ANALYSIS THE EFFECT OF MACROECONOMICS VARIABLES TO STOCK PRICE INDEX IN INDONESIA (IHSG)

THESIS

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بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

In the name of Allah, the Most Gracious, the Most Merciful

There is no deity except Him, the ever living, the sustainer of [all] existence. Neither drowsiness overtakes Him nor sleep. To Him belongs whatever is in the heavens and whatever is on the earth. Who is it that can intercede with Him except by His permission? He knows what is [presently] before them and what will be after them, and they encompass not a thing of His knowledge except for what He wills. His Kursi extends over the heavens and the earth, and their preservation tires Him not. And He is the Most High, the Most Great. (2S. Al-Baqarah : 255)

And We charge no soul except [with that within] its capacity, and with Us is a record which speaks with truth; and they will not be wronged (2S. Al Mu'minun:62)

For each one are successive [angels] before and behind him who protect him by the decree of Allah . Indeed, Allah will not change the condition of a people until they change what is in themselves. And when Allah intends for a people ill, there is no repelling it. And there is not for them besides Him any patron. (2S. Ar Ra'du:11)

LETTER OF STATEMENT

I would like to state that my thesis with title **"Analysis The Effect of Macroeconomics Variables to Index Stock Price in Indonesia (IHSG)"** is worked by myself and there is no part or all of the posts that contain the phrase, idea, or opinion from another source without giving acknowledgment to the original author. As the parts are sourced from other people's work have included the source in accordance with the norms, ethics and rules of scientific writing. If they find a plagiarism in this thesis, I am willing to accept the sanction of revocation of academic degrees that I have gained.

Padang, 29 July 2015

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ANALYSIS THE EFFECT OF MACROECONOMICS VARIABLES TO INDEX STOCK PRICE IN INDONESIA (IHSG)

Thesis by: **Dahwin Ferry Harahap** Thesis Advicer by: **Drs. H. Masrizal, M.Soc.Sc**

ABSTRACT

IHSG is a reflection of Indonesian capital market. IHSG movement fluctuate following the changing of macroeconomics variable. The aim of this research is to analyze the effect of goverment expenditure, industrial production index, and foreign direct investment to stock price index in Indonesian (IHSG) during 2004-2014. This research using secondary data and Error Correction Model (ECM) method. The research findings that goverment expenditure, and foreign direct investment have positive and significant effect to index stock price in Indonesia (IHSG) for long run and short run. However, the industrial production index has not significant effect to index stock price in Indonesia (IHSG). Goverment and monetary authorities should maintain the stability of macroeconomics variables.

Keywords: IHSG, Goverment Expenditure, Industrial Production Index, FDI, and ECM.

This thesis has been presented in the thesis examination and successfully passed the thesis examination on July 9th, 2015.

The abstract has been approved by the advisor and examiners:

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PREFACE

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All praise to be on Allah SWT, Lord of the world. The writer would like thanks to Allah SWT for its guidance and mercy therefore my thesis entitled **"Analysis The Effect of Macroeconomics Variables to Index Stock Price in Indonesia (IHSG)"** has finally been accomplished on time without matter problem. This thesis is submitted as a partial requirement to acquire Bachelor Degree at Economics Department of Economics Faculty of Andalas University.

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Dahwin Ferry Harahap

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CHAPTER I

INTRODUCTION

1.1. Background

Capital market has a strategic role in the modern economy, so that capital market is also known as the primary indicator of the country's economy (leading indicator of economy). In carrying out its role, capital market has two main functions, the function of economic and financial function. In the function of economic, capital markets provide a facility or vehicle to bring together two interests, those who have excess funds (investors) and those who require funds. In capital markets, the parties have excess funds may invest those funds to obtain compensation (return), while the issuer (in this case the company) may utilize these funds for investment purposes without waiting for the availability of funds from the company's operations. In the finance function, capital markets gives the possibility and the opportunity to obtain return for the owner of the funds, according to the characteristics of selected investments. Capital market is expected to increase economic activity, since the stock market is an alternative long term financing for the company, so the company can operate with a larger scale and in turn will increase the company's earnings and prosperity of the community (Andrew, 2009).

IHSG is a reflection of the Indonesian capital market. IHSG shows the general movement of stock prices that list on Indonesia Stock Exchange. IHSG shows the stock price changes from time to time, whether a stock price decline or rise. IHSG movement fluctuates following the changing of macroeconomics

indicators, it is seen from the condition of the capital market in Indonesia has fluctuated a lot and generally follow the pattern of economic movements.

Capital market in Indonesia is an emerging market that is development is very vulnerable to macroeconomic conditions such as global economic conditions. Macroeconomics influence will not immediately affect the company's performance, but gradually in the long term. In contrast, the share price will be affected immediately by changes in macroeconomic factors such as investors will take into account the impact both positive and negative on the performance of the company a few years into the future, then make a decision to buy, sell or hold shares (Samsul, 2006). Therefore, stock prices adjust more quickly to changes following the changing of macroeconomics than the changing of company performance.

Interaction between the capital market and macroeconomic variables has been the main focus in the research of academics and practitioners (Kwon and Shin, 1999). Fluctuations in the capital market can be seen by observing the price of existing shares in the market. Stock prices fluctuate daily and analysts believe that the stock price fluctuation is strongly influenced by numerous factors outside of the stock market. Sirucek (2012) suggests that macroeconomic factors have a dominant contribution to the fluctuations of the stock price. Gan, et al. (2006) showed that, investors generally believe that the macroeconomic events have a major contribution to the volatility of the stock price.

Based on Bank of Indonesia data, trend of IHSG in Indonesia over quarterly during the period 2004 - 2014 is fluctuated. IHSG in early 2004 in position 752.93

bps rise sharply to 1000.23 bps at the end of 2004. This is partly due to the successful implementation of the direct presidential election. IHSG performance increased significantly during 2006. IHSG at the end of 2006 reached 1805.52 bps or gained 632.9 (55.3%) compared to the previous at the end of the year. This also followed the value of transaction continues to increase. The higher value of IHSG because investor confidence on Indonesian economic conditions that more conducive. The performance of the stock market in early 2008 is quite good, but corrected enough in the second quarter. IHSG at the end of the year closed at 1355 bps or 50.64% lower than the closing in 2007. This is decrease caused by external shocks from the world's financial markets. In 2014, the market capitalization on Indonesia Stock Exchange reached Rp 5.228 trillion, up 23.92% of the market capitalization at the end of 2013.

Based on Bank of Indonesia data, trend of government expenditure in Indonesia over quarterly during the period 2004-2014 is fluctuated. In 2004, increase in the government expenditure as the impact of high oil prices. Components of fuel subsidies increased three times from the budget at the beginning of the year. Government expenditure is also increase because in 2004 Indonesia was doing president election. Government expenditure in 2005 grew more expansive than the previous year, from 43143.4 billion rupiah to 77678 billion rupiah. In 2006, government expenditure increased 9.6% when compared to 6.6% in 2005. Total of government expenditure in the fourth quarter of 2006 is 89910.5 billion rupiah. Government expenditure in 2007 grew 4.0% to 99874.8 billion rupiah.

In 2008, government expenditure increase by every country in order to respond to the global crisis, in the form of tax cuts, the creation of infrastructure projects, and public works, as well as the provision of benefits for households and companies to stimulant world economy. It can be seen in the first quarter of 2008, government expenditure is 76724.1 billion rupiah, increased to 129110.4 in the fourth quarter. In 2011, government expenditure increase is quite high and grew to 8.8 % - 9.3% in the fourth quarter 2011. In 2012, there is a decreasing of government expenditure. This is evidenced by the value of government expenditure decrease to 137975.8 in the first quarter of 2012. In the fourth quarter of 2014, government expenditure is 351097.7 billion rupiah.

Industrial production index in indonesia is fluctuated. Based on data from Bureau of Statistics Indonesia over quarterly during the period of 2004-2014, it can be seen the fluctuation of the industrial production index in Indonesia. In the first quarter of 2004, the industrial production index is 111.52, rise to 119.57 in the fourth quarter. In 2005, the growth of the industrial sector tends to slow down due to rising production costs, higher of fuel prices, and depreciation in the Indonesia exchange rate. Industrial production index fell from 124.37 in the third quarter to 114.18 in the fourth quarter. In 2008, the global crisis led to a decline in the industrial production index. Declining in purchasing power and exports of the industrial products led to a decrease in the value of the industrial production index. This can be seen in the third quarter of the industrial production index at which the value of this index is 130.91, decreases to 126.64 in the fourth quarter. This condition continues until the second quarter of 2009. In 2010, there is a significant decreasing of the industrial production index. This is evidenced by the

decline in industrial production index from 131.69 in the third quarter to 98.13 in the fourth quarter. In 2012, household consumption grew 5.3%, the highest growth since the global financial crisis in 2008/2009 and supported by purchasing power and consumer confidence continues to strengthen. This is caused the rise of the value of the industrial production index reaching 115.47 in the fourth quarter. Data in 2013 showed that Indonesia's per capita income increased from 33.5 million in 2012 to Rp36.5 million in 2013 which is caused an increasing in industrial production. Industry performance in 2014 growth 4.6% compared to the previous year. The improvement was influenced by the rise in the household consumption in the first quarter of 2014 because of the president election and improve the export of manufacturing.

Bank of Indonesia data show that FDI in Indonesia is fluctuated during period 2004-2014. During 2004, FDI in Indonesia is still below a thousand billion rupiah. The main cause of the FDI low in this year is more caused by the bomb Bali tragedy. Investor thinks that this tragedy will give bad condition to invest in Indonesia. During 2005, the FDI inflow in Indonesia decreased until the low level. The data shows us that FDI in Indonesia only reached 94 billion rupiah at the last quarter of 2005. To overcome this condition, the government had released the deregulation packet in 2006 to promote the investment climate. The policy was Presidential Decree No.3, 2006. FDI inflow in Indonesia would be better in 2006. It can be seen from the increasing level of FDI inflow to Indonesia from 1,305 to 3,162 billion rupiah. In 2008, Indonesian economy recorded decrease 6.01% affected by global crisies. FDI inflow to Indonesia decrease from 3,162 billion rupiah in 2006 to 1,973 billion rupiah in 2008.

FDI inflow to Indonesia in 2009 is about 4,872 billion rupiah. In 2010, FDI inflow in Indonesia increasing to 13,771 billion rupiah. In 2013, FDI inflow in Indonesia is still not consisten. It could be seen from the development of FDI quarterly during this year. In the first quarter, FDI in Indonesia is about 3,840 billion rupiah, increase to 4,558 billion rupiah in the second quarter and increase to 5,929 billion rupiah in the third quarter. But it decreased to 4,620 billion rupiah in the last quarter. Totally, the FDI inflow to Indonesia during 2013 had reached 18,947 billion rupiah. This condition also occurs during 2014 in which the FDI inflow to Indonesia tend to fluctuative quarterly, namely decrease from 7,593 to 4,658 billion rupiah in fourth quarter. However, the FDI inflow Indonesia had increased during 2014 if it is compared to 2013. The amount of the FDI inflow to Indonesia reached 22,276 billion rupiah in 2014.

Based on the background above, where IHSG tend to change according to the change of macroeconomic variables, make researcher interest to analyze about the effect of the macroeconomic variables, especially goverment expenditure, industrial production index, and foreign direct investment (FDI), in short run and long run to IHSG with tittle: " **Analysis The Effect of Macroeconomics Variables to Stock Price Index in Indonesia (IHSG)".**

1.2. Problem Identification

The development of capital market is very vulnerable to the macroeconomic conditions. The stock price will be affected immediately by changes in the macroeconomic factors such as gross domestic product, exchange rates, inflation, and etc. Investors will take into account the positive and negative impact of the macroeconomic changes on the performance of the company a few years ahead, and then they make a decision to buy, sell, or hold shares owned. Therefore, the stock price very quickly adapt to changes in the macroeconomics.

IHSG is a reflection of the Indonesian capital market. IHSG movement fluctuates following the changing of macroeconomic indicators, it is seen from the condition of the capital market in Indonesia has fluctuated a lot and generally follow the pattern of economic movements. As well as, government expenditure has changed due to changes in the needs, the industrial production index has changed due to changes in demand for goods, and foreign direct investment has changes as a result of change in investment climate. Changes in macroeconomics variables will certainly have an impact on IHSG.

Based on the background above, the problem in this research is what is the effect or impact of government expenditure, industrial production index, and foreign direct investment to IHSG in the short run and long run.

1.3. Research Questions

1. What is the impact of government expenditure to IHSG?
2. What is the impact of industrial production index to IHSG?
3. What is the impact of foreign direct investment to IHSG?

1.4. Research Objectives

Based on the research problem, the objectives of this research are:

1. Analyze the effect of the government expenditure to IHSG for short run and long run during period 2004-2014.
2. Analyze the effect of the industrial production index to IHSG for short run and long run during period 2004-2014.
3. Analyze the effect of the foreign direct investment to IHSG for short run and long run during period 2004-2014.

1.5. Research Advantages

By conducting this study, it is expected to provide benefits to related parties include:

1. As consideration for the government and other parties involved in the policy decision will be taken in connection with the movement of IHSG in Indonesia Stock Exchange
2. For information to the investors and prospective investors in the capital market in Indonesia to consider the macroeconomics variables in Indonesia, so it can be considered in deciding whether to sell, buy, or hold stock that they have.
3. For further research, the results of this study can be used as a basis and also can be developed more extensively with taking economic factors other than government expenditure, industrial production index, and foreign direct investment (FDI).

1.6. Scope of Research

This research will be focus to analyze the effect of macroeconomics variables such as government expenditure, industrial production index, and foreign direct investment (FDI) to IHSG. First, the author will set the methodology and formula to solve the equation with Error Correction Model (ECM) using EVIEWS 7 program to process the data, then the author will describe what is the effect of macroeconomics variables such as government expenditure, industrial production index, and foreign direct investment (FDI) to IHSG in short run and long run. The author will answer with descriptive approach, it will be explain with some output from data process.

1.7. Writing Systematic

Systematic writing of this study is divided into six chapters. As for each chapter are briefly described as follows:

Chapter I: Introduction

This chapter contains description of the background of the effect of macroeconomics variables to IHSG. This chapter also describes about problem identification, research questions, research objectives, the research advantage, the scope of research, and writing systematic.

Chapter II: Theoretical Framework and Literature Review

This chapter will provide the theory and the relationship between macroeconomics variables such as goverment expenditure, industrial production index, and foreign direct investment (FDI) to IHSG. To support the literature review some explanation from empirical studies in the past, as proven.

Chapter III: Research Methodology

This chapter elaborates about study method of problem, containing research data such as research variables, data characteristics, population that accompanied by clarification about data collecting procedure, and also technique data analysis.

Chapter IV: General Overview

This chapter describes the overview of research object, such as overview about trend of IHSG, goverment expenditure, industrial production index, and foreign direct investment in Indonesia.

Chapter V: Empirical Results and Analysis

This chapter discusses more about the study description contains a description of the research object, data analysis, interpretation and discussion of the result obtained from the study.

Chapter VI: Conclusions and Recommendations

This chapter consists of conclusion of the study and implication on the future research.

CHAPTER II

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Investment Theory

The economic influence in the international and national investment climate. Based on it, can be deduced that if the economy have increased or in a state of expansion, the investment climate will be increased. Conversely, if the economy goes into recession, the investment climate will be decline (Dornbusch, 2004).

According to Bodie *et al.* (2005), Investments in finance can be carried out in the money market and the capital market, which if money market provides a great advantage, then investors will choose to invest in the money market and sell the assets in the stock market, so the price of assets in the stock market will go down.

2.1.2. Portfolio Theory

According to Fabozzi (1999), Investment management is the process of managing money. The combination of some investment instruments and form a portfolio to achieve the investment objectives of investors. Markowitz (1952) developed a model portfolio selection one period to increase profit expectations (expected return) for a certain degree of risk. The objective function of the model. Markowitz is to maximize the expected return while minimizing risk which is

defined by a variant of the yield. Risk can be reduced by combine multiple assets into the portfolio.

Jogiyanto (2000) argues that the market could be efficient due to several events, namely:

1. Investor is the recipient of the price, which means that as the market participants, investors can not affect the price of the securities.
2. The price of the security is created because it is determined by demand and supply mechanisms prescribed by many investors.
3. The information is widely available to all market participants at the same time and price to obtain such information.
4. The information generated randomly, and each announcement is random with each other, so that investors can not predict when the issuer will announce the new information.
5. Investors reacted by using the information fully and quickly so that the price of securities changed accordingly.

Mishkin (2007) states that before taking decisions in buying and selecting a number of assets, the investor will consider several factors as follows:

1. Wealth

wealth of resources available and owned by someone. When the level rises, the wealth of resources available to have a particular type of asset will increase, and cause the asset demand will increase.

2. The rate of expected return

In portfolio theory someone would like a high expected return of assets. So an increase in the expected return on an asset relative to other assets, assuming cateris paribus, it will cause the amount of demand for these assets increases.

3. The level of risk or uncertainty (unexpected return)

The level of uncertainty to the return of assets letters also had an effect on demand for those assets. Assuming cateris paribus, an increase in the risk of an asset relative to other assets that demand for these assets down.

4. The level of liquidity

How quickly these assets can be used in the form of cash with no huge costs, the faster the asset is converted into the form of cash, the value of the higher liquidity of these assets.

2.1.3 Theory of Stock Price Index (IHSG)

Anoraga and Piji (2006) argues that the price index is a number that is used to compare an event with other events. Likewise, stock price index compares the stock price changes over time, so it will be seen whether a stock price decline or rise compared to a certain time.

IHSG is a value used to measure the performance of stocks listed on Indonesian Stock Exchange. Index is a form of historical information to describe the movement of stock prices at the time or a certain period . In Indonesian capital

market, IHSG representing the movement of index all shares the companies that list in Indonesia Stock Exchange. IHSG is a reference for investors in Indonesia because it reflects the condition of the investment climate in Indonesia in shares.

According to Al-Majali and Al-Assaf (2014), the stock price index is a summary of simultaneous and complex influence of various variables that influence, especially economic events. Even today, the stock price index not only accommodate economic events, but also accommodate social events, political, and security. Thus, the stock price index can be used as a barometer of the economic health of a country and as a basis for statistical analysis of past market conditions (current market).

Stock price index measurement requires two kinds of time, the basis of time and the applicable time. The time will be used as the basis of comparison, while the applicable time is the time in which the activities will be compared with the base period.

$$\mathbf{IHSG = (\Sigma Ht / \Sigma Ho) \times 100\%}$$

ΣHt = total price of all shares at the applicable time

ΣHo = total price of all shares on the basis of time

The market value is the cumulative number of shares multiplied by the market price today or referred as market capitalization. Basic value is calculation of IHSG based on the amount of the total market value of shares listed on the Indonesian stock exchange. Market value is the total number of multiplications

per share recorded at the price on the Stock Exchange on the day. Values are calculated based on the initial price of each share or based on the price that has to be corrected if the company has been doing activities that cause the number of shares listed on the stock unchanged. Adjustments are made so that the index actually reflects the stock price.

2.1.4 Theory of Government Expenditure

2.1.4.1 Government Expenditure In Micro Theory

Micro theories about government expenditure regarding factors that affect the incidence of demand for public goods and factors that affect the availability of public goods. Interaction between demand and supply of public goods determines the amount of public goods supplied which will further lead to the demand for other goods. Some of the factors that affect government spending, namely:

a) Changes in the demand for public goods.

a) The change of government activity in producing public goods and the change from a combination of factors of production used.

b) Changes in the quality of public goods.

c) Changes in the price of factors of production.

2.1.4.2 Government Expenditure in Macro Theory

A. Keynes Theory

Balance equation of national income according to Keynes is Y = C + I + G. Where in (Y) is the national income, (C) is a consumption expenditures and (G) is government expenditure. By comparing the value (G) against Y and observe from time to time can be known how great the contribution of government spending in the formation of national income. According to Keynes, to avoid stagnation in the economy, the government seeks to increase the amount of government expenditure (G) with a higher level of national income, so as to offset the propensity to consume (C) in the economy.

Taxation and government spending are related in terms of fiscal or budgetary revenues and government spending as a whole. Total spending in the economy reduced the multiplier effect of tax increases and tax cuts is a policy in which the government surplus in pressing government spending. If the goal is to increase spending, then operate the government budget deficit by reducing taxes and increase government spending.

A decrease in government expenditure and increases in tax revenues from the flow of national circulation will reduce aggregate demand and through multiplier (multiplier effect) will give a reduction in inflationary pressure when the economy increased activity overload (over-heating). In contrast to an increase in government spending and a decrease in taxes, then an injection into the circulation flow of national income would increase aggregate demand and through the multiplier effect will create additional jobs.

B. Rostow and Musgrave Theory

This theory was put forward by Rostow and Musgrave are based on their views through observation of the economic development in some countries. This model connects the stage of economic development with government expenditure consists of early stage, intermediate stage and advanced stage. In the early stages of economic development, the percentage of total government investment to large investment because at this stage the government must provide the facilities and infrastructure such as education, health, transportation and so on.

In the intermediate stage the role of government investment is still needed, but greater private investment. Greater private sector role is causing the failure of the market is also getting bigger, which in turn makes the government should provide public goods and services more and better. In advanced stages, the activity of the government switched from the provision of infrastructure to social activities such as old-age welfare programs, public health services and so on.

C. Adolf Wegner Theory

This theory emphasizes the development of the percentage of government expenditure increasing to GNP. He said in an economy where per capita income is increasing, in relative terms in government expenditure will also increase, especially since the government must regulate relations arising in society, law, education and so on.

Wagner's theory starts on a theory called organic theory of state. The theory considers the government as free individuals acting. According to Wagner, there are five things that cause government expenditure always increases, namely:

a) Demands for increased security protection and defense

b) The increase in income levels

c) Urbanization that accompanies economic growth

d) Demographic development

e) Bureaucratic inefficiency that accompanies the development of the government.

Economic growth will cause the relationship between the industries and the relationship between industry and the public will be more complicated and complex, so potential failure becomes increasingly large negative externalities.

D. Peacock and Wiseman Theory

This theory considers that the government is always trying to increase expenditure, while people do not like paying taxes to finance growing government expenditure is getting bigger, so the theory Peacock and Wiseman is the basis of voting. They believe that people have the tolerance level of the tax, which is a level where people can understand the magnitude of government taxation needed to finance government spending. So people realize that the government is in need of funds to finance the activities of government so that they have the willingness to pay taxes. This tax tolerance level is an obstacle for the government to raise tax collection arbitrarily.

According to their economic development causes an ever increasing tax collection despite the tax rate unchanged, and increased tax revenues caused government spending also increased. Therefore, under normal circumstances, rising GNP caused government revenues are becoming increasingly large. If the

normal state is disturbed, for example, because there is a war, then the government should increase spending to fund the war. Because of the government's revenue from taxes should also be increased, and the government to raise revenues by raising tax rates so that private funds for investment and consumption to be reduced. This state is called diversion effect (displacement effect), namely the existence of a social disruption caused private activity shifted to government activity. In addition, many activities seem new government after the war, called the effects of inspection (inspection effect). Social disorder will also cause a concentration of activities in the hands of the government, the so-called effect concentration (concentration effect). The existence of the three aforementioned effects lead to increased activity of the government after the war

E. Theory of Critical Limits Colin Clark

In theory, Collin Clark argued hipoteisis about critical limit taxation. Tolerance levels of taxation and government spending estimated to be less than 25 per cent of GNP, despite the government's budget remains balanced. It is said that if the activities of the government sector, as measured by tax and other receipts, exceed 25% of total economic activity, then there is inflation. Basis proposed is that higher taxes will reduce morale. As a result, productivity will drop by itself and this will reduce the aggregate offer. On the other hand, high government spending will result in an increase in aggregate demand.

2.1.4 Theory of Industrial Production Index

Industrial production index is used as proxy to measure the growth rate in real sector. Industrial production presents a measure of overall economic activity in the economy and affects stock prices through its influence on expected future cash flows. Thus, it is expected that an increase in industrial production index is positively related to stock price. The industrial production index and stock prices are positively related with industrial production index. Increase in production of industrial sector that leads to increase in the profit of industries and corporations. As dividend increases, it results in increase of share prices, therefore, it is expected to have positive relationship between industrial production index and share price according to economic theory (Ray, 2012).

The industrial production index is calculated as weighted arithmetic mean of the production relatives in respect of selected items mathematically.

$$I = \frac{\Sigma Ri \times Wi}{\Sigma Wi}$$

Where :

I = index

Ri = production relative of item i

Wi = weight allotted to it.

The production relative (R_i) of item for the month has been calculated by using the following formula:

$$Ri = \frac{Pic}{Pio} \times 100$$

Where :

Pic = Production of ith item in the current month.

Pio = Production of the ith item in the base month.

2.1.5 Theory of Foreign Direct Investment

FDI is the movement of capital also includes the ownership and control where the foreign ownership over production facilities occur. FDI includes investment in real assets such as the construction of factories, the procurement of capital goods, the purchase of land for production purposes, the purchase of equipment inventory, and so on. FDI is usually done in the form of the establishment of a new company or subsidiary that later were taken over the parent company if the person or group of investors can buy a large part of the company's stock. Currently FDI is a major channel of international private capital movements. In the international context, FDI is usually doing by international companies engaged in the manufacturing sector, extraction of natural resources, and services sectors (Appleyard *et al.*, 2006).

According to Kumar (2013), some theories explaining FDI are as follows:

1. The Differential Rate Of Return Hypothesis

This theory states that the flow of capital from a country with low rates of return move to countries that have a higher rate of return in a quick process. In

this case FDI is decided by considering the marginal return and marginal cost given.

2. The Hypothesis Diversification

According to this theory that the investment decisions for a project is not only determined by the level of return but also the magnitude of the risk.

3. The Output and Market Size Hypothesis

This theory states that the amount of FDI flowing into a country depends on the magnitude of the output of multinational companies in the country or the large size of the country's market as measured by GDP.

4. The Hypothesis Currency Areas

According to this theory that the enterprise value of a country that has a strong currency compared to the other countries will tend to invest because of the country whose currency is weak tend to not be able to invest because of high risks to be faced. In other words, a country that has a value of a strong currency is a source of FDI and weak states whose currency is the destination of FDI.

5. The Product Life Cycle Hypothesis

This hypothesis explains that the product, which first appeared is regarded as an investment in their home country. As time went on, the product will spread to other countries so that the product becomes a regular / standardized. FDI arise

from reactions by the company, with overseas expansion, which has the possibility of losing the market because its product is developed

2.2 Relationship between Economic Variables

2.2.1 Relationship between Government Expenditure and IHSG

According to Becher and Othman (2012), fiscal policy can spur economic growth by increasing government spending or cut taxes. This means that there is a negative correlation between T (taxes) and positive correlation between GDP and government expenditure and GDP. Any increase in government spending will increase the demand of the community. Therefore, businesses will seek to increase its production to compensate for the request. If production increases, expected sales and earnings will also increase, so will affect its share price.

Razin (1987) in Scott and Ovuefeyen (2014) said that government spending affects the capital market through the effects of the decisions and activities undertaken by the private corporate sector and households. Then, Scott and Ovuefeyen (2014) adds that the turnover of a company that enjoys high government protection, may experience a boost, which could translate into increased profitability and increase dividends to shareholders of the company, increasing the attractiveness of companies listed on the stock exchange, and boosted demand for companies on the trading floor. This will lead to an increase in stock price and market capitalization of the company. In addition through the decisions and activities-sector activity is undertaken by private companies and households.

Scott and Ovuefeyen (2014) also argues that government spending can also affect the capital market through wages or salaries. Government employees can invest a portion of their income in the stock market effect, depending on their perception of the market, expectations of return on investment and return on alternative investments. Wages and salaries are part of the government recurrent expenditure. If the worker's perception of the favorable stock market, and expectations of high return on investment in them is high, ceteris paribus, this can lead to their participation in the market, led to an increase in stock market transactions.

2.2.2 Relationship between Index Production Industry and IHSG

Industrial Production Index is used as proxy to measure the growth rate in real sector. Industrial production presents a measure of overall economic activity in the economy and affects stock prices through its influence on expected future cash flows. Thus, it is expected that an increase in industrial production index is positively related to stock price. The industrial production index and stock prices are positively related because increase in increase in production of industrial sector that leads to increase in the profit of industries and corporations. As dividend increases, it results in increase of share prices, therefore, it is expected to have positive relationship between industrial production index and share price according to economic theory (Ray, 2012).

Increase in industrial production increase of the corporate earnings enhancing the present value of the firm and hence it leads to increase of the investment in stock market (Maysami *et al.*, 2004).

2.2.3 Relationship between Foreign Direct Investmen and IHSG

The role of FDI in the development of stock markets of developing economies is considered very strong. It is observed that there is a triangular causal relationship between these two; (1) FDI Stimulates economic growth (2) Economic growth exerts a positive impact on stock market development and (3) The implication is that FDI promotes stock market development (Adam and Tweneboah, 2009).

2.3 Literature Review

Khan (2014) examine the possible impact of macroeconomic variable like fiscal policies and monetary policies (interest rate and inflation rates) on stock market performance in Pakistan. The Pearson correlation and regression analysis techniques were applied. For this purpose monthly data have been used. The paper finds that the Pakistan stock market index is significantly affected by the fiscal policy, monetary policy and inflation. The results have shown that the interest rate and government revenue have a significant negative relationship with the stock market index in Pakistan, whereas the inflation rate and the government expenditures have a significant positive relationship with the stock market Index in Pakistan.

Ray (2013) examine the relationship between macroeconomic variables and stock prices. The Industrial production presents a measure of overall economic activity in a country and moves stock prices through its influence on expected future cash flows. Thus, it is expected that an increase in industrial production index is positively related to stock price. The causal relationship between industrial production and stock price in India is covered for a period, 1990-91 to 2010-11. The findings specified that there exist no significant causal relationship between industrial production and share price in India. The result of regression, of course, suggests that there may have been positive relation between stock price and real industrial production. The increase in production of industry can enhance stock price and vice versa.

Hussain and Ali (2009) observe the affiliation between macroeconomics variables and Karachi Stock Exchange in Pakistan taking into consideration quarterly data of foreign exchange rate, foreign exchange reserve, gross fixed capital formation, money supply, interest rate, industrial production index and whole sales price index. The result shows that exchange rate and exchange reserve and highly influenced the stock prices.

Kim (2003) in his study found that the S&P 500 stock price has a positive correlation with industrial production but negative relationship with the real exchange rate, interest rate, and inflation.

Errunza and Hogan (1998) estimating VAR models for European stock returns from 1959 to 1993, conclude that the volatility of industrial production has

a negative impact on the stock market, which is dramatically important in countries like Germany and France.

Adam and Tweneboah (2009) examined the impact of foreign direct investment to the development of the stock market in Ghana by using multivariate Cointegration and quarterly data from 1991 : 1 to 2006 : 4. It was found that the existence of a long-term relationship between foreign direct investment and the development of the stock market. It proves that foreign direct investment in the stock market cointegration Ghana.

Rasyidin (2011) empirically examine the influence of foreign direct investment to the development of the stock market in Indonesia. The analytical method used is multiple linear regression method. Observational data used are quarterly data from 1999 : 1 to 2010 : 4. The results using regression analysis showed that foreign direct investment variables significantly influence the development of the stock market in Indonesia.

2.4 Hypothesis

In this research appear some hypotheses, which are:

1. There is positive relationship between government expenditure and IHSG in Indonesia.
2. There is positive relationship between index production industry and IHSG in Indonesia.
3. There is positive relationship between foreign direct investment and IHSG in Indonesia.

CHAPTER III

RESEARCH METHOD

3.1 Scope of Research

This research focus to analyze the effect of macroeconomics variables to index stock price in Indonesia (IHSG) for short term and long term using Error Correction Model (ECM) method. The variables that used in this study are :

1. Index Stock Price (IHSG)

IHSG is a number that indicates the movement of stock prices in Indonesia Stock Exchange. IHSG is the index number obtained from all stocks that listed on Indonesia Stock Exchange in the final period. In this research used data IHSG in quarterly period of 2004-2014. IHSG measurement used in units of basis points (bps).

2. Government Expenditure

Government expenditure reflects government policy. Government expenditures reflect the costs to be incurred by the government to implement the policy. In this research used data government expenditure at constant prices (Billion Rupiah) in quarterly period of 2004 -2014.

3. Industrial Production Index

Industrial production index denotes the total production activity that happens in the country during a particular period as compared to a reference period. It helps us to understand the general level of industrial activity in the economy. The index number in this publication uses base year 2000 = 100. In this research used data industrial production index in Indonesia in quarterly period of 2004-2014.

4. Foreign Direct Investment

Foreign Direct investment is a flow of resources from one country to another country. The value of FDI inflows in this research measured by FDI inflows to Indonesia in real terms (Billion Rupiah). In this research used data FDI inflow to indonesia in quarterly period of 2004-2014.

3.2 Type and Sources of Data

The data used in this research is secondary data and quantitative data, the data is time series data in quarterly period. The sources of the data from Indonesia Central Bank (Bank Indonesia), Bureau of Statistics Indonesia (BPS), and Indonesia Stock Exchange (IDX).

3.3 Method of Analysis

Short term and long term relationship in this study using Error Correction Model (ECM) method. In order to obtain an accurate estimation result, the preliminary test of Error Correction Model model is unit root test and cointegration test. The unit root test is used to test the stationary data. Stationery is one important requirement in econometric models for time series data. Stationary data are data that show the mean, variance and autovarian remains the same at any time the data was used. It means, the data is stationary. To determine the stationary nature of the data in this study using a unit root test with Augmented Dickey-Fuller Test (ADF). The next test is the cointegration test used to guarantee the existence of long term relationship between variables tested. In this study, cointegration test using Johansen Cointegration Test.

Error correction model can be used to explain why economic agents face an imbalance in the context of that phenomenon desired by economic actors are not necessarily the same as what the real and the corresponding need to make adjustments as a result of differences in actual phenomena encountered over time. Furthermore, by using the ECM can be analyzed theoretically and empirically whether the resulting model is consistent with the theory or not (Isnowati, 2002).

According to Insukindro (2003), reasons to using ECM in this study are :

1. ECM which is an autoregressive, following consideration lag effect in the analysis so that the model is suited for applications in research that uses the data in the form of time series

2. The ability of ECM includes many variables in analyzing the phenomenon of short term economic and long term

3. This approach has been applied in Indonesia and is able to explain the economic experiences in Indonesia

According to Asmy *et al.* (2009), to examine the effect of goverment expenditure, industrial production index variables, and foreign direct investment to IHSG, the model can write as below:

IHSG = *f* (GE, IPI, FDI) **(3.1)**

Where:

IHSG = Index Stock Price

GE = Government Expenditure

IPI = Industrial Production Index

FDI = Foreign Direct Investment

According to Syarid (2004), the function as showed in equation (3.1) can be written in the form of the econometric model using linear assumption in the parameters, but not in its function, and the econometric equations are stochastic equations. Mathematically, the econometric model can be written as equation below:

$$IHSG = a_0 + a_1 GE + a_2 IPI + a_3 FDI + u \quad (3.2)$$

Where :

u = Disturbance error

a0 = Intercept or constant

a1, a2, and a3 = Coefficient parameter of GE, IPI, and FDI

Insukindro (2003) in Syarid (2004) said, derive in dynamic linear model can be done using two approaches, the approach autoregressive distributed lag (ADL) and the quadratic cost function approach is often called the theoretical approach to the dynamic linear models. This study uses economic theory approach that wants to analyze the relationship FDI inflow in Indonesia with the main factor that influenced by GDP, BI rate, inflation and openness. Therefore, in this study using a quadratic cost function. Quadratic cost function in economic models often use a model called the Error Correction Model.

To derive the equation (3.2) to be ECM framework could apply single quadratic cost function to know relationship between GE, IPI, and FDI to IHSG can be written as equation below:

$$C_t = e_1(IHSG_t - IHSG_t^*)^2 + e_2\{(1-B)IHSG_t - f_t(1-B)Z_t\}^2 \quad (3.3)$$

Where :

$e_1(IHSG_t - IHSG_t^*)^2$ is a component of the cost of imbalance

$e_2\{(1-B)IHSG_t - f_t(1-B)Z_t\}^2$ is a component of the cost of adjustment

$IHSG_t$ is the actual variable of index stock price

$IHSG_t^*$ is desired variable of index stock price

B is operating in action time or lag period t-1

Zt is a vector that affects IHSG

ft is the weight vector component adjustment costs

e1,e2 is the weight given to both the cost function

In this case, the desired variables shown by the equation below:

$$\boldsymbol{IHSG_t^* = a_0 + a_1 GE + a_2 IPI + a_3 FDI} \qquad \textbf{(3.4)}$$

To minimize the cost function quadratic equation (3.3), take the derivative of a quadratic cost function against IHSGt or ($\partial Ct/\partial IHSGt = 0$). Simplify, the derivative results could be obtained as the following equation below:

$$\mathbf{IHSG_t = eIHSG_t^* + (1- e)IHSG_{t-1} - (1-e)}f_1\mathbf{(1-B)Z_t} \qquad \textbf{(3.5)}$$

Where :

$\mathbf{e = e_1/(e_1+e_2)}$ **and** $\mathbf{(1-e)= e_2/(e_1+e_2)}$

By substituting equation (3.4) to equation (3.5), it is obtained the equation below:

$$\mathbf{IHSG_t = a_0e + a_1eGE + a_2eIPI + a_3eFDI - (1- e)IHSG_{t-1} + (1-e)}f_1\mathbf{(1-B)GE - (1-e)}f_2\mathbf{(1-B)IPI - (1-e)}f_3\mathbf{(1-B)} \qquad \textbf{(3.6)}$$

Equation (3.6) can be simplified into the equation below:

$$\boldsymbol{Q_t = q_0 + q_1 GE_t + q_2 IPI_t + q_3 FDI_t + q_4 GE_{t-1} + q_5 IPI_{t-1} + q_6 FDI_{t-1} + q_7 IHSG_t + u_t} \quad \textbf{(3.7)}$$

Where:

$q_0 = a_0 e,$ $q_1 = a_1 e + (1-e) f_1,$ $q_2 = a_2 e + (1-e) f_2,$

$q_3 = a_3 e + (1-e) f_3,$ $q_4 = -(1-e) f_1,$ $q_5 = -(1-e) f_2,$

$q_6 = -(1-e) f_3,$ $q_7 = (1-e),$

Equation (3.7) reflects the short term relationship or imbalances that include variable inaction IHSGt, GE, IPI, and FDI. The key problem in estimating equation (3.7) is related to the level observed variable is not stationary. If the observed variables are not stationary, the estimation of equation (3.7) to make use of OLS will cause spurious regression or results that are not effective and efficient (Syarid, 2004).

To solve the spurious regression, equation (3.7) re-parameterized to be:

$$\boldsymbol{DIHSG_t = \alpha_1 DGE_t + \alpha_2 DIPI_t + \alpha_3 DFDI_t + \alpha_4 (IHSG - \beta_0 - \beta_1 GE - \beta_2 IPI - \beta_3 FDI)_{t-1}} \quad \textbf{(3.8)}$$

Where:

$DX_t = X_t - X_{t-1}$

$\alpha_1 = q_1,$ $\alpha_2 = q_2,$ $\alpha_3 = q_3,$ $\alpha_4 = -(1-q_7)\beta_0 = q_0/1 - q_7,$

$\beta_1 = q_1 + q_2/1 - q_7,$ $\beta_2 = q_2 + q_5/1 - q_7, \beta_3 = q_3 + q_6/1 - q_7,$

Equation (3.8) shows that DIHSGt are affected by change of GE, IPI, FDI, and component error correction term or inaction of one period. The equation above also reflects that the model only included the inaction of the period as first-degree models of ECM . In equation (3.8), the parameter α (α1, α2) describes the

effect of short term variable GE, IPI, and FDI to IHSG and the parameter β (β1, β2) describes the effect of long-term variable GE, IPI, and FDI to IHSG.

Equation (3.8) often parameterized in the form of the equation below:

$$DIHSG_t = \gamma_0 + \gamma_1 DGE_t + \gamma_2 DIPI_t + \gamma_3 DFDI_t + \gamma_4 GE_{t-1} + \gamma_5 IPI_{t-1} + \gamma_6 FDI_{t-1} + \gamma_7 (GE_{t-1} + IPI_{t-1} + FDI_{t-1} - IHSG_{t-1}) \quad (3.9)$$

Where:

$\gamma_0 = -\alpha_7 \beta_0 \quad \gamma_1 = \alpha_1 \quad \gamma_2 = \alpha_2 \quad \gamma_3 = \alpha_3 \quad \gamma_4 = -\alpha_4 (1 - \beta_1)$

$\gamma_5 = -\alpha_5 (1 - \beta_1) \quad \gamma_6 = -\alpha_6 (1 - \beta_1) \quad \gamma_7 = -\alpha_4$

In principle, the equation (3.8) and equation (3.9) in the analysis of time series as the standard error correction model (ECM). In analyzing the long term effects of $DIHSG_t$ as change of GE, IPI, and FDI, equation (3.9) can be transformed into another form of equation below:

$$DIHSG_t = \delta_0 + \delta_1 DGE_t + \delta_2 DIPI_t + \delta_3 DFDI_t + \delta_4 GE_{t-1} + \delta_5 IPI_{t-1} + \delta_6 FDI_{t-1} + \delta_7 ECT \quad (3.10)$$

Where :

$$ECT = GE_{t-1} + IPI_{t-1} + FDI_{t-1} - IHSG_{t-1} \quad (3.11)$$

The model (3.10) will be able to explain the characteristic of the ECM model, where E CM model will be valid as long term analysis if error correction term (ECT) is significant and the value must be greater than zero and less than one and not be negative.

From equation (3.10) long term regression coefficients for the constant of GE, IPI, and FDI in Error Correction Model (ECM) as follows:

$f0 = \alpha0/\alpha7$ is coefficient for constant in long run

$f1 = (\alpha4+\alpha7) / \alpha7$ is coefficient for GE in long run

$f2 = (\alpha5+\alpha7) / \alpha7$ is coefficient for IPI in long run

$f3 = (\alpha6+\alpha7) / \alpha7$ is coefficient for FDI in long run

Long term standard deviation coefficient for economic growth with Error Correction Model as follows:

$\text{Var}(f0) = \text{F0T V}(\alpha7, \alpha0)\ \text{F0}$

$\text{F0T} = [\partial f0/\partial\alpha0\ \partial f0/\partial\alpha7]$

$= [1/\alpha7 - f0/\alpha7]$

$\text{Var}(f1) = \text{F1T V}(\alpha7, \alpha4)\ \text{F1}$

$\text{F1T} = [\partial f1/\partial\alpha4\ \partial f1/\partial\alpha7]$

$= [1/\alpha7 - (f1-1)/\alpha7]$

$\text{Var}(f2) = \text{F2T V}(\alpha7, \alpha5)\ \text{F2}$

$\text{F2T} = [\partial f2/\partial\alpha5\ \partial f2/\partial\alpha7]$

$= [1/\alpha7 - (f2-1)/\alpha7]$

$\text{Var}(f3) = \text{F3T V}(\alpha7, \alpha6)\ \text{F3}$

$\text{F3T} = [\partial f3/\partial\alpha6\ \partial f3/\partial\alpha7]$

$= [1/\alpha7 - (f3-1)/\alpha7]$ **(3.12)**

Var($f0$), Var($f1$), Var($f2$), and Var($f3$) is an assessment of each variance $f0$, $f1$, $f2$, and $f3$. While V(α7, α0), V(α7, α4), V(α7, α5), and V(α7, α6) are the variance and covariance matrix of the parameter being suspected (Syarid, 2004).

From equation (3.11) and (3.12) , can be seen that the standard deviation of the long term regression coefficient correlation model of long term error correction model obtained after assume regression coefficient and variance-covariance matrix of the error correction model parameters used.

3.4 Preliminary Test

3.4.1. Unit Root Test

This study uses the unit root test to see stationary data. Test the degree of integration would be done if the data is not stationary at zero degrees. Stationarity test is not whether the data time series contains a unit root. The method that used is the Augmented Dickey-Fuller Test. Testing the unit root using the Phillips-Peron Test or Augmented Dickey-Fuller. The ADF test improve higher order serial correlation by adding the time difference on the right side.

Some simulation study shows that the nonparametric test Phillips and Peron has a more serious distortions in the number of samples when the data in general have the advantage of negative autocorrelation in the first difference. It can be used as the opinion, that the nonparametric test Phillips-Peron less convincing to use than the ADF. This is suggested the use ADF tests are easier to use with modifications to be able to resolve the problem.

If the probability of the t-statistic is smaller than the level of alpha (5 %), then it means that it means that data is stationary. But the desired test result, all variables are not stationary at level, the probability value of each variable must be greater than the specified alpha (5 %). All variables that is not stationary at level so that the application of ECM method should be continued. If it has been ascertained that the data is not stationary in the level, so we have to repeat steps

with unit root test by 1st difference, and 2nd difference to produce probability are stationary.

3.4.2. Cointegration Test

Cointegration test is a continuation of the unit root test and test the degree of integration. The purpose is to test cointegration regression is stationary residuals. Stationary residuals is very important if you want to develop a dynamic model, especially ECM which includes key variables in the cointegration regression related. In principle, the error correction model (ECM) there is a balance between the long term fixed economic variables. If in the short term there is an imbalance in one period, it will correct the error correction model it self an error in the next period. This error correction mechanism can be interpreted the behavior of short term and long term. Thus, the error correction model is consistent with the concept of cointegration.

The Johansen Cointegration Test is a test for cointegration of time series data. Cointegration is the property of two time series data where both share common stochastic drift. Stochastic drift is the change in average value of the random or stochastic process. The advantage of the Johansen Cointegration Test is to handle several time series variable. In contrast, the Engle-Granger test could handle only one cointegration relationship. The Johansen Cointegration Test has two types of tests: (i) trace test and (ii) maximum eigenvalue test.

3.5. Classical Assumption Test

Classic assumption test is a test to assess the presence or absence econometric research bias. The regression model used to be used as a tool that is not biased estimate if it meets the requirements of BLUE (Best Linear Unbiased Estimator) that there is no multicollinearity, autocorrelation, and heteroscedasticity. If the model used occur multikolinearity, autocorrelation, and heteroscedasticity the regression estimator is not efficient, forecasting based on regression will be bias and test a common standard for the regression coefficient becomes invalid.

a) Multicolinearity

Multikolinearity test was used to test the assumption that among the independent variables in a model are not correlated with one another. This can cause the regression model obtained invalid to assess the independent variable.

According to Gujarati (2011), to determine the presence of symptoms of multicollinearity in the regression model by looking at the correlation coefficient. The correlation coefficient in excess of 0.80 indicate multikollinearity.

b) Heteroscedasiticity

Heteroscedasiticity test aims to test whether the regression model occurred inequality residual variance from one observation to another observation tests on Heteroscedasiticity symptoms can be conducted by White Test, namely by means of residual squares regression of the independent variables, independent variables squared and multiplying independent variables. Guidelines for the use of white

models test is if the value of Chi-Square count is greater than the critical value with certain degree of confidence (α), it showed there is heteroscedasticity problem. If the Chi-Square count is smaller than the critical value it showed there is no heterocedasiticity problem. By testing the following steps.

Hypothesis

Ho = no heteroskedasticity

Ha = occurs heteroskedasticity

Decision-making is done by the following criteria:

If the probability Obs * R2 <0.05 then Ho is rejected, there is heteroskedasticity

If the probability Obs * R2> 0.05 then Ho is accepted, does not occur heteroskedsticity.

c) Autocorrelation

Autocorrelation test aims to test whether the linear regression model is no correlation between error in period t with error in period t-1. To see whether there is autocorrelation can be done by testing Langrage Multiplier (LM test), by comparing the value of the probability of R-Square with α = 0.05 (Gujarati, 2011). Test steps as follows:

Hypothesis

Ho = no autocorrelation

Ha = occurs autocorrelation

Decision-making is done by the following criteria:

If the probability Obs * R2 <0.05 then Ho is rejected, there is autocorrelation.

If the probability Obs * R2> 0.05 then Ho is accepted, does not occur autocorrelation.

d) Normality

Normality test aims to test whether the regression model, or residual confounding variables have a normal distribution. While the basis for a decision in the detection of normality. Tests carried out using test Jargue-Bera test. test steps as follows.

Hypothesis

Ho = residual distribution is not normal

Ha = residual distribution is normal

CHAPTER IV

GENERAL OVERVIEW

4.1 Overview Stock Price Index in Indonesia (IHSG)

IHSG was introduced on 1 April 1983 as an indicator of price movements of stocks that listed on Indonesia Stock Exchange. IHSG was sold to public in August 10th, 1982 with the value is 100 per share. The number of emiten listed at that time as much as 13 emiten. On December 2014, the number of emiten that listed on Indonesia Stock Exchange has reached 502 emiten.

Stock price index reflecting the movement of the stock price, stock price index compares the stock price changes over time. The movement of the index value will show the changes in the market situation occur. Markets that are excited or active transaction indicated by the stock price index rise, while flagging indicated by the stock price index declined. IHSG covering the entire common stock price movements and preferred shares are listed on Indonesia Stock Exchange. The development of IHSG in Indonesia diring period 2004 q1-2014 q4 can be seen in figure 4.1

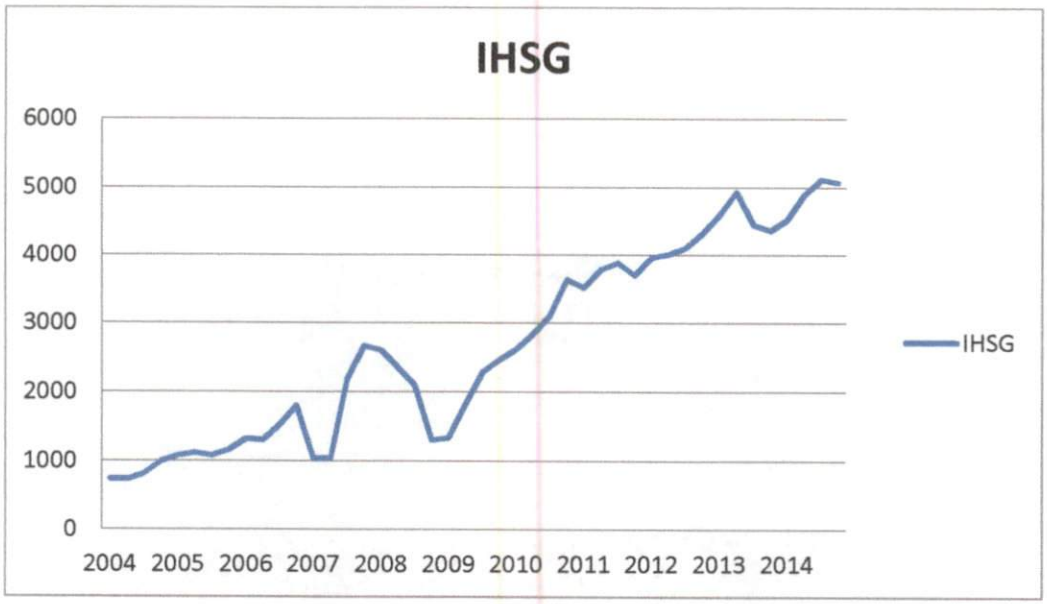


Figure 4.1 Trends of IHSG in Indonesia

Based on figure 4.1, it shows that trends of IHSG tend to fluctuate every quarterly period in 2004-2014. In 2004 is the year of highest achievement for the capital market where IHSG is able to penetrate position 100 bps but the first half was depressed due to negative sentiment in reaction to rising interest rates of FED. In early 2004, IHSG in position 752.93 bps rise sharply to 1000.23 bps at the end of 2004. This is partly due to the successful implementation of the direct presidential election.

IHSG in 2005 indicate a strong tendency to move due to the pressures from inside and outside the country. At the end of 2005, the index closed at 1164.14 bps or strengthens compared to the close price in 2004. In the process, the index had reached its highest level at 1192.20 bps in August. The existence of various pressures, especially the depreciate of the rupiah to level 10 775 / US $ was also made IHSG fell to the lowest level at the level 994.77 bps . Compared

with stock exchanges in other countries, IHSG is one of the best performing the stock exchange during 2005.

Capital market performance increased significantly during 2006. IHSG at the end of 2006 reached 1805.52 bps or gained 55.3% compared to the previous at year. Domestic factors that sustain the performance of Indonesia Stock Exchange is a decrease in the BI rate since may and the development of some macroeconomic indicators are improving. On the external side is influenced by international and regional stock markets which have increased due to the expiration of the Federal Reserve's tight policy cycle and the trend decline in world oil prices. This impressive performance puts IHSG as the third best performing stock market in Asia Pacific after Shanghai and Senzhen.

At the beginning of 2007, the value of IHSG had declined to 1740.97 bps in February but continued to increase until 2139.28 bps in June, and at the end of 2007, IHSG in the position of 2745.83 bps. IHSG increase was dominated by a large capital inflows from foreign investors who are more interested in emerging markets due to the decline in economic growth in the United States and the case of housing credit crunch (sub-prime mortgage) in United States.

The performance of stock market in early 2008 is quite good, but corrected enough in the second half of 2008. IHSG at the end of the year closed at 1355 bps or 50.64% lower than the closing of 2007. This condition puts Indonesia Stock Exchange ranked 5th in Asia Pacific region with the lowest performance. This decrease is caused by external shocks from the world financial markets. This situation happen originated from the outbreak of the global financial market

bubble that triggered the deleveraging process and the impact on the global economic slowdown. The continued impact of the situation is the decline in profits and even bankruptcy of global financial institutions. Induced these conditions, investors began to reduce their fund portfolios in emerging markets is causing emerging market index declined, including IHSG. In addition, the decline in agricultural commodity prices and significant mining are also factors causing the decline of IHSG.

Risk perception of market participants about the prospects of investment in emerging markets, including Indonesia in the first quarter of 2009 was still high, it caused the stock market is still under pressure. In that period, the IHSG in a downward trend tend to the lowest level 1256 bps in early March. The performance of the stock market started to recover since the second quarter until the end of 2009 due to investor confidence rebounded. Increased activity of foreign players in the stock market, followed by domestic players pushed IHSG continued to strengthen since the second quarter that was recorded at the level of 2534.36 bps at the end of 2009. The value was sharply higher compared to the end of 2008 and the highest in Asia.

In 2011, Indonesian Capital Market performance which re-achievement. Indonesia Stock Exchange (IDX) recorded the second best growth in the Asia Pacific region. IHSG closed at 3821.99 or higher by 3.20% compared to 2010. The increase in the index was followed by an increase in several other major indicators such as the value of market capitalization, which rise by 8.94%, from Rp3.247,10 trillion at the end of 2010 to Rp3.537,29 trillion at the end of 2011. Along with the increase in market capitalization, the ratio of market capitalization

to Gross Domestic Product (GDP) also increased, from 50.55% in 2010 to 55.07 % in 2011.

During 2012, the performance of stock market was able to grow. The positive movement of IHSG is characterized by some volatility as the impact of the increased external risks. Support macroeconomic stability conducive, stable performance of listed companies as well as accommodative economic policy became a factor supporting IHSG to go back to its highest level at 4375.17 on 26 November 2012. Stock market performance was affected by the global financial market turmoil following the protracted European crisis resolution. This resulted in the domestic stock market performance decline during several periods. During the period from April to May, IHSG correction of 8.32%. Up to December 2012, IHSG closed at 4.316.69 bps.

Stock market showed a decline in performance in 2013, despite a strengthening in the first quarter of 2013. In the first quarter of 2013, performance of the IHSG continued to strengthen and influenced by expectations of high achievement. But in its development, external and domestic risk factors that increase has led to a correction back to IHSG. At the end of 2013, IHSG reached 4274.2 bps, down 0.98% compared to 2012 which amounted to 4316.7 bps. The Indonesian stock market performance is recorded is still better than stock markets other countries in the region, such as China and Thailand.

In 2014, the market capitalization on Indonesia Stock Exchange reached Rp5.228 trillion, up 23.92% of the market capitalization at the end of 2013. This is due to the influence of political elements of president elections. IHSG growth in

the last six years (2008-2014) recorded a return of 282.05%. Simultaneously, IHSG sit in second highest return growth of the major stock exchanges in the region and the world year-to-date.

4.2 Trends of Government Expenditure in Indonesia

Government expenditure is expenditure relating to finance spending programs which are aimed to achieving the welfare of society as a whole. In general, government expenditure will increase economic activity of a country. This situation can be explained in Wagner's theory, the existence of a positive correlation between government expenditure to national income levels. Despite this huge increase in government expenditure is not necessarily a good result on economic activity, it is necessary to see the efficiency of government expenditure. The development of government expenditure in Indonesia during period 2004 q1-2014 q4 can be seen in figure 4.2

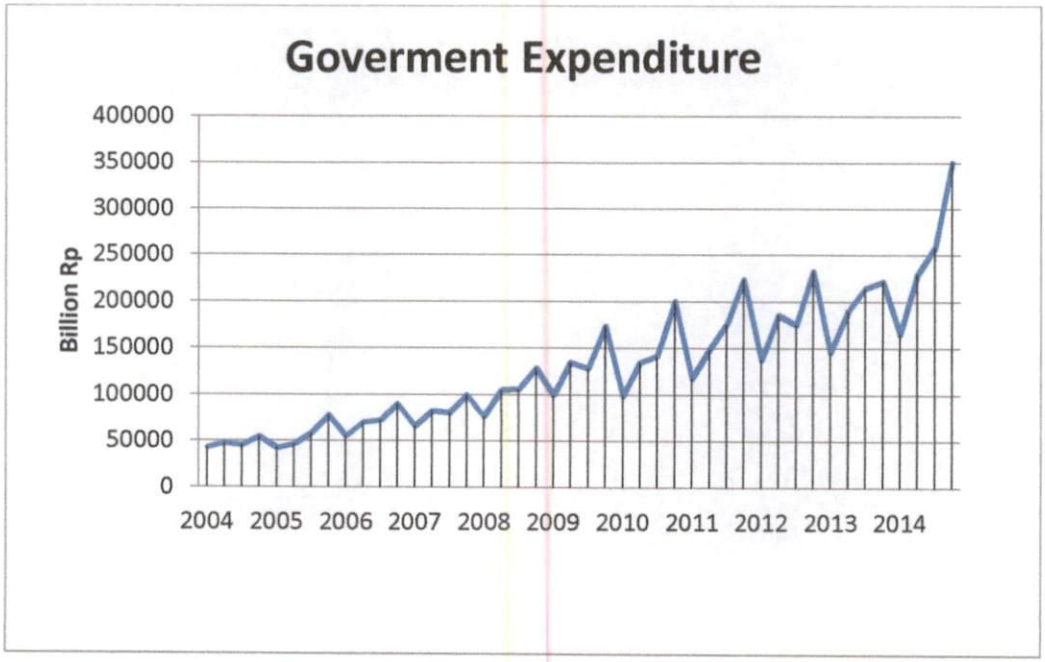


Figure 4.2 Trends of Goverment Expenditure in Indonesia

Based on figure 4.2, it shows that the trend of the goverment expenditure in Indonesia tend to fluctuate every quarter in 2004-2014. In 2004, the increase of the goverment expenditure is caused by the impact of the high oil prices. Components of fuel subsidies increased three times from the budget at the beginning of the year. Target at the beginning of the year amounted to 14.5 trillion rupiah and target mid-year amounted to 59 trillion rupiah . Realization while showing fuel subsidy approached 70 trillion rupiah or about 16% of total government expenditures in 2004. In addition, the increase of fuel subsidy, other subsidies also increased in 2004 came from the payment of taxes borne by the government. Other expenditure components, government debt interest costs were lower than last year. Implementation of other policies on the expenditure side also affects the increase in recurrent expenditures in 2004. Some policies include financing for the implementation of the 2004 election, the national movement of forest and land rehabilitation, as well as the provision of 13^{th} month salary for personnel government and retired. In first quarter of 2004, the goverment expenditure is amounted to 43143.4 billion dollars, increased to 54602.2 billion dollars in the fourth quarter.

Meanwhile, government expenditure in 2005 grew more expansive than the previous year, from 3.99% to 8.06%. In overall, the expansion of government expenditure is dominated by consumption spending and transfers. The new expansion of government consumption can be seen in the second quarter of 2005 due to technical problems related to the implementation of the administrative budget of the new system. The increase in government consumption in 2005 was driven by the increase in other expenditures, like expenditures for General

Allocation Fund (DAU) and Revenue Sharing (DBH) as well as higher personnel expenses, particularly related to the payment of the 13th salary. In 2006, government expenditure increased 9.6% compared to 2005. Government expenditure in 2007 grew 4.0% lower than the previous year due to lower realization of the state budget.

In 2008, government expenditure increase by each country in order to respond to the global crisis, such as form of tax cuts, the creation of infrastructure projects and public works, as well as the provision of benefits for households and companies to stimulant economy. This can be seen in the first quarter, goverment expenditure amounted to 76724.1 billion rupiah, government expenditure increased to 129110.4 in the fourth quarter.

In 2009, government will run a variety of programs that aim to provide a stimulus to economic activity such as the National Program for Community Empowerment (PNPM), School Operational Assistance (BOS), and Public Health Insurance. In addition, the government will also continue to development of infrastructure, reform of the bureaucracy, increase the budget of the National Army, maintaining the education budget at least 20% of the state budget, and maintain the real income of the state apparatus and the retirees.

Government expenditure growth slowed in 2010. The slowdown in the government expenditure is influenced by the increase in basic salary for state apparatus in 2010. While in 2011, the increase is quite high and grew to 9.3%. This is evidenced by goverment expenditure in the first quarter of 2010 amounted to 99571.1 and increased to 224021.3 in the fourth quarter of 2011.

In 2012, there is a decreasing in government expenditure. This is evidenced by the value of goverment expenditure amounted to 137975.8 in the first quarter of 2012. However, in 2013 government consumption in real terms in 2013 boosted by accelerated absorption of government expenditure in the second quarter. The fastest acceleration came from personnel expenses primarily related to termination of the moratorium on recruitment of civil servants in December 2012. Meanwhile, spending on goods also showed an increase driven rise in social assistance spending and spending ministries and agencies Election Commission and the Ministry of Public Works. In 2014, the government expenditure increases due to president election in Indonesia. In the fourth quarter of 2014, goverment expenditure is at 351097.7 billion rupiah .

4.3 Trends of Industrial Production Index in Indonesia

Industrial sector is one sector that plays an important role in national development. Industrial sector's contribution to national development over the years showed a significant contribution. Industrial sector role in national economic development can be traced from the contribution of each subsector to national economic growth or gross domestic product. The development of industrial production in Indonesia during period 2004q1-2014q4 can be seen in Figure 4.3.

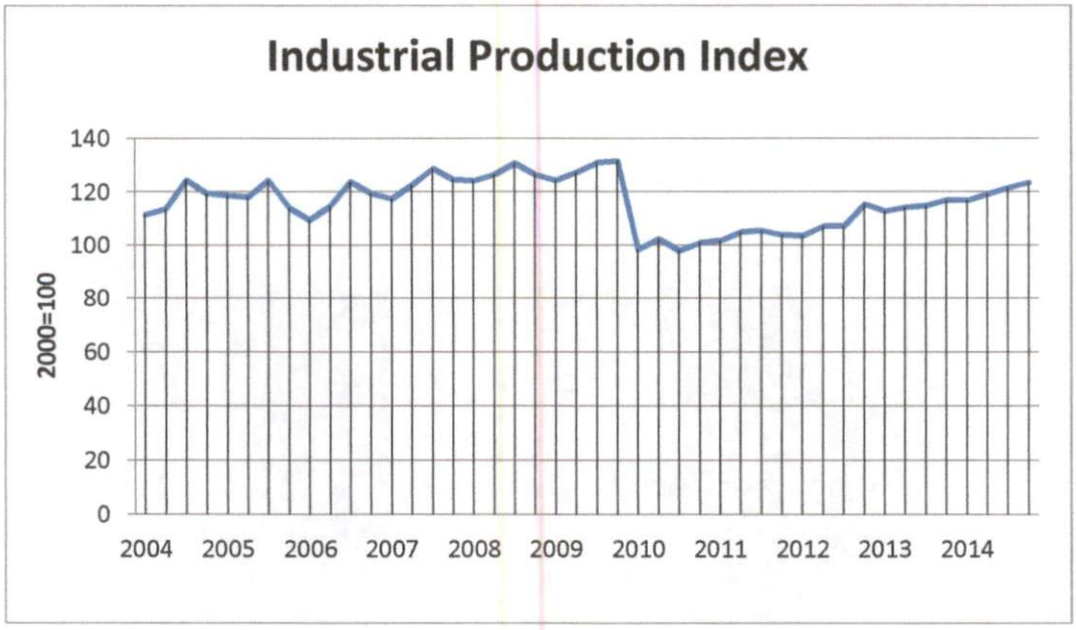


Figure 4.3 Trends of Industrial Production Index in Indonesia

Based on figure 4.3, it shows that the trend of the industrial production index in Indonesia tend to fluctuate every quarterly period in 2004-2014. In the first quarter of 2004, industrial production index amounted to 111.52 and rise to 119.57 in the fourth quarter. In 2005, growth in the industrial sector tend to slowdown due to raising the production costs caused by higher fuel prices and depreciation in the Indonesian exchange rate. In addition, slowing exports and domestic demand due to weak world demand and declining consumer purchasing power, also have a negative impact on the performance of the industrial sector. Industrial production index fell from 124.37 in the third quarter to 114.18 in the fourth quarter . This is continue until the first quarter in 2006. The strong influence of declining in purchasing power and confidence in the business affect to the performance in some sub-sectors. This is also reflected in the Bank of Indonesia production survey and the industrial production index decreased compared to 2005.

In 2007, industrial production index grew better compared to 2006. The increase in domestic demand and high export boost the growth of the industry. In 2007, the processing industry grew by 4.7%, higher compared to 4.6% in 2006. The growth was supported by subsector transport equipment, machinery and equipment as well as sub-sectors of food, beverages, and tobacco. The improvement in the growth of the processing industry is reflected in the annual growth of the index production industry showed increase since the beginning of the year.

In 2008, the global crisis led to a decline in industrial production index. decline in purchasing power and declining exports of industrial products led to a decrease in the value of industrial production index. this can be seen in third quarter industrial production index value of 130.91 down to 126.64 in fourth quarter . This continues until the second quarter of 2009.

In 2010, a significant decrease of industrial production index occurs in Indonesia. This is evidenced by the decline in the industrial production index of 131.69 in the fourth quarter of 2009 to 98.13 in the third quarter. This is due to the appreciation of the rupiah which caused a decline in the value of exports to industrial products. In the fourth quarter, industrial production index increased again in line with the expected rise in demand. In addition, high investment growth, both in 2010 and 2011, is forecasted to support the growth of the industrial sector. The manufacturing sector is projected to grow 4.3% - 4.8% in 2011. The manufacturing sector has shown stretching higher activity since the fourth quarter of 2009, with improving economic conditions both domestically and externally. Optimism improved performance of the manufacturing sector is

supported by industrial production index, which showed a rising trend. In addition, imports of raw materials which tend to increase, indicating an increase in activity in the manufacturing sector. Meanwhile, the recovery of the domestic and global economic conditions which continue giving optimism for increased demand from both domestic and foreign.

In 2012, household consumption grew 5.3% higher and reached its highest point since the global financial crisis of 2008/2009 is supported by purchasing power and consumer confidence continues to strengthen. It is cause rise in the value of industrial production index reached 115.47 in the fourth quarter. This continues until 2013, household consumption in 2013 still higher supported by rising incomes and the growing trend of middle-class groups. Data in 2013 showed Indonesia's per capita income increased from 33.5 million in 2012 to Rp36.5 million which resulted in an increase in industrial production.

Industry performance in 2014 growth 4.6% compared with the previous year. The improvement was influenced by the rise in household consumption in the first quarter of 2014 because of the president election and improving demand for export. Improved performance of the industry, supported by a sub-field of food and beverage business increased the export of palm oil are still strong. In addition, the export of transport equipment sub-field of business is the export of cars has increased.

4.4 Trend of Foreign Direct Investment (FDI) in Indonesia

Indonesia is a developing country. Until now Indonesia continues its efforts to build the country into a developed country. To achieve these objectives Indonesia require other nations to support the development of the nation, especially in the economic field.

Indonesia is a country rich in natural resources but on the other hand only a few Indonesian human resources who master the technology for adding value to natural resources owned. Besides, it takes a large enough capital to build the infrastructure. As a developing country Indonesia have difficulties in terms of funding for development, so that the government invited foreign investors to invest in Indonesia. The entry of the foreign investors to Indonesia is expected to provide a significant change to national economic growth. The development of foreign direct investment inflow to Indonesia during period 2004q1-2014q4 can be seen in Figure 4.4.

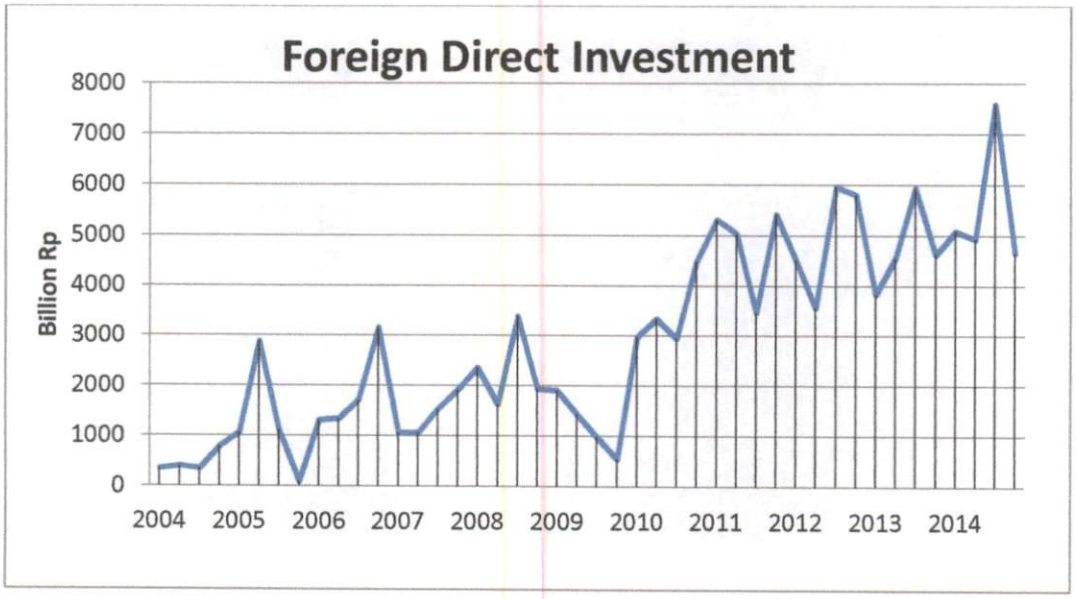


Figure 4.4 Trends of FDI in Indonesia

Figure 4.4 shows that the trend of the FDI inflow in Indonesia tend to fluctuate every quarter during the period of 2004-2014. During 2004, FDI in Indonesia around below a thousand billion rupiah, it is caused by the bom Bali tragedy. Investor thinks that this tragedy is caused by terrorism giving a bad condition to invest in Indonesia.

During 2005, FDI inflow in Indonesia decreased at low level until now. The data show us that at last quarterly 2005 FDI in Indonesia at the low level at point 94 billion rupiah. It cause non consistence economy in Indonesia. In 2005, the government also released four policies packet in energy, monetary, fiscal, and investment. The government wanted to promote investment and anticipated the increases of oil price and the depreciation of rupiah against US dollar.

The government released the deregulation packet in 2006 to promote investment climate. The policy was Presidential Decree No.3, 2006. And then, FDI inflow in Indonesia would be better in 2006. It could be seen by increasing the level of the FDI inflow to Indonesia from 1,305 to 3,162 billion rupiah.

In 2008, Indonesian economy was recorded decreases 6.01% due to affected by global crises even Singapore and Japan as exporter countries stating there is no positive economic growth. It is cause FDI inflow to Indonesia at first quarter only 2,360 billion rupiah and the second quarter decrease to 1,633 billion rupiah, and increased to 3,388 in the third quarter, but it tends to decrease to be 1,937 billion rupiah in the last quarter.

During period 2009 and 2010 economy still recovery, but Indonesian economy still face some problems like higher inflation, restriction in real sector, capital inflow, and so on. So, FDI inflow to Indonesia in 2009 is about 4,872

billion rupiah. In 2010, FDI inflow to Indonesia increasing to 13,771 billion rupiah.

During period 2011 and 2012, Indonesian economy still tend to increase because of that FDI inflow in Indonesia at first quarter of 2011 is about 5,311 billion rupiah and the second quarter was stabilize in 5,034 billion rupiah. Then, in the third quarter, it decreased to 3,469 and the last quarter increased to 5,428 billion rupiah. In 2012, GDP in Indonesia increasing but not significant, it can be see in second quarter to last quarter of 2012, FDI inflow to Indonesia tend to increase from 3,568 to 5,964 billion rupiah.

In 2013, FDI inflow to Indonesia is still not consistent, it could be seen at the first quarter of 2013, FDI inflow to indonesia at 3,840 billion rupiah and the second quarter increase to 4,558 billion rupiah. Then, at the third quarter increase to 5,929 billion rupiah, and the last quarter decrease to 4,620 billion rupiah, FDI inflow to Indonesia during 2013 reach at point 18,947 billion rupiah. During 2014, FDI inflow to Indonesia tend to fluctuative, it seen in the third quarter and last quarter. In the third quarter, FDI inflow to Indonesia decrease from 7,593 to 4,658 billion rupiah, and in the fourth quarter, FDI inflow to Indonesia increase to 22,276 billion rupiah.

CHAPTER V

EMPIRICAL RESULTS AND ANALYSIS

5.1. Regression Results Analysis

In this research, the author use Error Correction Model (ECM) method to process time series data in order to analyse the relation in four variables, that is Stock Price Index (IHSG), goverment expenditure, industrial production index, and Foreign Direct Investment (FDI). Data used in this research is secondary data with time series data that takes from 2004q1-2014q4. For the data, author uses Stock Price Index (IHSG) as dependent variable, meanwhile goverment expenditure, industrial production index, and Foreign Direct Investment (FDI) as independent variables. To perform the hypothesis testing stage process carried out with quantitative analysis. In general, the stage processing data is done as follows:

5.1.1 Unit Root Test

In using ECM before performing cointegration test, it is first necessary to test stationary or unit root test of the data by using the Augmented Dickey-Fuller (ADF test), wherein if the probability value is less than alpha 5 percent then the data is stationary. The degree of integration testing will also be performed if the data is not yet stationer at the level stationary. Unit root test results and test the degree of integration can be seen in Table 5.1 below.

Table 5.1
Result of Unit Root Test

Variable	Level	1st Difference	2nd Difference	Order of Integration
	Prob	Prob	Prob	
IHSG	0.9839	0.0000	0.0000	I(1)
GE	0.9991	0.2327	0.0000	I(2)
IPI	0.7492	0.0000	0.0000	I(1)
FDI	0.7321	0.0000	0.0000	I(1)

Source: Data procesed (Eviews 7)

In Table 5.1 that IHSG , goverment expenditure, industrial production index, and foreign direct investment is not stationary in levels, it is necessary to continue to the test degree of integration 1st difference. The result of the degree of integration 1st difference shows that one variables (goverment expenditure) in the 1st difference is not stationary but variable IHSG, industrial production index, and foreign direct investment is stationary, it is necessary to test the degree of integration 2nd difference. The result of the degree of integration 2nd difference seen that all the variables are taken in this study has been stationary.

If the degree of linear combinations of these variables is stationary, it can be said that these variables are cointegrated. To determine the cointegration relationship, continue to cointegration test.

5.1.2 Cointegration Test

Cointegration test is done by first ensuring that all variables used in the model has the same degree of integration. From the test results of all data in this study have the same degree of integration. Therefore, cointegration test can be performed. Table 5.2 will be present the results of the cointegration test by using Johansen Cointegration Test.

Table 5.2
Result of Johansen Cointegration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value
None *	56.24444	47.85613
At most 1	24.54226	29.79707
At most 2	5.934377	15.49471
At most 3	1.028912	3.841466

Source : Data Procesed (Eviews 7)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value
None *	31.70218	27.58434
At most 1	18.60788	21.13162
At most 2	4.905465	14.26460
At most 3	1.028912	3.841466

Source : Data Procesed (Eviews 7)

In Table 5.2 shows that there is cointegration between the variables that used in this study. It can be proven through a significance value of probability that is smaller than the critical value of 5 percent. Another way that can be used is to look at the value of the Trace Statistic is greater than the critical values in Trace Test, and the value of the Max-Eigen Statistic is greater than the critical values in Maximum Eigenvalue Test. So that, the data cointegrated in Trace Test and Maximum Eigenvalue Test. It can be concluded that the variables used in this study mutually cointegrated. Therefore, this model passes from the test cointegration, Error Correction Model can be used in this study. Furthermore, this study also tested the classic assumption test such as normality test, autocorrelation, heterocedastity, and multicollinearity. These tests will be performed to examine the validity of the effect of the goverment expenditure, industrial production index, and Foreign Direct Investment (FDI) to Stock Price Index in Indonesia (IHSG).

a) Multicolinearity

Multicolinearity test to see whether there is a perfect linear relationship among certainly or all of the independent variables from the regression model. The presence can be known multicolinearity of each independent variable if the correlation coefficient between each independent variable is greater than 0.8 it means that there is multicolinearity (Gujarati, 2011).

Table 5.3
Multikolinearity test

	GOV_EXP	INDEKS_PRODUKSI	FDI
GOV_EXP	1.000000	-0.147174	0.770200
INDEKS_PRODUKSI	-0.147174	1.000000	-0.403179
FDI	0.770200	-0.403179	1.000000

Source: Data procesed (Eviews 7)

Based on table 5.3 it can be seen that, for all independent variables did not have problem in multicolinearity or perfect linear relationship among all the variables in the model. It is shown from the correlation coefficient of each independent variable is smaller than 0.8. It can be concluded that, the variables in this study pass the multicolinearity test.

a) Heteroskedasticity

Heteroscedasticity test is performed to detect whether the observed data occurs heteroscedastisity or not is by testing Heteroscedasticity-White Test.

Table 5.4
Heteroskedasticity Test : White Test

Heteroskedasticity Test: White			
F-statistic	0.140187	Prob. F(3,36)	0.9353
Obs*R-squared	0.461892	Prob. Chi-Square(3)	0.9272
Scaled explained SS	0.348735	Prob. Chi-Square(3)	0.9506

Source: Data procesed (Eviews 7)

Based on Table 5.4 it can be seen that in this model the probability value Obs * R-squared of 0.9272 larger than that level of 5% (0.9272 > 0.05). It means that Ho is rejected. So , there is no problem in heteroscedasticity.

b) Autocorrelation

The test used to detect whether the observed data occurs autocorrelation or not is using Breusch-Godfrey Serial Correlation LM Test. The result of the Breusch-Godfrey Serial correlation test could be seen the below table.

Table 5.5
Breusch-Godfrey serial correlation test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	2.709772	Prob. F(2,38)	0.0794
Obs*R-squared	5.491995	Prob. Chi-Square(2)	0.0642

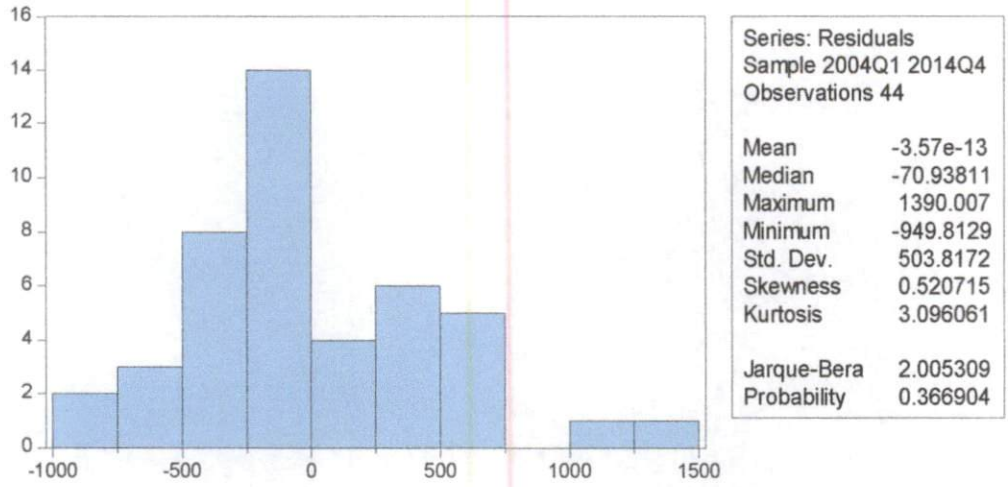
Source: Data procesed (Eviews 7)

Based on Table 5.5, it can be seen that the probability of Chi-Square 0.0642 is greater than $\alpha = 0,05$. In this model Ho is rejected. It means, there is no autocorrelation in this model .

c) Normality

Normality test aims to test whether the regression model or residual confounding variables have a normal distribution . A good regression models are normal data distribution or nearly normal (Gujarati, 2011). Normality test using Jargue-Bera test.

Table 5.6
Normality Test Jargue-Bera test.



Source: Data procesed (Eviews 7)

Based on Table 5.6, it can be seen that, the value of probability is 0.366904, smaller than $\alpha = 0.05$. Ho is Rejected. It means, the distribution of data is normal.

5.2 Estimation Result of Error Correction Model (ECM)

After the stationary test and cointegration, it is necessary to know how the results of short run and long run regression and model estimation. Short run regression model in this study using the first difference and using variables Error Correction Term (ECT). For long run regression model can calculate using a formulation as described in equation 3.11 and equation 3.12. The calculation of the long run coefficient as well as t-statistic for these coefficients can be seen in appendix.

Table 5.8
Estimation Result of Short Run and Long Run with Error Correction Model (ECM)

Variable	Coefficient	t-Statistic	Significant
Short Run			
C	-0.137607	-0.157275	No Significant
D(GOV_EXP)	0.245564	1.879260	Significant*
D(INDEKS_PRODUKSI)	0.400832	0.681237	No Significant
D(FDI)	0.069114	1.338620	No Significant
GOV_EXP(-1)	0.027377	0.263359	No Significant
INDEKS_PRODUKSI(-1)	-0.556160	-1.261757	No Significant
FDI(-1)	0.350647	-2.811016	Significant**
ECT	0.328378	2.148687	Significant*
Long Run			
C	- 0.41905	0.390	No Significant
GOV_EXP	1.08337	2.385	Significant**
INDEKS_PRODUKSI	- 0.69366	-1.136	No Significant
FDI	2.067815	2.944	Significant**
R-squared	0.278036	DW statistic	1.564916
Adjusted R-squared	0.133644	Prob(F-statistic)	0.094843
F-statistic	1.925557		

Note:
*** = significant at α = 5% (value T-table at α = 5% = 1,645 < T-test)**
**** = significant at α = 1% (value T-table at α = 1% = 2,326 < T-test)**

Based on the table 5.8, it shows that only 13.36 % variables GE, IPI, and FDI can explain the variable IHSG in Indonesia. This condition can be seen from the Adjusted R-squared 0.1336. The ECM model will be valid to see long term effects of economic variables if ECT significant. The value must be greater than zero and less than one and not be negative. From Table 5.8, it can be seen that the terms of the validity to use of empirical models in this study are met. ECT value

shows that the proportion of the cost of an imbalance in the development of IHSG in the previous period were adjusted in the current period is approximately 32.83%. In table 5.8 also shows significant ECT with the probability value less than alpha 0,05. ECT in ECM explains whether the model can be used as a long term analysis.

5.2.2 Analysis of Short Run

Based on Table 5.8, it can be seen in the short term, variable government expenditure D(GE) significantly affect IHSG at the level of trust 5 percent. This is explain from the value t-statistic of goverment expenditure is 1.879 and the value of t-table in alpha 5 % is 1.645. It is explain that t-statistic of government expenditure has greater than t-table, it means, variable goverment expenditure has significant effect to IHSG. Other variable that also significant is FDI in first difference (lag 1). Whereas, the value t-statistic of FDI is -2.831 and t-table in alpha 1 % is 2.326. It is explain that t-statistic of FDI has greater than t-table. It means, variable FDI has significant effect to IHSG.

Two variables that significantly effect to IHSG show that:

1. If an increase in the average goverment expenditure in Indonesia amounted to 1 billion, it will be able to raise the IHSG around 0.2455 basis point (bps).
2. If there is an average increase of FDI in Indonesia amounted to 1 billion rupiah, it will be able to raise the IHSG around 0.3506 basis point (bps).

In the short term these conditions shows that government expenditure has a positive effect to IHSG. This result is appropriate with the theory that increasing of goverment expenditure will increase stock price index. The result of this

studies same as with the result of previous studies that Khan (2014) found in study case in Pakistan if government expenditures have a significant positive relationship with the stock market index .

In the short term these conditions shows that FDI has a positive effect to IHSG. This result is appropriate with the theory that changing of FDI will changing amount of IHSG. The result of this studies same as with the result of previous studies that Adam and Tweneboah (2009) found study case in Ghana if FDI have a significant positive relationship with the stock price index.

5.2.3 Analysis of Long Run

Based on table 5.8, it can be seen that in the long run, variable government expenditure (GE) significantly affect IHSG at the level of trust 1 percent. This is explain from the value t-statistic of goverment expenditure is 2.385 and t-table in alpha 5 % is 2.326. It is explain that the value t-statistic of variable goverment expenditure has greater than t-table, it means, variable goverment expenditure has significant effect to IHSG in long run. Other variable that also significant is FDI, the value t-statistic of FDI is 2.944 and t-table in alpha 1 % is 2.326. It is explain that t-statistic variable FDI has greater than t-table, it means, variable FDI has significant effect to IHSG in long run.

Two variables that significantly effect to IHSG show that:

1. If an increase in the average goverment expenditure in Indonesia amounted to 1 billion, it will be able to raise the IHSG around 1.08377 basis point (bps).
2. If there is an average increase of FDI in Indonesia amounted to 1 billion rupiah, it will be able to raise the IHSG around 2.067815 basis point (bps).

In the long run these conditions shows that government expenditure has a positive effect to IHSG. This result is appropriate with the theory that increasing of goverment expenditure will increase stock price index . The result of this studies same as the result of previous studies that Khan (2014) found in study case in Pakistan if government expenditures have a significant positive relationship with the stock market index .

In the long run these conditions shows that FDI has a positive effect to IHSG. This result is appropriate with the theory that changing of FDI will changing amount of IHSG. The result ofthis studies same as the result of previous studies that Adam and Tweneboah (2009) found in study case in Ghana if FDI have a significant positive relationship with the stock price index.

Based on table 5.8, it can be seen that variable industrial production index (IPI) is not significantly affect to IHSG at the level of significance 1 percent or 5 percent in the long run. This is explain from the value t-statistic of industrial production index is – 1.136 and T-table for alpha 5 % is 1.645, for alpha 1% is 2.326. It is explain that t-statistic of industrial production index is less than t-table, meaning that variable industrial production index is not significant effect to IHSG. The result of this studies same as with the result of previous studies that Ray (2013) found in study case in India if industrial production index has not significant relationship with the stock price .

Result of Matrix Varians – Covarians , Varians , Standard Error, and T-test with Error Correction Model (ECM)

Variabel	Vector F_i^T	Matrik Var-Cov ECM	Vector F_i	Varians	Standar Error	T-test
Constant	[3.045 1.276]	$\begin{bmatrix} 0.018 & -0.105 \\ -0.105 & 0.967 \end{bmatrix}$	$\begin{bmatrix} 3.045 \\ 1.276 \end{bmatrix}$	1.155	1.074	0.390
GE	[3.045 − 0.252]	$\begin{bmatrix} 0.018 & -0.005 \\ -0.005 & 0.004 \end{bmatrix}$	$\begin{bmatrix} 3.045 \\ -0.252 \end{bmatrix}$	0.207	0.454	2.385
IPI	[3.045 0.935]	$\begin{bmatrix} 0.018 & 0.019 \\ 0.019 & 0.119 \end{bmatrix}$	$\begin{bmatrix} 3.045 \\ 0.935 \end{bmatrix}$	0.373	0.610	-1.136
FDI	[3.045 − 3.250]	$\begin{bmatrix} 0.018 & -0.012 \\ -0.012 & 0.009 \end{bmatrix}$	$\begin{bmatrix} 3.045 \\ -3.250 \end{bmatrix}$	0.494	0.702	2.944

Estimation Result of Short Run with Error Correction Model (ECM)

Dependent Variable: D(IHSG)
Method: Least Squares
Date: 07/13/15 Time: 14:01
Sample (adjusted): 2 44
Included observations: 43 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.137607	0.874947	-0.157275	0.8759
D(GOV_EXP)	0.245564	0.130671	1.879260	0.0686
D(INDEKS_PRODUKSI)	0.400832	0.588389	0.681237	0.5002
D(FDI)	0.069114	0.051631	1.338620	0.1893
GOV_EXP(-1)	0.027377	0.103954	0.263359	0.7938
INDEKS_PRODUKSI(-1)	-0.556160	0.440782	-1.261757	0.2154
FDI(-1)	0.350647	0.124740	-2.811016	0.0080
ECT	0.328378	0.152827	2.148687	0.0387

R-squared	0.278036	Mean dependent var	0.019505
Adjusted R-squared	0.133644	S.D. dependent var	0.080704
S.E. of regression	0.075118	Akaike info criterion	-2.173280
Sum squared resid	0.197493	Schwarz criterion	-1.845615
Log likelihood	54.72552	Hannan-Quinn criter.	-2.052447
F-statistic	1.925557	Durbin-Watson stat	1.564916
Prob(F-statistic)	0.094843		

Estimation Result of Long Run with Error Correction Model

Variabel	Parameter Prob
Constant	f_0 = -0.137607/0.328378 = - 0.41905
Gov_Exp	f_1 = (0.027377 +0.328378) / 0.328378 = 1.08337
Indeks_Produksi	f_2 = (-0.556160+ 0.328378) /0.328378 = - 0.69366
FDI	f_3 = (0.350647 +0.328378) / 0.328378 = 2.067815

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Based on the empirical results of research and discussion from the previous chapter, the main objective of this research is to analyze the effect of macroeconomics variables such as goverment expenditure, industrial production index, and foreign direct investment in Indonesia over quarterly period 2004 to 2014. In this paper, the author used Error Correction Model (ECM) method to empirically test the effect of goverment expenditure, industrial production index, and foreign direct investment in Indonesia . From the analysis of data that has been conducted, it is obtained the following conclusions and recommendations.

6.1 Conclusions

1. Based on the regression model testing can be concluded that IHSG over quarterly period 2000 – 2014 is influenced by goverment expenditure, index production industry, and foreign direct investment about 27.80 percent, 70.20 percent of IHSG is explained by other variables which are not in the model.
2. Based on research results that variable of goverment expenditure has positive and significant impact to IHSG in short run and long run: The Case of Indonesia over quarterly period 2000 – 2014. This shows that increase in Goverment Expenditure will increase the amount of IHSG.
3. Based on research results that variable foreign direct investment has positive and significant impact on IHSG in short run and long run: The Case of Indonesia over quarterly period 2004 – 2014. This shows that the increase of foreign direct investment will increase the amount of IHSG.

6.2 Recommendations

Based on the study, it can be given recommendations as follows:

1. Due to macroeconomic variables has the affect to the movement of stock price index in Indonesia (IHSG) , the government and monetary authorities should maintain the stability of the macroeconomic variables .
2. Government should care to the government expenditure, where the government should to allocate of the budget to the sector that can provide expansionary impact on economic growth or can increase the income. Increase of economic growh or increase the income will give good impact to stock price index in Indonesia (IHSG).
3. Government should stimulate foreign direct investment inflow to Indonesia, so the government should create a favorable investment climate in Indonesia so that foreign investors are interested to invest in Indonesia. Increase of foreign direct investment in Indonesia is good for IHSG.
4. For the next research, to deepen this study by adding other variables and extend the research data, to provide results that are more accurate and better.

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APPENDIX

Table 4.1 Stock Price Index in Indonesia (IHSG) over period 2004 – 2014

Year	Quarterly	IHSG (bps)
2004	Q1	736
	Q2	732
	Q3	820
	Q4	1000
2005	Q1	1080
	Q2	1122
	Q3	1079
	Q4	1166
2006	Q1	1323
	Q2	1310
	Q3	1535
	Q4	1806
2007	Q1	1037
	Q2	1034
	Q3	2191
	Q4	2667
2008	Q1	2605
	Q2	2363
	Q3	2106
	Q4	1308
2009	Q1	1343
	Q2	1822
	Q3	2289
	Q4	2461
2010	Q1	2624
	Q2	2843
	Q3	3112
	Q4	3647
2011	Q1	3522
	Q2	3791
	Q3	3894
	Q4	3709
2012	Q1	3971
	Q2	4019
	Q3	4113
	Q4	4331
2013	Q1	4598
	Q2	4938
	Q3	4457
	Q4	4368
2014	Q1	4530
	Q2	4895
	Q3	5124
	Q4	5077

Source : *Indonesia Stock Exchange*

Table 4.2 Goverment Expenditure in Indonesia over period 2004-2014

Year	Quarterly	Goverment Expenditure (Billion Rp)
2004	Q1	43143.4
	Q2	47614.3
	Q3	45695.9
	Q4	54602.2
2005	Q1	42692.3
	Q2	46593.5
	Q3	58016.8
	Q4	77678
2006	Q1	55164.1
	Q2	70548.5
	Q3	72456.7
	Q4	89910.5
2007	Q1	66577.3
	Q2	82726.8
	Q3	80581.2
	Q4	99874.8
2008	Q1	76724.1
	Q2	104994.5
	Q3	106037.6
	Q4	129110.4
2009	Q1	99642.1
	Q2	135190.8
	Q3	129078.5
	Q4	173677.4
2010	Q1	99571.1
	Q2	134945.1
	Q3	142134.8
	Q4	200270
2011	Q1	118667.5
	Q2	149636.2
	Q3	176257.9
	Q4	224021.3
2012	Q1	137975.8
	Q2	185933.6
	Q3	175513.4
	Q4	232922.2
2013	Q1	146208.4
	Q2	190662.6
	Q3	214992.9
	Q4	222133.2
2014	Q1	165901
	Q2	229268.7
	Q3	259132.70
	Q4	351097.1

Source : *Bank of Indonesia*

Table 4.3 Indeks ProductionIndustry in Indonesia over period 2004-2014

Year	Quarterly	Indeks Production Industry (2000 = 100)
2004	Q1	111.52
	Q2	113.75
	Q3	124.5
	Q4	119.57
2005	Q1	118.76
	Q2	118.08
	Q3	124.37
	Q4	114.18
2006	Q1	109.61
	Q2	114.74
	Q3	123.89
	Q4	119.43
2007	Q1	117.46
	Q2	122.67
	Q3	128.85
	Q4	124.76
2008	Q1	124.33
	Q2	126.72
	Q3	130.91
	Q4	126.64
2009	Q1	124.56
	Q2	127.53
	Q3	131.03
	Q4	131.69
2010	Q1	98.41
	Q2	102.35
	Q3	98.13
	Q4	101.11
2011	Q1	101.86
	Q2	105.02
	Q3	105.56
	Q4	103.94
2012	Q1	103.62
	Q2	107.19
	Q3	107.27
	Q4	115.47
2013	Q1	112.94
	Q2	114.41
	Q3	115
	Q4	117.2
2014	Q1	116.91
	Q2	119.21
	Q3	121.64
	Q4	123.58

Source : *Bureau of Statistics Indonesia*

Table 4.4 Foreign Direct Investment in Indonesia over period 2004-2014

Year	Quarterly	FDI (Billion Rp)
2004	Q1	348
	Q2	409
	Q3	348
	Q4	791
2005	Q1	1066
	Q2	2885
	Q3	1117
	Q4	94
2006	Q1	1305
	Q2	1337
	Q3	1710
	Q4	3162
2007	Q1	1061
	Q2	1058
	Q3	1532
	Q4	1920
2008	Q1	2360
	Q2	1633
	Q3	3388
	Q4	1937
2009	Q1	1904
	Q2	1441
	Q3	987
	Q4	540
2010	Q1	2983
	Q2	3350
	Q3	2955
	Q4	4483
2011	Q1	5311
	Q2	5034
	Q3	3469
	Q4	5428
2012	Q1	4518
	Q2	3568
	Q3	5964
	Q4	5803
2013	Q1	3840
	Q2	4558
	Q3	5929
	Q4	4620
2014	Q1	5097
	Q2	4928
	Q3	7593
	Q4	4658

Source : *Bank of Indonesia*

Unit Root Test (Stationerity) Level

Null Hypothesis: Unit root (individual unit root process)
Series: IHSG, GOV_EXP, INDEKS_PRODUKSI, FDI
Date: 07/13/15 Time: 12:14
Sample: 1 44
Exogenous variables: None
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Total number of observations: 166
Cross-sections included: 4

Method	Statistic	Prob.**
ADF - Fisher Chi-square	1.23561	0.9963
ADF - Choi Z-stat	3.27303	0.9995

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Intermediate ADF test results UNTITLED

Series	Prob.	Lag	Max Lag	Obs
IHSG	0.9839	2	9	41
GOV_EXP	0.9991	4	9	39
INDEKS_PRODUKSI	0.7492	0	9	43
FDI	0.7321	0	9	43

Unit Root Test (Stationerity) 1st Difference

Null Hypothesis: Unit root (individual unit root process)
Series: IHSG, GOV_EXP, INDEKS_PRODUKSI, FDI
Date: 07/13/15 Time: 12:14
Sample: 1 44
Exogenous variables: None
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Total number of observations: 164
Cross-sections included: 4

Method	Statistic	Prob.**
ADF - Fisher Chi-square	175.981	0.0000
ADF - Choi Z-stat	-10.9655	0.0000

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Intermediate ADF test results D(UNTITLED)

Series	Prob.	Lag	Max Lag	Obs
D(IHSG)	0.0000	1	9	41
D(GOV_EXP)	0.2327	3	9	39
D(INDEKS_PRODUKSI)	0.0000	0	9	42
D(FDI)	0.0000	0	9	42

Unit Root Test (Stationerity) 2nd Difference

Null Hypothesis: Unit root (individual unit root process)
Series: IHSG, GOV_EXP, INDEKS_PRODUKSI, FDI
Date: 07/13/15 Time: 12:15
Sample: 1 44
Exogenous variables: None
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 1 to 3
Total number of observations: 157
Cross-sections included: 4

Method	Statistic	Prob.**
ADF - Fisher Chi-square	315.609	0.0000
ADF - Choi Z-stat	-16.7044	0.0000

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Intermediate ADF test results D(UNTITLED,2)

Series	Prob.	Lag	Max Lag	Obs
D(IHSG,2)	0.0000	1	9	40
D(GOV_EXP,2)	0.0000	3	9	38
D(INDEKS_PRODUKSI,2)	0.0000	2	9	39
D(FDI,2)	0.0000	1	9	40

Cointegration Test

Date: 07/13/15 Time: 12:15
Sample (adjusted): 4 44
Included observations: 41 after adjustments
Trend assumption: Linear deterministic trend
Series: IHSG GOV_EXP INDEKS_PRODUKSI FDI
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.538477	56.24444	47.85613	0.0067
At most 1	0.364822	24.54226	29.79707	0.1785
At most 2	0.112765	5.934377	15.49471	0.7033
At most 3	0.024783	1.028912	3.841466	0.3104

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.538477	31.70218	27.58434	0.0139
At most 1	0.364822	18.60788	21.13162	0.1087
At most 2	0.112765	4.905465	14.26460	0.7537
At most 3	0.024783	1.028912	3.841466	0.3104

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

IHSG	GOV_EXP	INDEKS_PROD UKSI	FDI
-6.518019	-2.844448	8.378248	8.206835
17.09445	-15.55512	12.41675	-1.883337
-0.205580	-1.742855	-34.01287	0.307447
1.273970	5.344290	3.762826	-1.292749

Unrestricted Adjustment Coefficients (alpha):

D(IHSG)	-0.016002	-0.027656	0.004216	-0.006491
D(GOV_EXP)	0.022386	0.029626	-0.000953	-0.010326
D(INDEKS_PRO DUKSI)	0.006474	0.000874	0.006338	-0.000746
D(FDI)	-0.192460	0.027960	0.029075	0.002995

1 Cointegrating Equation(s): Log likelihood 209.3004

Normalized cointegrating coefficients (standard error in parentheses)

IHSG	GOV_EXP	INDEKS_PROD UKSI	FDI
1.000000	0.436398	-1.285398	-1.259099
	(0.26771)	(0.92334)	(0.18031)

Adjustment coefficients (standard error in parentheses)

D(IHSG)	0.104299
	(0.07563)
D(GOV_EXP)	-0.145911
	(0.09896)
D(INDEKS_PRO DUKSI)	-0.042195
	(0.02390)
D(FDI)	1.254461
	(0.23920)

2 Cointegrating Equation(s): Log likelihood 218.6044

Normalized cointegrating coefficients (standard error in parentheses)

IHSG	GOV_EXP	INDEKS_PRODUKSI	FDI
1.000000	0.000000	-0.633318	-0.886693
		(0.64429)	(0.06394)
0.000000	1.000000	-1.494233	-0.853365
		(0.77979)	(0.07738)

Adjustment coefficients (standard error in parentheses)

D(IHSG)	-0.368459	0.475702
	(0.19184)	(0.16582)
D(GOV_EXP)	0.360521	-0.524504
	(0.26015)	(0.22486)
D(INDEKS_PRODUKSI)	-0.027261	-0.032004
	(0.06701)	(0.05792)
D(FDI)	1.732426	0.112518
	(0.66507)	(0.57485)

3 Cointegrating Equation(s): Log likelihood 221.0571

Normalized cointegrating coefficients (standard error in parentheses)

IHSG	GOV_EXP	INDEKS_PRODUKSI	FDI
1.000000	0.000000	0.000000	-0.863218
			(0.06025)
0.000000	1.000000	0.000000	-0.797977
			(0.08901)
0.000000	0.000000	1.000000	0.037068
			(0.04284)

Adjustment coefficients (standard error in parentheses)

D(IHSG)	-0.369325	0.468354	-0.620862
	(0.19135)	(0.16638)	(0.38870)
D(GOV_EXP)	0.360717	-0.522843	0.587815
	(0.26014)	(0.22620)	(0.52843)
D(INDEKS_PRODUKSI)	-0.028564	-0.043050	-0.150483
	(0.06370)	(0.05539)	(0.12939)
D(FDI)	1.726449	0.061845	-2.254216
	(0.65821)	(0.57233)	(1.33704)