The Effect of Tax Treaty on Foreign Direct Investment Activity: Indonesia Overview

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List of Acronyms

FEM	Fixed Effect Model
GDP	Gross Domestic Product
FDI	Foreign Direct Investment
GDPCAP	Gross Domestic Product Per Capita
TT	Tax Treaty
OECD	The Organization for Economic Cooperation and Development

Abstract

The effect of tax treaty on foreign direct investment has attracted many researchers. However, all of the studies foreign direct investment show ambiguous results depending on the approach used, the study's location, and the time studied. Moreover, the study about the impact of tax treaty on foreign direct investment is rare in Indonesia context.

This study uses panel data analysis to investigate the effect of tax treaty and others FDI determinant on FDI in Indonesia. By using Gravity Model, this research conclude that tax treaty has a positive effect on FDI inflows in Indonesia. This research also conclude that the effect of tax treaty on FDI in Indonesia is grow over time. The result of tax treaty effect and age of FDI are consistent among FDI total and FDI by sectors. However, this research gives a mixed result on the effect of others FDI determinant on FDI Indonesia. The result varied by FDI sectors.

Furthermore, in contrast with the effect of the tax treaty on FDI which significantly positive, the institutional factors gives insignificant result on FDI. The result is consistent by all sectors of FDI.

Relevance to Development Studies

Research on the relationship between tax treaty and foreign direct investment gives a various results depending on the approach used, the study's location, and the time studied. By using panel data analysis, this study might provide robust results, and it is expected that it will contribute to future discussions. In addition, consistent results using several approaches are also expected to give strong evidence on the effect of tax treaty on Foreign Direct Investment which can be considered in formulating future policies, especially in tax policies in Indonesia.

Keywords

Foreign Direct Investment, Foreign Direct Investment Determinant, Double Taxation, Tax Treaty, Gravity Model, Indonesia.

Chapter 1
Introduction

The impact of taxes on economic performance is one of the most debatable research question in macroeconomics. Many research have studied the impact of taxes on economic activity. However, empirical and theoretical studies about the effect of taxation in economic performance still ambiguous. In the Neo Classical growth model which the first time is presenting by Solow (1956), the rate of economic growth did not affected by fiscal factors such as government budget expenditures and taxes in the long period, because growth rate in the Solow model, is more affected by exogenous factors such as rate of technological progress and growth of countries population. On the other hand, the endogenous model hypothesises that the growth long period will be driven by productive government spending and taxes.

There are several channel which taxation could affect economic performance. This channel could come through the tax structure, the level of tariff, or tax barrier like double taxation, etc. In this globalization era, tax barrier could drive the multinational company decision to choose whether they put their investment from one country to another or in other word, where foreign direct investment (FDI) flows. And in this era, FDI could be one of main concern for government policy because FDI could drive manufacture productivity and in the end, economic growth. Many literature review give an overview about the significant effect of FDI on economic performance. Christiansen (2002) argue that the development in economic, modernization, employment and income growth in transition economies, developing countries and emerging economies, are all based on FDI. In addition, Shah (2009) stated that FDI has both direct and indirect effect, it is directly assert a positive influence on the production of the country through knowledge transfer and indirectly elevates the quality of worker in the countries where FDI flows in (the host state). Moreover, Papathoma (2004) shows that Great Britain enjoys 30% productivity increase in manufacturing sectors due to FDI inflows.

The theories shows a huge number of factors that can be the determinant of foreign direct investment (FDI), the variables that affect the FDI in some countries. Some of these variables are based on formal theories of FDI, but the others variables are included only because they are logically make sense to explain FDI flows. Artige and Nicolini (2005) state that market size variables which can be presented by GDP or GDP per capita could be the most significant factors of FDI in economics studies. From many literatures, market size is the main determinant for FDI. Another main variable which determine FDI is Distance. The concept of distance is really important if we want to understand the international firm and trade activity by spatial perspective. Various studies show that the distance between countries is a main determinant of trade between two or more countries (e.g Frankel and Rose 2002) and investment by multinational companies (Bloningen, et al 2007). Recently, many factors like growth, openness, infrastructure, cost of labour and productivity, institutional and political risk, and tax also propose by many researchers as determinant factor of FDI.

Therefore, as the importance of foreign direct investment (FDI) increases, the importance of double tax treaties also increase. The importance of international double taxation increase following the increasing trend of FDI can be explained in two ways. First, double taxation problem happens because every state has a right to collect taxes, it is the sovereign right of every countries. It, however, creates problems as well. If the revenue of multinational firm (FDI firm) are taxed initially by the host country followed by home country, then this is the occurrence of double taxation in the same level of revenue. This occurrence of double taxation decreases the advantage of the FDI. Second, the problem of tax evasion. Since it is

hard for tax authorities to recognize the precise revenues of a subsidiaries foreign company as compared to profits of the parent company in the source country (the home country), thus the governments of the source and host country where the company operated must be cooperated with each other and conclude tax treaties in order to prevent tax avoidance. Consequently, there are two objective of double taxation treaties, first is to avoid double taxation, and second is to avoid tax evasion. Hence, there are two possible ways by which a tax treaty affect foreign direct investment (FDI). In the first objective, it will increases FDI because tax treaty will reduce the negative effects of double taxation. While the second objective, it discourage FDI because it is created wall for tax evasion, since multinational company as FDI owners look at taxes as a profit reduction for their investment.

Two opposing influences of tax treaties on foreign FDI make it difficult to decide whether double tax treaties actually affect FDI or not. Moreover, if they affect, which is bigger, the positive impact or negative impact, or then the two effects overwhelms the other or not.

These debate about the impact of double tax treaty on foreign direct investment (FDI) still exists because existing research is still inconclusive about the impact of double tax treaty on FDI flows. The result of research conducting by Shah, H.M. and Qayyun, S (2015) in Latin American and Caribbean shows that double tax treaties do not have any impact on FDI inflows to country where the research being held. The reason behind this result may be that developing countries keep their tax rate very low because they want to attract foreign investor. In addition, Beer, S. and Loeprick, J. (2018) study in sub Saharan countries in Africa state that tax treaty in this region do not give substantial benefit in term of additional investment or FDI. They conclude that tax treaties can be beneficial if their benefits outweigh cost. Moreover, Baker, L.P.(2012) study on 30 OECD members (in period at 2006) confirms that double tax treaties do not have any impact on FDI (there is very little evidence which support the significant effect of double tax treaties on FDI). On the other hand, Murciego, A.C. and Laborda, J.L. (2018) research stated that double tax treaty have significant effect on FDI in Spain for the period 1993-2013. In addition, Lejour,A. (2015) also found that double tax treaties have significant effect on FDI in 34 OECD members for the period 1985-2011. Moreover, Neumayer, R. (2006) study result shows that tax treaty have significant effect to US FDI out-flows in developing countries. This result support the study conducted by Bloningen and Davies (2000) in US FDI inbound stock which conclude that tax treaty have significant effect on US FDI inbound stock (positive impact). The different and contrast result also demonstrated that some factors other than double taxation treaties such as market size, level of development (infrastructure and human resource), openness, and region may also affect FDI flows and need further research.

For Southeast Asia developing countries, especially Indonesia, research on the effect of tax treaty on foreign direct investment (FDI) is rarely seen. This research try to provide another evidence on the impact of double tax treaty on FDI based on Indonesia data.

1.1. Research Problem Statement

This research is concerned with the problem of taxes on economic performance. Many studies have examined on how the firm as the source of Foreign Direct Investment reacted to tax incentive or tax policy. The result about firms reaction is vary, however it is clear that the firms are responded to the tax policies. The government of the country use tax policy as fiscal policy because tax is one of the main source of revenues of the country, for instance Indonesia heavily depend on tax revenues where about 70 till 80 percent of government budget in the last decade are from tax revenue. However, tax is act as expense for the firms,

and tax policy could lead the firm decision to move or maintain their investment from one country to another country. Thus, tax policies are vary from one country to another, lead to inefficiency of taxation between two countries where the Foreign Direct Investment flows (out and in). This factor can be avoid by setting tax treaty between them. Therefore, as tax treaties considered as cooperation in taxation between home country and host country of the direct investment, and reduce double taxation for the firm, this might result for increase on direct investment. However, it could also reduce investment if the firms see tax treaty created wall for tax evasion, since multinational company as Foreign Direct Investment owners look at taxes as a profit reduction for their investment. This thesis is aimed to know the impact of tax treaty on foreign direct investment in Indonesia. Therefore, with the result of similar studies are vary within the world, specific studies on Indonesia context would be useful for Indonesia Tax Authority in understanding the effect of tax treaty on direct investment.

1.2. Research Questions

The main research question in this paper is how tax treaties affect the Foreign Direct Investment (FDI) in Indonesia?

1.2.1. Sub Research Questions:

a. How tax treaties affect the Foreign Direct Investment in Indonesia by sectors?
b. Do tax treaties give more effect on Foreign Investment time by time?
c. How others FDI determinants (Market Size, Distance, Trade openness, and Institutional Factors) affect Foreign Direct Investment in Indonesia?

1.3. Methodology and Data Selection

This research analyses the effect of tax treaty on FDI based on the model developed by Bloningen and Davies (B.A Bloningen, R.B Davies 2000). It analyses the effect of tax treaty on FDI with the focus on tax treaties between investor countries (home) with host countries, in this research is Indonesia. This model use panel data model for analysis with the main variable is tax treaty (TT). Based on the theory on the literature about the determinant of FDI, we use others factor which affect FDI as the control variables. The main additional control variables we employ are market size (GDP), distance (DISTANCE), trade openness (TOPEN) and institutional variables (Corruption, Law and Order, Government, Bureaucracy).

In pursuit of the objective of the research, this study will use panel data with all countries with foreign direct investment and without FDI in Indonesia as cross section unit analysed during the period from 1990 to 2016. In term of variable, this research requires several data. First, information regarding FDI from each parent countries to Indonesia come from Indonesia Investment Coordinating Board. Second, the Tax Treaty data are sourced from Directorate General of Taxes. Third, the data of GDP for the host and the parent countries are obtained from The Wold Bank. Data of distance between countries taken from CEEPIII, while trade openness is come from the World Bank. If the data cannot get from this Site, this research constructed an alternative trade openness measure defined as the trade flows (export and import) divided by its GDP. Lastly, the institutional data come from ICRG.

This paper will use the empirical model of FDI activity that will also capture other factor beside of tax. The gravity model of FDI by Carr, Markusen and Maskus (Carr, Markusen,

Markus, 2001) which is also used in Blonigen and Davies (B.A Bloningen, R.B. Davies 2000) research is considered to be representative model in estimating the effects.

The specification of the model is:

$FDI_{ijt} = f\ (RGDP_{it}, RGDP_{jt}, RGDPCAP_{it}, RGDPCAP_{jt}, DIST_{ij}, TOPEN_{it}, TT_{ij}, Z_{ij})$

Considering the conceptual framework, this research will examine the hypothesis that it is expected that tax treaties generates an increase in foreign direct investment. To test the hypotheses, we will use the panel data regression. We expect to use Fixed Effect Regression to test the hypotheses. However, we also considering Difference in Difference as an alternatives. The response variable on the model is foreign direct investment. Moreover, there are five predictor variables namely tax treaty, GDP, Square difference of GDP, Distance, and trade openness.

To test the hypotheses, I will use the panel data regression. The response variable is foreign direct investment. Moreover, there are seven predictor determinant namely tax treaty, Tax Treaty age, GDP, GDP per Capita, Distance, trade openness and Institutional Variables. The main estimation model are:

$Ln\ FDI_{ijt} = \beta_0 + \beta_1 TT_{ijt}, + \beta_2 TTAGE_{ijt} + \beta_3 ln\ GDP_{it} + \beta_4 ln\ GDP_{jt} + \beta_5 ln\ GDPCAP_{it} + \beta_6 ln\ GDPCAP_{jt} + \beta_7 ln\ REM_{ijt} + \beta_8 TOPEN_{it} + \beta_9 TOPEN_{jt} + \varepsilon_i$

Variable	Description
$Ln\ FDI_{ijt}$	Logarithmic form of FDI from country i (home country as a source of FDI) to country j (host country/Indonesia) at time t
TT_{ijt},	Dummy variable of Tax Treaties (0 if without tax treaty, 1 if with tax treaty) varied by *i* countries and *t* time
$TTAGE_{ijt}$	Dummy variable of tax treaty age
$ln\ GDP_{it}$	Logarithmic form of nominal GDP of country i times at time t
$ln\ GDP_{it}$	Logarithmic form of nominal GDP of country j times at time t
$ln\ GDPCAP_{it}$	Logarithmic form of nominal GDP per Capita of country i times at time t
$ln\ GDPCAP_{jt}$	Logarithmic form of nominal GDP per Capita of country j times at time t
REM_{ijt}	Remoteness (distance between country i and country j weighted by trading partner GDP share to the rest of the world)
$TOPEN_{it}$	Trade Openness (export+import)/GPD varied by *i* countries and *t* time
$TOPEN_{jt}$	Trade Openness (export+import)/GPD of *j* countries and *t* time
$INST_{jt}$	Institutional Factors (Government Stability, Investment Profile, Corruption, Law, Democracy, Bureaucracy) of *j* countries and *t* time

1.4. Original Contribution

Despite the abundant research and debate related to the effect of tax treaty to foreign direct investment, there are still few academic work, policy paper or research which explore this issue in developing countries, especially in the South East Asia. Moreover, in Indonesia context, as far as we know, this will be the first empirical effort to explain the effect of tax treaty on investment. My research is aimed to make a first contribution to tax treaty studies especially the context as one part of tax policy from Indonesian experiences.

1.5. The Scope and limitation

The challenge or limitation to this research is to obtain primary data due to the long period and the aim of research which want to use data from all countries with and without foreign direct investment with Indonesia. Data for long period and for all countries may be incomplete and because of that reason, many previous research only take the data from the developing countries. The second challenge is to determine which model that fit and give robust result on the purpose of this research. Different methods performed by previous research and had a various results.

1.6. Ethical Choice, Political

This research can be regarded as reflective work to myself as someone who works almost fourteenth years in Directorate General of Taxes Republic of Indonesia. I want to contribute to Republic of Indonesia, especially Ministry of Finance, by adding another perspective on tax policy in relation with investment. However, to prevent researcher bias, I will put myself as researcher who doing scientific research and will follow the protocol on scientific research. I will be professional and objective on the process of research. Due to data sensitivity, because some of tax data are confidential, in this research I will always make sure that the data collection of confidential data always with permission and consent of everyone or institution related to this research data collection.

1.7. Organization of the Research Paper

This research paper will be divided into six chapters. The first chapter is the introduction, which consists of the research questions, the justification of the research, original contribution, the scope and limitation of the research, ethical Choice of the research, and the introduction of the methodology. The second chapter will be literature review on Foreign Direct Investment, Tax Treaty and correlation between them. The third chapter will be an overview of foreign direct investment and tax treaty in Indonesia. The fourth chapter is the methodology and data of this research. The fifth chapter will be the result of the research. Finally, the sixth chapter is the conclusion of this research.

Chapter 2
Literature Review

2.1 Foreign Direct Investment

2.1.1 Definition of Foreign Direct Investment

Foreign direct investment is an investment process in which citizens of a country obtain ownership rights as well as control over the assets of a company in an investment destination country where the objective is to gain control over the production, distribution and other activities of the company (Moosa, I, A. 2002, 1) . Meanwhile, the United Nation defines FDI as a form of investment with long-term and sustainable goals, and has control rights over a business in the investment destination country by an individual or an entity from another country that acts as a source of investment (UNCTAD, 1999). According to the OECD, FDI is a form of direct investment in which direct investors who are citizens of a country have a long-term investment relationship with a business entity in another country. This form of investment must also have a certain degree of influence from the owner of the investment on the business entity. This results in derivative effects on transactions relating to affiliated parties. (OECD, 2002)

The OECD requires a minimum standard of ownership of 10% in business entities to determine whether there is investor influence over the entity. However, ownership of more than 10% of shares does not guarantee a significant influence. Some countries measure the influence of investors on an entity with several accumulated factors such as the presence of representatives of investors on the board of directors, the influence of investors in making entity decisions, managerial involvement, or access to technical information within the company. (Chauduri, S. and Mukhopadhayay, U. 2014. 2). In addition, another qualification that is usually contained in FDI is the transfer of part of investor assets, production lines or sales from the investor country to the investment country (Moosa, I.A. 2002, 2).

In contrast to short-term investment, FDI aims to obtain long-term returns from the performance of the entity where the investment is made. Therefore, FDI is usually accompanied by physical investment such as building factories or the establishment of subsidiary companies by the parent company. The existence of physical assets and long-term objectives of FDI results in the preferred form of FDI investment by investment destination countries because of the low level of volatility compared to other forms of investment such as foreign portfolio investment (FPI). This was shown when the financial crisis hit 1997-1998, in East Asian countries the level of FDI tended to be stable during the crisis, while other forms of investment such as FPI and debt showed high volatility and tended to exit investment countries (Dadush et al. 2000).

Moran (Moran, H, T. 1998) states that FDI might help investment destination countries to break the unbroken circle of underdevelopment. In underdeveloped countries, low levels of worker productivity encourage low levels of income, low levels of income lead to low levels of saving, low levels of saving encourage low levels of investment, which results in low levels of productivity. Gillis et.al and Cardozo and Dornbusch argue that FDI breaks this circle and replaces the saving function that never appeared in underdeveloped countries. FDI

also brings with it a transfer of management, technology, and marketing skills, leading to increased productivity (Moran, H, T. 1998).

2.1.2 Types of Foreign Direct Investment

FDI can be classified based on two views. First, based on the perspective of the investor. Second, based on the views of the recipient country of the investment. Based on the investor side, Dunning categorized FDI into three types. According to Dunning, FDI is categorized based on the motive behind the investment based on investors' views. The first type of FDI is market seeking FDI, which is also often referred to as horizontal FDI. The purpose of this type of FDI is to fill local and regional markets. Investors invest in a country for the purpose of marketing their products for the domestic market and regional markets of that country. As a result of these characteristics, investors really look at the market size and market growth of the investment destination country in determining the investment destination country. The second type of FDI is resource seeking FDI. This type of FDI aims to access resources that are neither available nor competitive in the country of origin of investment, such as natural resources or labor. The third type of FDI is efficiency seeking FDI in which investors seek benefits from various factors such as governance, geography, economics of scale and other economic factors (Dunning, 1993).

Caves (2007) also divides FDI into three types of FDI based on the investor side. The first type is Horizontal FDI where the investment made is aimed at producing goods or products y which is the same as that produced by investors in the country of origin, but this time with the investment they make, they move or increase the production of these goods in the investment country. This type of FDI is more of a market control driven by the goal of exploiting a monopoly over the market, for example due to patent control. The second type is vertical FDI where the objective of investment is more to control raw materials or to approach the market. The third type is conglomerate FDI which is a combination of horizontal and vertical FDI (Moosa, I.A., 2002, 5).

Based on the perspective of the recipient countries of investment, according to Moosa (2002), FDI can be classified into three types. The first type is FDI which aims to produce products that have been imported by investment destination countries. With this FDI, the investment destination country can reduce the number of imports made but on the other hand it also reduces exports from the country of origin of the investment where the previous product originated. The second type is FDI which aims to produce products that increase the exports of investment destination countries. This type of FDI tends to exploit raw materials from investment destination countries. The company exports raw materials and intermediate goods from the host country to their production chain in the country of origin or the country where the subsidiary factory under one ownership is located. The third type is a government initiated FDI. This type of FDI is usually caused by an incentive provided by a country with the aim of attracting investment in order to reduce the balance of payment deficits (Moosa, I.A. 2002).

2.1.3. FDI benefit to Host Country

The effects of FDI on the host country can be classified into economic, political and social effects. The general assumption that is widely believed is, FDI can increase income and welfare in the host country. This assumption is built on the principles of neoclassical economics. In this discussion we emphasize the positive effects of FDI on the host country.

Developing countries usually have problems in increasing savings to meet investment needs. This problem arises because of the existence of a saving gap and a foreign exchange gap where exports do not exceed imports. FDI is believed to be able to fill this function because multinational companies as the main source of FDI have more access to financial markets. Razin et al. (1999) argue that FDI fills this in two ways. First, FDI provides foreign savings to finance domestic investment. Second, by making the host country get the accumulated profits from the trade so that it can accumulate profits into investment.

Developing countries also really need FDI to increase output and growth. In theories of economic growth, an increase in real per capita income will encourage capital accumulation. Increased capital accumulation is seen as one of the drivers of growth. FDI, which has been explained, fills the gap in capital accumulation so that in the end it is expected that FDI will boost output and growth (Moosa, I.A. 2002. 73). FDI is also one of the main factors of carrying out the transfer of technology to developing countries. The results of research by Borensztein et al. (1995) states that as a carrier of technology transfer to investment destination countries, FDI contributes relatively more to growth than domestic investment.

Meanwhile, the contribution of FDI to the labor sector is still widely debated. Although FDI is expected to provide and increase employment directly by establishing physical assets such as factories or the need for labor for the distribution sector, researchers are still debating how much effect FDI has on employment. In addition, FDI may also have a detrimental effect because FDI output could be a product previously produced in the investment destination country, so that the existence of FDI in addition to creating jobs also destroys existing jobs. On the other hand, FDI can also contribute to increasing relative wages. A study conducted by Feensatra and Hanson (1995) showed an increase in relative wages for workers in Mexico related to FDI during the 1980s. However, a study conducted by Driffield and Taylor (2000) indicates that the increase in relative wages is only enjoyed by skilled labor because multinational companies tend to use skilled labor.

FDI is also expected to have a positive impact on the balance of payment. Foreign exchange is often seen as a resource that can influence growth through the foreign exchange gap. Dunning (1969) concluded in his study of the effects of FDI in Britain, that FDI has a positive effect on the balance of payment of around 15 per cent of the total FDI invested. FDI can also increase productivity. However, Moosa argues that productivity will increase and costs will decrease as a result of FDI only under a few conditions. The first is if FDI investing is for export. And the second is if the existing conditions allow FDI to achieve the goal of full economies of scale (Moosa, I.A. 2002.86).

2.1.4 FDI Determinant

Foreign direct investment (FDI) Inbound to host country itself is determined by many factors. Many of these factors have basic assumption like in international trade. Jordaan (2004) states that FDI will tend to flow to the countries with big economics size which will provide greater market and larger purchasing power. This happens based on assumption that if investment in the larger economics size countries will bring a higher return on their investment (capital) and higher profits from the investment. Charkrabarti (2001) mentions that these hypothesis of market size supports a theory that a larger market is make use of resources more efficient and maximize the benefit of the economics of scale, the bigger production, the more efficient. Thus, when the market size begin to grows, the FDI tend to increase follows the market expansion, because there is create market which need to exploit. This hypothesis is really popular and based on researcher review, most of the research state the size of host countries market as a significant factor to FDI inflows. In ODI (ODI, 1997, 6),

which conduct research studies to know the correlation between FDI and the size of the market use a cross section of countries, use GDP as the proxy of the market size, beside of another variables, such as growth rates and income level. Other researcher use income per capita as a proxy of GDP. Edwards (Edwards, 1990, 5) and Jaspersen *et al.* (2000) determines income per capita as a proxy for the return on investment and argues that real GDP per capita is the real proxy of FDI/GDP. They argue that a higher GDP per capita implies better prospects for FDI in the host country.

Moreover, other factors which determine foreign direct investment (FDI) inflows are distance and openness. Various studies show that the distance between countries is a main determinant of trade between two or more countries (e.g Frankel & Rose 2002) and investment by multinational companies (Bloningen, et al, 2008). The investor are more likely to put their investment to the countries if they are closer geographically because they share common interest and culture. In case of openness, Charkrabarti (2001) states that there is mixed evidence on the effect of openness in FDI. Openness is commonly measured by the ratio of exports plus imports to GDP. The hypothesis of openness on FDI is: the investment are move to the tradable sector which can give the higher return on their investment, thus the degree of openness from countries to international trade is relevant variable in the investor decision. Jordaan (2004) argues that the effect of openness on FDI is different, based on the type of FDI. When investment are looking for market, which investment in host countries are made to produce the goods and seek the local market as a consumers, protectionism and free trade barriers, which mean a decrease in openness can have a positive impact on FDI. In contrast, multinational firms as investors in export-oriented investments are looking for invest in countries with less trade barriers or more open economy, because this situation led to reduce transaction cost associated with exporting. Wheeler and Mody (1992) observe a positive link between openness and FDI in the manufacturing sector, but a negative effect for openness to FDI in the electronic sector. Kravis and Lipsey (1982), Culem (1988), Edwards (1990) give an evidence of positive impact of openness on FDI, where Schmitz and Bieri (1972) however, give negative link between openness and FDI.

Another factor that determines FDI is Institutional factors. Institutional factors can be informal or formal. Coyne and Sobel (2010) argue that the existence of good institutional factors will reduce the level of uncertainty and costs of doing business in a country so that it will increase incoming investment (Coyne and Sobel, 2010). The study conducted by Globerman and Shapiro (2002) showed a relationship between Institutional Variables and FDI. One of the important factors in Institutional Variables according to Globerman and Shapiro that is very influential on FDI is the Political Governance factor (Dogru, B.2012)

2.2. Tax Policy and Tax Treaty

Taxation and tax policy has a significant effect on the flows of FDI (Hines, 1999). Multinational Company tend to invest and locate the asset of production on the countries where the taxation is lowest (Razin et al, 1996). There are two main aspect of correlation between taxation on MNC and Foreign Direct Investment. The first aspect is the tax game, where the host country create a new system to reduce a loophole in the taxation, MNC adjust their strategies to create the new hole or to take a maximum advantage of the existing system. The second aspect is the relationship between countries with different taxation systems, which could take the form on co-operation and represented by tax treaty and the exchange of information, or tax competition, countries compete economic activity from each other by reducing taxes. Feldstein argue that the home country with tax treaty which gives credit for

taxes paid in the foreign (host country) may lead to inconsistency between the interest of the MNC (which a main source of FDI) and its home country (Feldstein, 1994).

2.2.1 Double Taxation

Double taxation is a condition when taxes are conducted on the same income (or capital) of the same taxpayer in the same period of time, by the two jurisdiction (country). It means that the two countries collect the same taxes from the same taxpayers over the same type of revenues or source of income. OECD (2010) warn the negative effect of double taxation to the movement of capital (investment) between countries and other intra-country economic relation. These harmful effect lead the countries to negotiate tax treaties to avoid or decrease the effect of double taxation. The initial purpose of tax treaty is to evade double taxation and tax evasion. However, double tax treaties can be seen as a promise between countries to promote foreign direct investment (FDI) between them and to keep this investment. This commitment reduce the uncertainty and this uncertainty reduction for investor can increase the amount of direct investment between the countries (Bloningen, and Davies, 2000). Taxes of firms, especially withholding taxes also change, usually decreasing due to avoidance of double taxation. The reduction on withholding taxes lead to an increase in profitability of foreign firms in host country. The common logic is, when the opportunity to generate profit increase in the host countries, the foreign investor would likely to shift their investment to that country and increase the foreign direct investment in host country.

2.2.2 Tax Treaty

The initial purpose of the Tax Treaty is to avoid double taxation of the income that an entity receives from one country by another country (foreign income in the host country). This taxation function has developed into a function where the tax treaty is a marker of the certainty of a country's fiscal condition. This is due to the fact that in addition to eliminating double taxation, tax treaty also limits unilateral action by government and also introduces solutions in case of taxation conflicts between countries that are bound by tax treaty. In addition, then the tax treaty function develops so that it also has the function of reduce tax evation from multinational companies. This function occurs because the tax treaty increases the exchange of tax data and information between countries. Tax treaty is also useful for preventing tax treaty shopping that is often carried out by multinational companies to avoid or reduce taxes that must be paid in a country (Neumayer, 2018,3).

2.2.3 Relation of Tax Treaty with FDI

Since each country has taxation rights on income in its respective country, and taxation on the income of business entities affects the level of profit, investors will consider the level of withholding tax from each country in determining whether or not to invest in a country. Tax treaty is a tax policy instrument that aims to minimize double taxation between countries. This in theory will cause a decrease in the effective tax that must be pay by multinational companies in countries that have tax treaty. A decrease in the effective tax rate will increase the level of profit after being deducted by taxes in a country so that it is hoped that it will increase the flow of FDI into that country.

Empirical studies on the effect of tax treaty on Foreign Direct Investment are numerous. The pioneer on this field may be the research conducted by Bloningen and Davies in 2000. They began the research because they thought that the previous study on the effect on taxation on economic performance and FDI focus more on others tax policy. Until that time,

the research on the effect of tax treaty on FDI really rare. They began by basic concept based on the finding from previous research like by Altshuler and Newlon (1991), Hines (1992), Altshulet et.al (1995), that the change in withholding taxes in some countries because of tax treaty would change the behavior of investor on how they repatriate and investing. They assume that this pattern, clearly show the impact of tax treaty on profitability of the foreign firms in the host country (Bloningen and Davies, 2000, 1). The logic is, when some countries offers more profit on the investment, investor would likely to increase their investment to that countries driven by more potential profit. However, the previous researches did not show the effect of tax treaty on the foreign direct investment. Bloningen and Davies started their research on FDI inflows and outflows toward United States with 65 countries which had bilateral tax treaty with the United States. They measures the effect of tax treaty on various aspect like sales of foreign affiliates firms, FDI flows, and FDI stocks. Bloningen and Davies started based on United States data from 1966 to 1992. The United Stated is chosen because the availability of the data at that time. Based on their research, Bloningen and Davies conclude that there are robust evidence that tax treaty have positive effect both on US inflows and outflows of foreign direct investment (Bloningen and Davies, 2000, 21).

Since empirical studies by Bloningen and Davies in 2000, several studies conducted by other researchers on this issue. The research mainly focusing on developing countries (OECD countries) due to logical reason, the availability and abundant of the data. The research on the effect of tax treaty as tax policy on foreign direct investment in developing country is still rare. However, the result of several research on the effect of tax treaty on foreign direct investment are varied and ambiguous. The different result may be because the methods or because the impact is different depend on the countries or the model of tax treaty they used. However, this phenomena still need further research to understand the effect and mechanism of tax treaty on FDI.

Table 2.1
Research on the effect of tax treaty on Foreign Direct Investment.

Researcher	Year	Data and Timelines	FDI In/Out	Impact	Offered Explanation
Bloningen and Davies	2000	65 Countries with US (1966-1992)	In and Out	Positive Impact	The commitment and risk reduction effect
Neumeyer	2006	US to developing Countries (1970-2001)	Out	Positive Impact	Effective on middle developing countries due to loss on tax revenue in developing countries
Bloningen and Davies	2008	OECD countries with US (1982-1992)	In and Out	Negative Impact	Tax treaty more likely implemented to reduce tax evasion than promote foreign investment
Baker, P.L	2012	Non OECD with OECD countries	In	No effect	Developed countries unilaterally provide the relief of double taxation and the prevention of tax evasion, regardless of treaty status of a host country

		(1991-2006)			
Lejour	2014	34 OECD countries (1985-2011)	In	Positive Impact	Rich in data of country pair and the use of the geographic instrument in analysis
Shah and Qayyun	2015	Latin America and Caribian (1983-2013)	In	No effect	Developing countries set tax rates to low to attract Foreign Direct Investment, Tax Treaty has no effect in FDI
Murciergo and Laborda	2018	Spain (1993-2013)	In and Out	Positive Impact	Higher Security Confidence of Investor about Tax condition due to the establishment of Tax Treaty
Beer and Loeprick	2018	41 African Countries (1985-2015)	In	No effect	Tax Treaty only beneficial where the benefit of tax treaty is bigger than the cost of Tax treaty to the investment.

Source: author research from literature

Chapter 3
Foreign Direct Investment and Tax Treaty in Indonesia

3.1 Foreign Direct Investment in Indonesia

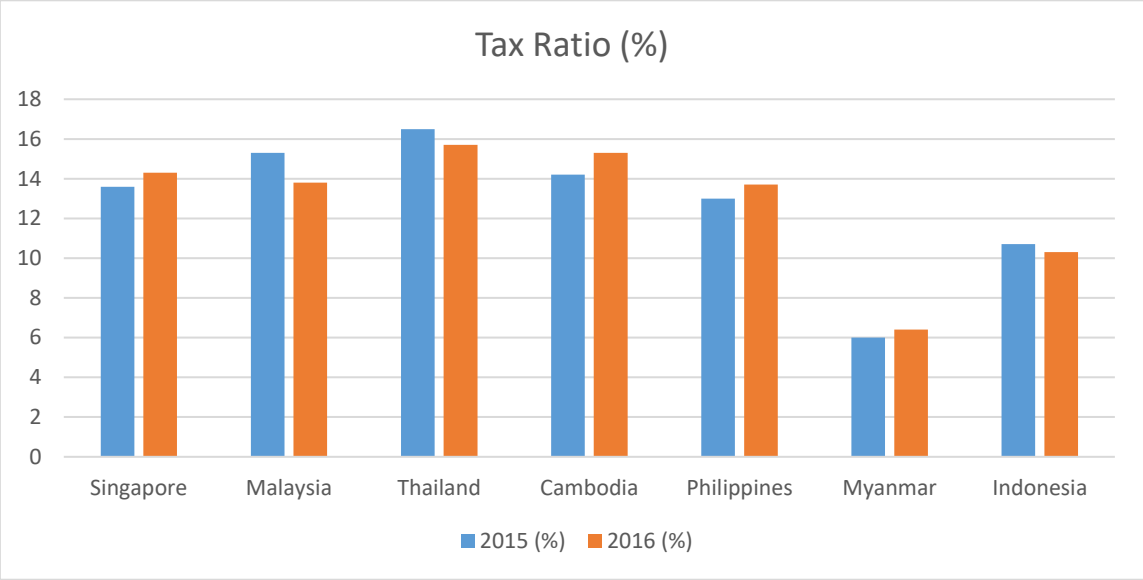
Currently, the research concerning the impact of Tax Treaty on Foreign Direct Investment in Indonesia become more relevant due to the importance of both, tax revenue and foreign direct investment. In the recent decades, tax revenue is the main source of Indonesia Fiscal Budget. The proportion contribution of Tax revenue to Indonesia Income Budget always above 70 per cent after 2010 fiscal year (77.6 per cent on average in the last ten years).

Figure 3.1
Percentage of Tax Revenue to Indonesia Income

Source: author computation based on data from Ministry of Finance Republic of Indonesia

However, if we compare Indonesia Tax Ratio with others countries in South East Asia, Indonesia Tax Ratio is lower than others except from Myanmar.

Figure 3.2
Indonesia Tax Ratio Compare to South East Asia Tax Ratio

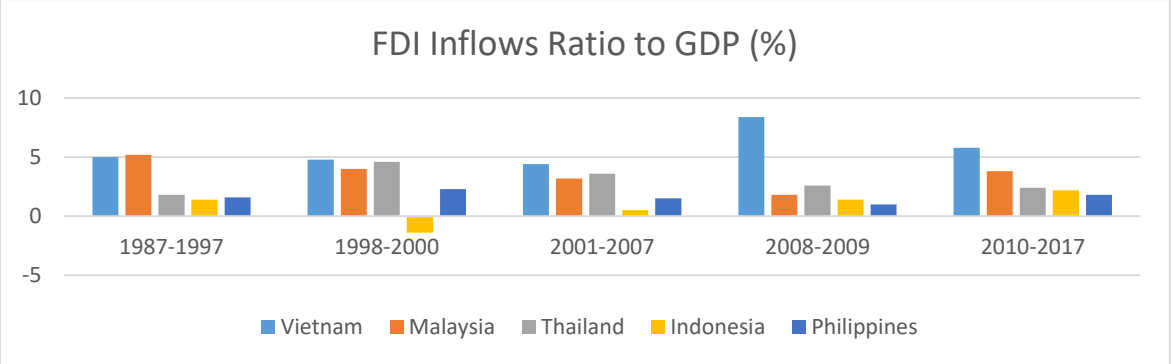


Source: the World Bank

Indonesian government through the Ministry of Finance Republic Indonesia always seek the way to increase tax revenue by impose several tax policy. Indonesia tax reform implemented since 2002 and still continue. The recent tax policy is Tax Amnesty Policy in 2017 which aim to collect tax evasion from previous period and to attract investment from domestic investor which previously invest in abroad. Indonesia began Tax treaty in 1970, mainly focusing in developed country in the beginning. Currently, Indonesia have 70 tax treaty with other countries. The main concern on official tax policy planning in Indonesia is how to reduce tax gap and increase tax revenue without harming economic performance. However, tax policy also could be considering as a tool on attract foreign investment.

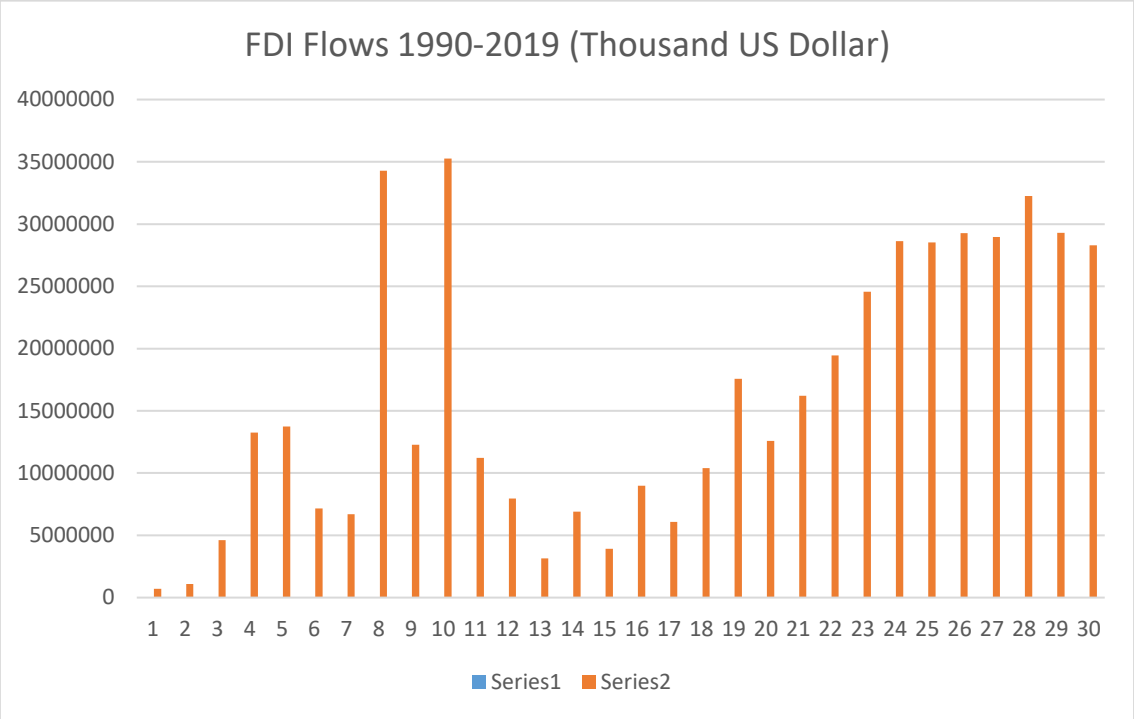
Indonesia need foreign direct investment as one factors of economic driver. Indonesia offer several fiscal facility policy and another policy to attract more foreign investment. Indonesia foreign direct investment relative to GDP are considered the lower among the South East Asia Countries like Vietnam, Malaysia, Thailand and Philippines.

Figure 3.3
South East Asia FDI Inflows Ratio Compare to GDP



Source: RBA, the World Bank.

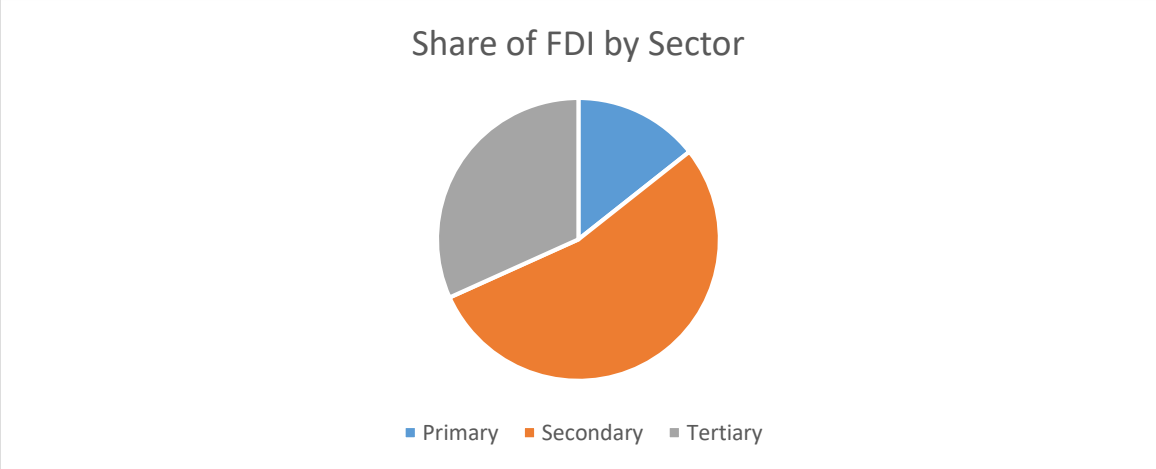
Figure 3.4
Trends of FDI Indonesia (1990-2019)



Source: Central Bank of Indonesia, Indonesia Investment Coordinating Board.

FDI inflows to Indonesia significantly decrease after global financial crises in 1997. It takes several years for FDI Inflows increase as much as the level before crises (Figure.3.4). The biggest percentage of FDI is allocated in secondary sector (Figure 3.5.)

Figure 3.5
Share of Indonesia FDI by Sector



Source: Central Bank of Indonesia, Indonesia Investment Coordinating Board.

The challenge for Indonesia is how to impose policy, especially tax policy, which contributed positively to tax revenue and economic performance, including foreign direct investment.

3.2 Tax Treaty in Indonesia

The history of Indonesian tax treaty began in 1980 with the holding of a tax treaty between Indonesia and Canada. Since then, the Indonesian government has always negotiated tax treaties with countries that have relations with Indonesia. Until now, Indonesia has recorded seventy tax treaties with other countries. Below is a list of Indonesian tax treaties:

Table 3.1
Tax Treaty List of Indonesia

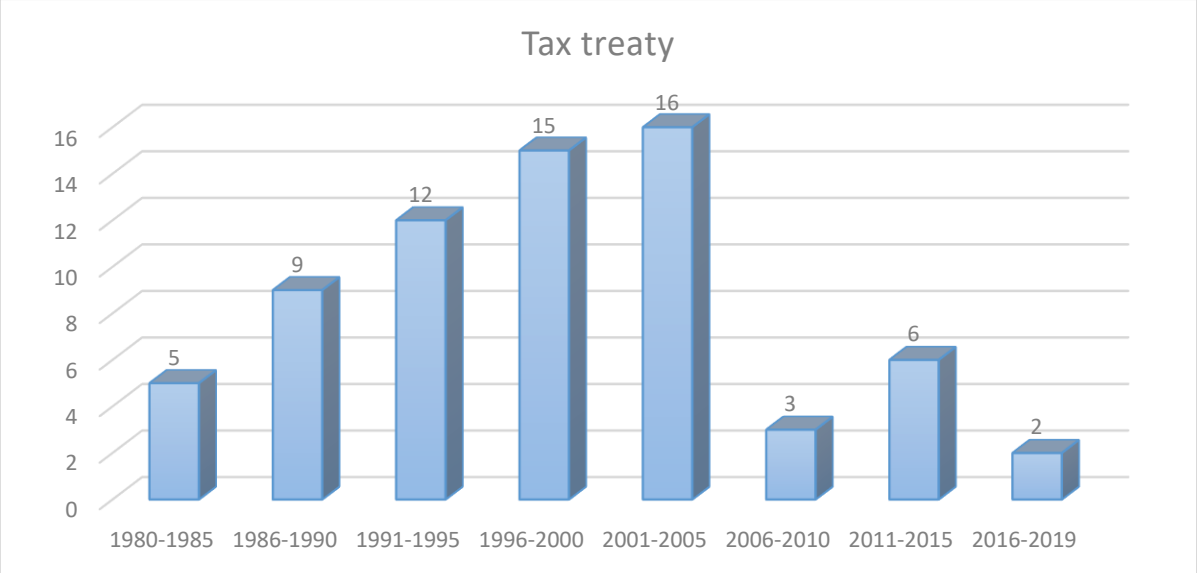
Country	Year of Treaty	Country	Year of Treaty	Country	Year of Treaty
Canada	1980	Luxemburg	1995	Venezuela	2001
France	1981	Srilanka	1995	Belgium	2002
Japan	1983	United King-dom	1995	Slovak	2002
Philppines	1983	Italy	1996	Brunei	2003
Saudi Arabia	1985	Taipei	1996	Egypt	2003
Denmark	1987	Czech	1997	Russia	2003
Malaysia	1987	United States of America	1997	China	2004
India	1988	Jordan	1999	Netherland	2004
Austria	1989	Kuwait	1999	Thailand	2004
New Zealand	1989	South Africa	1999	Korea North	2005
Finland	1990	Suriah	1999	Mexico	2005
Korea South	1990	Syria	1999	Bangladesh	2007
Sweden	1990	Ukraine	1999	Portugal	2008
Switzerland	1990	Uzbekistan	1999	Qatar	2008
Norway	1991	Romania	2000	Iran	2011
Pakistan	1991	Spain	2000	New Guienea	2011
Germany	1992	United Arab Emirates	2000	Croatia	2013
Singapore	1992	Vietnam	2000	Hongkong	2013
Australia	1993	Algeria	2001	Marocco	2013
Bulgaria	1993	Mongolia	2001	Suriname	2014

Hungary	1994	Seychelles	2001	Belarus	2018
Poland	1994	Sudan	2001	Serbia	2019
Tunisia	1994	Turkey	2001		

Source: Ministry of Finance Republic Indonesia, Directorate General of Tax

Since Indonesia's tax reform began in 1980, there have been an increase in the tax treaty signed every year. The peak of this trend was in the early 2000s. This is in line with the desire of the Directorate General of Taxes Republic of Indonesia to strengthen cooperation in the field of taxation with other countries to share tax information with each other. Tax treaty is an instrument to enhance cooperation in sharing financial and tax information between these countries.

Figure 3.6
Trends of Indonesia Tax Treaty



Source: Ministry of Finance Republic Indonesia, Directorate General of Tax

Chapter 4
Research Methodology and Data

4.1. Model and Method

4.1.1. Gravity model

The gravity model are the model that used in various social sciences to predict certain behaviors that based on gravitational interaction that modeled by Isaac Newton's Law of gravity in physic science. Newton's law of gravity said that there is a gravitational pull of objects directly proportional to the mass of object and inversely proportional to the distance between them. In the economics science, the gravity model early used was in international trade theory and developed as one of the most used and successful model to predict trade behavior between countries. The model was developed by a Dutch Economist Jan Tinbergen in the 1960's. The gravity theory suggest that an economy will gravitate towards trading with its closest neighbors and economies which are similar in size, cultural preferences and stage of development. The traditional gravity model initially contains at least two independent variables, which are GDP as the proxy of economic size of partner countries and distance as the proxy of transportation cost. Anderson (1979) and Bergstrand (1989) specify the traditional gravity equation as below (Didia et al., 2015):

$$X_{ij} = \beta_0 Y_i^{\beta_1} Y_j^{\beta_2} D_{ij}^{\beta_3} A_{ij}^{\beta_4} \mu_{ij} \tag{4.1}$$

where X_{ij} represents the value of trade flow between country i and country j; $Y_i(Y_j)$ denotes the nominal GDP value in $i(j)$; D_{ij} is the distance between trading partners i and j; A_{ij} is any other factor(s) either aiding or inhibiting trade between i and j; μ_{ij} is a log-normally distributed error term with $E(Ln\mu_{ij}) = 0$. Theoretically, for variables Y_i, Y_j, and X_{ij} in the traditional gravity model there is a positive relationship between Y_i, Y_j, and X_{ij}. For D_{ij}, which represents proxy's transportation costs, a negative relationship is expected. Hence, $\beta_1 > 0, \beta_2 > 0, \beta_3 < 0$. For A_{ij}, which captures a wide array of factors such as infrastructure variables, economic policy variables, and internal political climate variables, one can expect positive or negative relationships $(\beta_4 > or < 0)$, depending on how the variables are introduced into the regression model (Didia et al., 2015).

The most prevalent approach to estimate the multiplicative gravity model for the trade given by Equation (2) is to use a log-log transformation yielding:

$$ln\, X_{ij} = ln\beta_0 + \beta_1 lnY_i + \beta_2 lnY_j + \beta_3 lnD_{ij} + \beta_4 lnA_{ij} + ln\mu_{ij} \tag{4.2}$$

The log-log transformation makes the parameters of interest become elasticity between dependent and independent variables; that is, it tells us how much X changes given 1% changes on Y.

While normally the gravity model is estimated using Ordinary least squares (OLS), recently, many researchers criticized the method by saying that it does not control the relationship of heterogeneous trade. Anderson and Wincoop (2003) claim that the specification of standard gravity equation is not accurate since it does not incorporate multilateral resistance

terms considering that the trade between two countries is also affected by the trade between them and all other countries (Anderson and Wincoop, 2003). Therefore Anderson and Wincoop, suggested to use fixed effect in the gravity model study. Ways to introduce fixed effects vary with studies. Glick and Rose (2002) use pair of countries in the fixed panel regression. Moreover, many researchers suggest panel data analysis techniques as panels to capture the relationships among variables over time. The panel data analysis also very useful to capture unobservable individual effects (Hummels and Levinson, 1995; Mátyás et al., 1997).

4.1.2 Gravity model on FDI and Tax Treaty Analysis

The use of gravity model on foreign direct investment analysis related to tax treaty started by Bloningen and Davies in 2000. In their research, they use two model to analyses the effect of tax treaty on FDI In and out of United States. In the first model they use a gravity model to explain FDI flows as similar as a model that used to explain trade flows. In the second model they employ is based on MNE activity theory. Their second model was based on paper of Markusen and Markus (1999) empirical model. The other researcher also follow gravity model when explore the relationship between Tax Treaty and FDI like Neumayer (2006) and Murthy and Bhasin (2014).

This research analyses the effect of tax treaty on FDI based on the model developed by Bloningen and Davies (Bloningen and Davies, 2000) based on gravity model. It analyses the effect of tax treaty on FDI with the focus on tax treaties between investor countries (home) with host countries, in this research is Indonesia. This model use panel data model for analysis with the main variable is tax treaty (TT). Based on the theory on the literature about the determinant of FDI, we use others factor which affect FDI as the control variables. The main additional control variables we employ are market size (GDP) and (GDP per Capita), distance (REMOTENESS), trade openness (OPENNESS) and institutional variables (Corruption, Law and Order, Government, Bureaucracy).

This paper will use the empirical model of FDI activity that will also capture other factor beside of tax. The gravity model of FDI which used in Blonigen and Davies (Bloningen and Davies, 2000) research is considered to be representative model in estimating the effects.

The initial specification of the model is:

$$FDI_{ijt} = f(RGDP_{it}, RGDP_{jt}, RGDPCAP_{it}, RGDPCAP_{jt}, DIST_{ij}, TOPEN_{it}, TT_{ij}, Z_{ij}) \quad (4.3)$$

Considering the conceptual framework, this research will examine the hypothesis that it is expected that tax treaties generates an increase in foreign direct investment. We also employ tax treaty ages so we can test if the impact of tax treaty grow over time. To test the hypotheses, we will use the panel data regression. We expect to use Fixed Effect Regression to test the hypotheses. The response variable on the model is foreign direct investment, in total or by sectors to know more about the nature of tax treaty on FDI by sector. Moreover, there are seven predictor determinant namely tax treaty, Tax Treaty age, GDP, GDP per Capita, Distance, trade openness and Institutional Variables.

To test the hypotheses, I will use the panel data regression. The response variable is foreign direct investment. Moreover, there are nine predictor variables namely tax treaty, tax treaty ages, GDP of the home country, GDP of the host country, GDP per Capita of the home country, GDP per Capita of the Host Country, Remoteness (as a proxy of Distance), trade openness and 6 Institutional Variables. We use two step model in this research. The first model is we employ the main gravity model include tax treaty and tax treaty age as our main research variables. The main gravity model are based on traditional gravity model which only use market size, distance and openness as determinant of FDI. The second model include institutional variables as the control variables. The main estimation model are:

$$Ln\ FDI_{ijt} = \beta_0 + \beta_1 TT_{ijt,} + \beta_2 TTAGE_{ijt} + \beta_3 ln\ GDP_{it} + \beta_4 ln\ GDP_{jt} + \beta_5 ln\ GDPCAP_{it} + \beta_6 ln\ GDPCAP_{jt} + \beta_7 ln\ REM_{ijt} + \beta_8 TOPEN_{it} + \beta_9 TOPEN_{jt} + \varepsilon_i \quad (4.4)$$

The second estimation model include institutional factors are:

$$Ln\ FDI_{ijt} = \beta_0 + \beta_1 TT_{ijt,} + \beta_2 TTAGE_{ijt} + \beta_3 ln\ GDP_{it} + \beta_4 ln\ GDP_{jt} + \beta_5 ln\ GDPCAP_{it} + \beta_6 ln\ GDPCAP_{jt} + \beta_7 ln\ REM_{ijt} + \beta_8 TOPEN_{it} + \beta_9 TOPEN_{jt} + \beta_{10} INST_{jt} + \varepsilon_i \quad (4.5)$$

Description of Each Variable

Variable	Description
$Ln\ FDI_{ijt}$	Logarithmic form of FDI from country i (home country as a source of FDI) to country j (host country/Indonesia) at time t
$TT_{ijt,}$	Dummy variable of Tax Treaties (0 if without tax treaty, 1 if with tax treaty) varied by *i* countries and *t* time
$TTAGE_{ijt}$	Dummy variable of tax treaty age
$ln\ GDP_{it}$	Logarithmic form of nominal GDP of country i times at time t
$ln\ GDP_{it}$	Logarithmic form of nominal GDP of country j times at time t
$ln\ GDPCAP_{it}$	Logarithmic form of nominal GDP per Capita of country i times at time t
$ln\ GDPCAP_{jt}$	Logarithmic form of nominal GDP per Capita of country j times at time t
REM_{ijt}	Remoteness (distance between country i and country j weighted by trading partner GDP share to the rest of the world)
$TOPEN_{it}$	Trade Openness (export+import)/GPD varied by *i* countries and *t* time
$TOPEN_{jt}$	Trade Openness (export+import)/GPD of *j* countries and *t* time
$INST_{jt}$	Institutional Factors (Government Stability, Investment Profile, Corruption, Law, Democracy, Bureaucracy) of *j* countries and *t* time

Expected Sign of Each Variable

Variable	Expected sign
$TT_{ijt,}$	The existence of tax treaty, decrease on cost of the Multinational Company tax as a source of FDI, the larger the FDI Inflow. Therefore, this variable is expected to have a positive (+) sign.
$TTAGE_{ijt}$	The growing time of tax treaty existence, the effect of tax treaty on FDI grow over time. Therefore, this variable is expected to have a positive (+) sign.
$ln\ GDP_{it}$	The larger of GDP of home country, the larger the FDI Inflow. Therefore, this variable is expected to have a positive (+) sign.

$\boldsymbol{ln\ GDP_{it}}$	The larger of GDP of host country, the larger the FDI Inflow. Therefore, this variable is expected to have a positive (+) sign.
$\boldsymbol{ln\ GDPCAP_{it}}$	The larger of GDP per capita of home country, the larger the FDI Inflow. Therefore, this variable is expected to have a positive (+) sign.
$\boldsymbol{ln\ GDPCAP_{jt}}$	The larger of GDP per capita of host country, the larger the FDI Inflow. Therefore, this variable is expected to have a positive (+) sign.
REM_{ijt}	The more remote an area is, the more expensive the transportation cost. Therefore, this variable is expected to give a negative (-) sign.
$\boldsymbol{TOPEN_{it}}$	More open home countries in term of trade, lower cost of business, more FDI inflows. Therefore, this variable is expected to have a positive (+) sign.
$\boldsymbol{TOPEN_{jt}}$	More open host countries in term of trade, lower cost of business, more FDI inflows. Therefore, this variable is expected to have a positive (+) sign.
$\boldsymbol{INST_{jt}}$	An increase on Institutional Factors Index (Government Stability, Investment Profile, Corruption, Law, Democracy, Bureaucracy) of host country, lower cost of business, more FDI inflows. Therefore, this variable is expected to have a positive (+) sign.

4.2. Data

Empirical FDI studies correlated with tax have always been hampered by data difficulties. Missing or incomplete data for one or more variables often leads researchers to examine cross-sectional data, with little or no time series dimension (Bloningen and davies, 2000). Data issues are also why researcher focus on Indonesia data as object of research. Researcher approach is to collect data on Indonesia FDI inflows for as many years as available across as many countries as available, including data from the sector level.

In pursuit of the objective of the research, this study will use panel data with all countries with foreign direct investment and without FDI in Indonesia as cross section unit analyses during the period from 1990 to 2016. The year of 1990 is chosen because data of FDI inflows per sector only available 1990 afterward. In term of variable, this research requires several data. First, information regarding FDI from each parent countries to Indonesia come from Indonesia Investment Coordinating Board. Second, the Tax Treaty data are sourced from Directorate General of Taxes. Third, the data of GDP for the host and the parent countries are obtained from The Wold Bank. Data of distance between countries taken from The Centre dÉtudes Prospectives et dÍnformations Internationales (CEPII), while trade openness is come from the World Bank Data. If the data cannot get from this Site, this research constructed an alternative trade openness measure defined as the trade flows (export and import) divided by its GDP. Lastly, the institutional data come from The International Country Risk Guide (ICRG).

In this research, we try to analysis the effect of tax treaty on FDI into sectors level. We try to capture the nature of tax policy in each sectors and the impact to FDI. However, data

from Indonesia Central Bank and Indonesia Investment Coordinating Board only break down the sector level into three categories, primary sectors, secondary sectors, and tertiary sectors.

Table 4.1
Primary Sector FDI of Indonesia

Food, Crops, Plantation, Livestock	Fishery
Forestry	Mining

Table 4.2
Secondary Sector FDI of Indonesia

Food Industries	Non-Metallic mineral industries
Textile Industries	Basic Metal Industries
Leather goods and footwear industries	Industries of Machinery, Electronic
Chemical and pharmaceutical industries	**Medical Equipment**
Rubber and plastic industries	Motorized Vehicle Industries

Table 4.3
Tertiary Sector FDI of Indonesia

Electricity, Gas and water	Hotels and Restaurant
Construction	Transportation, Storage and Telecommunication
Trade and Reparation	Housing, Industrial estates and office Building

The treaty effect are measured through the two types of dummy variables. The first one is tax treaty by creating a variable that start from "0" till the year the tax treaty be implemented and become "1". The second is dummy interactive variable for measure age effect of tax treaty. We construct these dummy variable by create a continuous time variable rising in value as the calendar year. Then we create a variable that start from "0"till the year treaty does not take off and "0"when the year tax treaty has been implemented. Finally, we multiply that two variables to construct tax treaty age variable.

In term of market size, ODI (ODI, 1997), which conduct research studies to know the correlation between FDI and the size of the market use a cross section of countries, use GDP as the proxy of the market size. Other researcher use income per capita as a proxy of GDP. Edwards (Edwards, 1990) and Jaspersen *et al.* (Jaspersen *et al.,* 2000) determines income per capita as a proxy for the return on investment and argues that real GDP per capita is the real proxy of FDI/GDP. They argue that a higher GDP per capita implies better prospects for FDI in the host country. Bloningen and Davies also use both GDP and GDP per Capita as a proxy of market size. When many studies only hypothesize relationship between host country GDP and GDP per capita, Bloningen and Davies include GDP and GDP per capita of home countries in the model. In this research we will follow Bloningen and Davies and use both GDP and GDP per Capita as representation of market size from home and host country.

We use remoteness as a proxy of distance. Remoteness is defined by a formula that measures an average weight distance of a country from its trading partners. It is largely used to capture the idea that the more the remoteness of a country is, the higher the trade cost needed as well as in investment. Moreover, Institutional data like Government, Corruption, Law and Order, Investment Profile, Bureaucracy, are used as additional control variables in

this study. The data for these variables have been taken from The International Country Risk Guide (ICRG).

Chapter 5
Empirical Results

This chapter analyses the data gathered and addresses each of the research questions in turn. Firstly, it presents the linkages between tax treaty and foreign direct investment. Secondly, it seeks to assess the impact of tax treaty on sector level and see how the tax policy on sector level affect foreign direct investment. Moreover, it will examine whether tax treaty effects on FDI activity grow over time. Finally, this chapter also analyses the effect of others FDI determinant on Indonesia FDI inflows.

Tax treaty as one of tax policy tool, is estimated to be able to increase FDI in Indonesia. Using information on the data of tax treaty and FDI inflows Indonesia (total and by sectors) in 1990-2016, figure 5.1, 5.2, 5.3 and 5.4 shows a scatter plot between Tax Treaty Age and FDI Inflows to see the relationship between them.

Figure 5.1.
Two Way Scatter Plot for FDI Total and Age Treaty

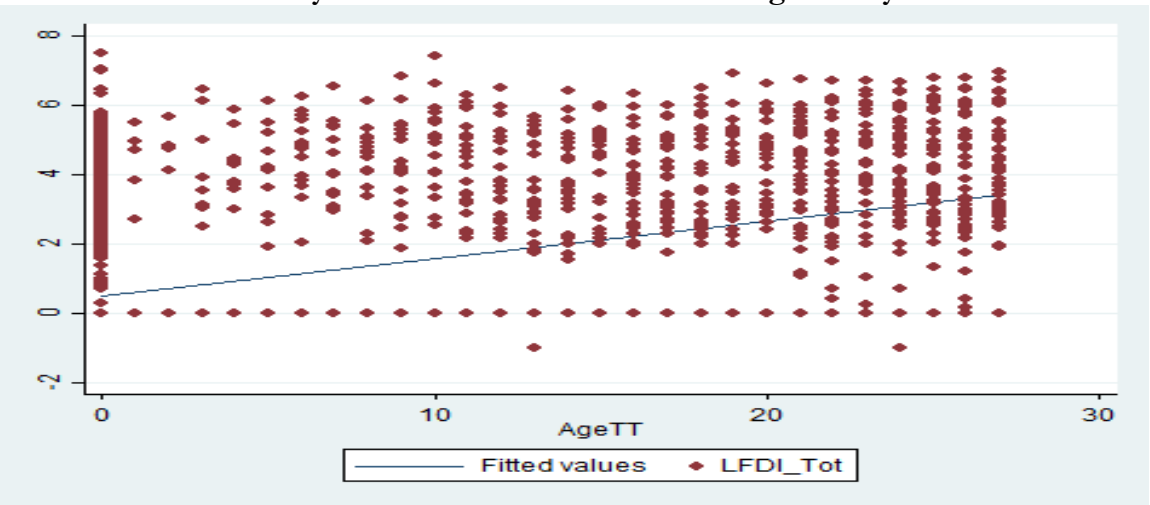


Figure 5.2.
Two Way Scatter Plot for FDI Primary Sectors and Age Treaty

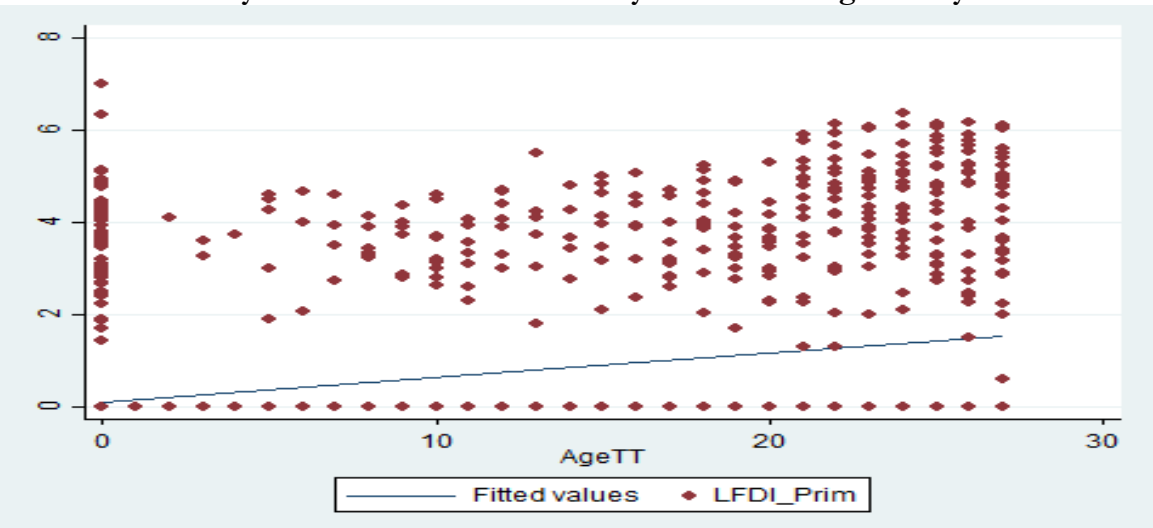


Figure 5.3.
Two Way Scatter Plot for FDI Secondary Sectors and Age Treaty

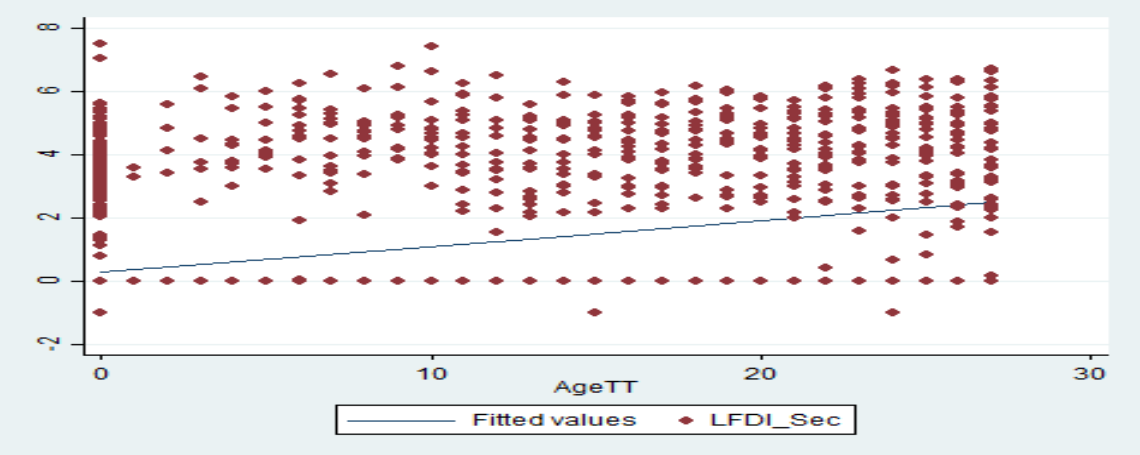
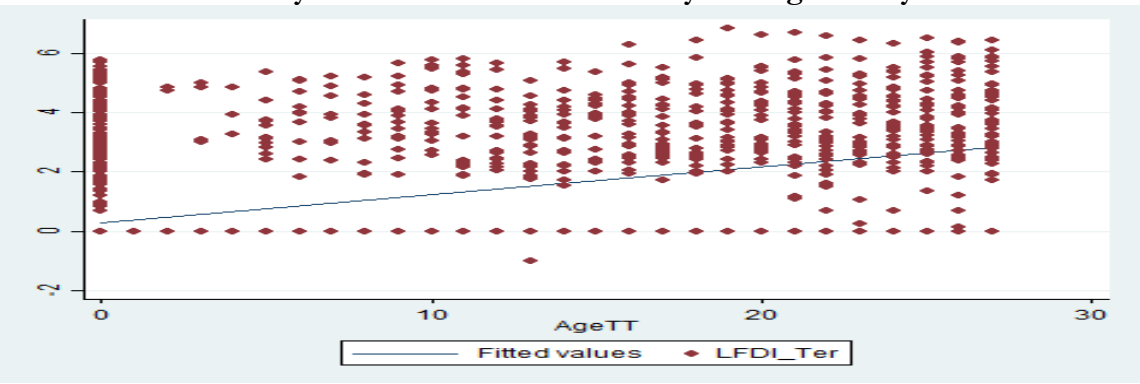


Figure 5.4.
Two Way Scatter Plot for FDI Tertiary and Age Treaty



To explore the impact of tax treaty on the foreign direct investment, this study uses the basic following regression specification:

$$Ln\ FDI_{ijt} = \beta_0 + \beta_1 TT_{ijt,} + \beta_2 TTAGE_{ijt} + \beta_3 ln\ GDP_{it} + \beta_4 ln\ GDP_{jt} + \beta_5 ln\ GDPCAP_{it} + \beta_6 ln\ GDPCAP_{jt} + \beta_7 ln\ REM_{ijt} + \beta_8 TOPEN_{it} + \beta_9 TOPEN_{jt} + \varepsilon_i \quad (5.1)$$

Where $Ln\ FDI_{ijt}$ Logarithmic form of FDI from country i to country j at time t, $TT_{ijt,}$ Dummy variable of Tax Treaties (0 if without tax treaty, 1 if with tax treaty) varied by *i* countries and *t* time, $TTAGE_{ijt}$ Dummy variable of tax treaty age, $ln\ GDP_{it}$ Logarithmic form of nominal GDP of country i times at time t, $ln\ GDP_{jt}$ Logarithmic form of nominal GDP of country j times at time t, $ln\ GDPCAP_{it}$ Logarithmic form of nominal GDP per Capita of country i times at time t, $ln\ GDPCAP_{it}$ Logarithmic form of nominal GDP per Capita of country j times at time t, $ln\ REM_{ijt}$ Remoteness (distance between country i and country j weighted by trading partner GDP share to the rest of the world), $TOPEN_{it}$ Trade Openness (export+import)/GPD varied by *i* countries and *t* time, and $TOPEN_{jt}$ Trade Openness (export+import)/GPD of *j* countries and *t* time.

5.1 Linkage between Tax Treaty and Foreign Direct Investment

To select a suitable model based on the characteristics of the panel data, Hausman test and likelihood ratio test are conducted. These tests specify that fixed effect model is appropriate.

Table 5.1.
Estimated Result of the Impact of Tax Treaty on the Total of Foreign Direct Investment (Fixed Effect Model)

Variables	(1)	(2)
Tax_Treaty	0.8430908***	0.8113376***
	(0.1042946)	(0.1059877)
AgeTT	0.0747353***	0.074205***
	(0.0049065)	(0.0049912)
LGDP it	-0.0045052	-0.0346953
	(0.0886955)	(0.0900108)
LGDP jt	6.181302***	65.34795***
	(1.023745)	(24.04419)
LGDP Capita it	0.1233903	0.1297365
	(0.0820913)	(0.0830819)
LGDP Capita jt	6.929688***	77.95902***
	(1.197412)	(28.52564)
LREM	-0.1029667	-0.3073201*
	(0.154565)	(0.1720728)
Openness it	-0.0002382	0.0003159
	(0.0006911)	(0.000696)
Openness jt	0.0072866***	0.0892992***
	(0.0026948)	(0.0243561)
Constant	-47.51121***	512.1816***
	(7.983427)	(187.3514)
N Observations	3,456	3,456
N Countries	128	128
Time Variant Controls	No	Yes
R-Squared	0.1984	0.2144
adjusted R-squared	0.1656	0.1765

Note: Dependent Variable is FDI inflows to Indonesia. All standard errors are robust and reported in parentheses.
* Significant at 10%
** Significant at 5%
*** Significant at 1%

The regression results of fixed effect model are reported in Table 5.1 column (1) reports the base regression as in main gravity model include the main variable of this research (tax treaty and treaty age). Column (2) reports results where time dummies are added to the regression, to account for the changing nature of the relationship over time. Column (1) has revealed that the results of basic regression specification indicate that bilateral tax treaty with Indonesia, ages of tax treaty, GDP of the host country (Indonesia), GDP per capita of host country, and Openness of host country, have been associated with foreign direct investment at national level (Total FDI). The coefficient estimates of bilateral tax treaty with Indonesia, ages of tax treaty, GDP of the host country (Indonesia), GDP per capita of host country, and Openness of host country are all statistically significant and positive.

The result indicates that the existence of bilateral tax treaty between countries with Indonesia leads to an increase in foreign direct investment inflow to Indonesia. The result also show that the effect of tax treaty on FDI inflows to Indonesia is grow over time. Moreover, the result suggesting that the increase of main variable in gravity model (GDP of the host country, GDP per capita of host country, and Openness of host country) leads to an increase in FDI inflows. However, the GDP of home countries as a source of FDI, GDP per capita of home countries, openness of home countries and remoteness as a proxy of distance are all statistically not significant on FDI inflows. The next step is to add year fixed effects.

As shown in column 2 of Table 5.1, the result for the variable are almost completely consistent after controlling for year fixed effects. The coefficient of bilateral tax treaty with Indonesia, ages of tax treaty, GDP of the host country (Indonesia), GDP per capita of host country, and Openness of host country remain unchanged, which is positive and significant at the 1 per cent level, indicating that an existence of tax treaty, time factor of FDI, market size of host country, and openness of host country will lead to an increase of FDI Inflows. The difference result after controlling for year fixed effects occur on the remoteness variable which turn to be statistically significant and negative. This result contradict with the hypothesis for remoteness which is significant and positive. However, the GDP of home countries as a source of FDI, GDP per capita of home countries, openness of home countries are all consistent and remain statistically not significant on FDI inflows.

5.1.1 Linkage between Tax Treaty and Foreign Direct Investment per Sectors.

Table 5.2.
Estimated Result of the Impact of Tax Treaty on the Primary Sectors of Foreign Direct Investment (Fixed Effect Model)

Variables	(1)	(2)
Tax_Treaty	1.020839***	1.01172***
	(0.0901226)	(0.0919812)
AgeTT	0.0744072***	0.0745602***
	(0.0042398)	(0.0043316)
LGDP it	-0.0092277	-0.0302223
	(0.0766431)	(0.0781157)
LGDP jt	0.4689276	24.21369
	(0.8846334)	(20.86671)
LGDP Capita it	0.0406238	0.0315485
	(0.0709363)	(0.0721025)
LGDP Capita jt	0.6772045	28.8979
	(1.034702)	(24.75592)
LREM	0.1470125	0.0578073
	(0.133562)	(0.1493331)
Openness it	0.002573***	0.0028125***
	(0.0005972)	(0.000604)
Openness jt	0.0011511	-0.0278234
	(0.0023286)	(0.0211374)
Constant	2.533331***	188.455***
	(6.8986)	(162.5925)

N Observations	3,456	3456
N Countries	128	128
Time Variant Controls	No	Yes
R-Squared	0.1568	0.1664
adjusted R-squared	0.1222	0.1262

Note: Dependent Variable is FDI inflows to Indonesia Primary Sectors. All standard errors are robust and reported in parentheses.
* Significant at 10%
** Significant at 5%
*** Significant at 1%

The result on primary FDI sectors show that the main variables tax treaty and tax treaty age are gives remain consistent result and statistically significant with positive magnitude in FDI Primary Sectors result. The result also unchanged with time variance control. However, other variables are become statistically not significant except the openness of home countries.

Table 5.3.
Estimated Result of the Impact of Tax Treaty on the Secondary Sectors of Foreign Direct Investment (Fixed Effect Model)

Variables	(1)	(2)
Tax_Treaty	0.4766699***	0.4723276***
	(0.0921427)	(0.0936213)
AgeTT	0.054606***	0.0554718***
	(0.0043348)	(0.0044089)
LGDP it	-0.0720663	-0.0882842
	(0.0783611)	(0.0795086)
LGDP jt	1.888381**	-16.44371
	(0.9044624)	21.23879
LGDP Capita it	0.0755961	0.1176875
	(0.0725264)	(0.0733882)
LGDP Capita jt	2.052795*	20.01194
	(1.057895)	(25.19735)
LREM	-0.0414234	-0.1405498
	(0.1365558)	(0.1519959)
Openness it	-0.0003555	0.0000573
	(0.0006106)	(0.0006148)
Openness jt	0.0006169	0.0262473
	(0.0023808)	(0.0215143)
Constant	-13.80912	129.0354
	(7.053232)	(165.4918)
N Observations	3456	3456
N Countries	128	128
Time Variant Controls	No	Yes
R-Squared	0.1193	0.1371
adjusted R-squared	0.0832	0.09551217

Note: Dependent Variable is FDI inflows to Indonesia Secondary Sectors.

All standard errors are robust and reported in parentheses.
* Significant at 10%
** Significant at 5%
*** Significant at 1%

Moreover, the result on secondary FDI sectors show that the main variables tax treaty and tax treaty age are remain consistent and statistically significant with positive magnitude in FDI Secondary Sectors result. The result also unchanged with time variance control. However, other variables are become statistically not significant except the GDP and GDP per capita of host country.

Table 5.4.
Estimated Result of the Impact of Tax Treaty on the Tertier Sectors of Foreign Direct Investment (Fixed Effect Model)

Variables	(1)	(2)
Tax_Treaty	0.9853667***	1.015799***
	(0.0970189)	(0.0984455)
AgeTT	0.0909723***	0.0932732***
	(0.0045642)	(0.0046361)
LGDP it	-0.0013226	-0.0359563
	(0.082508)	(0.0836056)
LGDP jt	6.535918***	55.75452**
	(0.952327)	(22.33319)
LGDP Capita it	0.0007006	0.0178488
	(0.0763645)	(0.0771697)
LGDP Capita jt	7.412465***	66.65153**
	(1.113879)	(26.49573)
LREM	0.008239	-0.1759686
	(0.1437824)	(0.159828)
Openness it	0.0019011***	0.0022993***
	(0.0006429)	(0.0006465)
Openness jt	0.0077344***	0.0827417***
	(0.0025068)	(0.0226229)
Constant	-50.90841***	436.1987
	(7.426493)	(174.0193)
N Observations	3456	3456
N Countries	128	128
Time Variant Controls	No	Yes
R-Squared	0.2651	0.2819
adjusted R-squared	0.2350	0.24723464

Note: Dependent Variable is FDI inflows to Indonesia Secondary Sectors.
All standard errors are robust and reported in parentheses.
* Significant at 10%
** Significant at 5%
*** Significant at 1%

The result on tertiary FDI sectors is the sectors that gives the closest result like in the total FDI result. The tax treaty, tax treaty age, GDP of host country, GDP per capita of host country, openness of host country remains statistically significant and positive. These result may be correlated with the nature of Indonesia tertiary sectors that mainly focus on domestic market.

5.1.2 Tax Treaty and Tax Treaty Age on FDI

Table 5.5
Result of Tax Treaty and TT Age on FDI with time variance control (Fixed Effect Model)

	Total FDI	Primary FDI	Secondary FDI	Tertier FDI
Tax Treaty	0.8113376***	1.01172***	0.4723276***	1.015799***
	(0.1059877)	(0.0919812)	(0.0936213)	(0.0984455)
Tax Treaty age	0.074205***	0.0745602***	0.0554718***	0.0932732***
	(0.0049912)	(0.0043316)	(0.0044089)	(0.0046361)

In all model, tax treaty and tax treaty age constantly give similar result. Both tax treaty and tax treaty age are statistically significant and positive. It means that the existence of tax treaty between Indonesia and other countries increase the FDI inflows. The result on tax treaty age also shows that the impact of tax treaty on FDI Inflows grow over time. The result support the initial hypothesis that tax treaty do have a positive and significant effect on FDI, in term of FDI total or by sectors are all significant and positive. It also support the hypothesis that the impact of tax treaty on FDI grow over time. This finding support the other finding by Bloningen and Davies (Bloningen and Davies, 2000), Neumayer (2006) and Weyzig (2013). The magnitude are varied. In Total FDI, the existence of tax treaty increase the FDI Total 0.8%. The result also show that every 1 year age of tax treaty increase the FDI Total 0.07%.

5.1.3 Market Size on FDI

Jordaan (2004) states that FDI will tend to flow to the countries with big economics size which will provide greater market and larger purchasing power. This happens based on assumption that if investment in the larger economics size countries will bring a higher return on their investment (capital) and higher profits from the investment. Charkrabarti (2001) mentions that these hypothesis of market size supports a theory that a larger market is make use of resources more efficient and maximize the benefit of the economics of scale, the bigger production, the more efficient. Thus, when the market size begin to grows, the FDI tend to increase follows the market expansion, because there is create market which need to exploit. This hypothesis is really popular and based on researcher review, most of the research state the size of host countries market as a significant factor to FDI inflows.

Table 5.6

Result of Market Size on FDI with time variance control (Fixed Effect Model)

	Total FDI	Primary FDI	Secondary FDI	Tertiary FDI
GDP Home	-0.0346953	-0.0302223	-0.0882842	-0.0359563
	(0.0900108)	(0.0781157)	(0.0795086)	(0.0836056)
GDP Host	65.34795***	24.21369	-16.44371	55.75452**
	(24.04419)	(20.86671)	21.23879	(22.33319)
GDP CAP Home	0.1297365	0.0315485	0.1176875	0.0178488
	(0.0830819)	(0.0721025)	(0.0733882)	(0.0771697)
GDP CAP Host	77.95902***	28.8979	20.01194	66.65153**
	(28.52564)	(24.75592)	(25.19735)	(26.49573)

Our result find that GDP and GDP per capita of host country are statistically significant and positive on FDI Total and Tertiary FDI. It supported the market theory that FDI tends to increase follows the market expansion. In the tertiary sectors of Indonesia, these sectors are sectors that dominantly for domestic market and non-export oriented. The magnitude are varied. For instance, the result indicates that holding constant for other variables, Increase 1% of GDP host increase Total FDI by 65%. Increase 1% GDP Per Capita will lead the Total FDI increase by 77%.

5.1.4 Distance on FDI

Various studies show that the distance between countries is a main determinant of trade between two or more countries (e.g Frankel and Rose, 2002) and investment by multinational companies (Bloningen, et al, 2008). The investor are more likely to put their investment to the countries if they are closer geographically because they share common interest and culture.

Table 5.7
Result of Distance Factor on FDI with time variance control (Fixed Effect Model)

	Total FDI	Primary FDI	Secondary FDI	Tertier FDI
Remoteness	-0.3073201*	0.0578073	-0.1405498	-0.1759686
	(0.1720728)	(0.1493331)	(0.1519959)	(0.159828)

Our result only find that remoteness as a proxy of distance is statistically significant and negative as our hypothesis in FDI total. Every increase 1% in Remoteness will reduce FDI Total by 0.3%. However, in FDI per sector, remoteness is statistically not significant.

5.1.5 Trade Openness on FDI

The hypothesis of openness on FDI is: the investment are move to the tradable sector which can give the higher return on their investment, thus the degree of openness from countries to international trade is relevant variable in the investor decision. Jordaan (Jordaan, 2004) argues that the effect of openness on FDI is different, based on the type of FDI. When investment are looking for market, which investment in host countries are made to produce the goods and seek the local market as a consumers, protectionism and free trade barriers, which mean a decrease in openness can have a positive impact on FDI. In contrast, multi-national firms as investors in export-oriented investments are looking for invest in countries with less trade barriers or more open economy, because this situation led to reduce transaction cost associated with exporting.

Table 5.8
Result of Trade Openness on FDI with time variance control (Fixed Effect Model)

	Total FDI	Primary FDI	Secondary FDI	Tertier FDI
Openness Home	0.0003159	0.0028125***	0.0000573	0.0022993***
	(0.000696)	(0.000604)	(0.0006148)	(0.0006465)
Openness Host	0.0892992***	-0.0278234	0.0262473	0.0827417***
	(0.0243561)	(0.0211374)	(0.0215143)	(0.0226229)

In our hypothesis, we expect that both openness from home and host country are significant and positive to FDI. However, based on Indonesia data, the result shows that the effect of openness is varied by sectors. In Total FDI, every increase 1 index of host country openness will increase FDI by 8,9%.

5.2 The effect of Institutional Variables on FDI.

To reduce the potential for spurious finding, additional control variables are included in this statistical model. We use six factors from Institutional data based on International Country Risk Guide (ICRG). The six variables are Government Stability, Investment Profile, Corruption, Law, Democracy and Bureaucracy. Similar with the previous basic model, the regression of these specification are conducted, either with taking into account the year dummies or overlooking them. The result in column (3) and (4) in table 5.9. (FDI Total), 5.10 (FDI Secondary), 5.11 (FDI Tertiary), show that the main variables which is Tax Treaty and Tax Treaty ages are remain statistically significant and positive. Both of variables of interest (Tax Treaty and Tax treaty age) consistent and statistically significant and positive. It support the hypothesis and theory. The magnitude also doesn't so much change, the existence of tax treaty will increase FDI Total by 0.84%. And every 1 year of tax treaty will increase FDI Total by 0.07%. After controlling for year fixed effects, both of variables of interest are consistent, statistically significant and positive. The result is robust. The magnitude also change slightly. The statistical model after we add additional control variables are:

$$Ln\ FDI_{ijt} = \beta_0 + \beta_1 TT_{ijt,} + \beta_2 TTAGE_{ijt} + \beta_3 ln\ GDP_{it} + \beta_4\ ln\ GDP_{jt} + \beta_5\ ln\ GDPCAP_{it} + \beta_6\ ln\ GDPCAP_{jt} + \beta_7\ ln\ REM_{ijt} + \beta_8\ TOPEN_{it} + \beta_9\ TOPEN_{jt} + \beta_{10}\ INST_{jt} + \varepsilon_i \quad (5.2)$$

Where $Ln\ FDI_{ijt}$ Logarithmic form of FDI from country i to country j at time t, $TT_{ijt,}$ Dummy variable of Tax Treaties (0 if without tax treaty, 1 if with tax treaty) varied by *i* countries and *t* time, $TTAGE_{ijt}$ Dummy variable of tax treaty age, $ln\ GDP_{it}$ Logarithmic form of nominal GDP of country i times at time t, $ln\ GDP_{jt}$ Logarithmic form of nominal GDP of country j times at time t, $ln\ GDPCAP_{it}$ Logarithmic form of nominal GDP per Capita of country i times at time t, $ln\ GDPCAP_{it}$ Logarithmic form of nominal GDP per Capita of country j times at time t, $ln\ REM_{ijt}$ Remoteness (distance between country i and country j weighted by trading partner GDP share to the rest of the world), $TOPEN_{it}$ Trade Openness (export+import)/GPD varied by *i* countries and *t* time, and $TOPEN_{jt}$ Trade Openness (export+import)/GPD of *j* countries and *t* time, and $INST_{jt}$ Institutional Factors (Government Stability, Investment Profile, Corruption, Law, Democracy, Bureaucracy) of *j* countries and *t* time.

Table 5.9.
Estimated Result of the Impact of Tax Treaty on the Foreign Direct Investment with Control Variables (Fixed Effect Model)

Variables	**(1)**	**(2)**	**(3)**	**(4)**
Tax_Treaty	0.8430908***	0.8113376***	0.8436688***	0.8113376***
	(0.1042946)	(0.1059877)	(0.1049151)	(0.1059877)
AgeTT	0.0747353***	0.074205***	0.0750824***	0.074205***
	(0.0049065)	(0.0049912)	(0.0049347)	(0.0049912)
LGDP it	-0.0045052	-0.0346953	-0.0203893	-0.0346953
	(0.0886955)	(0.0900108)	(0.0895109)	(0.0900108)
LGDP jt	6.181302***	65.34795***	6.994768***	9.614003***
	(1.023745)	(24.04419)	(1.335864)	(34.05634)
LGDP Capita it	0.1233903	0.1297365	0.1256649	0.1297365
	(0.0820913)	(0.0830819)	(0.0823777)	(0.0830819)
LGDP Capita jt	6.929688***	77.95902***	7.942137***	10.72125***
	(1.197412)	(28.52564)	(1.596116)	(28.52564)
LREM	-0.1029667	-0.3073201*	-0.1485092	-0.3073201*
	(0.154565)	(0.1720728)	(0.1599088)	(0.1720728)
Openness it	-0.0002382	0.0003159	-0.000146	0.0003159
	(0.0006911)	(0.000696)	(0.0006926)	(0.000696)
Openness jt	0.0072866***	0.0892992***	0.0086335***	0.0253604***
	(0.0026948)	(0.0243561)	(0.0027503)	(0.0580294)
Gov_Stability jt			0.008627	-0.0945527
			(0.0128742)	(0.1618173)
Investment jt			0.0148025*	0.0279259
			(0.0088849)	(0.127004)
Corruption jt			0.0320323	-0.0475786
			(0.0301205)	(0.2250241)
Law jt			-0.0256852	-0.0474717
			(0.0185269)	(0.192835)

Democracy jt			0.0038057	-0.0636436
			(0.0134203)	(0.0480495)
Bureaucracy jt			0.0410145	0.1369443
			(0.0285052)	(0.3961651)
Constant	-47.51121***	512.1816***	-53.18052***	-71.79303
	(7.983427)	(187.3514)	(10.12903)	(270.8411)
N Observations	3,456	3,456	3,456	3,456
N Countries	128	128	128	128
Time Variant Controls	No	Yes	No	Yes
R-Squared	0.1984	0.2144	0.2012	0.2144
adjusted R-squared	0.1656	0.1765	0.1670	0.1765

Note: Dependent Variable is FDI inflows to Indonesia. All standard errors are robust and reported in parentheses.
* Significant at 10%
** Significant at 5%
*** Significant at 1%

Table 5.10.
Estimated Result of the Impact of Tax Treaty on the Primary Sectors of Foreign Direct Investment with Control Variables (Fixed Effect Model)

Variables	(1)	(2)	(3)	(4)
Tax_Treaty	1.020839***	1.01172***	1.008531***	1.01172***
	(0.0901226)	(0.0919812)	(0.0907274)	(0.0919812)
AgeTT	0.0744072***	0.0745602***	0.0738621***	0.0745602***
	(0.0042398)	(0.0043316)	(0.0042674)	(0.0043316)
LGDP it	-0.0092277	-0.0302223	-0.0185635	-0.0302223
	(0.0766431)	(0.0781157)	(0.0774064)	(0.0781157)
LGDP jt	0.4689276	24.21369	0.8153792	6.082443
	(0.8846334)	(20.86671)	(1.155215)	(29.55573)
LGDP Capita it	0.0406238	0.0315485	0.0484353	0.0315485
	(0.0709363)	(0.0721025)	(0.0712377)	(0.0721025)
LGDP Capita jt	0.6772045	28.8979	1.063637	7.454593
	(1.034702)	(24.75592)	(1.380273)	(33.71075)
LREM	0.1470125	0.0578073	0.127954	0.0578073
	(0.133562)	(0.1493331)	(0.1382843)	(0.1493331)
Openness it	0.002573***	0.0028125***	0.002583***	0.0028125***
	(0.0005972)	(0.000604)	(0.0005989)	(0.000604)
Openness jt	0.0011511	-0.0278234	0.001067	-0.0092097
	(0.0023286)	(0.0211374)	(0.0023784)	(0.0503607)
Gov_Stability jt			0.0101305	0.0095546
			(0.0111332)	(0.1404329)
Investment jt			0.0005828	-0.0022215
			(0.0076834)	(0.1102202)

Corruption jt			0.001157	-0.0058535
			(0.0260473)	(0.1952868)
Law jt			-0.011309	-0.016974
			(0.0160215)	(0.1673515)
Democracy jt			0.0259302**	0.0186542
			(0.0116054)	(0.0416997)
Bureaucracy jt			-0.0224011	-0.0453822
			(0.0246504)	(0.3438112)
Constant	2.533331***	188.455***	5.460236***	46.926***
	(6.8986)	(162.5925)	(8.759283)	(235.049)
N Observations	3,456	3456	3456	3456
N Countries	128	128	128	128
Time Variant Controls	No	Yes	No	Yes
R-Squared	0.1568	0.1664	0.1584	0.1664
adjusted R-squared	0.1222	0.1262	0.12236672	0.1262

Note: Dependent Variable is FDI inflows to Indonesia. All standard errors are robust and reported in parentheses.
* Significant at 10%
** Significant at 5%
*** Significant at 1%

Table 5.11.
Estimated Result of the Impact of Tax Treaty on the Secondary Sectors of Foreign Direct Investment with Control Variables (Fixed Effect Model)

Variables	(1)	(2)	(3)	(4)
Tax_Treaty	0.4766699***	0.4723276***	0.478474***	0.4723276***
	(0.0921427)	(0.0936213)	(0.0925069)	(0.0936213)
AgeTT	0.054606***	0.0554718***	0.0551713***	0.0554718***
	(0.0043348)	(0.0044089)	(0.0043511)	(0.0044089)
LGDP it	-0.0720663	-0.0882842	-0.0822861	-0.0882842
	(0.0783611)	(0.0795086)	(0.0789246)	(0.0795086)
LGDP jt	1.888381**	-16.44371	2.728163**	1.917353
	(0.9044624)	21.23879	1.177872	30.08275
LGDP Capita it	0.0755961	0.1176875	0.0878449	0.1176875
	(0.0725264)	(0.0733882)	(0.0726349)	(0.0733882)
LGDP Capita jt	2.052795*	20.01194	3.122539**	-1.729971
	(1.057895)	(25.19735)	(1.407345)	(34.31186)
LREM	-0.0414234	-0.1405498	-0.0604752	-0.1405498
	(0.1365558)	(0.1519959)	(0.1409965)	(0.1519959)
Openness it	-0.0003555	0.0000573	-0.0002452	0.0000573
	(0.0006106)	(0.0006148)	(0.0006106)	(0.0006148)
Openness jt	0.0006169	0.0262473	-0.0023142	0.0119122
	(0.0023808)	(0.0215143)	(0.0024251)	(0.0512587)
Gov_Stability jt			0.0117387	0.334036

			(0.0113515)	(0.142937)
Investment jt			0.0212825***	-0.0231862
			(0.0078341)	(0.1121855)
Corruption jt			0.04067	-0.0401168
			(0.0265582)	(0.198769)
Law jt			-0.0183983	-0.0571022
			(0.0163357)	(0.1703356)
Democracy jt			0.002432	0.0224275
			(0.0118331)	(0.0424433)
Bureaucracy jt			0.0621257**	0.0260535
			(0.0251339)	(0.3499418)
Constant	-13.80912	129.0354	-19.93147**	-13.98797
	(7.053232)	(165.4918)	(8.931079)	(239.2402)
N Observations	3456	3456	3456	3456
N Countries	128	128	128	128
Time Variant Controls	No	Yes	No	Yes
R-Squared	0.1193	0.1371	0.1259	0.1371
adjusted R-squared	0.0832	0.09551217	0.0884	0.0955

Note: Dependent Variable is FDI inflows to Indonesia. All standard errors are robust and reported in parentheses.
* Significant at 10%
** Significant at 5%
*** Significant at 1%

Table 5.12.
Estimated Result of the Impact of Tax Treaty on the Tertiary Sectors of Foreign Direct Investment with Control Variables (Fixed Effect Model)

Variables	(1)	(2)	(3)	(4)
Tax_Treaty	0.9853667***	1.015799***	1.010024***	1.015799***
	(0.0970189)	(0.0984455)	(0.0973949)	(0.0984455)
AgeTT	0.0909723***	0.0932732***	0.0924599***	0.0932732***
	(0.0045642)	(0.0046361)	(0.004581)	(0.0046361)
LGDP it	-0.0013226	-0.0359563	-0.0360835	-0.0359563
	(0.082508)	(0.0836056)	(0.0830949)	(0.0836056)
LGDP jt	6.535918***	55.75452**	9.24624***	22.2979**
	(0.952327)	(22.33319)	(1.240111)	(31.63287)
LGDP Capita it	0.0007006	0.0178488	0.0022325	0.0178488
	(0.0763645)	(0.0771697)	(0.0764729)	(0.0771697)
LGDP Capita jt	7.412465***	66.65153**	10.82422***	25.52611***
	(1.113879)	(26.49573)	(1.481708)	(36.07989)
LREM	0.008239	-0.1759686	-0.0967161	0.1759686
	(0.1437824)	(0.159828)	(0.1484467)	(0.159828)
Openness it	0.0019011***	0.0022993***	0.0020482***	0.0022993***
	(0.0006429)	(0.0006465)	(0.0006429)	(0.0006465)
Openness jt	0.0077344***	0.0827417***	0.0093321***	0.0029954
	(0.0025068)	(0.0226229)	(0.0025532)	(0.0539)

Gov_Stability jt			-0.0052824	-0.162081
			(0.0119513)	0.1503023
Investment jt			-0.0072352	0.0819582
			(0.008248)	(0.1179663)
Corruption jt			-0.115129***	0.0084927
			(0.0279615)	(0.2090112)
Law jt			0.0165109	0.0441566
			(0.0171989)	(0.1791127)
Democracy jt			0.0067361	-0.058693
			(0.0124583)	(0.0446303)
Bureaucracy jt			-0.0194873	-0.0284435
			(0.026462)	(0.3679737)
Constant	-50.90841***	436.1987	-70.35532***	-172.976
	(7.426493)	(174.0193)	(9.402995)	(251.5679)
N Observations	3456	3456	3456	3456
N Countries	128	128	128	128
Time Variant Controls	No	Yes	No	Yes
R-Squared	0.2651	0.2819	0.2707	0.2819
adjusted R-squared	0.2350	0.24723464	0.2394	0.2472

Note: Dependent Variable is FDI inflows to Indonesia. All standard errors are robust and reported in parentheses.
* Significant at 10%
** Significant at 5%
*** Significant at 1%

5.2.1 Summary of Institutional Variable

Table 5.13
Result of Institutional Factors on FDI with time variance control (Fixed Effect Model)

	FDI Total	FDI Primary	FDI Secondary	FDI Tertiary
Government Stability	-0.0945527	0.0095546	0.334036	-0.162081
	(0.1618173)	(0.1404329)	(0.142937)	0.1503023
Investment Profile	0.0279259	-0.0022215	-0.0231862	0.0819582
	(0.127004)	(0.1102202)	(0.1121855)	(0.1179663)
Corruption	-0.0475786	-0.0058535	-0.0401168	0.0084927
	(0.2250241)	(0.1952868)	(0.198769)	(0.2090112)
Law	-0.0474717	-0.016974	-0.0571022	0.0441566
	(0.192835)	(0.1673515)	(0.1703356)	(0.1791127)

Democracy	-0.0636436	0.0186542	0.0224275	-0.058693
	(0.0480495)	(0.0416997)	(0.0424433)	(0.0446303)
Bureaucracy	0.1369443	-0.0453822	0.0260535	-0.0284435
	(0.3961651)	(0.3438112)	(0.3499418)	(0.3679737)

The result shows that in Indonesia case, all of institutional variables are statistically not significant. This result contrary with our hypothesis that Institutional variables like government, corruption index, Law, Investment profile, Democracy and Bureaucracy are has positive effect on FDI Inflows. However, Daude and Stein research in 2007 give the same result when they study the role of the quality of institution as a determinant of the location of FDI (Daude and Stein, 2007). Daude and Stein find that Government Stability, Corruption in government, Law and Order, Bureaucracy Quality, and Democracy Accountability are not significant at conventional levels on FDI.

Chapter 6
Conclusion and Recommendations

6.1. Conclusions

This study aims to examine the effect of tax treaty on foreign direct investment. By employing panel data analysis to answer the three sub question. For the first sub question, *'How tax treaties affect the Foreign Direct Investment in Indonesia by sectors?'*, this study finds that the effect of tax treaty on FDI is positively significant. The effect is positive and consistent in all type of FDI by total and by sectors. For the second sub-question, *'Do tax treaties give more effect on Foreign Investment time by time?',* this study finds that the effect of tax treaty on FDI is grow over time. The result is consistent among all of the FDI by sectors. For the third sub-question, *'How others FDI determinants (Market Size, Distance, Trade openness, and Institutional Factors) affect Foreign Direct Investment in Indonesia?'*, this study finds that the result is mixed by sectors. The consistent result on all sector and total FDI is only on Institutional Factors which gives insignificant result in all sectors and in Total FDI.

On the effect of market size on the FDI, result find that GDP and GDP per capita of host country are statistically significant and positive on FDI Total and Tertiary FDI. It supported the market theory that FDI tends to increase follows the market expansion. In the tertiary sectors of Indonesia, these sectors are sectors that dominantly for domestic market and non-export oriented. This research also find that remoteness as a proxy of distance is statistically significant and negative as our hypothesis only in FDI total. However, in FDI per sector, remoteness is statistically not significant. The result on the effect of trade openness on FDI is varied by all sectors. Trade openness of home country significantly positive on FDI only on Total FDI and Tertiary Sectors in Indonesia. However, Trade openness of host country significantly positive in primary and tertiary sectors.

6.2. Implications and Recommendations

6.2.1. Implication for Theory

This study might provide other evidence that tax treaty has significant effect on Foreign Direct Investment and the effect is grow over time. By using panel data analysis, with fixed effect model and time effect, the evidence provided seems to be strong. However, others determinant of FDI gives the mixed result and need future research.

6.2.2. Recommendations

Two recommendations can be formulated in this study. The first is for future policies. Given the positively significant effect of tax treaty on foreign direct investment, Indonesia should push more on sign tax treaty with other countries because until 2019 Indonesia only has seventy tax treaty. The second recommendation is for future studies, with a mixed result on the effect of others FDI determinant, the future research is worth doing, especially in Indonesia.

Appendices

Appendices 1
Descriptive Statistic

Variable		Mean	Std. Dev.	Min	Max	Observations	
LFDI_Tot	overall	1.084925	1.911736	-1	7.494685	N =	3456
	between		1.647389	0	6.092552	n =	128
	within		.9804429	-3.495363	7.064864	T =	27
LFDI_P~m	overall	.3853981	1.213854	0	7	N =	3456
	between		.8928317	0	3.791305	n =	128
	within		.8260103	-3.405907	6.713313	T =	27
LFDI_Sec	overall	.727008	1.660871	-1	7.494642	N =	3456
	between		1.446145	0	5.950872	n =	128
	within		.8263748	-4.245469	7.162799	T =	27
LFDI_Ter	overall	.795235	1.566571	-1	6.84125	N =	3456
	between		1.248439	0	5.395721	n =	128
	within		.9525103	-4.600486	5.349476	T =	27
Tax_Tr~y	overall	.3252315	.4685291	0	1	N =	3456
	between		.3926497	0	1	n =	128
	within		.2578873	-.6377315	1.21412	T =	27
AgeTT	overall	5.45081	8.810066	0	27	N =	3456
	between		6.201397	0	14	n =	128
	within		6.280871	-8.512153	29.56192	T =	27
LGDPit	overall	10.54792	1.310697	0	13.27201	N =	3456
	between		1.274586	0	13.04753	n =	128
	within		.3249342	.0526698	11.34479	T =	27
LGDPjt	overall	11.4801	.3295946	10.97976	11.96936	N =	3456
	between		0	11.4801	11.4801	n =	128
	within		.3295946	10.97976	11.96936	T =	27
LGDPC~it	overall	3.512671	.8258542	0	5.074903	N =	3456
	between		.7706443	0	4.833868	n =	128
	within		.304322	-.4022406	5.641403	T =	27
LGDPC~jt	overall	3.138466	.2868115	2.666469	3.567538	N =	3456
	between		0	3.138466	3.138466	n =	128
	within		.2868115	2.666469	3.567538	T =	27
LREM	overall	6.927053	1.134072	0	9.693729	N =	3456
	between		1.127882	0	9.103584	n =	128
	within		.1535437	6.158383	7.730604	T =	27
Openn~it	overall	75.44622	57.53586	0	442.62	N =	3456
	between		52.50909	0	356.6746	n =	128
	within		23.95663	-43.40516	291.048	T =	27
Openn~jt	overall	55.59087	10.90881	37.42134	96.18619	N =	3456
	between		0	55.59087	55.59087	n =	128
	within		10.90881	37.42134	96.18619	T =	27
Gov_St~t	overall	8.027778	1.714387	4.333333	11.08333	N =	3456
	between		0	8.027778	8.027778	n =	128
	within		1.714387	4.333333	11.08333	T =	27

```
Invest~t overall |  8.138889   2.559773        3.5      11.75 |      N =    3456
         between |                 0   8.138889   8.138889 |      n =     128
         within  |           2.559773        3.5      11.75 |      T =      27
                 |                                          |
Corrup~t overall |  2.313272   .9666156   .3333333   3.833333 |      N =    3456
         between |                 0   2.313272   2.313272 |      n =     128
         within  |           .9666156   .3333333   3.833333 |      T =      27
                 |                                          |
Lawjt    overall |  3.817901   1.278775        1.5          6 |      N =    3456
         between |                 0   3.817901   3.817901 |      n =     128
         within  |           1.278775        1.5          6 |      T =      27
                 |                                          |
Democr~t overall |  4.316358   1.599657          0          6 |      N =    3456
         between |                 0   4.316358   4.316358 |      n =     128
         within  |           1.599657          0          6 |      T =      27
                 |                                          |
Bureau~t overall |  2.637346   .8920376          1          4 |      N =    3456
         between |                 0   2.637346   2.637346 |      n =     128
         within  |           .8920376          1          4 |      T =      27
```

Appendices 2
Correlations of Variables

LFDI Total

(obs=3,456)

```
                  | LFDI_Tot Tax_Tr~y    AgeTT   LGDPit   LGDPjt LGDPC~it LGDPC~jt     LREM Openn~it Openn~jt
Gov_St~t Invest~t Corrup~t    Lawjt
-------------+------------------------------------------------------------------------------------------------
---------------------
    LFDI_Tot |   1.0000
  Tax_Treaty |   0.5104   1.0000
       AgeTT |   0.4989   0.8913   1.0000
      LGDPit |   0.4458   0.3836   0.3491   1.0000
      LGDPjt |   0.1726   0.2205   0.4309   0.1828   1.0000
   LGDPCapit |   0.4334   0.4198   0.3936   0.6735   0.2402   1.0000
   LGDPCapjt |   0.1681   0.2130   0.4216   0.1799   0.9980   0.2369   1.0000
        LREM |  -0.4965  -0.4997  -0.4466  -0.1559  -0.0746  -0.2117  -0.0756   1.0000
  Opennessit |   0.2362   0.1504   0.1651   0.0714   0.1375   0.3369   0.1333   0.0446   1.0000
   Opennesjt |  -0.0886  -0.0766  -0.2051  -0.0823  -0.6212  -0.1110  -0.6538   0.0732  -0.0340   1.0000
Gov_Stabil~t |   0.0061   0.0108   0.0331   0.0188   0.0730   0.0259   0.0733  -0.0108   0.0147  -0.0091   1.0000
Investmentjt |   0.0288   0.0386   0.1059   0.0384   0.2041   0.0505   0.2042  -0.0240   0.0185  -0.1744   0.5152
1.0000
Corruptionjt |   0.0788   0.0748   0.1879   0.0979   0.6121   0.1248   0.6403  -0.0416   0.0494  -0.5516   0.1242
0.0026   1.0000
      Lawjt |   0.0182   0.0409   0.0597   0.0198   0.1220   0.0234   0.1154  -0.0245   0.0186  -0.0898   0.4483
0.4921  -0.0294   1.0000
 Democracyjt |   0.0550   0.0561   0.1080   0.0391   0.1425   0.0465   0.1209  -0.0109   0.0289   0.0597   0.0072
0.3538  -0.0210   0.3628
Bureaucrac~t |   0.0236   0.0086   0.0280   0.0066   0.0253   0.0006   0.0146  -0.0104  -0.0036   0.0482   0.0936
0.3973   0.0280   0.6052

             | Democr~t Bureau~t
-------------+------------------
 Democracyjt |   1.0000
Bureaucrac~t |   0.6223   1.0000
```

LFDI Primary

(obs=3,456)

```
             | LFDI_P~m Tax_Tr~y    AgeTT   LGDPit   LGDPjt LGDPC~it LGDPC~jt     LREM Openn~it Openn~jt Gov_St~t In-
vest~t Corrup~t    Lawjt
-------------+------------------------------------------------------------------------------------------------------
----------------------
   LFDI_Prim |   1.0000
  Tax_Treaty |   0.3405   1.0000
       AgeTT |   0.3892   0.8913   1.0000
      LGDPit |   0.3192   0.3836   0.3491   1.0000
      LGDPjt |   0.1698   0.2205   0.4309   0.1828   1.0000
   LGDPCapit |   0.3158   0.4198   0.3936   0.6735   0.2402   1.0000
   LGDPCapjt |   0.1675   0.2130   0.4216   0.1799   0.9980   0.2369   1.0000
        LREM |  -0.3629  -0.4997  -0.4466  -0.1559  -0.0746  -0.2117  -0.0756   1.0000
  Opennessit |   0.2565   0.1504   0.1651   0.0714   0.1375   0.3369   0.1333   0.0446   1.0000
   Opennesjt |  -0.0860  -0.0766  -0.2051  -0.0823  -0.6212  -0.1110  -0.6538   0.0732  -0.0340   1.0000
Gov_Stabil~t |   0.0234   0.0108   0.0331   0.0188   0.0730   0.0259   0.0733  -0.0108   0.0147  -0.0091   1.0000
Investmentjt |   0.0514   0.0386   0.1059   0.0384   0.2041   0.0505   0.2042  -0.0240   0.0185  -0.1744   0.5152
1.0000
Corruptionjt |   0.0886   0.0748   0.1879   0.0979   0.6121   0.1248   0.6403  -0.0416   0.0494  -0.5516   0.1242
0.0026   1.0000
       Lawjt |   0.0129   0.0409   0.0597   0.0198   0.1220   0.0234   0.1154  -0.0245   0.0186  -0.0898   0.4483
0.4921  -0.0294   1.0000
 Democracyjt |   0.0555   0.0561   0.1080   0.0391   0.1425   0.0465   0.1209  -0.0109   0.0289   0.0597   0.0072
0.3538  -0.0210   0.3628
Bureaucrac~t |   0.0078   0.0086   0.0280   0.0066   0.0253   0.0006   0.0146  -0.0104  -0.0036   0.0482   0.0936
0.3973   0.0280   0.6052

             | Democr~t Bureau~t
-------------+------------------
 Democracyjt |   1.0000
Bureaucrac~t |   0.6223   1.0000
```

LFDI Secondary

```
(obs=3,456)

             | LFDI_Sec Tax_Tr~y    AgeTT   LGDPit   LGDPjt LGDPC~it LGDPC~jt     LREM Openn~it Openn~jt Gov_St~t In-
vest~t Corrup~t    Lawjt
-------------+------------------------------------------------------------------------------------------------------
----------------------
    LFDI_Sec |   1.0000
  Tax_Treaty |   0.4552   1.0000
       AgeTT |   0.4304   0.8913   1.0000
      LGDPit |   0.4061   0.3836   0.3491   1.0000
      LGDPjt |   0.1177   0.2205   0.4309   0.1828   1.0000
   LGDPCapit |   0.3964   0.4198   0.3936   0.6735   0.2402   1.0000
   LGDPCapjt |   0.1148   0.2130   0.4216   0.1799   0.9980   0.2369   1.0000
        LREM |  -0.4680  -0.4997  -0.4466  -0.1559  -0.0746  -0.2117  -0.0756   1.0000
  Opennessit |   0.2419   0.1504   0.1651   0.0714   0.1375   0.3369   0.1333   0.0446   1.0000
   Opennesjt |  -0.0553  -0.0766  -0.2051  -0.0823  -0.6212  -0.1110  -0.6538   0.0732  -0.0340   1.0000
Gov_Stabil~t |   0.0035   0.0108   0.0331   0.0188   0.0730   0.0259   0.0733  -0.0108   0.0147  -0.0091   1.0000
Investmentjt |   0.0100   0.0386   0.1059   0.0384   0.2041   0.0505   0.2042  -0.0240   0.0185  -0.1744   0.5152
1.0000
Corruptionjt |   0.0662   0.0748   0.1879   0.0979   0.6121   0.1248   0.6403  -0.0416   0.0494  -0.5516   0.1242
0.0026   1.0000
       Lawjt |   0.0132   0.0409   0.0597   0.0198   0.1220   0.0234   0.1154  -0.0245   0.0186  -0.0898   0.4483
0.4921  -0.0294   1.0000
 Democracyjt |   0.0407   0.0561   0.1080   0.0391   0.1425   0.0465   0.1209  -0.0109   0.0289   0.0597   0.0072
0.3538  -0.0210   0.3628
Bureaucrac~t |   0.0272   0.0086   0.0280   0.0066   0.0253   0.0006   0.0146  -0.0104  -0.0036   0.0482   0.0936
0.3973   0.0280   0.6052

             | Democr~t Bureau~t
-------------+------------------
 Democracyjt |   1.0000
Bureaucrac~t |   0.6223   1.0000
```

LFDI Tertiary

```
(obs=3,456)

             | LFDI_Ter Tax_Tr~y    AgeTT   LGDPit   LGDPjt LGDPC~it LGDPC~jt     LREM Openn~it Openn~jt Gov_St~t In-
vest~t Corrup~t    Lawjt
-------------+------------------------------------------------------------------------------------------------------
----------------------
    LFDI_Ter |   1.0000
  Tax_Treaty |   0.5066   1.0000
       AgeTT |   0.5302   0.8913   1.0000
      LGDPit |   0.4246   0.3836   0.3491   1.0000
      LGDPjt |   0.2187   0.2205   0.4309   0.1828   1.0000
   LGDPCapit |   0.4224   0.4198   0.3936   0.6735   0.2402   1.0000
   LGDPCapjt |   0.2122   0.2130   0.4216   0.1799   0.9980   0.2369   1.0000
        LREM |  -0.4712  -0.4997  -0.4466  -0.1559  -0.0746  -0.2117  -0.0756   1.0000
  Opennessit |   0.2570   0.1504   0.1651   0.0714   0.1375   0.3369   0.1333   0.0446   1.0000
   Opennesjt |  -0.1051  -0.0766  -0.2051  -0.0823  -0.6212  -0.1110  -0.6538   0.0732  -0.0340   1.0000
Gov_Stabil~t |   0.0147   0.0108   0.0331   0.0188   0.0730   0.0259   0.0733  -0.0108   0.0147  -0.0091   1.0000
Investmentjt |   0.0391   0.0386   0.1059   0.0384   0.2041   0.0505   0.2042  -0.0240   0.0185  -0.1744   0.5152
1.0000
Corruptionjt |   0.1060   0.0748   0.1879   0.0979   0.6121   0.1248   0.6403  -0.0416   0.0494  -0.5516   0.1242
0.0026   1.0000
       Lawjt |   0.0345   0.0409   0.0597   0.0198   0.1220   0.0234   0.1154  -0.0245   0.0186  -0.0898   0.4483
0.4921  -0.0294   1.0000
```

```
 Democracyjt |   0.0739   0.0561   0.1080   0.0391   0.1425   0.0465   0.1209  -0.0109   0.0289   0.0597   0.0072
0.3538  -0.0210   0.3628
Bureaucrac~t |   0.0276   0.0086   0.0280   0.0066   0.0253   0.0006   0.0146  -0.0104  -0.0036   0.0482   0.0936
0.3973   0.0280   0.6052

             | Democr~t Bureau~t
-------------+------------------
 Democracyjt |   1.0000
Bureaucrac~t |   0.6223   1.0000
```

Appendices 3
Multicollinearity

```
  Variable |       VIF       1/VIF
-------------+----------------------
      LGDPjt |   1285.10    0.000778
   LGDPCapjt |    899.00    0.001112
      LGDPit |    131.21    0.007621
   Opennesjt |     59.37    0.016843
        LREM |     53.19    0.018801
Gov_Stabil~t |     46.26    0.021619
   LGDPCapit |     43.96    0.022748
Bureaucrac~t |     26.35    0.037948
       Lawjt |     23.81    0.041993
Investmentjt |     22.70    0.044049
Corruptionjt |     15.67    0.063806
 Democracyjt |     15.17    0.065937
  Tax_Treaty |      9.60    0.104205
       AgeTT |      9.51    0.105117
  Opennessit |      3.35    0.298546
-------------+----------------------
    Mean VIF |    176.28
```

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