	-2.464153	0.0210

R-squared	0.814307	Mean dependent var	-1.21E-15
Adjusted R-squared	0.777169	S.D. dependent var	0.068999
S.E. of regression	0.032571	Akaike info criterion	-3.838799
Sum squared resid	0.026522	Schwarz criterion	-3.561253
Log likelihood	65.50139	Hannan-Quinn criter.	-3.748326
F-statistic	21.92620	Durbin-Watson stat	2.399234
Prob(F-statistic)	0.000000		

APPENDIX IV

Multicollinearity Test

Dependent Variable: LN_GDP

Method: Least Squares

Date: 10/10/12 Time: 08:51

Sample: 1981 2011

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_M2	0.191050	0.040449	4.723259	0.0001
CPI	-0.311943	0.140800	-2.215507	0.0353
LN_GE	0.049255	0.050475	0.975823	0.3378
C	11.11027	0.137807	80.62226	0.0000
R-squared	0.973192	Mean dependent var		14.01132
Adjusted R-squared	0.970214	S.D. dependent var		0.421418
S.E. of regression	0.072732	Akaike info criterion		-2.284170
Sum squared resid	0.142827	Schwarz criterion		-2.099139
Log likelihood	39.40463	Hannan-Quinn criter.		-2.223854
F-statistic	326.7231	Durbin-Watson stat		1.612447
Prob(F-statistic)	0.000000			

Dependent Variable: LN_M2

Method: Least Squares

Date: 10/10/12 Time: 08:52

Sample: 1981 2011

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	0.545447	0.649711	0.839522	0.4083
LN_GE	1.227116	0.042849	28.63807	0.0000
C	-2.088772	0.508650	-4.106500	0.0003
R-squared	0.967052	Mean dependent var		12.33347
Adjusted R-squared	0.964699	S.D. dependent var		1.808612
S.E. of regression	0.339812	Akaike info criterion		0.770919
Sum squared resid	3.233226	Schwarz criterion		0.909691
Log likelihood	-8.949237	Hannan-Quinn criter.		0.816155
F-statistic	410.9171	Durbin-Watson stat		0.388178
Prob(F-statistic)	0.000000			

Dependent Variable: CPI
 Method: Least Squares
 Date: 10/10/12 Time: 08:53
 Sample: 1981 2011
 Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_M2	0.045015	0.053620	0.839522	0.4083
LN_GE	-0.054200	0.066970	-0.809330	0.4252
C	0.181669	0.181750	0.999554	0.3261

R-squared	0.024807	Mean dependent var	0.102310
Adjusted R-squared	-0.044849	S.D. dependent var	0.095502
S.E. of regression	0.097621	Akaike info criterion	-1.723691
Sum squared resid	0.266834	Schwarz criterion	-1.584918
Log likelihood	29.71721	Hannan-Quinn criter.	-1.678455
F-statistic	0.356137	Durbin-Watson stat	1.857526
Prob(F-statistic)	0.703503		

Dependent Variable: LN_GE
 Method: Least Squares
 Date: 10/10/12 Time: 08:53
 Sample: 1981 2011
 Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_M2	0.788016	0.027516	28.63807	0.0000
CPI	-0.421743	0.521101	-0.809330	0.4252
C	2.031663	0.344662	5.894653	0.0000

R-squared	0.966995	Mean dependent var	11.70748
Adjusted R-squared	0.964638	S.D. dependent var	1.448082
S.E. of regression	0.272310	Akaike info criterion	0.328015
Sum squared resid	2.076278	Schwarz criterion	0.466788
Log likelihood	-2.084233	Hannan-Quinn criter.	0.373252
F-statistic	410.1801	Durbin-Watson stat	0.391128
Prob(F-statistic)	0.000000		

APPENDIX V

Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	7.161297	Prob. F(3,27)	0.0011
Obs*R-squared	13.73653	Prob. Chi-Square(3)	0.0033
Scaled explained SS	8.339914	Prob. Chi-Square(3)	0.0395

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 10/10/12 Time: 09:15

Sample: 1981 2011

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.019136	0.008831	2.166760	0.0392
LN_M2	0.011223	0.002592	4.329382	0.0002
CPI	-0.014014	0.009023	-1.553095	0.1320
LN_GE	-0.012941	0.003235	-4.000641	0.0004

R-squared	0.443114	Mean dependent var	0.004607
Adjusted R-squared	0.381238	S.D. dependent var	0.005925
S.E. of regression	0.004661	Akaike info criterion	-7.779233
Sum squared resid	0.000587	Schwarz criterion	-7.594203
Log likelihood	124.5781	Hannan-Quinn criter.	-7.718918
F-statistic	7.161297	Durbin-Watson stat	0.682744
Prob(F-statistic)	0.001092		

APPENDIX VI

A. The table of Gross Domestic Product at Constant Price 2000

YEAR	GDP (Billion Rp)	Growth (%)	YEAR2	GDP (Billion Rp)	Growth (%)
1981	596302,235	-	1997	1512028,191	4,71
1982	609697,839	2,25	1998	1324018,401	-13,43
1983	635262,271	4,19	1999	1323940,225	0,01
1984	679570,142	6,97	2000	1389770,3	4,97
1985	696306,308	2,46	2001	1442984,6	3,83
1986	737217,843	5,88	2002	1506124,4	4,38
1987	773530,001	4,93	2003	1579558,9	4,88
1988	818238,886	5,78	2004	1660578,8	5,13
1989	879258,372	7,46	2005	1750815,2	5,43
1990	942929,454	7,24	2006	1847126,7	5,5
1991	1008466,476	6,95	2007	1964327,3	6,35
1992	1073610,669	6,46	2008	2082456,1	6,01
1993	1146787,796	6,82	2009	2177741,7	4,58
1994	1237696,392	7,93	2010	2310689,8	6,1
1995	1339349,622	8,21	2011	2463242	6,6
1996	1444053,81	7,82		AVERAGE	4,88

Source: Indonesian financial Statistics BI and Bureau statistic of Indonesia



APPENDIX VII

B. Money Supply

YEAR	M2 (Billion Rp)	Growth (%)	YEAR	M2 (Billion Rp)	Growth (%)
1981	7619	-	1997	355643	23,22
1982	11059	45,15	1998	577381	62,35
1983	14663	32,59	1999	646205	11,92
1984	17937	22,33	2000	747028	15,6
1985	23153	29,08	2001	844053	12,99
1986	27661	19,47	2002	883908	4,72
1987	33885	22,5	2003	955692	8,12
1988	41998	23,94	2004	1033527	8,14
1989	58705	39,78	2005	1202762	16,37
1990	84630	44,16	2006	1382493	14,94
1991	99058	17,05	2007	1649662	19,33
1992	119053	20,19	2008	1895839	14,92
1993	145202	21,96	2009	2141384	12,95
1994	174512	20,19	2010	2471206	15,4
1995	222638	27,58	2011	2877220	16,43
1996	288632	29,64			

Source: Indonesian Financial Statistics BI and Bureau Statistic of Indonesia

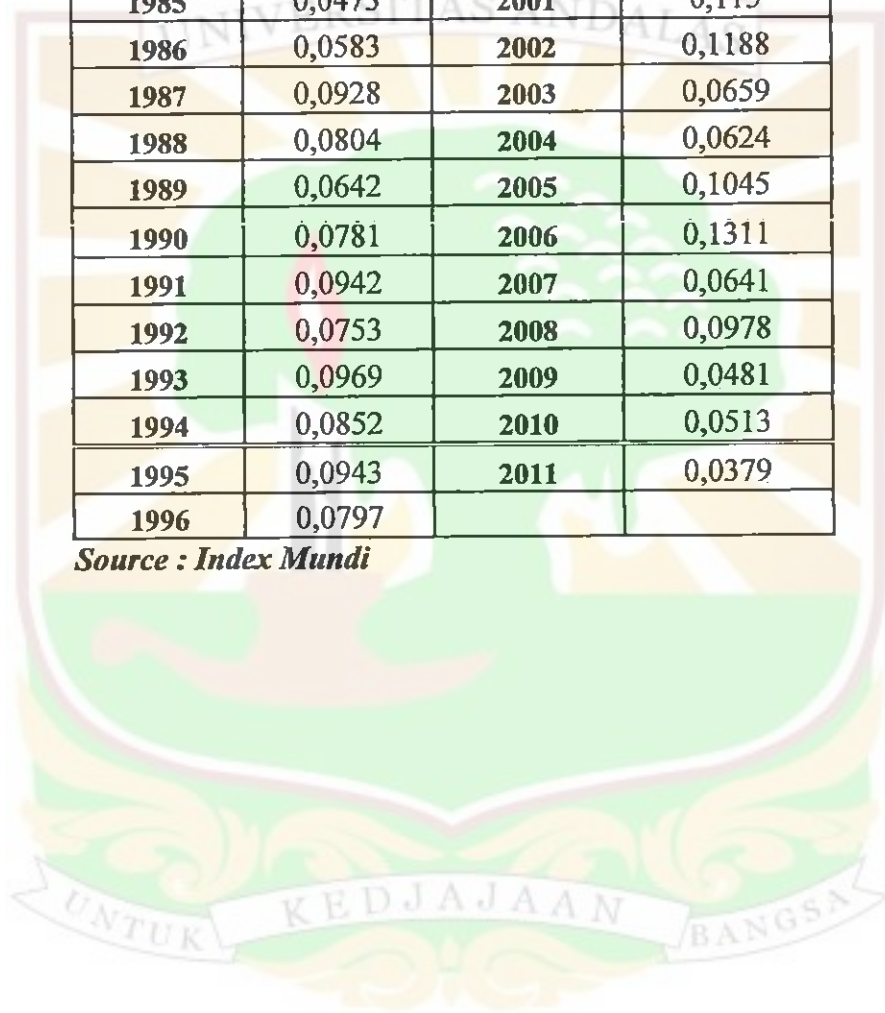


APPENDIX VIII

C. Inflation

YEAR	CPI (%)	YEAR	CPI (%)
1981	0,1224	1997	0,0623
1982	0,0948	1998	0,5839
1983	0,1179	1999	0,2049
1984	0,1046	2000	0,0372
1985	0,0473	2001	0,115
1986	0,0583	2002	0,1188
1987	0,0928	2003	0,0659
1988	0,0804	2004	0,0624
1989	0,0642	2005	0,1045
1990	0,0781	2006	0,1311
1991	0,0942	2007	0,0641
1992	0,0753	2008	0,0978
1993	0,0969	2009	0,0481
1994	0,0852	2010	0,0513
1995	0,0943	2011	0,0379
1996	0,0797		

Source : Index Mundi



APPENDIX IX

D. Government Expenditure

YEAR	GE (Billion Rp)	Growth (%)	YEAR	GE (Billion Rp)	Growth (%)
1981	13917,7		1997	131545	33,53
1982	14355,9	3,15	1998	215586	63,89
1983	18311	27,55	1999	166881	-22,59
1984	19380,8	5,84	2000	221467	32,71
1985	22824,6	17,77	2001	341563	54,23
1986	21891	-4,09	2002	322180	-5,67
1987	26959	23,15	2003	376505	16,86
1988	32990	22,37	2004	427177	13,46
1989	38165	15,69	2005	509632	19,3
1990	47450	24,33	2006	667129	30,9
1991	51992	9,57	2007	757650	13,57
1992	60511	16,39	2008	985731	30,1
1993	68718	13,56	2009	937382	-4,9
1994	72343	5,28	2010	1126147	20,14
1995	79216	9,5	2011	1202046	6,74
1996	98513	24,36			

Source: Bureau Statistic of Indonesia and Indonesian Financial Statistic BI

