The Impact of Fiscal Policy, Monetary Policy, GDP and Trade towards Inflation among ASEAN-5 Countries in 1985-2016

A THESIS

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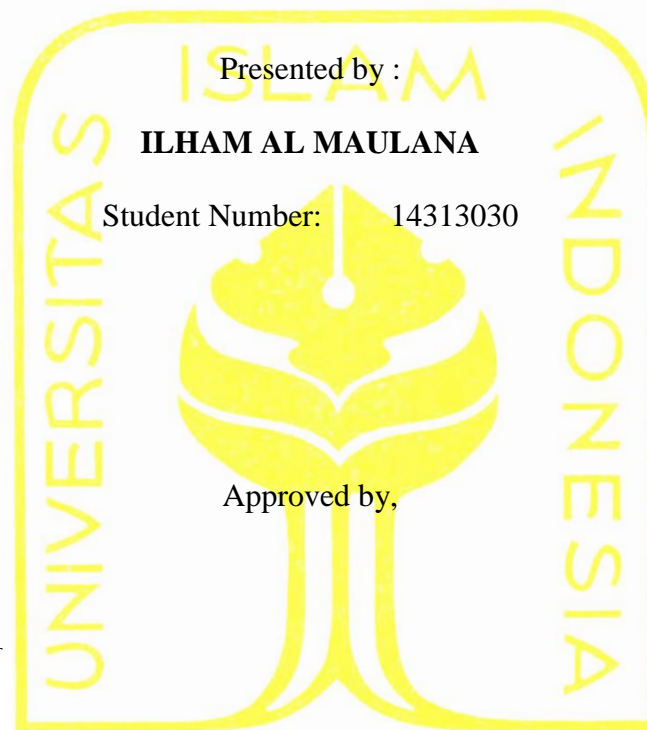
in Economics Department

By :

Ilham Al Maulana

Student Number: 14313030

DEPARTMENT OF ECONOMICS

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THE IMPACT OF FISCAL POLICY, MONETARY POLICY, GDP AND TRADETOWARDS INFLATION AMONG ASEAN-5 COUNTRIES IN 1985-2016

Presented by :

ILHAM AL MAULANA

Student Number: 14313030

Approved by,

Content Advisor,

Jaka Sriyana, SE., M.Si., Ph.D.   March 20th, 2018

Language Advisor,

Willy Prasetya, S.Pd., M.A.   March 20th, 2018

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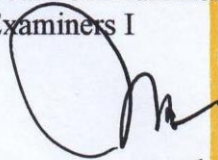
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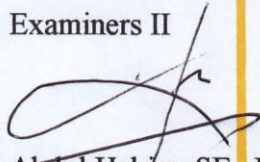
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Faculty of Economics

Universitas Islam Indonesia

Dean,

Jaka Sriyana, SE., M.Si., Ph.D.

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DECLARATION OF AUTHENTICITY

Hereby I declare the originality of the thesis; I have not presented someone else's work to obtain my university degree, nor I have presented someone else's words, ideas or expressions without any of the acknowledgments. All quotations are cited and listed in the bibliography of the thesis. If in the future this statement is proven to be false, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, March 20th, 2018

Author,

Ilham Al Maulana

MOTTOS

"So verily with the hardship there is relief, verily with the hardship there

is relief"

(Quran, 94:5-6)

"Allah does not burden a soul beyond that it can bear"

(Quran, 2:286)

"Talk Less, Do More"

(Unknown)

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ABSTRACT

The purpose of this research is to identify and analyze about the impact of fiscal policy, monetary policy, Growth Domestic Product (GDP) and trade (export-import) toward Inflation. Furthermore, fiscal policy divided into namely government spending and tax revenue, then monetary policy divided into three which is money supply, interest rate and exchange rate. The population from this study is ASEAN Countries, while the sample for this study is ASEAN-5 Countries, which is Indonesia, Malaysia, Philippines, Singapore and Thailand. The data that used in this study is from 1985-2016. Then, this study is used panel data method and used program E-Views. The result of this study said that there is significant effect in government spending, tax revenue, money supply, interest rate, exchange rate and GDP towards inflation through partial. But, there is no relationship between trade (export-import) and inflation.

Key words   : *Inflation, Fiscal Policy, Monetary Policy, Government Spending, Tax Revenue, Money Supply, Interest Rate, Exchange Rate, GDP, Trade, Export, Import, Panel Data Method*

ABSTRAK

Tujuan penelitian ini adalah untuk mengidentifikasi dan menganalisis tentang dampak kebijakan fiskal, kebijakan moneter, Pertumbuhan Produk Domestik (PDRB) dan perdagangan (ekspor-impor) terhadap Inflasi. Selanjutnya, kebijakan fiskal dibagi menjadi seperti belanja pemerintah dan penerimaan pajak, sedangkan kebijakan moneter dibagi menjadi tiga yaitu uang beredar, suku bunga dan nilai tukar. Populasi dari penelitian ini adalah Negara-negara ASEAN, sedangkan sampel untuk penelitian ini adalah Negara ASEAN-5, yaitu Indonesia, Malaysia, Filipina, Singapura dan Thailand. Data yang digunakan dalam penelitian ini adalah 1985-2016. Kemudian, penelitian ini menggunakan metode data panel dan menggunakan program E-Views. Hasil penelitian ini mengatakan bahwa ada pengaruh yang signifikan dalam belanja pemerintah, penerimaan pajak, jumlah uang beredar, tingkat suku bunga, nilai tukar dan PDB terhadap inflasi secara parsial. Tapi, tidak ada hubungan antara perdagangan (ekspor-impor) dan inflasi.

Key words : ***Inflasi, Kebijakan Fiskal, Kebijakan Moneter, Pengeluaran Pemerintah, Penerimaan Pajak, Jumlah Uang Beredar, Suku Bunga, Nilai Tukar, PDB, Perdagangan, Ekspor, Impor, Metode Data Panel***

CHAPTER I

INTRODUCTION

1.1 Background

Asian financial crisis that happened in 1997-1998 taught an important lesson for Asian Countries to strengthen monetary and trade cooperation between ASEAN Countries. ASEAN is the Association of South East Asia Nations that establish by South East Asia countries to achieve economic integration in South East Asia. These things are shown by the economic and political cooperation between ASEAN countries. ASEAN has commitment to make economic integration in South East Asia, one of the result is creating the ASEAN Economic Community (AEC) in 2015.

The one of the causes financial crisis in Asian is exchange rate volatility, which is the contagion effect of the crisis that occurred in Thailand. It has impact to various economic difficulties (Darussalam, 2010). The reinforcement of monetary and trade cooperation are necessary to do to seek for economic stability, then one of the impacts is inflation.

Inflation is one of the most important monetary phenomena and almost every country in the world faces it. Inflation in the Latin language is "*inflance*", it means increase. Inflation is increasing the price of goods and services in general, where prices and salaries are increased, labor demanded is higher than labor supplied and the amount of money in circulation greatly increased. Inflation is always marked by increasing the prices rapidly (Encyclopedia Indonesia: 1991, 445), in the other hand,

Inflation is the process of increasing the price of goods and services in general and continuously. It does not mean that the price of the various items increased by the same percentage. Perhaps there is a continuous increase in the general price of goods in a period of time, if only one-time increase (even though in higher percentage) is not an inflation (Nopirin, 1992: 25).

Inflation is one of the macroeconomic indicators that can be used as a foundation by a country in making an economic policy. This indicator has a broad impact on aggregate macroeconomic variables, such as economic growth of external balance, competitiveness, interest rate, and income distribution (Solihin, 2011). In general, inflation has an impact some social costs that have borne by the community. First, inflation has a negative impact on the distribution of income. Lower class society and income will still bear the burden of inflation with their purchasing power decreasing. Otherwise, middle and upper class society who have financial assets such as savings and deposits can protect their wealth from inflation, so their purchasing power is relatively constant. Second, high inflation has a negative impact on economic growth. Inflation effects on the economy vary and can be both positive and negative (Heru Perlambang, 2010).

The relationship between inflation and economic growth is something that has long been discussed and debated in the literature (López-Villavicencio and Mignon 2011). High economic growth in terms of low and stable inflation is the main goal of macroeconomic policy. This implies that inflation with maintained at a certain scale

will really need to promote economic development. (Khan and Senhadji, 2001; Seleteng, Bittencourt et al., 2013; Vinayagathasan, 2013).

Some policies in controlling inflation are fiscal policy and monetary policy. Generally, in the monetary policy, the policies are undertaken by the monetary authorities to influence monetary variables, money supply, interest rates and exchange rates. In general, monetary policy is the achievement of internal balance (internal balance) and external balance (external balance). Internal balance is usually showed by the creation of a high work balance, achieving high economic growth rates and maintained low inflation rate. On the other hand, internal balance is usually showed by a balanced balance of payments (Insukindro, 1994: 204).

Inflation is not something that should be avoided or hostile to a country. Whether at the right level, inflation will be able to increase the desire of domestic production. Rising prices on the right rise make the circle of goods tend to fast, and increased profits will raise the level of goods production. The unemployment rate will be reduced because investors are interested in investing, so it will be opened employment opportunities. Eventually, the economy will grow in a positive direction. Then inflation can be classification into 4 type, namely (Boediono, 1998: 162) :

a) Creeping Inflation (Low) : < 10 % a year

b) Walking Inflation (Middle) : 10 – 30 % a year

c) Galloping Inflation (High) : 30 -100 % a year

d) Hyperinflation : > 100 % a year

Because Inflation is one of the macroeconomic indicators that can be used as a foundation by a country in making an economic policy, the inflation rate in each country is different, such as in ASEAN. Therefore, the following chart shows inflation in ASEAN-5, starting from 1985 to 2016, including the year in which several ASEAN countries got economic crisis.

Graph 1.1

Inflation in ASEAN Countries
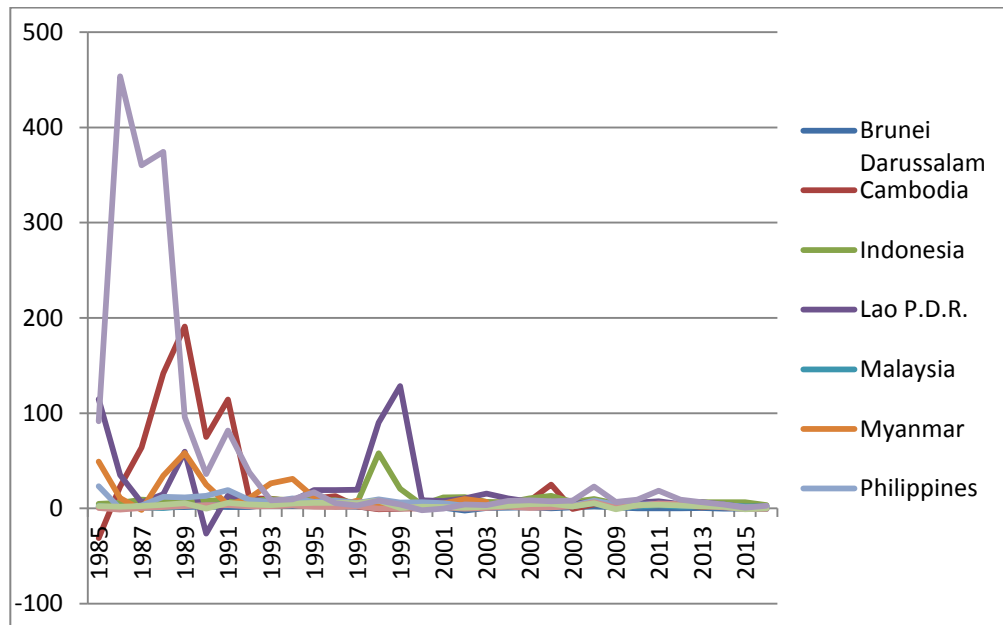
Source : International Monetary Fund

According to the data above, in 1998, inflation in ASEAN was very high because Indonesia, Myanmar and Laos got high inflation. In 1998, inflation in Indonesia was very high, it reached 58%, whereas in the previous year the inflation in Indonesia was only 6.2%, while in Laos, the inflation was also high because it

reached 90.1% whereas in the previous year in 1997 inflation was only 19.5%, the difference is about 70.6%. Then inflation in Myanmar also high, it reached 49.1%.

Graph 1.2

Inflation in ASEAN-5 Countries
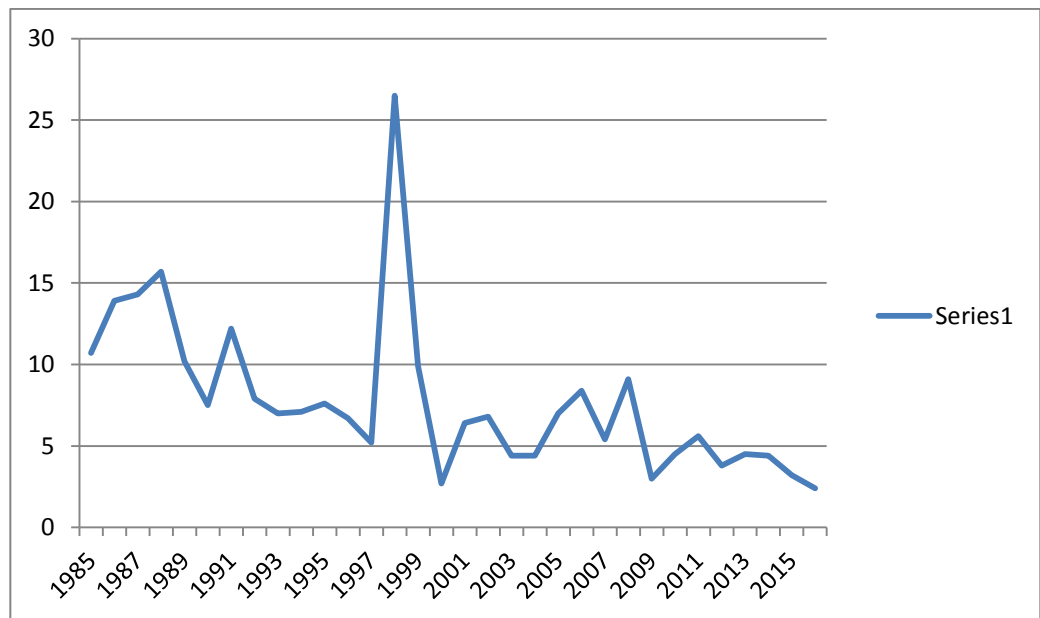
Source : International Monetary Fund

If we see the second graph that explains about inflation in ASEAN, the inflation in 1997 is only 5.2%. However in the 1998 reached up to 26.5%. The increasing is very high at 21.3%. Because in previous years, the gap from year to year is not too high. Before ASEAN was formed in 1995 or before the policy free trade is held the inflation in ASEAN has never reached below 7%. The lowest inflation is only 7% that occurred in 1993. The inflation in ASEAN after 1995 reached 6.7% that

occurred in 1996 and 5.2% occurred in 1997, it can be called they are low. Then in 1998 there was a crisis that make inflationary impact was very bad.

Some previous studies related to inflation show that variables such as money supply and exchange rate are variables that always have an impact on inflation. In addition, beside both variables, there are also government expenditures, GDP and trade which also have an impact on inflation. Heru Perlambang (2010), Huu Minh Nguyen, Tony Cavoli and John K. Wilson (2012), Princess Tirta Enistin Sipayung and Made Kembar Sri Budhi (2013), Yassirli Amrini, Hasdi Aimon and Efrizal Syofyan (2013) and Ari Muliant Ginting (2016). In the previous researches have different location, then the result is inconsistent and difference. Several characteristic variables that influence inflation rates in a country that sill have the results of research that inconsistent and different, the characteristic are money supply, exchange rate, and GDP.

The definition of money supply is all the currency and demand deposit available for use by the public. The short meaning of money supply is the bills and coins in the hands of the public (Dornbusch, 1987). According to research conducted by Heru Perlambang (2010) shows that the money supply has no significant effect on inflation. Meanwhile, according to research conducted by Huu Minh Nguyen, Tony Cavoli and John K. Wilson (2012), Princess Tirta Enistin Sipayung and Made Kembar Sri Budhi (2013), Yassirli Amrini, Hasdi Aimon and Efrizal Syofyan (2013)

and Ari Mulianta Ginting (2016) shows that the money supply has a significant effect on inflation.

The definition of exchange rate according to Hamdy (2008) is the price of local currency towards foreign currency. Then, the exchange rate is the value of currency translated into another country's currency. For example, the rupiah exchange rate against the US Dollar, the exchange rate of rupiah against the yen, and etc. According to the Heru Perlambang (2010) exchange rate has no significant effect on inflation. However, the result of research by Putri Tirta Enistin Sipayung and Made Kembar Sri Budhi (2013) and Ari Mulianta Ginting (2016) showed that the exchange rate significantly affect the level of Inflation simultaneously.

The definition of GDP according to Samuelson (2002) is the total amount of output produced within the boundaries of a country in one year. The result of the research of Putri Tirta Enistin Sipayung and Made Kembar Sri Budhi (2013) shows the Gross Domestic Product (GDP) does not affect the inflation rate. Meanwhile, according to Ndari Surjaningsih, G. A. Diah Utari and Budi Trisnanto (2012) and Ari Mulianta Ginting (2016) showed Gross Domestic Product (GDP) affect the inflation rate.

Based on previous studies, it is known that the factors that influence the causes of inflation of in a country come from domestic variables and external variables. These variables include Gross Domestic Product (GDP), exchange rate, interest rate, money supply, government spending, taxes and trade. The expansion

and contraction of money supply as a determinant of inflation is one of the few ancient economic propositions that still exist, derived from the classical monetary analysis of the 19th century (Totonchi, 2011). According to the quantity theory of money, the expansion of monetary supply has always been one of the main causes of inflation in the long term (Tempelman, 2010). Furthermore, this situation is exacerbated by the emergence of inflation bias in monetary policy and fiscal policy deficits, with the tendency of policymakers (government) make the decisions is not optimal in socially (Romer, 2012).

Based on the inconsistency from some previous results of research that make the researcher interesting to analyze more deeply by using the variable of Gross Domestic Product (GDP), exchange rate of currency, interest rate, money supply, government spending and trade. This study discusses the Inflation and the factors affecting inflation in ASEAN countries with the title "**The impact of Fiscal Policy, Monetary Policy, GDP and Trade towards Inflation among ASEAN-5 Countries in 1985-2016**"

1.2. Problem Formulation

A. Does Government Spending a factor that supports or inhibits inflation in ASEAN-5?

B. Does Tax Rate a factor that supports or inhibits inflation in ASEAN-5?

C. Does Money Supply a factor that supports or inhibits inflation in ASEAN-5?

D. Does Interest Rate and Exchange Rate a factor that supports or inhibits inflation in ASEAN-5?

E. Does Exchange Rate a factor that supports or inhibits inflation in ASEAN-5?

F. Does GDP a factor that supports or inhibits inflation in ASEAN-5?

G. Does Trade (Export-Import) between countries a factor that supports or inhibits inflation in ASEAN-5?

1.3 Research Purpose

Based on the problem background and the problem formulation above, the purpose of this research are:

A. To analyze the effect of Government Spending Tax Rate) on inflation in ASEAN-5 Countries.

B. To analyze the effect of Tax Rate on inflation in ASEAN-5 Countries.

C. To analyze the influence of Money Supply on inflation in ASEAN-5 Countries.

D. To analyze the effect of Interest Rate on inflation in ASEAN-5 Countries.

E. To analyze the effect of Exchange Rate on inflation in ASEAN-5 Countries.

F. To analyze the effect of GDP (Growth Domestic Product) on inflation in the ASEAN-5 countries.

G. To analyze the effect of Trade (Export-Import) on inflation in ASEAN-5 Countries.

1.4 Research Contribution

Based on the background of the problem and the formulation of the problem above, the benefits of this research are:

A. For the governments of ASEAN countries, for consideration in the process of fiscal and monetary policy making in each country.

B. For the authors, it is hoped that this research will provide new insights on the development condition of ASEAN countries' cooperation towards comprehensive economic integration.

C. For the reader, it is expected that this research can provide information about the linkage between trade and inflation in ASEAN, and can be used as reference material in conducting further research

1.5 Research Objective

This study analyzes the inflation and factors inflation in ASEAN countries. The scope of research is to take a sample of five major ASEAN countries namely Indonesia, Malaysia, Singapore, Philippines, and Thailand. The lack of data makes this research exclude other ASEAN member countries.

1.6 Writing systematic

To simplify and clarify the writing of this thesis, the writer uses systematics of writing so that the writing will be more focused. This research will be divided into several chapters, they are:

CHAPTER I: INTRODUCTION

This chapter contains background of the study, problem identification, problem formulation, problem limitation, research objectives, research contributions, and systematic of writing.

CHAPTER II: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This chapter describes references of previous studies which were ever done in the same field as well as load the foundation of theory used to approach the issues that will be examined.

CHAPTER III: RESEARCH METHOD

Chapter III elaborates the method of analysis used in the study and data source that are used.

CHAPTER IV: DATA ANALYSIS AND DISCUSSIONS

Chapter IV contains the finding results from the data that have been obtained previously and analysis to find out the influence of the respective data obtained.

CHAPTER V: CONCLUSION AND RECOMENDATION

This chapter is the concluding chapter which contains the conclusions and implications of the analysis results of the data of the previous chapters.

CHAPTER II

LITERATURE REVIEW

2.1 Literature Review

The title of this research can not be separated from the previous research titles as the basis for make the framework of this research. There are several researchers who research about the influence on inflation in ASEAN countries, as follow:

Based on the analysis of results about research that conducted by Heru Perlambang (2010) with the title is Analysis of Influence of Money Supply, SBI Interest Rate, Exchange Rate Against Inflation Rate. The independent variable in this research is inflation, while the dependent variable is the Money Supply (JUB), interest rate, exchange rate. The method that used in this research is multiple linear regression. Data that used in this research from 2004-2009. The result of this research analysis shows that the money supply does not have a significant effect on inflation, then SBI has a significant positive influence on inflation and the exchange rate does not have a significant effect on inflation.

Huu Minh Nguyen, Tony Cavoli and John K. Wilson (2012) conducted a study with titled is The Determinants of Inflation in Vietnam, 2001-2009, this study used the vector auto regression method. This study has result that the impact of changes in output value, exchange rate and interest rates on inflation is weakness in the short term. There is evidence that from money growth and external shocks to inflation, but can make outputs and exchange rates.

Ndari Surjaningsih, G. A. Diah Utari and Budi Trisnanto (2012) conducted research about the Impact of Fiscal Policy on Output and Inflation. The variables on this research are inflation and output as dependent variables, fiscal policy as variable independent, and using VECM method. The results in this study indicate that government spending has a positive impact on GDP, then if tax increases will give impact on GDP which is will decrease. Government spending has an impact on the inflation that inflation will decrease because government spending on infrastructure is expected to improve the distribution of goods and services then will contributing to the decreasing the inflation. Tax increases as increased productions cost and cost of sales to consumers have an impact on inflation, which is inflation will increase.

Putri Tirta Enistin Sipayung and Made Kembar Sri Budhi (2013) conduct an analyzed the Influence of GDP, Exchange Rate and Money Supply on Inflation in Indonesia in 1993-2012. The dependent variable that used in this research is inflation, and the independent variable used GDP, exchange rate, money supply. The method that used in this research is multiple linear regression. The results showed that the exchange rate of rupiah against the US dollar and the money supply had a significant effect simultaneously on the level of Inflation. Then about partial test results indicate that the variable of Gross Domestic Product (GDP) and the money supply has no effect on inflation, while the exchange rate partially has a significant and positive effect on the inflation rate. The exchange rate variable gave the significant impact to the inflation rate than Gross Domestic Product (GDP) and the money supply.

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Research conducted by Rana Atabay (2013), with titled is The Relationship between Trade Openness and Inflation in Turkey, with independent variables namely inflation, dependent variables using free trade, GDP deflator, PBD per capita, and exchange rate. The method that used in this research is Ordinary Least Square (OLS). The results in this study indicate that there is a negative relationship between inflation and trade openness. Then for the country that has trade more open has less inflation.

Yassirli Amrini, Hasdi Aimon and Efrizal Syofyan (2013) conducted a study with the titled is Analyzes The Impact of Monetary Policy on Inflation and Economy in Indonesia. Variable that used is the Money Supply, SBI (Bank Indonesia Certificates), exchange rate, economy, inflation, domestic investment, foreign investment, and labor. The analysis used equation of simultaneous with Two Stage Least Squared (TSLS) method. The results showed that the money supply, SBI rate, exchange rate, and economy, all of them have a significant effect on inflation. Then, the money supply has a significant and also positive effect on inflation in Indonesia. Meanwhile money supply in the previous period had a significant and positive impact on inflation in Indonesia. SBI interest rates have a significant and negative effect on inflation in Indonesia. Exchange rate has a significant and positive effect on inflation in Indonesia. The economy has no significant effect on inflation in Indonesia but the direction is positive.

Godly Otto and Wilfred I. Ukpere (2015) studied The Impact of Fiscal Policy on Inflation in Nigeria. This research used inflation as a dependent variable, then

fiscal policy, government revenue and government spending become independent variable. The method used is Ordinary Least Square regression method. This study found that there is evidence to suggest that the impact of fiscal policy on inflation but the level of impact is not significant in Nigeria. Inflation in Nigeria is more affected by scarcity of goods, corruption, double taxation, high borrowing costs and infrastructure deficits.

Research conducted by Ari Mulianta Ginting (2016) with the title is Analysis of Factors Influencing Inflation: Case Study in Indonesia from 2004-2014. In this research used inflation as variable dependent, then output gap, exchange rate, JUB and interest rate as independent variable. The method used is VECM regression. The results showed that the output gap, exchange rate, money supply and BI interest rate had a positive and significant effect on inflation.

Teoh Edward and Malarvilly Ramayah (2016) conducted a study with title is The Determinants of Inflation: An ASEAN Perspective. In this research use inflation as variable dependent, then money supply, price and exchange rate as independent variable. The method used is Ordinary Least Square (OLS). In this study, the money supply and average price of oil indicated significance in predicting inflation in the Consumer Price Index for Singapore, Malaysia and Indonesia. This paper does not evaluate the impact of individual independent variables that give impact to inflation in each country, but evaluates the impact of variables from all countries.

2.2 Theoretical Framework

2.2.1 Inflation

Inflation is defined in many different ways, but all the definitions have the same points of meaning. Samuelson (2001) defines inflation as a condition in which general price level increases such as goods, services and factors of production. From this definition indicates the purchasing power going to weakness then followed by the declining value of the real local currency of a country.

Meanwhile, inflation may also occur when the condition disequilibrium between aggregate demand and supply, it means when aggregate demand is greater than aggregate supply. In this case, the general price level has a definition about relationship between the flow of goods or services and the flow of money. When the flow of goods more or greater than the flow of money will lead to deflation, otherwise when the flow of money is greater than the flow of goods then the price level will rise and that will be inflation.

The general conclusion from the opinion of the economists can we conclude that inflation is the cause of the declining purchasing power of the value of money on goods and services, then more or less the impact can determined by the elasticity of demand and supply of goods and services. Meanwhile, there are other factors that also determine the fluctuation of the general price level that is the government policy

on the price level, which is make controlling prices, giving subsidies to consumers and etc.

From the definition of inflation above, we can conclude three points that contained the therein (Gunawan, 1991), namely:

1. There is a tendency for prices to increase, it means that prices may occur at a certain time that will decrease or increase compared to before, but still show an increasing trend.

2. The price will increase is continuous, not just occur at one time.

3. Includes general level of prices, which means that the rising price level is not just one or some commodities.

2.2.2 Theory of Inflation

2.2.2.1 Quantity Theory

      Quantity theory is the oldest theory of inflation, but this theory is still very useful to explain the inflation process in this modern era, especially in developing countries. This quantity theory explained some variables that have role in inflation (Boediono, 1998: 167-169):

    a. Money Supply

        The amount of money in circulation can be divided into two terms, namely in a narrow sense and in a broad sense (Kurniadi, 2013)

        1) Money supply in a narrow perspective

Money in the narrow sense is money in circulation coupled with demand deposits owned by individuals, corporations and government agencies.

2) Money supply in a broad perspective

Money in the broadest sense is a currency in the coupled with demand deposit and quasi money consisting of savings, deposits, foreign currency owned by the private sector.

Inflation can only occur when there is an increase in the volume of money in circulation, without any increase in the money supply. For example in case like this, crop failure, will only raise prices for a while. If the amount of money is not increased, inflation will stop by itself, whatever the causes of the rise in prices.

b. Psychology (expectations) of the community regarding the prices

The rate of inflation is determined by the rate of increase in the money supply and by the psychology (hope) of the community regarding future prices. There are three possibility of circumstances, the first is if the society does not (or has not) expected prices to rise in the coming months. Second is where the community (on the basis of experience in previous months) will start to realize that there is inflation. Then the third will occur at bad stage of inflation that is hyperinflation, at this stage people - people have lost

confidence in the value of the currency. This hyperinflation has occurred in Indonesia during the period 1961 - 1966.

2.2.2.2 Keynes Theory

Keynes's theory about inflation is based on his macro theory, and highlights another aspect of inflation. According to this theory, inflation occurs because a society wants to live beyond the limits of economic capabilities for society itself. The inflation process, according to this theory is the process of grabbing a share of livelihood among social groups who want a larger share than the community can afford. This struggle process eventually translates into a condition which people demand for goods always higher than the amount of goods available (the beginning of inflationary gap). The inflationary gap existed because these groups succeed did their aspirations into effective demand for goods (Boediono, 1998: 170-171).

Keynesian theory can be defined that the social groups succeeded to get the funds to change their aspirations into plans for purchasing fund-backed goods. Maybe the social group is the government itself, which did effort to get a greater share of the output of society by deficit in their budget financed using method like printing new money. The social group may also be private entrepreneurs who want to make new investments and obtain financing funds by credit from banks. Other social groups may also labor unions who seek to increase salaries for their members more than the increase of labor productivity.

2.2.2.3 Structural Theory

This theory of inflation is based on experience in Latin America. This theory puts pressure on the rigidities of the economic structures of developing countries. According to Boediono (1998), since inflation is connected with the structural factors of the economy (according to definition, these factors can only change gradually and in the long run), this theory can be called the long-term inflation theory. About this structural theory there are three points to emphasize:

a. This theory explains the long-term inflation process in developing countries.

b. There is an assumption that the money supply increases and passively follows and accommodates the rise in prices. In other words, the inflation process can continue only if the money supply continues to grow. Without an increase in the amount of money the process will stop by itself.

c. The structural factors that said to be the most basic causes of the inflation process are not 100% structural. It is often observed that such statements are caused by price policy or monetary government itself.

2.2.3 Concept of Inflation

Mishkin (2004) defines inflation as a continuous increase in price levels affecting individuals, businesses, and governments. This resulted give the impact to purchasing power will be weak then followed by the decline in the real value

(intrinsic) of a country's currency. Inflation is caused by two factors: demand pull inflation and cost push inflation.

a. Demand-pull inflation

This type of inflation, commonly known as Philips Curve inflation, is an inflation triggered by long-term domestic demand and supply interactions. This demand-side inflation occurs aggregately when there is an increase in goods and services that fulfill demand that encourages producers to increase cost for production that give impact on demand curve that will shift. In the macroeconomic context, this condition is illustrated by the real output that more than the potential output or aggregate demand greater than the capacity of the economy, so the demand will only increasing the price.

b. Cost-push inflation

Supply-side inflation can also be called supply-shock inflation is supply inflation caused by an increase in the cost of production or the cost of procurement of goods and services. Increased in cost of production can be caused by rising of world oil prices, demand for wage increases by laborers, rising price of raw materials that imported due to depreciation of domestic exchange rate and etc. The shift in the supply curve potentially will result in inflation with an economic downturn in the economy as indicated by a decrease in some output.

2.2.4 The Factors that influence in Inflation

2.2.4.1 Fiscal Policy

Fiscal policy determines the use of taxes and public spending by governments to achieve the macroeconomic goal that was decided before. It is about using government revenue (such as taxes) and spending to give direction to the economy according to government needs. The macroeconomic objectives include achievement: (i) full employment (ii) stable prices, (iii) positive balance of payments, (iv) economic growth (v) income distribution (Jhin Ghan, 2008). Some of these goals may be contradictory, for example a policy that will encourage employment is likely to create inflation, while a policy that will reduce inflation tends to make unemployment and decrease the rate of economic growth (Philips, 1958).

2.2.4.1.1 Government Spending

Government spending reflects government policy. If the government has established a policy to purchase goods and services, government spending reflects the costs to be incurred by Government to implement the policy.

Boediono (1999) stated that in macroeconomic theory, government spending consists of three main posts that can be classified as follows:

a. Government spending on goods and services purchases.

b. Government spending on staff salaries. Employee salary changes have an effect on macroeconomic processes, where changes in staff salaries will affect the level of demand in an indirect manner.

c. Government spending on transfer payments. Transfer payment is not a purchase of goods or services by the government in the goods market but rather records payments or direct grants to various community groups, retired payments, interest payments or government loans to the public. Economically, the transfer payment has the same status and influence as the salary post of the employees even though the administrative aspects are different.

2.2.4.1.2 Tax Rate

According to the Ministry of Finance of the Republic of Indonesia (Ministry of Tax) in his book Dekat Dengan Pajak (2013: 2). Tax is the main source of State revenue, without tax, most of the activities of the State can not be implemented. The function of tax money includes:

1. Payments of state apparatus salaries such as Civil Servants (PNS), Indonesian National Army, and Indonesian State Police up to the financing of various development projects.

2. Fuel Subsidy (BBM), Electricity Subsidy, Public Subsidy, Direct Community Assistance (BLSM) or the like, Rice Poor Procurement (Raskin), Community Health Insurance (Jamkesmas).

3. Construction of public facilities such as roads, bridges, schools, hospitals, police stations.

4. Other financing in order to improve the welfare for all levels of society.

2.2.4.2 Monetary Policy

Monetary Policy is a policy from the government or monetary authority by using money supply, interest rates and exchange rates to impact aggregate demand and reducing instability in the economy. Monetary policy is an integral part of macroeconomic policy. The purpose of this policy is to achieve macro economy goals, which is: (i) full employment (ii) stable prices, (iii) positive balance of payments, (iv) economic growth (v) income distribution. In other words, through monetary policy is expected to achieve high economic growth, low unemployment and inflation rate and the development of balance of payment balance is stable (Iswardono, 1994: 126).

2.2.4.2.1 Money Supply

The amount of money that held in the public and we can assume that the Central Bank controls the money supply by increasing or decreasing the amount of money in circulation through open market operations. That explanation is not complete, because it ignores the role of the banking system in determining the money supply. The Money Supply is not only determined by the policy of the Central Bank, but also by the household (who hold the money) and the bank (where money is deposited). We can give additional that the money supply includes foreign currency in public and deposits in banks that households can use to transaction, such as checking accounts.

2.2.4.2.2 Interest Rate

The meaning of interest rates according to Sunariyah (2004) is the price of the loan. Interest is a measure of the price of resources used by the debtor to be paid to the creditor. The interest rate is one of the variables in the economy that is always got an attention because of its wide impact. This thing give affects to the lives of people in daily life and has an important impact on the condition of the economy. The interest rate is essentially price. Such as prices, interest rates become the point of the market, in this case the money market and the capital market.

2.2.4.2.3 Exchange Rate

Actually, there are two types of exchange rate system, namely floating exchange rate system and fixed exchange rate system. According to Hamdy (2008) the exchange rate is the price of local currency against foreign currency. Thus, the exchange rate is the value of one currency change into another country's currency. For example, the rupiah exchange rate against the US Dollar, the exchange rate of rupiah against the yen, and etc. Exchange rate as one of the indicators that give influence in the activity of stock market and money market because investors more carefully to make an investment. The decline in the rupiah exchange rate against foreign currencies, especially the US Dollar has a negative impact on the economy and capital markets (Sitinjak and Kurniasari, 2003).

2.2.4.3 GDP (Growth Domestic Product)

According to Mankiw (2003) Gross Domestic Product (GDP) is the market value of all final goods and services produced in the economy over a period of time. Potential GDP is the real GDP that the economy can produce if the productive resources are fully utilized at the normal intensity of use. In addition, potential GDP can also be interpreted as the supply side of the economy that describes the maximum output that can be achieved without causing inflationary pressures. In the medium term estimates of potential outputs can be used to analyze the limits of sustainable economic growth, which do not disrupt internal and external balance (Lipsey, 1995). A GDP gap or an output gap is the difference between the potential output and the actual output or the actual output.

2.2.4.4 Trade (Export-Import)

According to Boediono (1992), trade or exchange is done by a resident of a country with a resident of another country, not between country with another country. Society in this case can be the citizens (individuals), can be an export-import company, and can be industrial companies or state enterprises. Foreign trade is only the short meaning for the exchange activity between the peoples of a country and people in other countries.

David Ricardo (1772-1823) who has assumption that international trade only applies between two countries without barrier, and the two countries are only circulating gold money. Ricardo (1772-1823) used the law of convergence marketing

with the quantity theory of money to develop the theory of international trade. Although a country has an absolute advantage, but if the trade is still going to be profitable for both countries that trade, then it is not a problem.

a. Export

Export represent the total goods and services sold by the country to other country, including goods, insurance, and services in the certain year. The important function of the export component of foreign trade for a country is to gain profit and increase national income, which is can increases the amount of output and economic growth. With higher output levels, the cycle of poverty could be lost and economic development could be improved (Jhingan, 2007). Export has a positive relationship with economic growth, it means that if exports increase, economic growth will also increase and if export decrease, economic growth will decrease also.

b. Import

Import is the purchase and import of goods from others country to the country. Murni (2009: 208) make a statement that import is an economic activity to buy foreign products for the purpose or marketed in the country. The tendency of large import activities is not entirely bad for a country because import will also give an impact to investment activities, if the imported goods are capital goods, raw material, and semi-finished goods for industrial purposes. The development of domestic import industry should be

in line with exporting (Arsyad, 2005: 163). Import is to buy goods from abroad in accordance with government provisions that are paid by using foreign exchange (Purnamawati, 2013: 13).

2.3 The relationship between independent variable with dependent variables

2.3.1 The relationship between government spending with inflation

According to research by Ndari Surjaningsih, G. A. Diah Utari and Budi Trisnanto (2012), the increase in government spending has a positive impact on GDP. The positive impact of government spending on GDP is in line with Keynes's theory of the role of government in mobilizing the economy and in accordance with empirical research in some developed countries. While government spending increse has an impact on the GDP then gave impact to increase in inflation because government spending on infrastructure is expected to improve the distribution of goods and services thus contributing to the increase in inflation.

2.3.2 The relationship between tax rate with inflation

While tax increases have an impact on lowering GDP and the negative impact of taxes is in line with the Keynes's theory of the role of government in mobilizing the economy and in accordance with empirical research in some developed countries. Compared to government spending, tax policies are less effective to stimulate economic growth especially in times of recession than government spending. Then the impact of rising inflation due to increased taxes is likely triggered by an increase

in taxes that are seen as increasing production costs and selling costs to consumers (Ndari Surjaningsih, G. A. Diah Utari and Budi Trisnanto: 2012)

2.3.3 The relationship between money supply with inflation

Fisher (1930) in his theory of the quantity of money said that the monetary aspect is a factor that has significance in the process of inflation. The value of money is determined by supply and demand for money. The money supply is determined by the Central Bank, while the amount of money demanded is determined by several factors, including the average price level in the economy. The amount of money demanded by the public to make transactions depends on the level of prices of goods and services that available. The higher the price level, the greater the amount of money demanded. Increased prices then encourage the increase in the amount of money demanded by the citizens. Eventually, the economy will reach new equilibrium, when the amount of money demanded back to balance with the amount of money circulated. An explanation that illustrates how the price level is determined and changes with the change of money supply is called quantity theory of money.

Meanwhile, Boediono (1994) made a statement that inflation is caused by aggregate demand that occurs not only because of the expansion of the Central Bank but also by investment spending (both government and private) and government expenditure that more than revenues (state budget deficit) under conditions economic in full employment.

2.3.4 The relationship between interest rate with inflation

According to Baroroh in Hudaya (2011: 28), the relationship between interest rates and inflation is an increase in interest rates will encourage short-term interest rate increases in the money market. In long-term interest rates also, producers will respond to an increase in interest rates on the money market by reducing their investment, then the domestic production (output) decreases so that the domestic inflation rate decreases.

2.3.5 The relationship between exchange rate with inflation

This change of exchange rate needs to be examined more how the exchange rate shock will affect the economy and inflation. The change of exchange rate will certainly have an impact on the characteristics of exchange rate fluctuations and their effects on the open economy. Fauzi (2007), the exchange rate is one of the determinants of inflation coming from the supply side. Thus, a change in the exchange rate can affect the rate of inflation. This is because if there is a decrease in the exchange rate or depreciation, the cost of imports for imported goods either in the form of imported raw materials or imported semi-finished goods increases. The impact of the increase in import costs is the increase in production costs. Furthermore, this increase in production costs will encourage an increase in prices in the country causing inflation. The local currency exchange rate was simultaneously get considerable pressure because the higher capital outflow due to the loss of foreign investor confidence in the prospects for the Indonesian economy. Pressure on the

exchange rate is exacerbated by the increasingly widespread economic activity (Solihin, 2011)

2.3.6 The relationship between gross domestic product (GDP) with inflation

According to Mankiw (2003) Gross Domestic Product (GDP) is the market value of all final goods and services produced in the economy over a period of time. Potential GDP is the real GDP that the economy can produce if the productive resources are fully utilized at normal intensity of use. In addition, potential GDP can also be interpreted as the supply side of the economy that describes the maximum output that can be achieved without causing inflationary pressures. In the medium term estimates of potential outputs can be used to analyze the limits of sustainable economic growth, which do not disrupt internal and external balance (Lipsey, 1995). Mallik and Chowdhurry (2001: 123) say that economic growth (marked and measured by GDP levels) that too quickly can lead to inflation or this condition is called an overheating economy. Product Domestic Product (GDP) has a positive effect on Inflation as explained the cause of inflation from demand pull inflation.

2.3.7 The relationship between trade (export-import) with inflation

Evans (2007) found a positive relationship between free trade and inflation, a higher free trade in a country is in line with higher equilibrium inflation rates. He also examines how imperfect competition levels, both within a country and between countries, affect the relationship between free trade and inflation. The authors claim that in increasingly free trade conditions, citizens who benefit from imperfect

competition environments by spending a larger portion of their currency holdings on foreign goods and also inflation lead them to appreciate the product of the home country. These two benefits work together to produce an increase in the real wage of a country. Then when trade increase, it means that will make economic growth increase also, when economic growth increase, there is inflation usually.

2.4 Framework for Thinking

The framework of this study can be explained through the following figure:
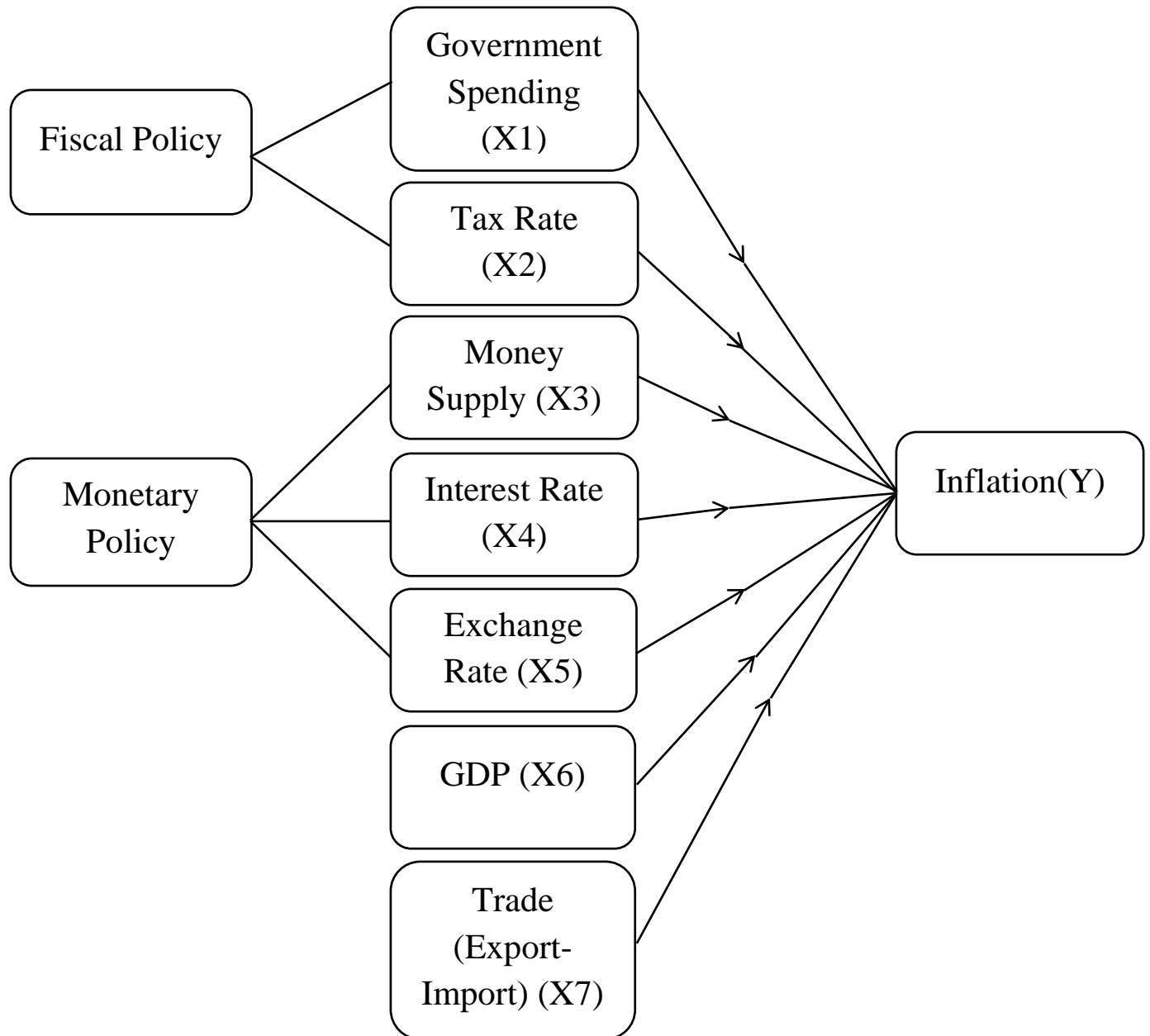
2.5 Hypothesis

A hypothesis is a temporary assumption of a problem and that needs to be tested

for truth. Hypothesis in this research are:

1. Government spending has a positive impact on inflation of ASEAN-5.

2. Tax Rate has a positive impact to inflation of ASEAN-5.

3. Money Supply has a positive impact on inflation of ASEAN-5.

4. Interest Rate has a negative impact on inflation of ASEAN-5.

5. Exchange Rate has a positive impact on inflation of ASEAN-5.

6. GDP has a positive impact on inflation of ASEAN-5.

7. Trade (Export-Import) has a positive impact on inflation of ASEAN-5.

CHAPTER III

RESEARCH METHOD

3.1 Type of Study

This study used quantitative methods by generating numerical data or data that can be converted into statistics. The type of data in this study was secondary data, researcher reused and repurposed information as secondary data because it was easier and cheaper to collect data. Secondary data was data obtained directly from the source, such as excerpts from books, literatures, scientific journals, and data sources published by several agencies that had relevance to the topic of this research. Data that needed in this research were:

a. Inflation data in ASEAN period 1985-2016 taken from the IMF

b. Government spending data of ASEAN-5 (Indonesia, Singapore, Malaysia, Philippines, Thailand) period 1985-2016 taken The Global Economy

c. Tax rate data of ASEAN-5 (Indonesia, Singapore, Malaysia, Philippines, Thailand) 1985-2016 period drawn from World Development Indicators

d. Money Supply of ASEAN-5 data (Indonesia, Singapore, Malaysia, Philippines, Thailand) 1985-2016 period drawn from World Development Indicators

e. Interest Rate of ASEAN-5 data (Indonesia, Singapore, Malaysia, Philippines, Thailand) 1985-2016 period drawn from World Development Indicators

f. Exchange Rate data of ASEAN-5 (Indonesia, Singapore, Malaysia, Philippines, Thailand) 1985-2016 period drawn from World Development Indicators

g. Growth Domestic Product (GDP) of ASEAN-5 data (Indonesia, Singapore, Malaysia, Philippines, Thailand) period 1985-2016 taken from the IMF

h. Trade (Export-Import) data of ASEAN-5 (Indonesia, Singapore, Malaysia, Philippines, Thailand) period 1985-2016 taken from the IMF

3.2 Data Collection Method

Method of collecting data used in this research is the study of the literature. It is an attempt to obtain data by studying and analyzing the literature books and processed data. The collections of data in this study are intended to obtain materials that are relevant and accurate. The data used are secondary data by using a data collection method in studies of original documents from the IMF as well as other library resources related with the research.

3.3 Research Variable

This research contains of independent variable and dependent variable. Dependent variable in this research is inflation of ASEAN-5 countries and the independent variables are government spending, tax rate, money supply, exchange rate, interest rate, GDP (Growth Domestic Product), trade (export-import) that can be defined as follows:

3.3.1 Dependent Variable (Y)

Inflation defined in many different ways, but all the definitions have the same points. Samuelson (2001) defines inflation as a condition in which general price level increases in goods, services and factors of production. This definition indicates the weakening of purchasing power followed by the declining value of the real (intrinsic) currency of a country.

3.3.2 Independent Variable (X)

The independent variable is the variable that can affect another variable. Independent variables used in this study are:

a. Government Spending (X1)

Government spending reflects government policy. If the government has established a policy to purchase goods and services, the government's expenditure reflects the cost to be spent by the government to implement the policy. The data that used in this study is the ASEAN-5 data taken from the IMF in 1985-2016.

b. Tax Rate (X2)

Tax is a contribution is owed by an individual or a coercive body based on the law by not obtaining direct rewards and used for the purposes of the State for the greatest prosperity of the people and used for the purposes of the State for the prosperity of the citizens. The data that used

in this study is the ASEAN-5 data taken from the World Development Indicators in 1985-2016

c. Money Supply (X3)

The money supply is a balance to the demand and supply of money that occurs in the money market. The data used in this study is the ASEAN-5 data taken from the World Development Indicators

d. Interest Rate (X4)

Interest is the price of the loan as with prices, the interest rate becomes the point of the market in this case the money market and capital market. The data that used in this study is the ASEAN-5 data taken from the World Development Indicators

e. Exchange Rate (X5)

The exchange rate is the price of the local currency against the foreign currency. The data that used in this study is the ASEAN-5 data taken from the World Development Indicators

f. GDP (Gross Domestic Product) (X6)

According to Mankiw (2003) Gross Domestic Product (GDP) is the market value of all final goods and services produced in the economy over a period of time. Potential GDP is the real GDP that the economy can produce if the productive resources are fully utilized at the normal

intensity of use. The data that used in this study is the ASEAN-5 data taken from the IMF

g. Trade (Expor-Import) (X7)

International trade is a trade made by the citizens of a country with a resident of another country on a mutual agreement. The intended population may be either an individual (individual with an individual), between an individual with a government of a country or a government of a country with another government. The data that used in this study is the ASEAN-5 data taken from the IMF

3.4 Analysis Technique

The secondary data that have been collected from various sources were processed using some statistical program packages, such as Microsoft Excel 2010 and E-Views. In processing data activities, the researcher uses Microsoft Excel 2013 to create tables and analysis. Meanwhile on the processing regression data panel, the researcher uses program package E-Views.

3.4.1 Panel Data Method

Panel data is combination between time series data and cross section data. In other words, panel data are data obtained from some of the same individuals that are observed in certain period of time. The use of panel data allows researcher to be able to capture the characteristic between individuals and between different times. The advantages of using panel data regression are, the data panel is able to provide more

data and more complete information. The use of panel data obtained a larger degree of freedom (df), so that the resulting estimation is better. By combining the information from the time series data and cross section, it can overcome the problems that arise because there is a problem removing variables (omitted variable), the panel data was able to reduce the collinearity between variables, and panel data better in detecting and measuring effect that in simply not being able to do by the time series data of pure and cross section (Widiastuti, 2012).

There are three standard estimation models to data panel regression, which are Polled Regression (Common Effect Model), Fixed Effect Model (Least Square Dummy Variable), and Random Effect Model.

3.4.2 Selection Panel Data Estimation Model

a. Chow Test

Chow test or F-test Statistics are used to determine data regression techniques panel with fixed effects regression models of panel data without a dummy variable (common side effects) and to see the residual sum of squares (RSS). If the statistic value is greater than the significance level, then the null hypothesis will be rejected. So, the data is better using fixed effect model than common effect model

b. Lagrange Multiplier (LM) test

Lagrange Multiplier (LM) test which is developed by Bruesch-Pagan could be used to find out wether a random effects model is better than common effects model. This method is based on the residual value method of common effects. The null

hypothesis (H_0) that used, is that intercept is not a random or stochastic variable. In other words, the variance of the residual value is zero. If the results of the LM test is greater than the critical value of chi-square statistic, then the null hypothesis will be rejected, it means that exact estimation for regression data panel is a method of random effects rather than the method of common effects.

c. Hausman test

To find out the best model among fixed effects with random effects, the researcher use significance Hausman. Significance test of the null hypothesis using Hausman residual equations panel does not correlate with independent variable which means random effects model is better than the model of fixed effects. Hausman test statistic follows distribution of chi-square statistic with free degrees as much as the number of independent variables. If the value is greater than the Hausman statistics value critical chi-square statistic, then the null hypothesis will be rejected, it means that exact estimation for regression data panel fixed effects model is compared with the random effects model.

3.4.3 Hypothesis Testing

Hypothesis testing is useful for examining or testing whether the regression coefficient obtained significant or not. The intent of this significant is a regression coefficient value which is significantly is not equal to zero. If the slope coefficient is equal to zero, it can be said that there was not enough evidence to declare the

independent variables had the effect on the dependent variable. Therefore, all the regression coefficients should be tested.

1. F-test

F-test is used to perform a test of hypothesis of the regression coefficient (slope) thoroughly/ simultaneously. F-test shows independent variables affect the dependent variables simultaneously. Hypothesis in F-test are:

Ho : $\beta1 = \beta2 = \ldots.. = 0$

H1 : $\beta1 \neq \beta2 \neq \ldots \neq 0$

If F-test is greater than F critical H_0 is rejected. Rejected H_0 means there is minimum of one independent variable that influenced dependent variable.

2. T-test

T-test is individual coefficient test. This test used in order to know the effect of significance of independent variable individually.

Hypothesis in T-test are:

$H_0 : \beta_i = 0$,

$H_1 : \beta_i \neq 0$.

If the probability value t < $\alpha = 0,05$ so reject H_0, means independent variable partially significance influenced dependent variable.

3. Coefficient Determination (R^2)

Coefficient determination (Goodness of Fit) is an important measurement in the regression, because it can inform whether the good regression estimated model.

The value of R^2 reflects the extent of the variation of the dependent variable can be explained by the independent variable X or how large diversity of the dependent variable that is able to be explained by the model. If R2 = 0, then the variation of the Y cannot be explained by X altogether and if R2 = 1 it means a variation of Y as a whole can be described by the X.

3.4.4 Model

Systematically the influence of independent variable toward dependent variable can be described in the function as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + e_{it}$$

where:

Y	= Dependent Variable
$X_1, X_2,.., X_n$	= Independent Variable
β_0	= Constanta
$\beta_1, \beta_2,...., \beta_n$	= The magnitude of the influence of independent variable toward the dependent variable
i	= Country
t	= Series 1985-2016
e_{it}	= error term

CHAPTER 1V

DATA ANALYSIS & DISCUSSION

4.1 Panel Data Result

Panel data regression had three standard estimation models, they were Polled Regression (Common Effect Model), Fixed Effect Model (Least Square Dummy Variable), and Random Effect Model. The result of panel data calculation using eviews that concluded as follow.

4.1.1 Common Effect Result

Common effect model was the simplest panel data model approach. It was assumed that there was the same behavior between individuals in different period of times, so that this model did not notice the dimensions of the individual and time. This research employed technique of the data regression of *cross section* or *time series*. In the panel data, it combined the *cross section* with *time series* data, then this combination data was treated as a combination observation to estimate the model by OLS *(Ordinary Least Square)*

Table 4.1

Common Effect

Dependent Variable: Y?
Method: Pooled Least Squares
Date: 03/08/18   Time: 22:35
Sample: 1985 2016
Included observations: 32
Cross-sections included: 5
Total pool (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.71686	3.327771	3.220431	0.0016
X1?	-0.811355	0.152450	-5.322109	0.0000
X2?	0.498453	0.204255	2.440348	0.0158
X3?	-3.46E-15	8.04E-16	-4.299403	0.0000
X4?	-0.326256	0.068621	-4.754492	0.0000
X5?	0.001339	0.000222	6.026368	0.0000
X6?	-0.557072	0.079183	-7.035268	0.0000
X7?	-7.50E-11	2.07E-11	-3.620745	0.0004

R-squared	0.591468	Mean dependent var		4.681250
Adjusted R-squared	0.572654	S.D. dependent var		5.744554
S.E. of regression	3.755315	Akaike info criterion		5.532928
Sum squared resid	2143.563	Schwarz criterion		5.686687
Log likelihood	-434.6342	Hannan-Quinn criter.		5.595364
F-statistic	31.43764	Durbin-Watson stat		1.320591
Prob(F-statistic)	0.000000			

Source : E-views 8.0

4.1.2 Fixed Effect Result

There were different effects between individuals, namely the assumption of *Fixed Effect Model.* The difference in the intercept can be accommodated through the differences. Thus, by using the technique of dummy variables, the unknown parameter could be estimated.

Table 4.2

Fixed Effect

Dependent Variable: Y?
Method: Pooled Least Squares
Date: 03/08/18   Time: 22:36
Sample: 1985 2016
Included observations: 32
Cross-sections included: 5
Total pool (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.85328	4.531885	2.394872	0.0179
X1?	-0.825255	0.190206	-4.338739	0.0000
X2?	0.555880	0.232567	2.390195	0.0181
X3?	-2.22E-15	8.19E-16	-2.708730	0.0076
X4?	-0.427302	0.071615	-5.966667	0.0000
X5?	0.000586	0.000313	1.870857	0.0633
X6?	-0.528905	0.079769	-6.630462	0.0000
X7?	-3.25E-11	2.61E-11	-1.248529	0.2138
Fixed Effects (Cross)				
_INDONESIA—C	3.429168			
_MALAYSIA—C	-1.250232			
_PHILIPPINES—C	0.951133			
_SINGAPORE—C	-3.021702			
_THAILAND—C	-0.108367			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.649112	Mean dependent var	4.681250
Adjusted R-squared	0.623033	S.D. dependent var	5.744554
S.E. of regression	3.527021	Akaike info criterion	5.430823
Sum squared resid	1841.102	Schwarz criterion	5.661461
Log likelihood	-422.4658	Hannan-Quinn criter.	5.524477
F-statistic	24.88976	Durbin-Watson stat	1.607114
Prob(F-statistic)	0.000000		

Source : E-views 8.0

4.1.3 Chow Test

The type of estimation model that used for this research analysis were based on just one test, which was Chow test. Chow test is used to decide the best model between common effect model and fixed effect model. The result of *Chow Test* that using eviews were concluded as follow :

Table 4.3

Chow Test

Redundant Fixed Effects Tests
Pool: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.078450	(4,148)	0.0001
Cross-section Chi-square	24.336793	4	0.0001

Source : E-views 8.0

The result of the *Chow test* obtained the probability value of 0.0001 or smaller than $\alpha = 0.05$, it means H_0 is rejected. If H_0 is rejected so Fixed Effect Model was better than Common Effect model.

4.2 The result test of panel data regression

4.2.1 Coefficient determination R^2

Coefficient determination (R^2) was implemented to see the level of appropriateness or suitability of the estimation model that was formed (goodness of fit). That was done by looked at the value of R^2 in the model. Table 4.2 shows coefficients determination (R^2) generated by the model was 0.649112. This figure means variable FDI was explained by variable Government Spending (X1), Tax

Revenue (X2), Money Supply (X4), Exchange Rate (X5), Interest Rate (X6) and Trade (Export-Import)(X7) number by 64,91 % and the residual 35,09% described by the other variables outside the model.

4.2.2 F-test

F test describes the evaluation of the simultaneous effect of independent variables on dependent variable. In the other words, F test was a test to evaluate how the influence of all independent variables together against the dependent variable (significant or not significant). The result from the multiple linear regression estimation value or probability of f-statistic in the number of $0.000000 < \alpha=5\%$, it is found rejects H_0. It means that the Government Spending, Tax Revenue, Money Supply, Exchange Rate, Interest Rate, GDP and Trade number simultaneously have significant effects toward the Inflation in ASEAN-5 Countries 1985-2016.

Therefore it can be concluded that the best regression equation model were as follows:

$Y_{it} = 10.85328 - 0.825255*X1_{it} + 0.555880*X2_{it} - 2.22E\text{-}15*X3_{it} - 0.427302*X4_{it} + 0.000586*X5_{it} - 0.528905*X6_{it} - 3.25E\text{-}11*X7_{it} + e_{it}$

Y   : Inflation

X1   : Government Spending

X2   : Tax Rate

X3   : Money Supply

X4   : Interest Rate

X5   : Exchange Rate

X6   : Growth Domestic Product (GDP)

X7   : Trade (Export-Import)

i   : ASEAN-5 Countries

t   : series 1985-2016

e_{it} : error term

4.2.3 Hypothesis Testing

From the regression of *Common Effect* and *Fixed Effect* the researcher found the most suitable model to analyze this research is *Fixed Effect* (Table 4.2). The hypothesis testing of fixed effect model can be seen below.

4.2.4 T-test

The hypothesis presented in this test is the respective coefficients of the equation, that is zero or $\beta i = 0$. It means that there is no influence of independent variable toward dependent variable. Whereas the alternative hypothesis is $\beta i \neq 0$, which means there are influences from each of the independent variable to dependent variable. This testing is done by comparing the t-test and t-critical or by looking at the value of the probability of t-test. If the value t test > t critical or if the value of the probability $t < \alpha = 0.05$ then H_0 will be rejected, so the conclusion is independent variables partially significant affect the dependent variable.

H_0 : partially independent variable has no effect toward dependent variable.

H_1 : partially independent variable has effect toward dependent variable.

The t-test results can be seen in table 4.2. If the value of prob. T-statistic (shown in Prob.) was smaller than the error rate a= 0.05 then it can be said that the independent variables affect significantly to dependent variable, while when the value of the prob. t statistic was greater than 0.05 error rate then it can be said that the independent variables did not affect significantly to the dependent variable.

The conclusion of t-test results are:

a. t-statistic test on Government Spending Used the Hypothesis

H_0: $\beta 1 \geq 0,05$

H_1: $\beta 1 < 0,05$

Government Spending (X1) had the probability result 0.0000 or less than α 5%; it rejected H_0, which means that it had a significant effect. Therefore, the Government Spending significantly had influence toward Inflation in ASEAN Countries 1985-2016.It means the rate credibility of government spending is 95%.

b. t-statistic test on Tax Revenue, Used the Hypothesis

H_0: $\beta 1 \geq 0,05$

H_1: $\beta 1 < 0,05$

Tax Revenue (X2) had the probability result 0.0181 or less than α 5%; it rejected H_0, which means that it had a significant effect. Therefore, the Tax Revenue significantly had influence toward Inflation in ASEAN-5 Countries 1985-2016. It means the rate credibility of government spending is

95%.

c.   t-statistic test on Money Supply, Used the Hypothesis

H_0: $\beta1 \geq 0,05$

H_1: $\beta1 < 0,05$

Money Supply (X3) had the probability result 0.0076 or less than α 5%; it rejected H_0 which means that it had a significant effect. Therefore, the Money Supply significantly had influence toward Inflation in ASEAN-5 Countries. It means the rate credibility of government spending is 95%.

d.   t-statistic test on Exchange Rate, Used the Hypothesis

H_0: $\beta1 \geq 0,05$

H_1: $\beta1 < 0,05$

Exchange Rate (X4) has the probability result 0.0000 or less than α 5%; it rejected H_0 which means that it had a significant effect. Therefore, the Money Supply influence toward Inflation in ASEAN-5 Countries. It means the rate credibility of government spending is 95%.

e.   t-statistic test on Interest Rate, Used the Hypothesis

H_0: $\beta1 \geq 0,05$

H_1: $\beta1 < 0,05$

Interest Rate (X5) had the probability result 0.0633 or more than α 5%; it did not rejected H_0 which means that it had no significant effect.

Therefore, the Interest Rate had no significant effect toward Inflation in ASEAN-5 Countries 1985-2016.

f.   t-statistic test on Growth Domestic Product (GDP), Used the Hypothesis

H_0: $\beta1 \geq 0,05$

H_1: $\beta1 < 0,05$

GDP (X6) has the probability result 0.000 or less than α 5%; it rejected H_0 which means that it has a significant effect. Therefore, the GDP significantly had influence toward Inflation in ASEAN-5 Countries. It means the rate credibility of government spending is 95%.

g.   t-statistic test on Trade (Export-Import), Used the Hypothesis

H_0: $\beta1 \geq 0,05$

H_1: $\beta1 < 0,05$

Trade (X7) had the probability result 0.2138 or more than α 5%; it did not rejected H_0 which means that it had no significant effect. Therefore, the Trade (Export-Import) had no significant effect toward Inflation in ASEAN-5 Countries 1985-2016.

Table 4.4

The result t-test based on Fixed Effect Models

Variable	Alpha	Probability	Result
Government spending	0,05	0,0000	Significant
Exchange rate	0,05	0,0181	Significant
Money supply	0,05	0,0076	Significant
Exchange rate	0,05	0,0000	Significant
Interest rate	0,05	0,0633	Not Significant
GDP	0,05	0,0000	Significant
Trade	0,05	0,2138	Not Significant

Source : E-views 8.0

4.3 Interpretation of the Regression Result & Discussion

a. Government Spending

Based on regression data panel model the probability of Government Spending was 0.0000, it was smaller than 5%, then Government Spending was significantly affecting the number of Inflation in ASEAN-5 Countries. The regression estimation panel data model obtained the coefficient of Government Spending was - 0.825255. It means, increased 1% of GDP in Government Spending will decreased 0.8252% in Inflation. In other word,

Government Spending and Inflation of ASEAN-5 Countries had significant and negative relationship.

This result showed that Government Spending had significant negative influenced to Inflation, this result was similar with the first hypothesis that assume Government Spending had significant negative influence toward Inflation. It happened because when government spending try to increase their spending. It means there was something related with increased employment and will have an impact on aggregate demand. While the increased in aggregate demand, automatically production would be raised, and when production raised then prices would be fell, which means that inflation was under pressure. This result was supported by Ndari Surjaningsih, G.A. Diah Utari dan Budi Trisnanto (2012) that government spending on infrastructure was expected to improve the distribution of goods and services thus contributing to the decrease in inflation.

b. Tax Revenue

According to the data obtained, the result of probability value of tax revenue was 0.0181, it was smaller than 5%. It means regional minimum wage significantly had positive impact toward Inflation in ASEAN-5 Countries by significant level under 5%. The regression estimation panel data model obtained the coefficient of tax revenue was 0.555880, it means that an increase in 1% of GDP on Tax Revenue will increase 0.555880% of Inflation

in ASEAN-5 Countries. In other words, tax revenue and inflation of ASEAN-5 Countries had significant and positive relationship.

Based on the result shown that tax revenue was essential factors in determining inflation, in another word tax revenue in ASEAN-5 Countries had positive influence toward Inflation, so that it should be maintained by government to control the tax, because higher tax would make higher cost of productivity, if the cost of productivity increased, then the price of goods and services would be increased, therefore it could be called it inflation. Ndari Surjaningsih, G.A. Diah Utari and Budi Trisnanto (2012) in their research said that increasing tax would affect the consumption, because the consumer thought that the price would be increased and it had to increase the inflation.

c. Money Supply

Based on the data obtained, the result of probability value of money supply was 0.0076, it was smaller than 5%. It means money supply significantly had negative impact toward Inflation in ASEAN-5 Countries by significant level under 5%. The regression estimation panel data model obtained the coefficient of money supply was -2.22E-15, it means that increasing in 1 LCU will decrease -2.22E-15% or 0.00000000000000222 it means almost did not had the impact towards Inflation in ASEAN-5 Countries. In other words, money supply and inflation of ASEAN-5 Countries had significant and negative relationship but almost 0.

Based on the result showed that money supply was essential factors in determining inflation, in another word money supply in ASEAN-5 Countries had negative impact toward Inflation, it was different with the first hypothesis that assume money supply had significant positive influenced toward inflation. The consumer behavior of the citizens increasing, but it was not matched by an increase in the quantity of goods produced, then the price of domestic goods would be raised due to the scarcity of the goods. When the people still continued to increase their spending then prices would be raised in general and inflation would be occured and in the long term it could potentially disrupted the economy in Indonesia. This happened because the data used was M2, which was the money supply in the far-ranging meaning consisting of money supply, demand deposit, and quasi money. It was estimated that the percentage of quasi-money consisting toward time deposits, savings, and domestic private currency accounts were high enough. Quasi money in this case was a value that was not liquid. Although the value was high but not enough to influence the increase in inflation in the economy. (Amrini, Y., Aimon, H., and Syofyan, E., 2013).

d. Interest Rate

Based on regression data panel model the probability of Interest Rate was 0.0000, it was smaller than 5%, then interest rate was significantly affecting the number of inflation in ASEAN-5 Countries. The regression

estimation panel data model obtained the coefficient of interest rate was -0.427302. It means, increasing 1% in interest rate would be decreased -0.427302% in Inflation. In other word, interest rate and inflation of ASEAN-5 Countries had significant and negative relationship.

This result showed that interest rate had significant negative influenced to inflation, decreasing in inflation was due to the fact that the citizens were more motivated to keep their money in banks either in the form of deposits or in the form of savings, because they expected a return that profitable. Therefore, an increase in the interest rate would be followed by a decrease in the money supply. This would impact to a decline in demand for goods and services, it was caused by people's who did not want to buy goods and services, because saving money in the bank was more profitable than spending the money. Furthermore, the decline in demand for goods and services would be triggered a decline in prices and would give impact to reduce the inflation.

e. Exchange Rate

According to the data obtained, the result of probability value of exchange rate was 0.0633, it was smaller than 5%. It means exchange rate did not affecting the number of inflation in ASEAN-5 Countries. Based on the result showed that exchange rate was not factor significantly had positive impact toward Inflation in ASEAN-5 Countries by significant level under 5%.

The regression estimation panel data model obtained the value of probability of exchange rate was 0.0633, it means that the government policy to change exchange rate did not effective to manage inflation rate.

From the result showed that exchange rate was not essential factors in determining inflation, in another word exchange rate in ASEAN-5 Countries had no significant but had positive influence toward Inflation. It happened because the local currency of ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore, and Thailand) became weaknesses then would gave impact to increased the price of raw material or the component which bought from another country (import). Then, the exchange rate would depreciate, when the producer who used USD for bought raw material because inflation, then increased the cost of production would gave impact to the price of good. The impact of that, the consumer will pay more. This result was supported by the research conducted by Heru Perlambang (2010), in his study Exchange Rate did not significant towards inflation because there was monetary policy which did not had impact to inflation. He also said that if the local currency against the U.S Dollars weaken then inflation would raise, this is because the cost of imported raw material was expensive and causes the production output to decline, then the impact on the scarcity of goods produced that used goods from imports, the impact was the price of foreign goods was relatively higher than the goods in the domestic.

f. Growth Domestic Product (GDP)

Based on regression data panel model the probability of GDP was 0.0000, it was smaller than 5%, then GDP was significantly affecting the number of inflation in ASEAN-5 Countries. The regression estimation panel data model obtained the coefficient of GDP was -0.528905. It means, an increase 1% in GDP would decrease -0.528905% in Inflation. In other word, GDP and inflation of ASEAN-5 Countries had significant and negative relationship.

This result showed that GDP had significant negative influenced to inflation, this result was different with the first hypothesis that assume GDP have positive influenced toward inflation. It happens because GDP decline could because by inflation that would be raised. This could be due to the decline in national output due to rising world oil prices that would trigger the rising in prices of goods and services in general, then would make reduced on production of goods and services in the country. The reduced production of goods and services was caused by increased production costs. This condition would cause the scarcity of goods and services then the inflation would be increased. The results of this study was supported by the theory by the research from Yassirli Amrini, Hasdi Aimon and Efrizal Syofyan (2013) which had resulted that the economic fluctuations would result in a decrease in aggregate supply in the short term, then would reduce the balance in the

economy. This type of fluctuation for example happens because there was an increase in oil prices which was one of the important production factors in the economy. An increased world oil prices will decrease in the aggregate supply so that it gave bad impact to the economy, the impact were the decreased in national output and increased in price.

g. **Trade**

The panel data regression shows that trade had no impact to Inflation in ASEAN-5 Countries with the value of probability was 0.2138, it was greater than 5%. It means, the total value of trade did not affecting the number of inflation in ASEAN-5 Countries. Based on the result showed that trade was not factor in determining inflation in ASEAN-5 Countries, it happens because the ASEAN-5 Countries were developing countries, not developed countries, also ASEAN-5 Countries were more openness. The data used period of 1985 to 2016, then there were no significant effect in long term period between trade and inflation in ASEAN-5 Countries.

This result supported by the statement of Rana Atabay (2013) in her study said that in Turkey, there was negative result between inflation and trade openness, because more open country have less inflation rates. Another study from Kim and Beladi (2005) analyze the relation between trade openness and price level in 62 countries and the result was a negative relation for developing countries but a positive relation for advanced economies such

as the U.S., Belgium, and Ireland (Mukhtar, 2012). Based on the all study before, the empirical result on this study said that there were no significant effect between trade and inflation, because first, the countries that used on this study were developing countries, and the second was more openness countries.

4.4 Intercept

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Table 4.5

Intercept Value of ASEAN-5 Countries

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Negara	Cross + Constanta	Intercept
Indonesia	3.42916 + 10.85328	14.28244
Malaysia	(-1.250232) + 10.85328	9.603048
Philippines	0.951133 + 10.85328	11.804413
Singapore	(-3.021702) + 10.85328	7.831578
Thailand	(-0.108367) + 10.85328	10.744913

Source : E-views 8.0

Based on the Table 4.5 above, the result of intercept each country in ASEAN-5. The higher intercept value was Indonesia which was 14.28244, it means Indonesia had percentage of inflation around 14.28244 while independent variable (x=0). Then intercept value in Philippines was 11.804413, it means Philippines had percentage of inflation around 11.804413 while independent variable (x=0). Further, intercept value in Thailand was 10.744913, it means Thailand had percentage of

inflation around 10.744913 while independent variable (x=0). Then intercept value in Malaysia was 9.603048, it means Malaysia had percentage of inflation around 9.603048 while independent variable (x=0). The last one was Singapore which was had the lowest inflation in ASEAN-5 Countries, the percentage of inflation in Singapore is 7.831578, it means Singapore had percentage of inflation around 7.831578 while independent variable (x=0)

CHAPTER V

CONCLUSION & RECOMMENDATION

5.1 Conclusion

Based on the empirical results and discussion of determinant of inflation in ASEAN-5 Countries from 1985, it could be summed up as follows:

1. Factors that significantly influence inflation of ASEAN-5 Countries in 1985-2016 were government spending, tax revenue, money supply, interest rate and growth domestic product (GDP). In this result, for government spending, money supply, interest rate and GDP had negative impact toward inflation in ASEAN-5 Countries in 1985-2016, while tax revenue had positive impact toward ASEAN-5 Countries Gross regional domestic product had negative impact to inflation of ASEAN-5 Countries in 1985-2016.

2. Government spending had negative impact toward inflation, then when government spending raised would have an effect on the decreasing in the percentage of inflation on ASEAN-5 Countries in 1985-2016.

3. Tax revenue had positive impact toward inflation, then Increasing in inflation would have an effect on the increasing in the percentage of inflation of ASEAN-5 Countries in 1985-2016.

4. Money supply had negative impact toward inflation, then Increasing in inflation would have an effect on the decreasing in the percentage of

inflation of ASEAN-5 Countries in 1985-2016.

5. Interest rate had negative impact toward inflation, while, when interest rate raised would have an effect on the decreasing in the percentage of inflation on ASEAN-5 Countries in 1985-2016.

6. Exchange rate had no significant impact towards inflation of ASEAN-5 Countries in 1985-2016.

7. GDP had negative impact toward inflation, then when GDP increasing would have an effect on the decreasing in the percentage of inflation on ASEAN-5 Countries in 1985-2016

8. Trade had no significant impact towards inflation of ASEAN-5 Countries in 1985-2016.

5.2 Recommendations

Based on the conclusions of the results study, some recommendation given were as follows:

1. Government spending is one of the most influential variable toward inflation among other variables and it has effect on infrastructure that will affect too on prices. Therefore, the government should maintain it, because this is the obligation of government. Eventhought, government spending has negatively affecting inflation of ASEAN-5 Countries, it should not be ignore by government because government spending is the one of indicators to know the inflation condition in country in a certain

period, and government spending can describe the price of products because aggregate demand, and government spending need for developing in infrastructural such as roads, basic education, health, encourage the private sector to be more productive. The productivity from private sector that caused by government spending, can develop the economic and increasing economic growth, because increasing level of employment. Then it can be to decreasing in inflation.

2. Tax revenue is the variable that gives significant and positive impact to inflation. It means that low tax revenue is responsibility by government, because tax is one of income for the government. But, the government should maintain the tax, they cannot suddenly increasing the tax to get higher revenue, because increasing the tax will increasing cost of production and increasing the prices to the consumer then will affect to Growth Domestic Product, furthermore price is important role and one of the indicators that inflation is occurs.

3. Money supply is the important variable that influences inflation. Then money supply has significant and negative effect on inflation, the government should responsible on this things, the government should carrying and control money supply to overcome the fluctuations of inflations rate. Because that impact is not bad to inflation, but we should realize that low inflation is not good enough also. Then, the government

can handle money supply by equalizing the productivity, it means increasing productivity will resulting goods and services to fulfill aggregate demand.

4. Another recommendation for the government from this study, government should maintain interest rate that has impact to money supply, even money supply in this study it does not has positive relationship, but to control money supply to be not higher then will impact to very low inflation, the government can increasing interest rate to make the citizens will saving their money to the banks (Discounting).

5. Because Exchange rate does not significant, this study suggests that the government carry on foreign exchange reserves to stability exchange rate of local currency towards dollar.

6. The last recommendation for the government is they should focus on GDP, because based on the empirical result, there is negative relationship between GDP and inflation, then GDP can push the inflation, but the government should control the inflation by other sectors.

7. For the next research there is recommendation to give additional independent variable such as foreign investment and domestic investment or labor. Another recommendation is try to use another method, such as time series then analyze each country of ASEAN-5.

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Appendix 1

Data of Inflation, Government Spending, Tax Revenue, Money Supply, Interest Rate, Exchange Rate, GDP and Trade

Country	YEAR	Inflation rate (Y) (Percent)	Government Spending (X1) (Percent of GDP)	Tax Revenue (X2) (Percent of GDP)	Money Supply (X3) (current LCU)	Interest Rate (X4) (Percent)	Exchange Rate (X5) (LCU per US$)	GDP (X6) (Percent)	Trade (X7) (US$)
Indonesia	1985	4.7	11.5	17.61	2.34311E+13	11.80	1110.58	3.9	1107
Indonesia	1986	5.8	11.05	13.73	2.79947E+13	18.81	1282.56	7.2	1275
Indonesia	1987	9.3	9.43	14.17	3.43745E+13	4.88	1643.848333	6.6	1637
Indonesia	1988	8	8.98	14.17	4.27342E+13	13.44	1685.704167	7	1679
Indonesia	1989	6.4	9.39	14.99	5.90447E+13	11.16	1770.059167	9.1	1761
Indonesia	1990	7.8	8.98	17.97	8.53535E+13	10.75	1842.813333	9	1834
Indonesia	1991	9.4	9.14	16.14	1.00313E+14	15.41	1950.3175	8.9	1941
Indonesia	1992	7.5	9.52	16.08	1.19996E+14	15.61	2029.920833	6.5	2023
Indonesia	1993	9.7	9.02	13.48	1.44063E+14	1.20	2087.103867	8	2079
Indonesia	1994	8.5	8.11	14.98	1.73167E+14	9.26	2160.753675	7.5	2153
Indonesia	1995	9.4	7.83	14.06	2.20829E+14	8.16	2248.607975	8.2	2240
Indonesia	1996	8.4	7.57	13.37	2.80631E+14	9.70	2342.296292	7.8	2334
Indonesia	1997	6.2	6.84	15.04	3.51504E+14	8.21	2909.38	4.7	2905
Indonesia	1998	58	5.69	14.11	5.72118E+14	-24.60	10013.6225	-13.1	10027
Indonesia	1999	20.7	6.6	15.32	6.42107E+14	11.83	7855.15	0.8	7854
Indonesia	2000	3.8	6.53	15.0	7.48845E+14	-1.65	8421.775	5	8417
Indonesia	2001	11.5	6.89	10.87	8.37739E+14	3.72	10260.85	3.6	10257
Indonesia	2002	11.8	7.26	11.11	8.77598E+14	12.32	9311.191667	4.5	9307
Indonesia	2003	6.8	8.13	11.63	9.4726E+14	10.85	8577.133333	4.8	8572

Indonesia	2004	6.1	8.32	11.58	1.03388E+15	5.13	8938.85	5	8934
Indonesia	2005	10.5	8.11	12.0	1.20276E+15	-0.25	9704.741667	5.7	9699
Indonesia	2006	13.1	8.63	11.4	1.38249E+15	1.66	9159.316667	5.5	9154
Indonesia	2007	6.7	8.35	11.6	1.64966E+15	2.34	9141	6.3	9135

Indonesia	2008	9.8	8.42	12.50	1.89584E+15	-3.85	9698.9625	7.4	9692
Indonesia	2009	5	9.59	10.39	2.14138E+15	5.75	10389.9375	4.7	10385
Indonesia	2010	5.1	9.01	10.54	2.47121E+15	4.61	9090.433333	6.4	9084
Indonesia	2011	5.3	9.06	11.16	2.87722E+15	4.59	8770.433333	6.2	8764
Indonesia	2012	4	9.25	11.38	3.30751E+15	7.75	9386.629167	6	9381
Indonesia	2013	6.4	9.52	11.29	3.7302E+15	6.37	10461.24	5.6	10456
Indonesia	2014	6.4	9.43	10.84	4.17333E+15	6.79	11865.2113	5	11860
Indonesia	2015	6.4	9.75	10.75	4.5488E+15	8.30	13389.41294	4.9	13385
Indonesia	2016	3.5	9.45	10.33	5.00498E+15	9.21	13308.3268	5	13303
Malaysia	1985	2.6	15.06	13.7	89196000000	7.72	2.483041667	-0.9	3.38304167
Malaysia	1986	0.4	16.69	13.5	1.00777E+11	5.26	2.581441667	1.2	1.38144167
Malaysia	1987	0.7	14.87	13.7	1.03E+11	2.70	2.519638333	5.4	-2.8803617
Malaysia	1988	0.3	14.23	14.2	1.11841E+11	5.48	2.618783333	9.9	-7.2812167
Malaysia	1989	2.6	14.06	15.0	1.36258E+11	4.24	2.708841667	9.1	-6.3911583
Malaysia	1990	3	13.79	15.9	76660900000	4.80	2.704875	9	-6.295125
Malaysia	1991	4.3	13.69	15.8	89599100000	5.56	2.750066667	9.5	-6.7499333
Malaysia	1992	4.8	13.01	15.8	1.54032E+11	7.56	2.547383333	8.9	-6.3526167
Malaysia	1993	3.5	12.63	16.1	1.94638E+11	5.81	2.574095	9.9	-7.325905
Malaysia	1994	3.7	12.26	16.8	2.17038E+11	4.64	2.624256667	9.2	-6.5757433
Malaysia	1995	3.5	12.37	17.7	2.57245E+11	4.92	2.504404167	9.8	-7.2955958
Malaysia	1996	3.5	11.11	19.38	3.04796E+11	6.04	2.5159425	10	-7.4840575
Malaysia	1997	2.7	10.77	19.75	3.53672E+11	6.91	2.813191667	7.3	-4.4868083
Malaysia	1998	5.3	9.77	16.73	3.54484E+11	3.35	3.924375	-7.4	11.324375
Malaysia	1999	2.7	10.99	14.09	3.97373E+11	8.51	3.8	6.1	-2.3
Malaysia	2000	1.6	10.17	13.67	4.373E+11	-1.09	3.8	8.7	-4.9
Malaysia	2001	1.4	12.04	17.79	4.77061E+11	8.85	3.8	0.5	3.3
Malaysia	2002	1.8	12.96	17.45	5.10074E+11	3.30	3.8	5.4	-1.6
Malaysia	2003	1.1	12.97	15.50	5.54079E+11	2.91	3.8	5.8	-2
Malaysia	2004	1.4	12.58	15.20	6.24375E+11	0.03	3.8	6.8	-3
Malaysia	2005	3	11.47	14.83	6.79277E+11	-2.67	3.787091667	5	-1.2129083

Malaysia	2006	3.6	11.17	14.52	7.7187E+11	2.41	3.668176958	5.6	-1.931823
Malaysia	2007	2	11.57	14.30	8.33022E+11	4.44	3.437569382	6.3	-2.8624306
Malaysia	2008	5.4	11.5	14.66	9.20784E+11	-5.29	3.335833333	4.8	-1.4641667
Malaysia	2009	0.6	13.05	14.94	9.92052E+11	10.63	3.524502911	-1.5	5.02450291
Malaysia	2010	1.7	12.58	13.33	1.06495E+12	-2.52	3.221086915	7.5	-4.2789131
Malaysia	2011	3.2	13.27	14.79	1.22072E+12	-0.47	3.060003011	5.3	-2.239997
Malaysia	2012	1.7	13.84	15.61	1.32871E+12	3.75	3.088800867	5.5	-2.4111991
Malaysia	2013	2.1	13.72	15.31	1.427E+12	4.43	3.15090855	4.7	-1.5490914
Malaysia	2014	3.1	13.32	14.84	1.51696E+12	2.07	3.272859746	6	-2.7271403
Malaysia	2015	2.1	13.13	14.29	1.56313E+12	4.98	3.905500263	5	-1.0944997
Malaysia	2016	2.1	12.58	15.02	1.60507E+12	2.54	4.148300663	4.2	-0.0516993
Philippines	1985	23.2	7.61	13.80	1.65333E+11	9.33	18.60734167	-7.3	25.9073417
Philippines	1986	-0.3	7.95	13.52	1.68126E+11	14.16	20.38568333	3.4	16.9856833
Philippines	1987	3	8.4	13.33	1.8775E+11	5.43	20.567675	4.3	16.267675
Philippines	1988	12.2	9.03	14.69	2.31422E+11	5.72	21.094675	6.8	14.294675
Philippines	1989	11.4	9.53	14.02	3.01407E+11	9.39	21.73668333	6.2	15.5366833
Philippines	1990	13.2	10.1	14.08	3.68917E+11	9.87	24.3105	3	21.3105
Philippines	1991	19.3	9.93	14.61	4.34276E+11	5.62	27.47863333	-0.6	28.0786333
Philippines	1992	8.7	9.66	15.44	4.91207E+11	10.70	25.51249167	0.3	25.2124917
Philippines	1993	6.7	10.11	15.61	6.29461E+11	7.35	27.11984167	2.1	25.0198417
Philippines	1994	10.4	10.8	16.03	7.97746E+11	4.61	26.41716667	4.4	22.0171667
Philippines	1995	6.9	11.39	16.29	9.88201E+11	6.63	25.71446667	4.7	21.0144667
Philippines	1996	8.3	11.95	16.94	1.22272E+12	6.67	26.2161	5.8	20.4161
Philippines	1997	5.7	13.18	16.98	1.50526E+12	9.46	29.47065833	5.2	24.2706583
Philippines	1998	9.4	13.28	14.11	1.6342E+12	-4.58	40.89305	-0.6	41.49305
Philippines	1999	6.2	12.22	13.31	1.91009E+12	4.87	39.08898333	3.1	35.9889833
Philippines	2000	6.6	11.42	12.85	2.06521E+12	4.92	44.19225	4.4	39.79225
Philippines	2001	5.4	11.08	12.69	2.13905E+12	6.49	50.99265	2.9	48.09265
Philippines	2002	2.7	10.57	12.09	2.36158E+12	4.78	51.60356667	3.6	48.0035667
Philippines	2003	2.3	10.2	12.10	2.4467E+12	6.08	54.20333333	5	49.2033333

Philippines	2004	4.8	9.38	11.82	2.68936E+12	4.32	56.03991667	6.7	49.3399167
Philippines	2005	6.6	9.04	12.43	2.8622E+12	4.12	55.08549167	4.8	50.2854917
Philippines	2006	5.5	9.18	13.71	3.80439E+12	4.60	51.3142725	5.2	46.1142725
Philippines	2007	2.9	9.28	13.53	4.16982E+12	5.43	46.14839118	6.6	39.5483912
Philippines	2008	8.2	8.83	13.59	4.58851E+12	1.12	44.32328761	4.2	40.1232876
Philippines	2009	4.2	9.86	12.23	4.98489E+12	5.64	47.67968845	1.1	46.5796885
Philippines	2010	3.8	9.72	12.15	5.52809E+12	3.31	45.10966418	7.6	37.5096642
Philippines	2011	4.7	9.7	12.38	5.82145E+12	2.54	43.31313692	3.7	39.6131369
Philippines	2012	3.2	10.84	12.89	6.22766E+12	3.64	42.22879473	6.7	35.5287947
Philippines	2013	2.9	10.84	13.31	8.05421E+12	3.65	42.44618483	7.1	35.3461848
Philippines	2014	4.2	10.56	13.61	9.05595E+12	2.30	44.3951543	6.1	38.2951543
Philippines	2015	1.4	10.93	13.63	9.88872E+12	6.20	45.50283994	6.1	39.4028399
Philippines	2016	1.8	11.13	13.68	1.12065E+13	3.92	47.49246386	6.9	40.5924639
Singapore	1985	0.5	13.41	15.68	28148000000	9.63	2.20015	-0.7	2.90015
Singapore	1986	-1.4	12.69	12.75	30956000000	8.16	2.177416667	1.3	0.87741667
Singapore	1987	0.5	11.53	13.09	37090000000	5.51	2.105983333	10.8	-8.6940167
Singapore	1988	1.5	9.87	14.09	42088000000	0.40	2.012425	11.1	-9.087575
Singapore	1989	2.3	9.75	15.71	51546000000	2.00	1.950258333	10.2	-8.2497417
Singapore	1990	3.4	9.51	14.54	61845000000	2.59	1.812533333	10	-8.1874667
Singapore	1991	3.4	9.24	15.18	69542000000	3.02	1.72755	6.7	-4.97245
Singapore	1992	2.2	8.81	16.10	75728000000	4.91	1.628966667	7.1	-5.4710333
Singapore	1993	2.3	8.99	16.28	82130000000	1.92	1.615790833	11.5	-9.8842092
Singapore	1994	3.1	8.05	16.59	93980000000	2.13	1.527444167	10.9	-9.3725558
Singapore	1995	1.7	8.14	15.75	1.01968E+11	2.98	1.417375	7	-5.582625
Singapore	1996	1.4	8.91	15.88	1.11951E+11	4.72	1.410040833	7.5	-6.0899592
Singapore	1997	2	8.75	15.31	1.23444E+11	5.23	1.484805833	8.3	-6.8151942
Singapore	1998	-0.3	9.6	14.03	1.60784E+11	8.92	1.673601667	-2.2	3.87360167
Singapore	1999	0	9.51	14.53	1.74474E+11	10.09	1.694956667	6.1	-4.4050433
Singapore	2000	1.3	10.73	14.89	1.70898E+11	2.02	1.723963333	8.9	-7.1760367
Singapore	2001	1	11.78	14.67	1.80909E+11	8.07	1.7917225	-1	2.7917225

Singapore	2002	-0.4	11.96	12.77	1.80308E+11	6.68	1.790588333	4.2	-2.4094117
Singapore	2003	0.5	11.56	12.53	1.94828E+11	7.14	1.742183333	4.4	-2.6578167
Singapore	2004	1.7	10.51	11.69	2.06978E+11	1.01	1.690228333	9.5	-7.8097717
Singapore	2005	0.5	10.18	11.61	2.19798E+11	3.01	1.6643975	7.5	-5.8356025
Singapore	2006	1	10.3	11.90	2.6237E+11	3.53	1.588933333	8.9	-7.3110667
Singapore	2007	2.1	9.51	12.89	2.97559E+11	-0.50	1.507101667	9.1	-7.5928983
Singapore	2008	6.6	10.55	13.85	3.3341E+11	6.98	1.414860833	1.8	-0.3851392
Singapore	2009	0.6	10.29	13.07	3.71209E+11	1.80	1.454514713	-0.6	2.05451471
Singapore	2010	2.8	10.19	12.97	4.03097E+11	5.43	1.363508333	15.2	-13.836492
Singapore	2011	5.2	9.64	13.28	4.43358E+11	4.10	1.257775877	6.2	-4.9422241
Singapore	2012	4.6	9.18	13.86	4.75392E+11	5.00	1.249676204	3.9	-2.6503238
Singapore	2013	2.4	10.04	13.49	4.95909E+11	5.63	1.2513	5	-3.7487
Singapore	2014	1	9.99	13.85	5.12431E+11	5.78	1.26705	3.6	-2.33295
Singapore	2015	-0.5	10.63	13.63	5.2024E+11	2.74	1.374825	1.9	-0.525175
Singapore	2016	-0.5	11.28	14.30	5.62088E+11	6.88	1.381546364	2	-0.6184536
Thailand	1985	2.3	13.53	13.69	6.5598E+11	13.61	27.15888702	4.6	22.558887
Thailand	1986	1.9	12.75	13.62	7.45349E+11	11.53	26.29888269	5.5	20.7988827
Thailand	1987	2.5	11.33	13.65	8.90187E+11	6.51	25.72279645	9.5	16.2227964
Thailand	1988	3.9	10.05	14.81	1.05009E+12	5.35	25.29387761	13.3	11.9938776
Thailand	1989	5.4	9.52	15.58	1.32497E+12	5.78	25.70204634	12.2	13.5020463
Thailand	1990	-0.4	9.4	16.91	1.66309E+12	8.17	25.58546242	11.6	13.9854624
Thailand	1991	5.7	9.22	17.41	1.98565E+12	9.12	25.51679541	8.4	17.1167954
Thailand	1992	4.1	9.9	15.59	2.2937E+12	7.35	25.40012815	9.2	16.2001282
Thailand	1993	3.3	11	15.40	2.7293E+12	4.39	25.31961108	8.7	16.6196111
Thailand	1994	5.1	11.05	16.04	3.02095E+12	5.95	25.14995189	8	17.1499519
Thailand	1995	5.8	11.25	16.44	3.55695E+12	7.10	24.9151757	8.1	16.8151757
Thailand	1996	5.8	11.58	16.73	3.93471E+12	8.93	25.34268286	5.7	19.6426829
Thailand	1997	5.6	12.08	16.11	4.70397E+12	8.83	31.36433445	-2.8	34.1643345
Thailand	1998	8	13.06	13.79	5.17764E+12	5.88	41.3593875	-7.6	48.9593875
Thailand	1999	0.3	13.57	12.89	5.37434E+12	11.86	37.81365583	4.6	33.2136558

Thailand	2000	1.7	13.58	12.98	5.63811E+12	6.42	40.11180333	4.5	35.6118033
Thailand	2001	1.6	13.47	13.07	5.94571E+12	5.23	44.4319	3.4	41.0319
Thailand	2002	0.7	13.17	13.47	6.17073E+12	5.10	42.96008333	6.1	36.8600833
Thailand	2003	1.8	12.93	14.48	7.07868E+12	3.71	41.48461667	7.2	34.2846167
Thailand	2004	2.8	13.11	14.85	7.47288E+12	1.86	40.22241492	6.3	33.9224149
Thailand	2005	4.5	13.65	16.06	7.92797E+12	0.67	40.22013021	4.2	36.0201302
Thailand	2006	4.7	13.5	15.64	8.5745E+12	2.14	37.88198322	5	32.8819832
Thailand	2007	2.2	13.93	15.14	9.11064E+12	4.47	34.51818059	5.4	29.1181806
Thailand	2008	5.5	14.34	15.38	9.9455E+12	1.81	33.31330064	1.7	31.6133006
Thailand	2009	-0.8	15.98	14.19	1.06183E+13	5.76	34.28577412	-0.7	34.9857741
Thailand	2010	3.3	15.8	14.93	1.17801E+13	1.78	31.685705	7.5	24.185705
Thailand	2011	3.8	16.14	16.36	1.35609E+13	3.06	30.49173333	0.8	29.6917333
Thailand	2012	3	16.35	15.44	1.49676E+13	5.09	31.08309167	7.2	23.8830917
Thailand	2013	2.2	16.4	16.90	1.60633E+13	5.09	30.72596667	2.7	28.0259667
Thailand	2014	1.9	16.9	15.65	1.68104E+13	5.44	32.47983333	0.9	31.5798333
Thailand	2015	-0.9	17.31	16.12	1.75528E+13	5.93	34.24771667	2.9	31.3477167
Thailand	2016	0.2	17.09	15.69	1.82906E+13	4.46	35.29638333	3.2	32.0963833

Appendix 2

The Result of Linear Regression (Common Effect Models)

Dependent Variable: Y?
Method: Pooled Least Squares
Date: 03/08/18   Time: 22:35
Sample: 1985 2016
Included observations: 32
Cross-sections included: 5
Total pool (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.71686	3.327771	3.220431	0.0016
X1?	-0.811355	0.152450	-5.322109	0.0000
X2?	0.498453	0.204255	2.440348	0.0158
X3?	-3.46E-15	8.04E-16	-4.299403	0.0000
X4?	-0.326256	0.068621	-4.754492	0.0000
X5?	0.001339	0.000222	6.026368	0.0000
X6?	-0.557072	0.079183	-7.035268	0.0000
X7?	-7.50E-11	2.07E-11	-3.620745	0.0004

R-squared	0.591468	Mean dependent var	4.681250
Adjusted R-squared	0.572654	S.D. dependent var	5.744554
S.E. of regression	3.755315	Akaike info criterion	5.532928
Sum squared resid	2143.563	Schwarz criterion	5.686687
Log likelihood	-434.6342	Hannan-Quinn criter.	5.595364
F-statistic	31.43764	Durbin-Watson stat	1.320591
Prob(F-statistic)	0.000000		

Source : 8.0

Appendix 3

The Result of Linear Regression (Fixed Effect Models)

Dependent Variable: Y?
Method: Pooled Least Squares
Date: 03/08/18   Time: 22:36
Sample: 1985 2016
Included observations: 32
Cross-sections included: 5
Total pool (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.85328	4.531885	2.394872	0.0179
X1?	-0.825255	0.190206	-4.338739	0.0000
X2?	0.555880	0.232567	2.390195	0.0181
X3?	-2.22E-15	8.19E-16	-2.708730	0.0076
X4?	-0.427302	0.071615	-5.966667	0.0000
X5?	0.000586	0.000313	1.870857	0.0633
X6?	-0.528905	0.079769	-6.630462	0.0000
X7?	-3.25E-11	2.61E-11	-1.248529	0.2138
Fixed Effects (Cross)				
_INDONESIA—C	3.429168			
_MALAYSIA—C	-1.250232			
_PHILIPPINES—C	0.951133			
_SINGAPORE—C	-3.021702			
_THAILAND—C	-0.108367			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.649112	Mean dependent var	4.681250
Adjusted R-squared	0.623033	S.D. dependent var	5.744554
S.E. of regression	3.527021	Akaike info criterion	5.430823
Sum squared resid	1841.102	Schwarz criterion	5.661461
Log likelihood	-422.4658	Hannan-Quinn criter.	5.524477
F-statistic	24.88976	Durbin-Watson stat	1.607114
Prob(F-statistic)	0.000000		

Source : E-views 8.0

Appendix 4

Chow Test

Redundant Fixed Effects Tests

Pool: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.078450	(4,148)	0.0001
Cross-section Chi-square	24.336793	4	0.0001

Source : E-vies 8.0