REVISITING FOREIGN DIRECT INVESTMENT, TAX AND DEBT ON SOUTHEAST ASIA COUNTRIES

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

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LIST OF ABBREVIATIONS

CITR	Corporate Income Tax Rate
CTR	Corporate Tax Rate
GST	Goods and Services Tax
IDP	Investment Development Path
IMF	International Monetary Fund
MAS	Monetary Authority of Singapore
MNE	Multinational Enterprise
NOI	Net Outward Investment
OECD	Organization for Economic Co-operation and Development
OLI	Ownership, Location and Internalization
SEECs	South East European countries
SIC	Schwarz Information Criterion
SIDS	Small Island Developing States
SST	Sales and Services Tax
UNCTAD	United Nations Conference on Trade and Development

Abstract

Tax and debt has recently emerged as the factors that affect foreign direct investment (FDI) in the host country. This study tends to investigate the nexus between FDI inflows, tax revenue and external debt by employing data of the selected Southeast Asia countries over the period from 2000 to 2014. However, this study believes that there is no absolute positive or negative effect of tax revenue and external debt on FDI inflows. The effect of these variables on FDI inflows is uncertain after a certain extent. Hence, this research also keen on estimating the threshold levels of tax revenue and external debt which will overturn the effect on FDI inflow. In order to carry out this anaysis, panel Autoregressive Distributed Lag (ARDL) is the main method used to estimate the regression. More than that, Levin Lin Chu (LLC) and Im Pesaran and Shin (IPS) unit root test are also adopted to determine the integrated order of the variables. Apart from that, there is a further investigation on the relationship between FDI and its determinants without including Singapore. This is because Singapore has a strong financial background as compared to the others and this drew the attention to find out whether there is difference result based on this comparison. In short, according to the empirical results, there is significant long run relationship between FDI inflows and its determinants. Other than that, the results shown that there is a non-linear relationship between the combined effect of tax and debt towards FDI inflow. Also, there is a non-linear relationship between tax and FDI.

CHAPTER 1: INTRODUCTION

1.1 Background of Study

1.1.1 Foreign direct investment, tax and debt

Foreign direct investment (FDI) is defined as a type of cross-border investment associated with a foreigner from its country by having control or a significant level of influence on the management of an enterprise which is located at another country (IMF, 2013). Furthermore, FDI is a crucial tool to any policy maker as the purpose to promote the development of economy growth for all the countries worldwide and it also able to brings in benefits and positive externalities to the host country which leads them to globalization such as improving the skills of local human resources which able to generate a positive productivity effects towards a country (Kubatko, Melnyk, & Pysarenko, 2014).

As the role of FDI towards the macro scenario, it acts as an effort of development to integrate any country into a global economic by expanding new technology borders and achieving higher level of exports (Ivić & Mitic, 2016). While for the micro scenario, it able to generate a knowledge spillover from foreign firms to the host country including the improvements on the skills of local human capital and managerial of domestic firms, the standard living of a country by creating more job opportunities to the local citizen, also brings in technology transfer for any industries of host country as it able to increase the productivity and quality of their products (Almsafir & Fadhil, 2015).

Also, FDI helps policy makers to reduce the hassle and trouble of making policy decisions as it is tough to create one for economic development such as measures of austerity (Almsafir & Fadhil, 2015). Besides, FDI able to stimulate the rates of utilising the unused resources and it also able to increase the rate of efficiency on local resources which are already in used currently once there are more and more

foreign firms invested on the host country (Javorcik, 2004). In addition, it shows that FDI is an essential role to affect all the related sectors as it directly contributes to employment, exports, capital, and improvements of productivity and innovation capability to the host country (Blomström, Kokko & Globerman, 2001).

Macroeconomic conditions of a country are crucial to FDI inflow, **external debt** is one of the significant macroeconomic variable. However, the effect of external debt remains inconclusive towards FDI inflow. Besides that, external debt represents the reputation and performance of a specific country internationally (Abbas & Christensen, 2010). When the debt level of a country has increased time to time without decreasing, it indicates that there is a chance of the country to be defaulted on its debt obligations and it may contribute a bad reputation of the country performance when this action take place (Amadeo, 2017). In reality, foreign investors are always concern about the performance of a country by referring to its macroeconomics variables before the investment take place to foresee any risk or losses in future that might be incurred.

Therefore, high rate of external debt usually does not contribute to a good reputation of the host country based on the perspective of foreign investors. Based on the study of Eaton and Gersovitz (1981), it indicates that countries repay its obligation on time as the purpose of preserve its reputation for repayment and retain the capability of lending in the future. However, there is a discouragement of the foreign investors' preference on investment if a country has failed to repay its debt level on time (Nunnenkamp, 1991). Hence, those countries that obligated heavily were not being beneficial from lending. However, debt overhang effect might be incurred if a country has obligated heavily which will frighten up the investors and discourage them to invest into the host country in future (Ashja & Ostadi, 2014).

On the other hand, high rate of external debt may have a positive impact on the rate of FDI inflows of a country. It is because external debt usually undertaken as a monetary resource by government to refinance the public investments and sustain develop such as public infrastructures to generate more and more opportunities of growth for any country (Hamidu, Musa & Umaru, 2013). Hence, there should be a

positive effect of utilising its external debt efficiently to enhance the growth of a country, which has a direct impact on economic activity and through spillover effects on private investments (Mahmoud, 2015). Likewise, a well-managed public infrastructure developed by the government able to promote the FDI and economic growth because public infrastructure able to increase the competitiveness in attracting FDI (Ahmad, Ismail & Nordin, 2015). Also, the unemployment rate will be reduced if there's any new development of infrastructure as it able to contribute more jobs opportunity (Far & Saeedi, 2015). Hence, external debt able to contribute FDI inflows indirectly if the government utilise it for development purpose which able to provide an appropriate investment atmosphere for foreign investors.

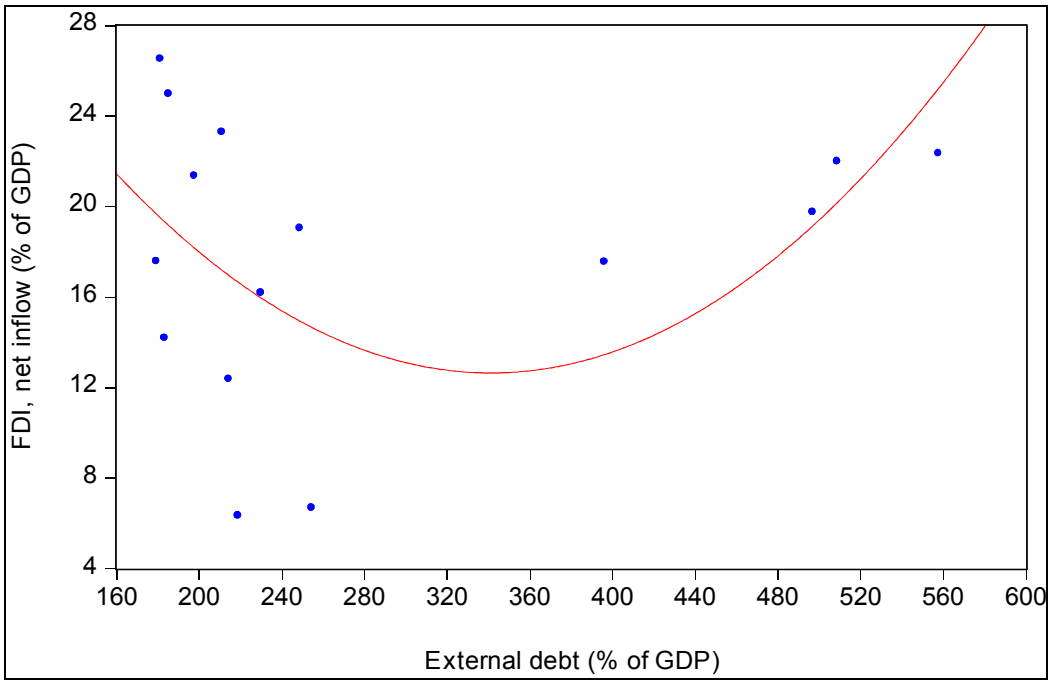
Table 1.1 Average level of debt from 2000 to 2014

Countries	External debt (% of GDP)
Cambodia	45.7579
Indonesia	44.6607
Laos	84.7126
Malaysia	39.8453
Philippines	46.5782
Singapore	284.2078
Thailand	34.0324
Vietnam	30.2050

In order to have a clearer image of understanding the nexus between external debt and FDI inflows in the region of Southeast Asia, this study have categorized the selected Southeast Asia countries into three categories based on the average level of debt throughout 15 years by refers to table 1.1. As the purpose of this action, this

study able to determine the effect based on different characteristic of the selected Southeast Asia countries.

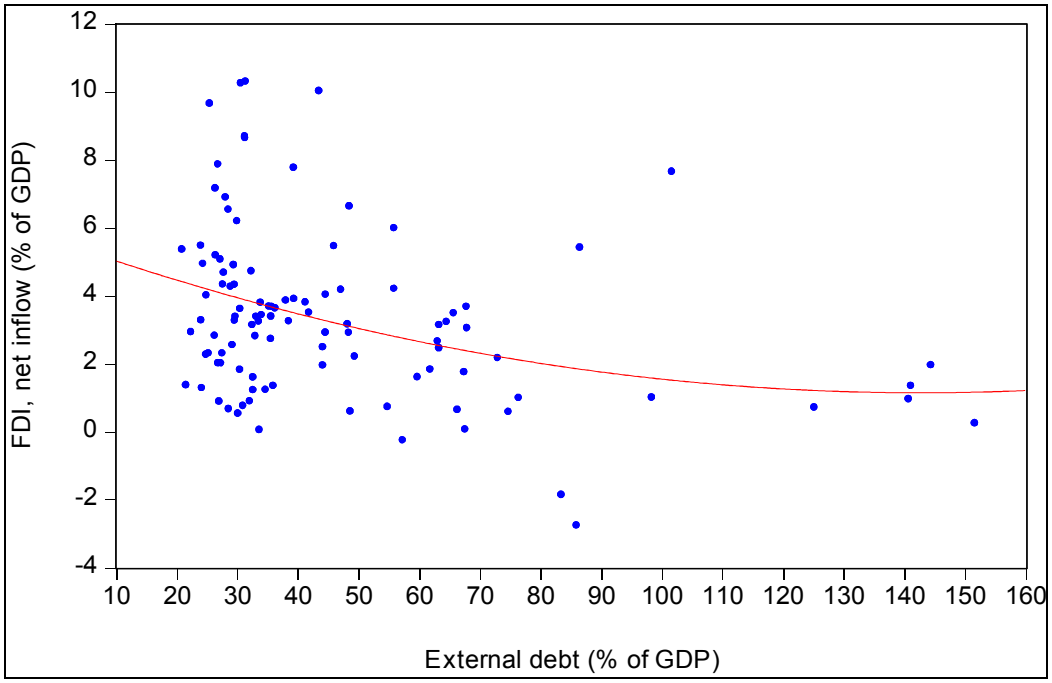
Based on the average debt level of each country by referring to table 1.1, there is 76.2499% of GDP on average of the debt level and 94.9435% of GDP for the standard deviation. Therefore, this study has defined high debt level and low debt level based on normal distribution method by adopting 0.5 above and below standard deviation of the mean value. As for the result, this study has divided the selected countries into three levels where the debt level above 123.7217% of GDP is categorized under high debt countries and the debt level below 28.7783% of GDP is categorized under low debt countries. For the medium debt countries, it falls from 28.7783% to 123.7217% of GDP. Based on table 1.1 above, **Singapore** is the only country which categorized as high debt country and **Cambodia, Indonesia, Laos, Malaysia, Philippines Thailand and Vietnam** have categorized as medium debt countries. Lastly, none of the country in Southeast Asia region has categorized as low level of debt based on the data employed.



Source: World Development Indicators, the World Bank

Figure 1.1 High debt country and FDI inflow in Southeast Asia region

Based on the figure 1.1, it shows the non-linear relationship of external debt and FDI inflows for the high debt country, Singapore. Based on the curve line, it shows that Singapore able to attract FDI inflows but in a downward slope manner at first. Then, after a certain level of external debt accumulated, it has overturned the effect on FDI inflows to be increased. Thus, it able to indicate that Singapore has the capability to generate further FDI inflow after certain extent of having the high rate of external debt. Based on the prospect of investment, Singapore is a developed country which has a fully developed infrastructure that able to contribute a friendly investment environment for the foreign investors to have the confidence to invest without even worrying about its high external debt level incurred.



Source: World Development Indicators, the World Bank

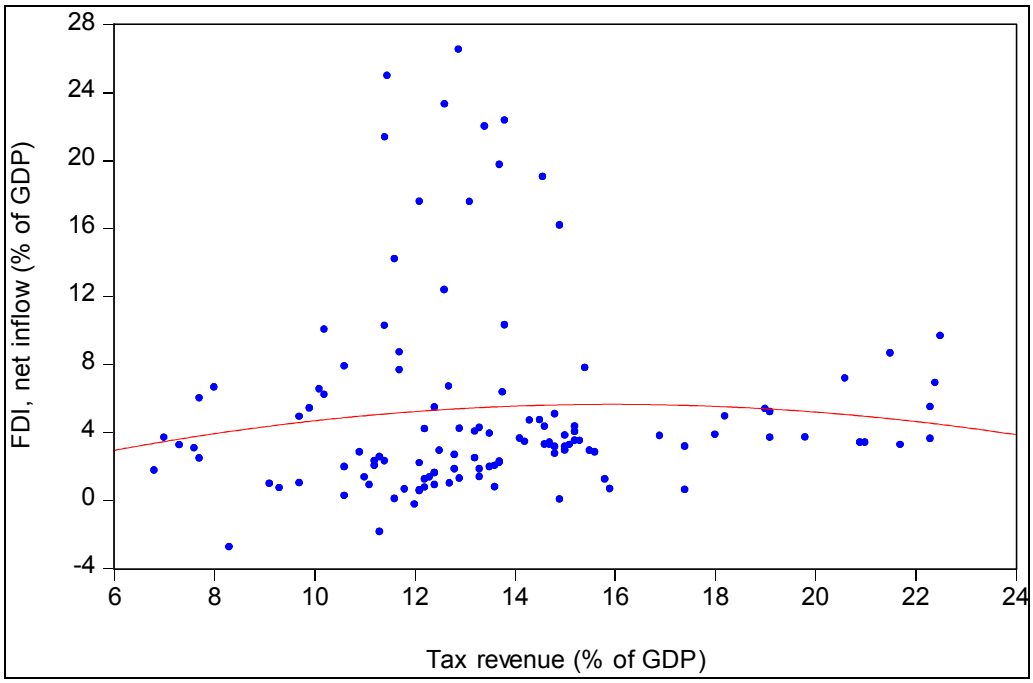
Figure 1.2 Medium debt countries and FDI inflow in Southeast Asian region

Based on the figure 1.2, it shows the non-linear relationship of external debt and FDI inflows for the medium debt countries, Cambodia, Indonesia, Laos, Malaysia, Philippines Thailand and Vietnam. However, the debt level has the different curve line manner on the FDI inflows for the countries that incurred medium level of debt

as compared to high debt country, Singapore. This indicates that all these countries may not have the capability to attract further of the FDI inflows while having the increasing rate of external debt which distracted FDI inflows at the same moment of time. Nevertheless, it may indicate that the utilization of its refinance sources, external debt for developing purpose are not efficient enough due to the impact generated negatively towards the FDI inflow of its country (Atique & Malik, 2012). Also, foreign investors may concern on the macroeconomics prospect such as external debt due to all these 7 Southeast Asia countries are currently still developing. So, foreign investors may be worry and do not have the confidence to invest on such countries when they are incurring increasing rate of external debt due to their country performances are still uncertain for now and future.

As the macroeconomic variable that affects the FDI inflows to be varied, **Tax revenue** has act as a vital role towards the country reputation and performances such as the wealthy level and ability of generate revenues for its country (Aamir, Butt, Hussain, Khan, Nasir, & Qayyum, 2011). It is defined as one of the income for governments as the purpose of allocation their funds for any development activities, repayment for their financial obligations and others (Aamir et al., 2011). Moreover, rate of taxes is an essential indicator to consider when it comes to the decision making of the location for new investment but on the other perspective, tax revenue indicates an essential indicator to show the potential and capability of a country to generate more revenues from its own countries (Mandinga, 2015).

Based on the research of Edame and Okoi (2014), the relationship between taxation and level of investments is significant negatively related. It indicates that either taxation will attract the foreign direct investment (FDI) or drive away the level of FDI by refers to the investors' decision based on the rate of taxes set by the government (Morisset & Pirnia, 2000). Moreover, as the barriers of trade disappear and rivalry between countries appears to become more competitive, fiscal policies are continuously being adopted and formed a strategic plan that is favourable and attractive to preference of foreign investors (Morisset & Pirnia, 2000).



Source: World Development Indicators, the World Bank

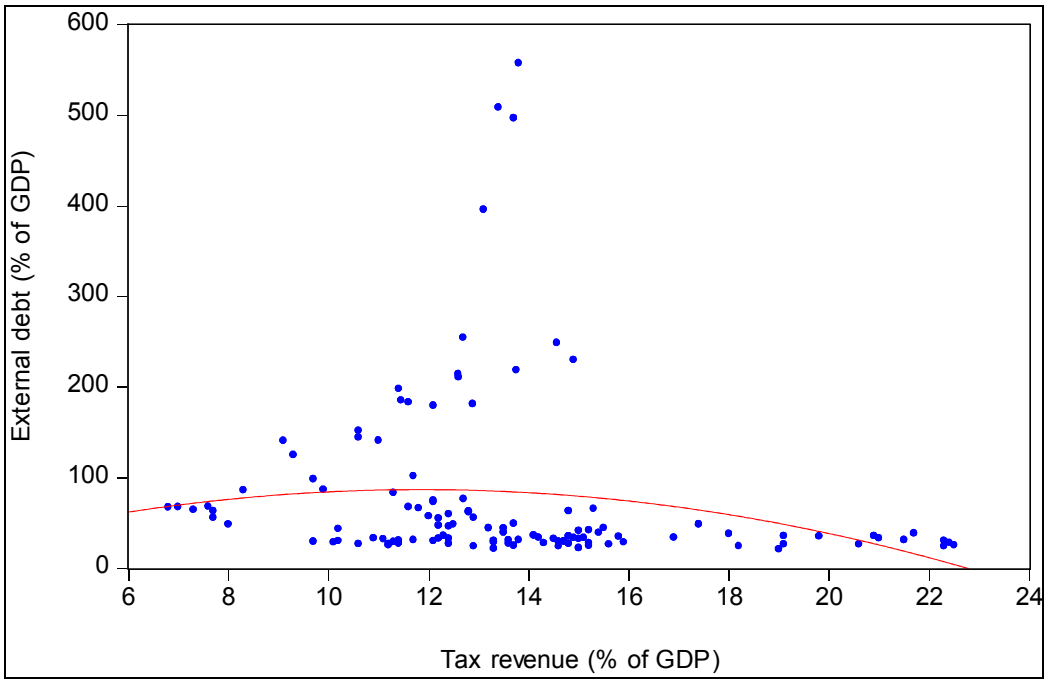
Figure 1.3 Tax Revenue and FDI inflow in Southeast Asia region

Based on figure 1.3, it refers to the real-life scenario of Southeast Asia countries which may contribute a better idea on the nexus of tax revenue and FDI inflows at such region. There is a non-linear relationship between the variable of tax and FDI inflow.

In addition, it shows that government able to improve the quality of public infrastructure and facilities for any sectors and industries by fully utilising their revenues which is generated from taxation (Aghion, Akcigit, Cage & Kerr, 2016). Based on the study of Asher (2001), fulfilling the necessity of the society requires a huge amount of funds which is not easily to be achieved by any parties but government able to obtain such huge amount of funds through its medium, taxation. Based on the study of Fagbemi, Noah, & Uadiale (2010), it explained the reason behind of why government has concerned importantly on looking for a medium where the monetary fund can be allocated and achieved of their goals for society development. Therefore, the establishment of basic infrastructure is significant for development and growth of any society. With the capability of allocating the revenue for all these countries, it able to contribute further development of its country by fully

utilises its monetary funds which generated from taxes. Thus, a well-developed of taxation system can support the government expenditure in developing of public infrastructure and institutions and the other purpose which able to contribute a positive impact towards the government development and its performance (Brautigam, 2008).

As for the macroeconomic variables that affected FDI inflows, external debt and tax revenue has brought the impacts towards each other as well. For the role of external debt, it may contribute positive impacts towards the FDI inflows by further develop the government infrastructure when government fully utilising their lending resources (Mahmoud, 2015). However, debt accumulation issue might be raised up if the debt does not repay from time to time by the government. For instance, high accumulation of debt will affect the allocation of resources from the productive uses into the unproductive uses which might affect the level of capital formation (Barry, Carneiro, & Faria, 2005). Hence, partly of government income which is tax revenues will be channelled to repay back the debt incurred to reduce the burden of government (Warbunton, 2003). As consequence, government tends to impose a higher tax rates as for the purpose to generate more income to repay back their debt if the government does not have the capability to clear its obligation (Christie & Rioja, 2012).



Source: World Development Indicators, the World Bank

Figure 1.4 Tax Revenue and External Debt in Southeast Asia region

Based on the figure 1.4, it shows a non-linear relationship between the variable of tax revenue and external debt. Firstly, the tax revenue generated by government has unable to reduce the rate of external debt. However, when the tax revenue generated by government has increasing further until a certain level which overturns the effect, external debt will drop. In addition, it shows that those Southeast Asia countries able to reduce its external debt level by generating more and more of its revenues through taxation for its own country. Thereby, how is the dynamic impact of the tax and debt to influence the FDI movement significantly?

1.2 Problem Statement

FDI inflow acts as the driver of economic growth for most of the countries worldwide. Furthermore, it provides aids to a country to gain additional human capital, improve the technology to be more advanced. In fact, government will implement policies to boost up further of its FDI inflow to achieve all such benefits which brought by FDI inflow.

In addition, there is several factors that affect FDI inflows towards any countries overtime such as quality infrastructure, exchange rate policy, real interest rates, institutional quality and many more (Hoang, 2012). Moreover, government tends to control macroeconomic indicators and develop policies to create a friendly investment environment to gain the attention of foreign investors such as new implementation of investment legislation in Vietnam as the purpose of creating a friendly investment atmosphere by reducing the barriers of investment to increase its country's FDI inflows (Morisset & Pirnia, 2000; Massmann, 2015).

Furthermore, government also have a tendency to further develop and improve its country public infrastructures as the purpose of attracting investors' attention (Pondicherry & Tan, 2017). With such intention of boosting its FDI inflows by further developing its own country, government needs a huge number of monetary sources to further develop their economic environment (Ashja & Ostadi, 2014). Eventually, the government will decide to loan and create more debt to refinance its obligations and development (Kudaisi, 2014). Unfortunately, if the rate of debt is accumulating without time to time repayment, government usually will take action to acquire more revenues by raising their tax level or imply new tax policy in order to meet their debt repayment obligation (Christie & Rioja, 2012). As a real fact in Malaysia, the government imposed Goods and Services Tax (GST) at the rate of 6% to replace the sale-and-service tax (SST) in year 2015 and the government declared that GST will be one of the sources to reduce their national debt. As the result, Malaysia government reported that GST had successfully assisted the government to

reduce their fiscal deficit and achieved a raising rate of GDP growth based on the report of Malaysia Budget 2016 (Hill, 2015).

Hence, it indicates a crucial relation between these three variables which is debt, tax and FDI inflow. As the higher debt level incurred, it will reduce the rate of FDI inflow due to the performance of the country is being doubtful based on the issues of debt and tax instead of observing the country level of development and its infrastructures quality based on the viewpoint of foreign investors and vice versa (Azam & Khan, 2011). At the same time, when a country imposed a higher rate of tax, it tends to decrease the rate of FDI inflow because of the cost of doing business and investment will turn out to be costly based on the viewpoint of foreign investors (Jones & Temouri, 2016). In such case, these government actions caused a dynamic result on FDI inflow on the Southeast Asia region. For instance, the only developed countries, Singapore owns a high and raising amount of debt but it only able to allocate low amount of tax revenue which shows a low tax rate imposed from its country indirectly, yet Singapore still able to attract inflow of FDI at the higher level within the same period of time. On the other side, one of the developing countries, Vietnam has the capability to allocate higher amount of tax revenue and incurred low amount of debt obligations by compared to its neighbour countries at the same region. However, Vietnam still unable to attract the foreign investors by generating a higher rate of FDI inflow for its nation.

Based on all such actions taken by the government, it has brought a **contradictive effect** on FDI inflow. Therefore, all such evidences have inspired this paper to investigate the relationship between tax, debt and FDI inflows at the region of Southeast Asia. Also, it able to enable this study to further investigate about the real impact of all these variables towards the FDI inflow. Thus, this study aims to further investigate on the characteristic of debt and tax towards the FDI inflows among all the countries on Southeast Asia region.

1.3 Objective of Study

1.3.1 General objective

This study intends to examine the relationship between Foreign Direct Investment (FDI), tax and external debt of the selected Southeast Asia Countries from year of 2000 to 2014. Thus, the study will like to examine specifically on such variables as refers to the specific objectives below.

1.3.2 Specific objectives

Specifically, this study aims:

(i) To determine the long run relationships between FDI inflow, tax and debt.
(ii) To determine the short run relationship between FDI inflow, tax and debt.
(iii) To estimate the threshold levels of tax revenue that will overturn the effect on FDI inflow.
(iv) To estimate the threshold levels of external debt that will overturn the effect on FDI inflow.

1.4 Research Questions

Based on the empirical study, the general and specific research objectives have laid down clearly. As the problem statements stated above, the research questions able to assist as the guideline for the hypothesis and questions of the empirical study. This study able to attempt the relationship between debt, tax and FDI inflow as following questions:

(i) What is the relationship between external debt, tax and FDI inflow of eight selected Southeast Asia countries in long run?

(ii) What is the relationship between external debt, tax and FDI inflow of eight selected Southeast Asia countries in short run?

(iii) What are the threshold levels of tax towards FDI inflow as well as tax towards FDI inflows of the Southeast Asia region countries before it worsens the rate of FDI inflow in the long run?

(iv) What are the threshold levels of debt towards FDI inflow as well as tax towards FDI inflows of the Southeast Asia region countries before it worsens the rate of FDI inflow in the long run?

1.5 Significance of the Study

First and foremost, this study has investigated the effects of debt and tax towards the FDI inflows in selected Southeast Asia countries (Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam). Besides that, this study has included the other important variables that affect FDI inflows positively and negatively by expanding the model of FDI determinants such as interest rate, exchange rate and Real GDP.

Moreover, this study able to find out whether the variable of tax and debt are important and significant towards the FDI inflows by using panel data analysis. Furthermore, this study also able to contribute a different idea and aspect by investigate the threshold levels of tax and debt that overturn the effect on FDI inflows.

In addition, this study able to provide a widen understanding to any related parties such as economist, investor and government about how tax and debt affect FDI inflows in terms of short run and long run. This study also able to deliver a better insight to readers on how tax and debt able to contribute positively and negatively towards the economic performance of Southeast Asia countries based on the findings of this study.

Last but not least, this study able to change the perspective of any related parties such as economist, government and investor on the issues of tax and debt based on Southeast Asia region.

CHAPTER 2: LITERATURE REVIEW

2.1 Theoretical review

This study reviewed several theories such as Product Life cycle theory, Investment Development Path (IDP) and Eclectic Paradigm. These theories explained the motivations behind investor to further explain their business aboard and engage into foreign direct investment (FDI) among the decades.

2.1.1 Product life-cycle Theory

Product life-cycle theory is developed by Raymond Vernon in year 1966. It contains four stages, which are introduction, growth, maturity and decline stage. The **introduction stage** is when a product firstly introduced in the market and the demand and profit gain from sale is literally low. However, when the sales increased, it will turn into next stage (Bodie, 2003). In **growth stage**, the production cost is declining and the profit is increasing. Moreover, the product becomes well-known in the market and many rivals have started to engage into the market (Day, 1981). Third, in **maturity stage**, the profit of the product will raise in a slower rate. In order to compete with others, the firm usually cut down the price to sustain their sales. As consequence, it caused a reduction in profit margin (Anthony & Ramesh, 1992). Last but not least, the **decline stage** defined as the decision either to engage into global market or cut down by the firm. In this stage, the production cost is literally high and the product is no longer attractive in home market as before. Thus, the firm might engage into international market (Rink & Swan, 1979).

2.1.2 Investment Development Path (IDP)

Investment Development Path (IDP) also known as **five stage theory,** was published by John H. Dunning in year 1981 to explain the relationship between a country's development level and their Net Outward Investment (NOI) which is the difference between outward and inward FDI (Buckley & Castro, 1998). In **first stage**, the local markets are not well-developed, inward and outward FDI nearly not existed because the country has no specific advantages, such as a well-developed infrastructure (Dunning & Narula, 2003). In **second stage**, FDI inflows grow significantly and generate benefits for home country such as low labour cost and better living standard. Yet, the NOI remains negative in both stages due to the weak comparative advantage in the local firm (Iacovoiu & Panait, 2014). In **third stage**, the inward FDI increases in slow rate but the outward FDI will overtake soon due to the local firm started to become comparative in their home country. Nevertheless, the NOI will still remain negative and lead them into the fourth stage (Dunning & Narula, 2003). At **fourth stage**, the NOI becomes positive as the outward FDI is currently surplus and the home country has owned more advance technology and knowledge. Finally, in **fifth stage,** the NOI of home country is unstable as it depends on the exchange rate and business cycle.

2.1.3 Eclectic Paradigm

Eclectic Paradigm also known as Dunning OLI approach is first created by John H. Dunning in year 1977. It is being used to explain and investigate the decision of multinational firms whether to do FDI in a particular country. In addition, the theory is supported by three key components, which are ownership, location and internalization advantages, and they are called as OLI advantages. One's party FDI engagement style is determined and influenced by the three advantages (Huang& Lee, 2009).

First and foremost, **Ownership advantages**, it refers to one's competitive advantages who are seeking for Foreign Direct Investment (FDI) engagement. The more competitive advantage it has, the more likely it engages into FDI. Competitive advantage is basically the "weapon" of the firm in their production and products that cannot be emulated by other firms (Chen, 2015). According to Stefanovic (2008), ownership advantages are based on tangible and intangible assets which are important in international production. For instances, they are the company owned advance technology, efficient management, reputation and trademarks. In addition, the researcher had highlighted that these assets able to generate differentiated products or services as compared to other companies and rivals which able to create strong competitive advantages among them. Besides, Lee and Huang (2009) also listed some examples that are frequently found in previous studies, which included the size of the investing firm and international experiences. Through ownership advantages, the firms are able to clarify their own competitive advantages which enable them to go internationally (Stefanovic, 2008).

Secondly, **Location advantages**, this advantage able to attract alternatives enterprise or countries to establish Multinational Enterprises (MNEs) activities. It informs the firms where they should invest in (Stefanovic, 2008). The more favourable condition for businesses of the location has, the more likely the firm will engage their FDI into the county by ownership specific advantages. According to Chen (2015), a foreign country must provide a location advantage that can offer profitable production factor included resources endowments, economic condition and social factors in order to make their country to be the target investing country of the firm. For example, the infrastructure, government policy, tax rate, debt condition, market size and others can influence the decision of firm to engage in FDI. Based on the perspective of Stefanovic (2008), the most important determinants of location advantages are low cost of raw materials, land and labour. These components able to reduce the production costs and achieve profit maximization. In addition, the researcher stated that the developing countries have cheaper skilled and unskilled worker and it attracted efficient-seeking MNE to invest aboard to developing countries. Besides, Stefanovic (2008) also mentioned that market-seeking MNE will

be attracted and invested into market-size dominant countries as the purpose of determine the current and future potential of sales and demands based on the size of the market. In this study, **tax and debt** are both fall under **location advantage** because the investors will pick the most favourable business environment to engage their FDI as low tax and debt level of a country will more likely to attract investors to expand their business into it (Chen, 2015).

Lastly, the **Internalization advantages** explained the motives behind the attractiveness for the firms to further develop for FDI. According to Dunning (1988), it can be defined as the best interest of firms to expand their business to cross border by using their ownership advantages rather than selling the right or contracting a franchising arrangement with foreign firm. While in another point of view from Kusluvan (1998), internalization is the advantages of governing, connecting ownership and location advantages within the firm, instead of giving the power of control to the hand of other parties. In other words, the firm can involve on foreign production itself by utilizing its internalization advantage (Dunning, 2000).

2.1.4 Concluding remark on the theories

Based on the theories reviewed, OLI theory is the most appropriate theory to be applied in the study. This is because the factors that influence the flow of FDI are mainly based on location advantages as OLI theory mentioned that a favourable business environment will attract more FDI inflow (Chen, 2015). To specify, a country's tax and debt level are significant factor influencing FDI inflow. Hence, there is a motivation for this study to further examine on the effect of tax and debt to FDI.

2.2 Development of Literature Over-time

According to the finding on literature, from the period of 1994 to 2008 most of the researchers such as Tsai (1994), Chunlai (1997), Artige and Nicolini (2007) and others had analysed on the determinants of FDI that excluded the variables of debt and tax. After the occurrence of Global Financial Crisis at the year of 2008, it has drawn the attention and interest of researchers to further explore on the impact of debt. For instance, Ismail (2009), Gedik (2013), Azam and Lukman (2010) and others have started to further study and include the variable of debt to investigate the dynamic effects on FDI. Thereby, there is a transformation on all the literatures that researchers had adopted the variables of tax and debt on their study after the Global Financial Crisis occurred.

2.2.1 Development of conventional variables

In the early years, this study found most of the journals like the study of Coughlin & Segev (2000), Chunlai (1997) and Falk (2016) have investigated on FDI inflow and mainly focus on the conventional determinants of FDI such as the market size, infrastructure, labour cost, interest rate and others which they are usually applied by the researchers in the empirical analysis of FDI determinants. In such, the study of Tsai (1994) found that domestic market size and trade balance are the major traditional determinants of FDI although labour cost and economic growth are essential towards FDI. Similarly, based on the research of Chunlai (1997), market size is adopted commonly on most of the study as it able to fasten the economic growth, capital income which it able to boost up directly on the level of FDI and increment of trading able to attract further FDI inflows. In another study of FDI determinants in EU countries by Artige and Nicolini (2007), the result showed a significant positive relationship between GDP and FDI as well. Additionally, Janicki and Wunnava (2004) suggested that market size, trade openness and labour cost are the main factors that affect the bilateral FDI between the members of European Union

(EU). Based on the result, they found that openness to trade is the most important determinants of bilateral trade between EU members due to the countries with more liberal trade approach willing to export more, and it signify an attractive opportunity for MNE to invest to these countries.

In addition, Groenewold, Tcha, and Yang (2000) not only adopted market size but also adopted domestic interest rate, inflation rate, trade balance and industrial disputes which have significant impact toward FDI but exchange rates are insignificant towards FDI. All the variables such as domestic interest rate, trade balance and industrial disputes have positively related to FDI inflows but inflation rate has negatively related to FDI inflows. Furthermore, wages, literacy rates, labour productivity and location has the significant relationship toward FDI inflows but transportation infrastructure is insignificant relationship on FDI inflows. Based on this study, labour productivity and location has positively relationship with FDI inflows but literacy rates and wages has negative relationship on FDI inflows (Coughlin & Segev, 2000).

Besides, the high skilled workforces, infrastructure facilities, development level of a country, trade regime, and political issues have adopted as significant factors to study toward the FDI (Agiomirgianakis, Asterious & Papathoma, 2003). Other than that, the research done by Desai, Foley and Hines (2004) concluded that government policy, direct and indirect taxes are both significantly negative related with FDI. Furthermore, Camurdan and Çevis (2007) also proved that the trade openness, interest rate, GDP growth positive related to FDI inflow which is adopted commonly among the researchers. Yet other variables such as wages are insignificant affect the FDI. Based on the study of Ahmadi-Esfahani and Phillips (2008), exchange rate proved to have positive relationship with FDI inflow. It is because when the host country currency depreciates, it boosts the foreign investors' confidence as the investment cost turned to be cheaper.

In short, the variables adopted by researchers such as Ahmadi-Esfahani and Phillips (2008), Camurdan and Çevis (2007) and others had changed in the past decade. This is because of the unpredictable economic changes like financial crisis

which have influenced the motivation of researchers to discover based on a new perspective. For instance, the researchers had adopted more variables such as debt and taxes to further investigate on the dynamic economic transformation throughout the years.

2.2.2 Expansion on determinants

Based on the study of Ismail (2009), it showed that favourable macroeconomics, social, economic and non-economic factors are key factors influencing FDI inflow such as inflation rate, exchange rate, transparency and trade policy. As semi gravity model used to carry out the study, it revealed that the shorter distance between the investing country and host country, the higher the FDI inflow; similarity of language and border also will give positive impact to FDI inflow. In addition, based on Gedik (2013), the political and institution factors are proven to have great contribution to FDI besides economic and fiscal factors such as public debt, inflation and labor cost as the factors of economic stability while tax burden, income tax level and tax on management are cost incurs for foreign investors.

Likewise, based on the study of Gedik (2013) and Falk (2016), tax rate is categorised under cost-based factors and that's why it is not preferable. According to Falk (2016), a higher total tax rate reduces the FDI inflow in hospitality industry. Gedik (2013) also suggested that corporate tax, individual income tax, tax burden on labour and management is also negatively related with FDI. The same concept from Falk (2016) and Gedik (2013) is also applied on this analysis where higher direct and indirect tax is also incurred as a cost for American Multinational Enterprises (MNEs) which will reduce their FDI and production output. According to the research of Demirhan and Masca (2008) Multinational Enterprises (MNEs) target to earn a higher profit. Thus, a high tax rate will affect the investment decision as it reduces the average income of an investment project and increase the cost of capital of the firm. This statement is further proved by Azam and Lukman (2010) where indirect tax rate has a significant negative relationship with FDI in the case of Pakistan. Saidu (2015)

also suggested that corporate tax rate (CTR) and FDI is negatively related as it will affect the volume and location for FDI in Nigeria. Similarly, based on Adepeju and Babatunde (2012), statutory tax rate has a significant negative relationship with FDI in the case of Nigeria. The government of Nigeria said that tax incentive can boost their FDI as this incentive is acknowledged as an effective tool for their economic development. Also, Sato (2012) adopted statutory tax rate, average effective tax rate or marginal effective tax rate as proxy for corporate tax rate. Although there are different proxies, yet, the relationship between tax and FDI is remained as significantly negative. In this case, the countries will prefer lower tax rate to create a friendly environment for foreign investment.

However, in contrast, Hunady and Orviska (2014) concluded that statutory and effective tax rate as the proxies for corporate tax rate have an insignificant relationship with FDI in EU countries. They suggested that this is probably due to the ability of Multinational Enterprises (MNEs) in EU areas are able to switch the taxes between the countries. Besides, in the analysis done by Beck and Chaves (2011), consumption tax has a less significant effect on FDI flows. Yet, capital income tax and labour income tax contributed a negative relationship with FDI flows in 25 OECD countries. They proved that a higher capital and labour income tax will drive out FDI from high tax countries and encourage more FDI to low tax countries.

Also, based on Azam and Lukman (2010), it stated external debt and FDI have a significant negative relationship as debt burden will discourage FDI inflow. The indirect taxes reduce FDI inflow as it will affect investors' profit directly. In addition of infrastructure facilities, domestic investment and trade openness will give a positive impact on FDI inflow. However, government consumption and inflation are insignificant to FDI inflow. For instance, the negative relationship between external debt and FDI can be explained by few rationales. Based on the studies of Azam and Lukman (2010), Ashja and Ostadi (2014), external debt is negatively related with FDI due to external debt act as a financial disadvantage to attract FDI and it will affect the future vision of foreign investors to create a negative expectation on the future economy. Next, Azam and Khan (2011) found that FDI in Pakistan is

badly affected by its debt condition based on their result showed an expected negative sign between both variables. Moreover, Awan, Ahmad, Hassan and Shahid (2014) also determined a negative relationship between external debt and FDI in Pakistan.

For another point of view, some researchers such as Kiprotich (2015) and Cetin and Kalayci (2012) believe that debt can also act as one of the main sources to boost FDI provided if the country is able to repay the external debt. Firstly, Kiprotich (2015) examined the relationship of FDI with domestic debt and foreign debt in Kenya. The result showed a positive relationship of domestic, foreign debt towards FDI by using regression analysis. In this study, the researcher mentioned that domestic debt is the most influential factors toward FDI while foreign debt is placed as second. According to Cetin and Kalayci (2012), external debt can be the sources for economic development and this could be the reason why developing countries tend to borrow more debt over the years.

Other than that, Cetin and Kalayci (2012) also stated that China has significantly used their external debt especially in the secondary industry and they have higher efficiency on converting their debt usage into budget surplus. In fact, China also spent most of their debt on economic development purpose; it will boost the economic growth. Mehrara and Zirak (2012) highlighted the economics openness and foreign debts are influential factors to attract FDI inflow. As the variables indicated the willingness and capacity of a country to accept FDI, it will affect the attractiveness of the capital to come into the countries. Based on their result, there is positively relation between external debt and FDI, but if the debt condition presented a country risk to those countries, increase of external debt will discourage investors to do foreign investment at that country. In short, the developing counties tend to have higher external debt to stimulate their economic growth in order to attract more FDI inflow, however, most of the developing countries borrowing are beyond their ability to payback, hence it usually cause an opposing effect toward FDI.

2.2.3 Starting point of diversion

In recent years, researchers such as Mugambi (2016) have started to concern regarding the determinants of FDI to another new direction which is the impacts of debts and tax jointly together towards FDI. In fact, there are little of findings regarding the jointly impact of tax and debt together towards FDI.

From Mugambi (2016)'s perspective, he found that there is positive relationship between external debt and tax but both will discourage FDI due to increasing in the cost of business as the heavily indebted country may increase taxes (raise revenue) to finance the external debt in the case of Kenya. Furthermore, Warburton (2003) examined the effect of external debt in high indebted countries and the researcher mentioned that debt overhang issue is the main factor that discourages economic growth and development. Consequently, debt overhang issue will further lead to an increment in tax which then discourages the inflow of FDI. Since, the variable of tax and debt jointly together that rarely been studied previously might be able to capture the effect differently as compared to conventional variables. Thus, all this finding has inspired and motivated this study to further examine on the nexus of tax and debt towards FDI.

CHAPTER 3: METHODOLOGY

3.1 Introduction

In this chapter, the overall methodology and models will be discussed. Dunning's OLI approach is modified and the proposed models are formed to carry out analysis using ARDL test. In addition, with the concern of the stationary of the variables, panel unit root tests are adopted to examine the stationary of the variables. The unit root tests are Levin Lin Chu test (LLC) and Im, Pesaran and Shin test (IPS). Lastly, this study also conducted Autoregressive Distributed Lag (ARDL) to investigate long run relationship between the variables.

3.2 Econometric Model

Based on the Dunning's OLI (location advantages) approach, the model of foreign direct investment (FDI) has reinforced as follow where it acts as the main model.

$$FDI = f(TAX, DEBT, RGDP, EX, INR) \quad (1)$$

3.2.1 Main model

Based on the location advantage of OLI theory framework, real gross domestic production (RGDP), exchange rate (EX) and interest rate (INR) are imposed as the control variables. To specify, tax rate (TAX) and external debt (DEBT) are the concerned variables, which are the interested variables; foreign direct investment (FDI) is the dependent variable. Among these variables, some of them are transformed into natural log form. To specify, they are RGDP, DEBT and EX. We

have denoted them into LNRGDP, LNDEBT and LNEX in the equation. The reason behind this is mainly due to the non-linearity and non-consistency of the data. In terms of RGDP, the data is ranged from $330.1091 to $37832.6716. For DEBT, it ranges from 20.8577% of GDP to 557.6708% of GDP. Next, the data for EX is fall under the range of 1.2497 until 21148 (Local Currency Unit per US dollar). Thus, in order to ensure the data is consistent, these mentioned variables are transformed to natural log form to prevent any outliers. The equation is as follow:

$$FDI_{it} = \sum_{j-1}^{p} \beta_{1ij} FDI_{i,t-j} + \sum_{j-0}^{q_1} \beta_{2ij} LNRGDP_{i,t-j} + \sum_{j-0}^{q_2} \beta_{3ij} TAX_{i,t-j} + \sum_{j-0}^{q_3} \beta_{4ij} LNDEBT_{i,t-j} + \sum_{j-0}^{q_4} \beta_{5ij} LNEX_{i,t-j} + \sum_{j-0}^{q_5} \beta_{6ij} INR_{i,t-j} + \mu_t + \varepsilon_{it} \quad (2)$$

External debt, which represented the reputation of a country indirectly, thus it is expected to have a negative relationship between external debt and FDI, (β_4<0) (Ashja & Ostadi, 2014). It is because a country that needs to deal with high liability which will demotivate FDI to come in. Furthermore, the relationship between tax rate and FDI is expected to be in adverse relation (Mugambi, 2016). Since higher tax rate will incur higher cost to the foreign investors, (β_3<0). Moreover, RGDP, which indicate the market size, is expected have positive relationship with FDI inflow as high market size encourages economies of scale can attract FDI inflow, β_2>0) (Azam & Lukman, 2010). Moreover, a weak currency in the host country which indicates a strong purchasing power of the foreign investors will decreases the investment cost. Hence, it is expected to have a positive sign from exchange rate of its relationship with FDI taking the assumption of direct quote, (β_5>0). Moreover, interest rate is expected to have negative relationship with FDI, (β_6<0). This is because when interest rate increases, it would increase the cost of capital as well and it causes investor to face larger financial risk (Faroh & Shen, 2015).

3.2.2 Tax debt threshold

To further decode the question which is the level of external debt that changes the effect between FDI inflow and external debt, LNDEBT*TAX is included to form a threshold model. It acts as an interactive term in this model. The sign of this interactive term is expected to be in positive, (β_4>0). However, there is a limitation in this model. As the interactive term is included, LNDEBT is taken out. This is due to the near singular matrix error. When this error is detected in Eviews, it indicates that the regressors have high collinearity and this make Eviews programme has the difficulty to run the regression analysis. This high collinearity is due to the data of TAX and DEBT looks the same in the perspective of Eviews. Supposingly these two variables do not have collinearity problem, but after DEBT is transformed into natural log form (due to inconsistency), the transformed data has high degree of collinearity with TAX. Or in other word, Eviews programme is unable to differentiate between TAX and LNDEBT as they are having almost exact pattern of data. Hence, when the interactive term (LNDEBT*TAX) is included, LNDEBT variable is removed to solve for the singular matrix error. The equation is as follow:

$$FDI_{it} = \sum_{j-1}^{p} \beta_{1ij} FDI_{i,t-j} + \sum_{j-0}^{q_1} \beta_{2ij} LNRGDP_{i,t-j} + \sum_{j-0}^{q_2} \beta_{3ij} TAX_{i,t-j} + \sum_{j-0}^{q_3} \beta_{4ij} LNDEBT * TAX_{i,t-j} + \sum_{j-0}^{q_4} \beta_{5ij} LNEX_{i,t-j} + \sum_{j-0}^{q_5} \beta_{6ij} INR_{i,t-j} + \mu_t + \varepsilon_{it} \quad (3)$$

The hypothesis is formed and it states that the net combined effect of the TAX and DEBT towards FDI is negative at first. Given that there is tax regime in the countries as one of the sources of income, when the external debt of a country is still low but in an increasing rate, it will bring the negative net effect to FDI. However, as the debt reaches the minimum turning point $e^{\frac{-\beta_2}{\beta_3}}$ (shown in equation 5), the net effect of the both variables to FDI will turn to be positive. It is due to, as the country reached the minimum point; it is actually the level of debt that represent the growth or the maturity of the country which is a favorable situation to the foreign investor.

Since, a sufficient of debt will improve the infrastructure of a country. Hence, a further increase in debt will dominate the negative effect generated from increase of tax. The key of this threshold is the minimum turning point where the step of finding the "key" is demonstrated as below.

Steps to find turning point:

$$FDI_{it} = \beta_0 + \beta_1 LNRGDP_{it} + \beta_2 TAX_{it} + \beta_3 LNDEBT_{it} * TAX_{it} + \beta_4 LNEX_{it} + \beta_5 INR_{it} + \varepsilon_{it} \quad (4)$$

$$\frac{d\ FDI_{it}}{dTAX_{it}} = \beta_2 + \beta_3 LNDEBT = 0$$

$$DEBT = e^{LNDEBT} = e^{\frac{-\beta_2}{\beta_3}} \quad (5)$$

3.2.3 Tax square threshold

In this proposed model, tax^2 is included to the main model, where it serves to estimate the threshold levels of tax revenue that will trigger and overturn the effect of FDI inflow. This model is similar as model (3) but with different motive of study. Tax^2 is also served as an interactive term in the model. The sign of the interactive term is expected to be negative, (β_4<0).

$$FDI_{it} = \sum_{j-1}^{p} \beta_{1ij} FDI_{i,t-j} + \sum_{j-0}^{q_1} \beta_{2ij} LNRGDP_{i,t-j} + \sum_{j-0}^{q_2} \beta_{3ij} TAX_{i,t-j} + \sum_{j-0}^{q_3} \beta_{4ij} TAX^2{}_{i,t-j} + \sum_{j-0}^{q_4} \beta_{5ij} LNDEBT_{i,t-j} + \sum_{j-0}^{q_5} \beta_{6ij} LNEX_{i,t-j} + \sum_{j-0}^{q_6} \beta_{7ij} INR_{i,t-j} + \mu_t + \varepsilon_{it} \quad (6)$$

The relationship between tax and FDI is hypothesized that, when the tax increases, the FDI will increase at first. Since it is logical to have tax charges in a country where the matter concerned is the rate charged, so there is FDI inflow at this stage. However, as the FDI reaches the maximum turning point, $\frac{-\beta_2}{2\beta_3}$ (shown in

equation 8), a further increase in tax will reduce FDI inflow. As increase of tax rate will increase the investment cost which will later distract the foreign investor to invest in home country. The steps below demonstrated the way to find the optimal tax rate should be charged right before their relationship changes.

Steps to find turning point:

$$FDI_{it} = \beta_0 + \beta_1 LNRGDP_{it} + \beta_2 TAX_{it} + \beta_3 TAX^2{}_{it} + \beta_4 LNDEBT_{it} + \beta_5 LNEX_{it} + \beta_6 LNR_{it} + \varepsilon_{it} \quad (7)$$

$$\frac{d\ FDI_{it}}{dTAX_{it}} = \beta_2 + 2\beta_3 TAX = 0$$

$$TAX = \frac{-\beta_2}{2\beta_3} \quad (8)$$

After the tax debt threshold and the tax square threshold, some might doubt that why the analysis on DEBT towards FDI inflow under different condition of tax is not carried out in this study. The reason behind this is due to, the TAX among these eight SEA countries are more or less the same. There is no significant difference among them. Unlike DEBT, the difference between the lowest and highest point is huge, and this draw the attention to further study the effect on FDI inflow, which has explained in section 3.2.2.

3.3 Data Collection Methods

In this study, panel data analysis is conducted and eight Southeast Asia countries are incorporated in this investigation. They are Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam. The period of study is from year 2000 to 2014. There are total of 120 observations. Furthermore, it is balanced and long panel. It is because all the eight countries have the same observations of 15 years from year 2000 to 2014 and the cross sectional subjects which are the 8 countries is less than the time periods of 15 years.

This study has collected the data of the variables for 15 years from different sources and all of them are secondary data. The sources included World Bank Database, United Nations Conference on Trade and Development (UNCTAD), The World Factbook-Central Intelligence Agency, International Monetary Fund (IMF), Asian Development Bank and Google Book for Data, where most of the data are adopted from World Bank Database. The details of sources for each variable and also the definition of the variables are listed in table below (Table 3.1).

Table 3.1 Sources of Data and Definition

Variables	**Proxy**	**Sources**	**Definition**
FDI	Foreign Direct Investment, net inflows in percentage of GDP	Worldbank Database	FDI is an international investment involved long-term relationship and represents a long-term interest and manipulate by a home country investor (Miller & Netzer, 1992).
TAX	Tax revenue in percentage of GDP, proxy of tax rate	Asian Development Bank, Key Indicators for Asia and Pacific Year 2001-2015	Tax can be defined as the charge collected by a country government for its financial support or for the purpose of helping the public of that country (Aamir et al., 2011).
DEBT	External Debt in percentage of GDP (Total external debt outstanding divided by	Google Book for Data Year 2001 & Asian Development Bank, Basic Statistics Year 2002, 2004-2016,	External debt is one of the parts of total debt in a country that is owed to creditors outside the country. External debt is also known as foreign debt (Anela & Okechukwu, 2014).

	nominal gross domestic product)	Only data of Singapore adopted from CD, Government Finance Statistics, IMF **Nominal GDP retrieved from Worldbank Databse	The definition of GDP is depending on the total market value of every final goods and services produced within the country in normally one year period of time (Kira, 2013).
RGDP	Real Gross Domestic Production in total (constant 2005 US$)	UNCTAD	Real GDP as known as inflation-adjusted gross domestic product that measures the final goods and services at constant base-years price (Leamer, 2008).
INR	Lending interest rate in percentage	CIA World Factbook, Worldbank Database	Angbazo (1997) defined interest rate as the money that borrower paid to lender for their lending of money or asset.
EX	Exchange rate, denoted as direct quote (Home currency/Foreign currency), where foreign currency is US dollar.	Worldbank Database	Exchange rate defined as the differences of relative price between goods and services that express in one currency. (Rapetti, 2013).

3.4 Econometric Method

With the data and models ready, investigations are carried out to answer the research questions. To achieve these, statistical techniques are applied to analyze the data and EViews Version 9, which is a computer program act as a tool for the statistical techniques being carried out. It enables this study to perform various econometric testing such as unit root tests and Autoregressive Distributed Lag (ARDL). In the following sections, there will be some discussions on the type of data used and also the nature of the tests adopted.

3.4.1 Panel data approach

Panel data, also being referred as longitudinal data or cross-sectional time series data. It is the combination of the cross sectional data and time series data where it consists of a number of observations over time on a number of cross-sectional units. There are also named for the different characteristics of the panel data. It is balanced data if each subject has the same observations; while unbalanced data is in an opposite way: different observations for each subject. In addition, when the amount of the cross-sectional is more than the time period, it is called short panel and it is long panel when the number of period is more than the cross-sectional subject.

The beauty of the panel data has brought attention on the panel analysis in this study. One of them is the flexibility in modeling differences in behavior across individual which is the subject (Greene, 2003). In other words, it controls the heterogeneity of the subjects (Baltagi, 2008). The subjects such as individuals, firms, countries are heterogeneous and with the method used in panel data estimation, their differences can be taken into consideration in a way that allowing the inclusion of subject specific variable (Gujarati & Porter, 2009). Besides, researches can also deepen their analysis especially on complex economic hypotheses with the control for the influences corresponding to both individual and time period (Baltagi & Raj, 2012).

Moreover, panel data is more informative, more variety, less multicollinearity problem among the variables, higher degree of freedom and more efficiency (Gujarati & Porter, 2009). There is less likely to have multicollinearity problem for panel analysis but not for time series. It is due to the variation of sizes, characteristics of the subjects. With variation, it also meant that more information obtained from the data (Baltagi, 2008). In addition, more efficiency is meant of the econometrics estimate or prediction as large sample size of panel data is applied in research (Baltagi & Raj,, 2012).

Furthermore, it can control the impact of the omitted variables (Hsiao, 2014). Omitted variables are the variables that are important or relevant in the study but are not included. In other words, they are not measured and not observed variables (Hsiao, 2014). With omitted variables, the effectiveness in answering the real answer for the research questions is disrupted. It is because the effects of some variables are ignored from the model (Hsiao, 2007). However, by using panel data analysis, this problem can be resolved. It is due to the information on both inter-temporal dynamics and individuality of the subjects in the panel data which able to control the impact of the omitted variables (Hsiao, 2007).

3.4.2 Panel unit root test

As mentioned before, the panel data is the combination of time series and cross sectional data, and there is one problem found in the time series data, which is the non-stationary of the data (Almasri, Månsson, Shukur & Sjölander, 2012). It is especially for the time series data of economics and financial like exchange rate which normally will have trending behavior and non-stationary of mean (Wang & Zivot, 2007). It is because the current data contains the memory of the previous data. The most concerning matter is the consequence of using non-stationary data to carry out estimation, which is spurious regression. It is an econometric problem where non stationary variables share the common movement cross the time, but their movement is actually uncorrelated cross time. In the end will lead to inefficient estimators

provide misleading conclusion in the hypothesis testing. As a result, unit root test are used to find out whether the series is stationary at level form or the trending data need to be in first difference or regress on deterministic functions of time in order to obtain a stationary data (Wang & Zivot, 2007). In addition, the stationarity of data also determines the type of cointergration test should be conducted.

There are various types of panel unit root tests and they are categorized to two generation. However, this study will focus on the first generation panel unit root test as according to Barbieri (2006), those tests assume the individual time series in the panel are cross-sectional independently distributed. Moreover, the power of unit root test based on the single time series can be increased by using those tests (Maddala & Wu, 1999). In this study, Levin Lin Chu (LLC) unit root test and Im, Pesaran and Shin (IPS) are conducted which both these tests are popular unit root tools for researcher.

3.4.2.1 Levin Lin Chu (LLC)

Levin, Lin and Chu (2002) is a panel unit root test that allow error terms with heterogeneous autocorrelation structure and heterogeneity of individual deterministic effect (Barbieri, 2006). In addition, the test statistic of this test depends heavily on the cross-sectional independence which means for example Malaysia's inflation does not rely on United States' inflation. Furthermore, there is an assumption that the cross-sectional (subject) and time period are infinity. However, time period will increase at a rapid rate, such that N/T is 0 (Barbieri, 2006). The null hypothesis of this test is each time series contains a unit root and alternative hypothesis is each time series is stationary where it provides identical first order autoregressive coefficient (Barbieri, 2006). According to Baltagi (2008), LLC is less powerful and undersized if the time period is too small. Besides, there is a limitation that some subjects are subjected to unit root and some are not but the null hypothesis stated that all subjects have a unit root. Hence, Levin, Lin and Chu (2002) recommended that if panel data with subjects that are too large or with time period too small, normal panel data procedures can be

proceed; however, if time period is large, individual unit root time series test can be used (Balgati, 2008).

3.4.2.2 Im, Pesaran and Shin (IPS)

Im, Pesaran and Shin (2003) included a simple panel unit root testing procedure where it is more flexible and has relaxed for some assumption (Barbieri, 2006). In this test, without pooling data, the unit root test for each cross-sectional unit is separated which means each subject will have one unit root test and T-test is considered for each of them based on the time period (Maddala & Wu, 1999). It assumes the time period for the subjects (cross-sectional units) are the same, and it indirectly meant of balanced panel data. However, if unbalanced panel is used, more stimulation needs to be carried out to acquire the critical value (Maddala &Wu, 1999). Furthermore, according to Barbieri (2006), the test also allows autocorrelation problem and heterogeneity of dynamics and error variances among the groups Moreover, in the case of the autocorrelation, IPS proposed to use ADF t-test for individual series and it is used with same lag length of all individual series (Maddala & Wu, 1999). An investigation on the small sample properties using panel unit root test done by Monte Carlo, and found that the cross-sectional augmented panel unit root tests have good performance even for those with small N and T (Pesaran, 2007). The null hypothesis is same as LLC, but the alternative hypothesis is different, which is, the individual stationary series provides different individual first order autoregressive coefficients (Barbieri, 2006).

3.4.3 Autoregressive Distributed Lag (ARDL)

According to Cinar, Demirel and Eroglu (2014), panel ARDL model is a better cointegration test compared to the one developed by Engle and Granger (1988) and Johansen (1995) since variables with different cointegration levels can also be applied. In other word, ARDL can be applied to conduct cointegration test for

variables with a combination of intergrated order I(0) and I(1) (Nkoro& Uko, 2016). However, if there is a existence of integrated order of I(2), the technique will crash which means if there is I(2) contain in the series, ARDL cannot be applied. Hence, to avoid this to happen, unit root test are suggested to be conducted before applying ARDL to ensure the integrated order of each series. It is important to ensure the condition of ARDL approach before applying it, as it will lead to many econometrics problems such as model misspecification, inconsistent and unrealistic estimation (Cinar, Demirel, & Eroglu, 2014).

In addition, the primary function of ARDL approach is to investigate the short run and long run relationship of the underlying variables (Ahmad, Oudat & Yazis, 2015). Equation (9) shows the short run equation of ARDL while equation (10) shows a long run equation which transformed from the short run equation (9).

$$Y_{it} = \beta_0 + \beta_1 Y_{it-1} + \beta_2 X_{it} + \beta_3 X_{it-1} \quad (9)$$

$$Y_{it} = \beta_0 + \beta_1 Y_{it} + (\beta_2 + \beta_3) X_{it}$$

$$Y_{it} = \frac{\beta_0}{1-\beta_1} + \left(\frac{\beta_2+\beta_3}{1-\beta_1}\right) X_{it} \quad (10)$$

Moreover, “Pesaran panel ARDL model (1999) deals with three estimators: Mean group estimator (MG), pooled mean group estimator (PMG) and dynamic fixed effect estimator” (Cinar, Demirel, & Eroglu, 2014, p195). Here are the further explanations on these estimators. For MG, it will generate long run parameter by obtaining the average of long run parameter of ARDL estimator and there is no control on the parameter of ARDL specification; while PMG, require the uniformity of long run parameter for all panel forming countries which solved the limitation of MG. Furthermore, PMG also permits constant term, error variances and short-run parameters to be different among the subjects (Cinar, Demirel, & Eroglu, 2014). In addition, it also applicable for the study with small and big sample size (Pesaran, Shin, & Smith, 1999).

The ARDL model is acquired from Asghar, Nadeem, and Qureshi (2015) and is shown as follow:

$$Y_{it} = \sum_{j-1}^{p} \beta_{1ij} y_{i,t-j} + \sum_{j-0}^{q} \beta_{2ij} x_{i,t-j} + \mu_t + \varepsilon_{it} \quad (11)$$

As referring to the equation above, the number of cross sections denoted as i=1, 2….N and time period is t=1, 2….T. Besides, the x_{it} denoted as the vector of K × 1 regressors ; $\delta_{it}$is a scalar and μ_{it} denoted as group specific effect.

CHAPTER 4: DATA ANALYSIS

4.1 Introduction

In this chapter, the estimated results of the long run and short run relationship between FDI and its determinants will be presented by using Autoregressive Distributed Lag (ARDL) approach. As the relationship between FDI, TAX and DEBT is expected to be overturned at certain extent, the ARDL model is further expanded to investigate the reasons behind this. In order to track this relationship, the interactive terms also included into the ARDL model and find out the threshold level which will change the overall effect on FDI.

4.2 Panel Unit Root Test

Before carry out regression analysis, all the variables have to be stationary in order to avoid spurious regression problem. Thus, in this section, Levin, Lin and Chu (LLC) and Im Pesaran Shin (IPS) test are carried out to confirm on the variables' integrated orders. In both these test, the null hypothesis is denoted as the variable has a unit root, which also means that the variable is either stationary at first difference form, I (1) or a higher integrated order. Then, the alternative hypothesis is denoted as the variable does not have a unit root, which indicates that the variable is stationary at the level form I (0). The result of unit root test is reported in table 4.1 and 4.2 respectively.

Table 4.1 Result of Levin, Lin and Chu test (LLC)

Variables	Level Form		First Difference	
	Intercept and trend	Intercept	Intercept and trend	Intercept
FDI	-4.3957***	-3.7388***	-7.7097***	-7.9469***
LNRGDP	-3.7107***	0.4905	-0.1301***	-5.4035***
TAX	-3.8746***	-1.3178*	-8.0636***	-9.5676***
LNDEBT	-0.3662	-0.9838	-7.4336***	-6.6162***
LNEX	0.0856	-0.5012	-5.5399***	-5.2062***
INR	-10.0419***	-4.8368***	-7.2018***	-7.1270***

NOTE:*, ** and * indicate that the variables as stated are significant at 1%, 5% and 10% significance level respectively.

FDI denotes as Foreign Direct Investment net inflow in percentage of GDP, LNRGDP denotes as logarithm form of Real Gross Domestic Production in total (constant 2005 US$), TAX denotes as tax revenue in percentage of GDP, LNDEBT denotes as logarithm form of external debt in percentage of GDP and INR denotes as lending interest rate in percentage.

Based on table 4.1, the result of LLC unit root test shows the p-value for most of the variables are significant to reject the null hypothesis at 1% significance level. This indicates that those variables are stationary at level form, I (0). However, the p-value for LNDEBT and LNEX are insignificant to reject the null hypothesis at 1% significance level. This means that both of these variables contain unit root or a higher level of integration order. After performed the first difference of LLC, the results reported that p-value for all the variables are significant to reject the null hypothesis at 1% significance level, which means all the variables do not need a higher integration order than I (1).

Table 4.2 Result of Im, Pesaran, Shin test (IPS)

Variables	Level Form		First Difference	
	Intercept and trend	Intercept	Intercept and trend	Intercept
FDI	-2.9374***	-3.3428***	-5.4874***	-6.9061***
LNRGDP	-0.9048	4.3513	-3.0440***	-4.1478***
TAX	-2.2097**	-1.6057*	-5.5893***	-7.3482***
LNDEBT	1.6434	1.2603	-4.6514***	-5.2532***
LNEX	-0.6554	0.6735	-2.4085***	-4.4278***
INR	-4.6932***	-3.2293***	-4.4306***	-6.1766***

NOTE:*, ** and * indicate that the variables as stated are significant at 1%, 5% and 10% significance level respectively.

FDI denotes as Foreign Direct Investment net inflow in percentage of GDP, LNRGDP denotes as logarithm form of Real Gross Domestic Production in total (constant 2005 US$), TAX denotes as tax revenue in percentage of GDP, LNDEBT denotes as logarithm form of external debt in percentage of GDP and INR denotes as lending interest rate in percentage.

By referring to table 4.2, the results of IPS unit root test shows that the p-value for FDI and INR are significant to reject null hypothesis at 1% significance level, which also means that they are stationary at level form, I (0). In contrast, the p-value for the remaining variables is insignificant to reject null hypothesis at 1% significance level. Thus, a higher integration order is needed. After the first difference of IPS, p-value for all variables is significant to reject null hypothesis at 1% significance level.

By comparing the results of LLC and IPS unit root tests, some of the variables are stationary at level form I (0) but some are stationary at first difference form I (1). Thus, it is concluded that all these variables contain a mixture of integration order at I (0) and maximum at I (1). In this case, Auto Regressive Distributed Lag approach

(ARDL) is suitable to be used for further investigation on the relationship between FDI and its determinants.

In order to perform ARDL approach, the dependent variable, FDI has to be in first difference form, I (1). Although FDI is said to be stationary in level form according to LLC and IPS panel unit test that applied in the study, ARDL approach is carried throughout the analysis. It is due to the limitation of EViews. Based on the guidelines of EViews, it supports the panel unit root test in settings by involving multiple series as a single series view. Due to this, the integrated order of a country might dominate the result of other countries. It happens to the case of FDI.

Table 4.3 Unit root test on individual countries' FDI inflow

Countries	Intercept and trend
	IPS (Probability)
1	0.1236
2	0.2383
3	0.5170
4	0.0602*
5	0.1738
6	0.0328**
7	0.0045***
8	0.7983

NOTE: Countries 1…8 is denoted as Cambodia, Indonesia, Laos, Philippine, Malaysia, Singapore, Thailand and Vietnam in sequential mode.

***, ** and * indicate that the variables as stated are significant at 1%, 5% and 10% significance level respectively.

Based on table 4.3, when the countries are observed individually, majority of the countries' FDI also have insufficient evidence to reject null hypothesis, which

means they need a higher integrated order but not stationary at level form. Therefore, ARDL approach is continued to be applied in the study.

4.3 Investigation on the Relationship between FDI and Its Determinants using ARDL Approach

By adopting ARDL approach, the long run and short run relationship between FDI and its determinants is able to be determined. In this study will focus more on the long run relationship instead of the short run relationship as it is believed that in long run, the relationship among them may be overturned at certain extent. Thus, the combined effect of TAX and DEBT on FDI is being captured using ARDL approach. In addition, the non-linear relationship between TAX and FDI will also being investigated.

4.3.1 Long run relationship between FDI inflow and its determinants

Six variables has adopted in study and due to the small sample size in the panel analysis, it is restricted to include too many lag length. In fact, too many lag terms will lead to a loss of degree of freedom which will reduce the accuracy of the estimated result. Hence, given the limited availability of data, the maximum lag length is set from the range of 1 to 2 and the optimum lag length is chosen based on Schwarz Information Criterion (SIC). Model (1) in table 4.4 has the lag length of (2, 1, 1, 1, 1, 1). Model (2) represents the non-linear relationship between LNRDP and FDI, the lag length is (1, 1, 1, 1, 1, 1, 1). Model 3 determines the combined effect of tax, external debt on FDI. The lag length for this model is (2, 1, 1, 1, 1, 1). Then, model (4) determines the non-linear relationship between tax and FDI inflow with the lag length chosen (1, 1, 1, 1, 1, 1, 1).

Table 4.4 Long run analysis using Panel ARDL

	(1)	(2)	(3)	(4)
LNRGDP	-0.7684	-37.3382	-2.7904	-2.0875
	(-2.1737)**	(-1.3339)	(-60.7273)***	(-1.5563)
TAX	-0.1582	0.2894	-0.6776	-8.0865
	(-3.2384)***	(5.6173)***	(-1385.6360)***	(-3.3976)***
LNDEBT	1.7941	2.6484		4.6855
	(10.9570)***	(18.5870)***		(5.1494)***
LNEX	8.3970	-4.1510	9.5299	3.9269
	(40.8303)***	(-5.2645)***	(341.8539)***	(3.0101)***
INR	-0.3592	0.1196	-0.3579	-0.5988
	(-172.9659)***	(2.5315)**	(-668.9454)***	(-4.7341)***
LNRGDP^2		2.1845		
		(1.8618)*		
LNDEBT*TAX			0.0670	
			(39.9993)***	
TAX^2				0.3029
				(3.5082)***

NOTE:***, ** and * indicate that the variables as stated are significant at 1%, 5% and 10% significance level respectively.

LRGDP^2 denotes as the interactive term to determine the non-linear relationship between RGDP and FDI, LNDEBT*TAX denotes as the interactive term to determine the relationship between EXTERNAL DEBT, TAX and FDI, TAX^2 denotes as the interactive term to determine the non-linear relationship between TAX and FDI.

As refer to model (1) in table 4.4, the results reported that LNRGDP is significant at 5% significance level but TAX, LNDEBT, LNEX and INR are significant at 1% significance level. This indicates that there are long run relationships between these variables with FDI inflow. Or in other words, they are co-integrated. LNRGDP, TAX and INR showed negative relationship with FDI inflow which has the similar result of Artige and Nicolini (2006), Falk (2016) and Faroh and Shen (2015). In contrast, LNDEBT and LNEX showed positive relationship with FDI inflow which is in line with the study of Kiprotich (2015) and Philips and Admadi-Esfahani (2008). This result proved that majority of the variables met the expected coefficient sign, except LNRGDP and LNDEBT. The negative relationship between LNRGDP and LNDEBT with FDI draw the attention to further investigate the rationale behind that leads to this contradictive result.

4.3.1.1 The non-linear relationship between LNRGDP with FDI inflow

As refer to model (2) in table 4.4, this estimated result shows that there is a non-linear relationship between LNRGDP and FDI inflow. It is also in line with the findings of Nguyen and To (2017) and Elafif and Gangopadhyay (2016), which also found non-linear relationship of economic growth on FDI inflow. The coefficient of LNRGDP shows a negative relationship with FDI inflow but somehow, it is not significant at any significance level. Yet, the coefficient of LNRGDP^2 shows a significance positive relationship with FDI inflow at 10% significance level. This indicates that, at a lower level of LNRGDP, the economy market is not attractive for foreign investors to invest in the Southeast Asia countries. This may due to the infrastructure in those countries, such as communication, transportation and financial institutional are not well developed yet to attract foreign investments. As according to Elafif and Gangopadhyay (2016), a low level of economic development will become a barrier for the FDI to come in and the government has to create a suitable condition for to attract FDI. Hence, after a certain level (turning point = $5,146.9839), FDI inflow started to increase with LNRGDP. This positive effect is due to the

government has successfully attracted the FDI inflow in terms of economic growth and development of the country where it boost the confidence of the foreign investors.

4.3.1.2 The combined effect of tax and debt on FDI inflow

In this section, the combined effect of tax and external debt that will boost the FDI inflow in the studied countries is being highlighted. As refer to model (3) in table 4.4, the coefficient of LNDEBT*TAX and TAX shows a non-linear relationship between FDI, DEBT and TAX in this analysis; where it is tally with the hypothesis in Chapter 3.

This non-linear relationship begins with a negative effect between TAX and FDI when there is a low level of LNDEBT. Assume that the amount of debt owe is used as capital to improve and enhance the infrastructure facilities in the country. Then, with an increment in the liability, the government charges a higher tax rate and the tax revenue collected are used to repay the debt to avoid any default (Warburton, 2003). From this observation, the net effect between tax and debt create a negative impact on FDI inflow. As according to Bua, Pradelli, and Presbitero (2014) debt will improve the institutional infrastructure underlying the organization and when the amount of debt is low, will limits the fund for the infrastructure developing program in those countries. In connection with the higher tax rate charged, it actually creates an unfavourable business environment and loss their attractiveness for the foreign investors. Hence, the net effect of external debt and tax creates a negative effect on FDI inflow.

However, after certain extent (246.7221% of GDP), the relationship is overturned as the amount of debt is increasing. When the countries borrow more and more, they actually have enough funds for a better developing planning. Thus, even with a higher tax rate charged, the availability of a better and convenient infrastructure facilities actually boost the confidence of the foreign investors (Dunning, 2000). As the country has better and advanced facilities, it actually eases the business activities, provides convenience as well as enhances the production

efficiency in the industry. Therefore, in the foreign investor's perspective, their business cost is reduced in terms of time and money which will bring positive effect to FDI inflow.

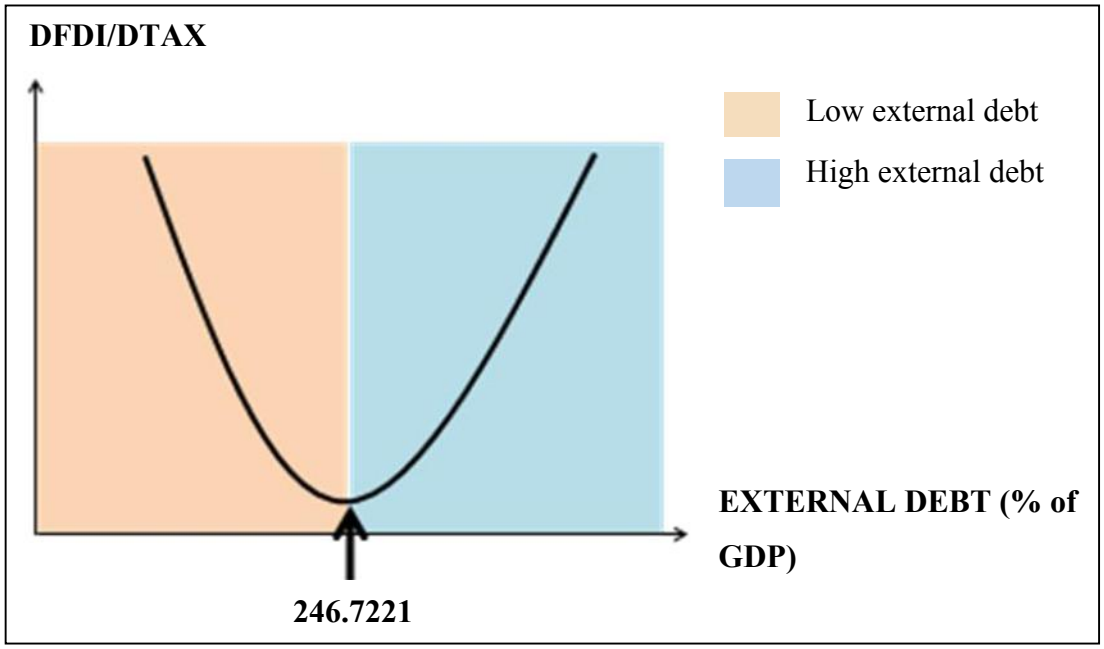


Figure 4.1 Non-linear relationship between FDI, Tax and External debt

4.3.1.3 Non-linear relationship between Tax and FDI inflow

In this section, the relationship between TAX and FDI in the selected countries is being examined. From model (4) in table 4.4, the result shows a non-linear relationship between TAX and FDI inflow but it has a different expected sign as hypothesized in Chapter 3. Based on the result, TAX and FDI inflow is still negatively related. However, after certain extent, the relationship between them becomes positive, shown by the positive coefficient of TAX^2.

At first, the negative relationship between TAX and FDI inflow showed that, as TAX increases, the FDI inflow will decrease. It is tally with findings of Demirhan and Masca (2008). This is because a higher tax rate increase the business cost for the foreign investors and reduce their investment profit. Thus, it creates an unfriendly

business environment for the foreign investors. Hence, those foreign investors will tend to invest in other country which has a lower tax rate to reduce their business cost. But after a point (13.3486 % of GDP), high tax rate actually boosts the FDI inflow. This positive effect of TAX on FDI inflow might be due to the powerfulness of the country as it will increase confidence of the investor. According to OLI theory, on location advantage, it stated that the reputation of a country will affect FDI inflow. Or in other words, a country with good reputation will have a positive background which will increase the confidence of the investors as it will be beneficial for them on their business development in that particular country. Hence, it could be the reason of the different result from the hypothesis due to the characteristic of a country.

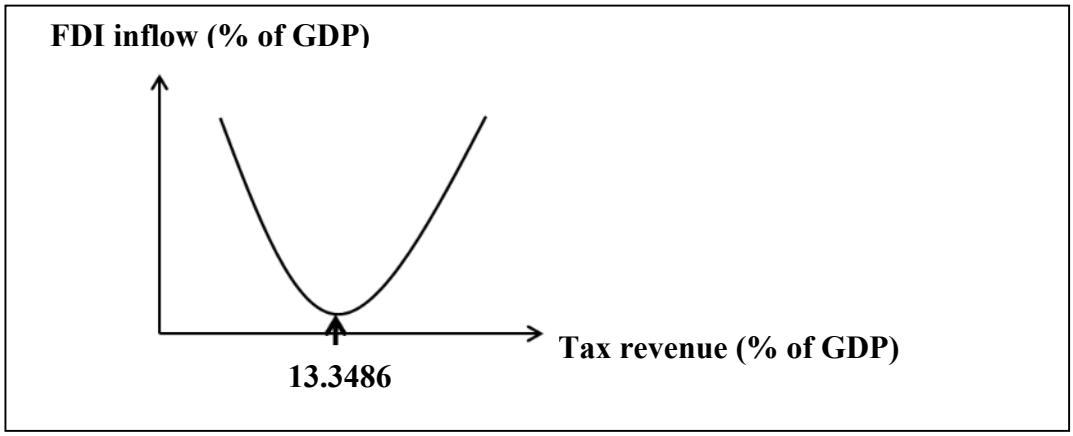


Figure 4.2 Non-linear relationship between FDI and Tax

4.3.2 Short run relationship between FDI inflow and its determinants

In this section, the short run analysis between FDI inflow and its determinants is being presented. Model (1) in table 4.5 represents the ARDL model which determines the short run relationship. The lag length for this model is (2, 1, 1, 1, 1, 1). Model (2) represents the short run non-linear relationship between LNRDP and FDI and the lag length is (1, 1, 1, 1, 1, 1, 1). Model 3 implies the short run equation to determine the combined effect of tax, external debt and FDI. The lag length for this model is (2, 1, 1, 1, 1, 1). Then, model (4) determines the short run non-linear relationship between tax and FDI inflow whereas the lag length chosen is (1, 1, 1, 1, 1, 1, 1).

Table 4.5 Short run analysis using Panel ARDL

	(1)	(2)	(3)	(4)
COINTE	-0.5408	-0.6332	-0.4392	-0.1285
	(-2.2728)**	(-2.7365)***	(-2.1909)**	(-0.3607)
D(FD1(-1))	-0.1475		-0.1854	
	(-0.9988)		(-1.3191)	
D(LNRGDP)	93.3867	937.9787	103.1911	102.4434
	(2.6703)**	(0.8882)	(2.7054)***	(2.7119)***
D(TAX)	0.8607	0.7265	-0.6714	3.1024
	(0.9954)	(0.9883)	(-1.4252)	(0.7970)
D(LNDEBT)	4.5361	-0.3976		3.5343
	(3.7071)***	(-0.2795)		(4.0660)***
D(LNEX)	5.4212	10.2033	11.1423	18.7308
	(0.2810)	(0.8441)	(0.5064)	(1.0938)
D(INR)	1.3756	-3.5848	1.9135	0.7977
	(1.0287)	(-1.0041)	(1.0144)	(0.8550)
D(LNRGDP^2)		-34.9382		
		(-0.8031)		
D(LNDEBT*TAX)			0.3448	
			(3.3134)***	
D(TAX^2)				-0.0798
				(-0.6384)
C	-12.7165	90.7647	0.7943	2.8965
	(-0.9866)	(2.9338)***	(0.0617)	(0.1331)

NOTE:***, ** and * indicate that the variables as stated are significant at 1%, 5% and 10% significance level respectively.

COINTE denoted as the estimated cointegrating relations in the series, C denoted as constant term, D denoted as the first difference form of the variables and (-1) denotes as the lag one of the variables.

In table 4.5, the result of short run analysis showed that the COINTE term from model (1), (2) and (3) are significant at least at the 5% significance level. This indicates that the variables in the series will converge towards long run equilibrium. As refer to this table, the significance result of those variables is not satisfying. Moreover, some of the sign does not meet the expected sign as well.

4.4 Debt Classification among the Southeast Asia Countries

As debt plays a main role on FDI inflow, it is interested to examine which country has the highest amount of outstanding debt. To bring out this result, the debt level of the eight countries is being classified by using normal distribution. The country is defined as high debt once the value is greater than 123.7217 % of GDP, low debt as the value less than 28.7783 % of GDP, medium debt if fall between the range of 28.7783 % to 123.7217% of GDP. The result generated is shown as below.

Table 4.6 Debt classification using normal distribution

Countries	External debt (% of GDP)
Cambodia	45.7579
Indonesia	44.6607
Laos	84.7126
Malaysia	39.8453
Philippines	46.5782
Singapore	284.2078
Thailand	34.0324
Vietnam	30.2050

As refer to table 4.6, among the eight countries, only Singapore is classified as high debt country, and the remaining countries are classified as medium debt countries. By comparing between the high external debts countries, the external debt of Singapore is around nine folds than Vietnam. In addition, the external debt between Singapore and the other countries have a big difference as well. Thus, it is concluded that Singapore is the highest debt country among the eight Southeast Asia countries.

4.5 Investigation on the Relationship between FDI and its Determinants using ARDL approach (without Singapore)

As refer to the previous section, there is a huge difference between Singapore and the other seven Southeast Asia countries in terms of external debt. Furthermore, Singapore is also an international financial centre, serving a wider Asia Pacific region. Due to this, Singapore has a deep and liquid capital markets as a key source of funding for the region's growth and development according to the Monetary Authority of Singapore (MAS). Thus, the overall relationship between tax, external debt and FDI inflow that excluded Singapore is examined to indicate signify the uniqueness of Singapore. Therefore, the same process in section 4.2 is carried out, but in a case of excluded Singapore. The flow of the analysis is the investigation on the long run and short run relationship between FDI inflow and its determinants, the combined effect of tax, external debt on FDI inflow and the non-linear relationship between tax and FDI inflow.

4.5.1 Long run relationship between FDI inflow and its determinants (without Singapore)

As refer to table 4.7, model (5) is the ARDL model which determines the long run relationship between FDI inflow and its determinants. The lag length chosen for this model is (2, 1, 1, 1, 1, 1). Model (6) investigates the combined effect of tax, external debt and FDI inflow and the lag length is (1, 1, 1, 1, 1, 1). Then, model (7) determines the non-linear relationship between tax and FDI inflow, the lag length is (1, 1, 1, 1, 1, 1, 1). Note that all these three models are formed without including Singapore in the panel analysis.

Table 4.7 Long run analysis using Panel ARDL without including Singapore

	(5)	(6)	(7)
LNRGDP	3.4048	5.1361	7.0111
	(8.0149)***	(5.1157)***	(6.3575)***
TAX	0.6691	-0.5537	3.4554
	(27.0635)***	(-3.9381)***	(4.0095)***
LNDEBT	1.0080		-0.7489
	(7.4448)***		(-2.9956)***
LNEX	8.0528	0.0252	8.9798
	(8.2653)***	(0.0228)	(4.6608)***
INR	-0.2528	-0.1633	0.6032
	(-6.2289)***	(-1.5832)	(6.2519)***
LNDEBT*TAX		0.2538	
		(6.8447)***	
TAX^2			-0.1115
			(-3.9139)***

NOTE:*, ** and * indicate that the variables as stated are significant at 1%, 5% and 10% significance level respectively.

LNDEBT*TAX denotes as the interactive term to determine the relationship between EXTERNAL DEBT, TAX and FDI, TAX^2 denotes as the interactive term to determine the non-linear relationship between TAX and FDI.

Based on model (5) in table 4.7, the variables are all significant at 1% significance level, which indicates that all the variables are cointegrated with FDI inflow and long run relationship is existed. Moreover, as comparing the results in table 4.3 (Model 1) with table 4.6 (Model 5), LNRGDP, TAX, LNDEBT and LNEX

showed a positive relationship with FDI inflow. Furthermore, the result for model (6) in table 4.6 is same as the result for model (3) in table 4.4. However, the threshold level of external debt has reduced to 0.08861 percentage of GDP.

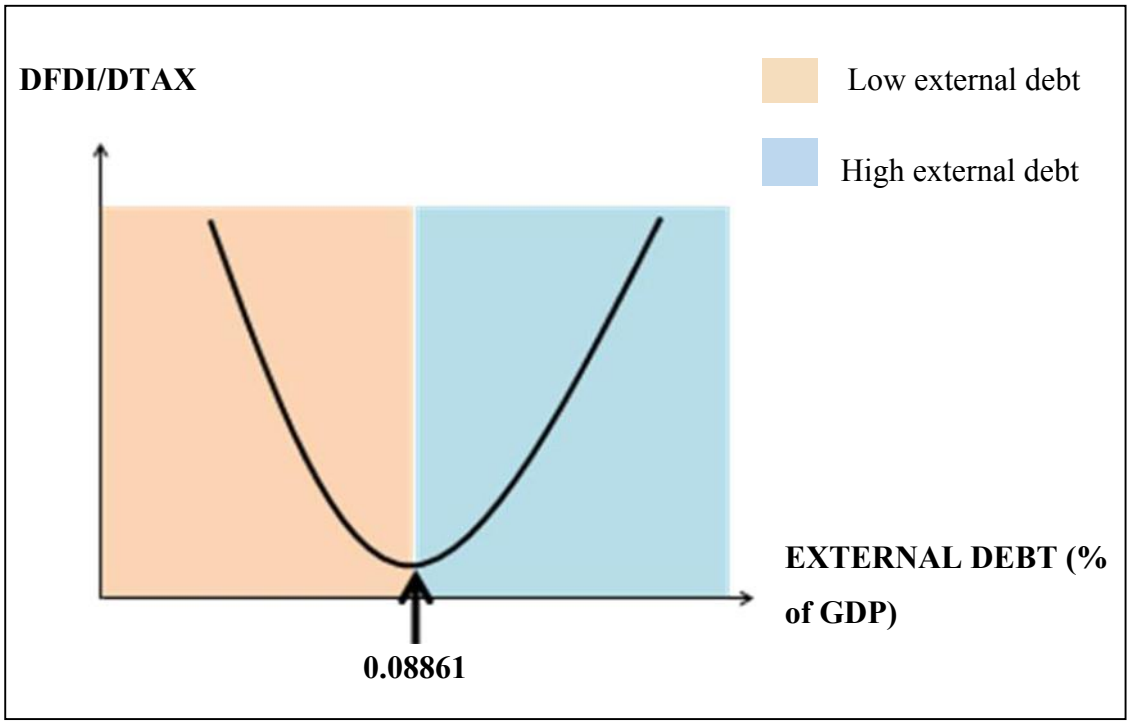


Figure 4.3 Non-linear relationship between FDI, Tax and External debt (without Singapore)

4.5.1.1 Non-linear relationship between tax and FDI inflow (without Singapore)

As refer to model (7) in table 4.7, the non-linear relationship between TAX and FDI inflow is contradicted with that in model (4) table 4.4. The difference between these results gives a different perspective about the impact of increasing taxation on FDI inflow.

Without including Singapore, the non-linear relationship between TAX and FDI inflow begins with a positive effect and continue with a negative effect after a turning point (15.4910 % of GDP). It is in line with the hypothesis in Chapter 3. As

the taxation in countries increases to a certain point, it creates an adverse effect which will discourage FDI inflow. There is a deviation in result when Singapore is included in the analysis. It may due to the different characteristics among the countries. For instance, those developing countries do not have outstanding market potential like Singapore in terms of infrastructure facilities. In other words, when the tax of developing countries reaches a certain level, further increase will discourage FDI inflow as they do not have a greater competitive advantage to attract investors. Unlike Singapore, even with high tax, the FDI inflow can also be increased due to the location advantage possessed. In connection with this, foreign investors have foreseen a greater return in Singapore instead of other seven countries. Thus, even with an increasing tax rate, Singapore still able to boost their FDI inflow because of their strong competitive advantage as compared to the others. A similar example is as United States (US). Based on a report was prepared by the Department of Commerce and the President's Council of Economic Advisers on FDI in US on October 2013, the high FDI inflow in US, is due to few factors; namely adequately capacitated infrastructure, high labour productivity with skilled labour force and market-friendly features of the United States which attracted high FDI inflow and positioned as the world's largest recipient of FDI since 2006.

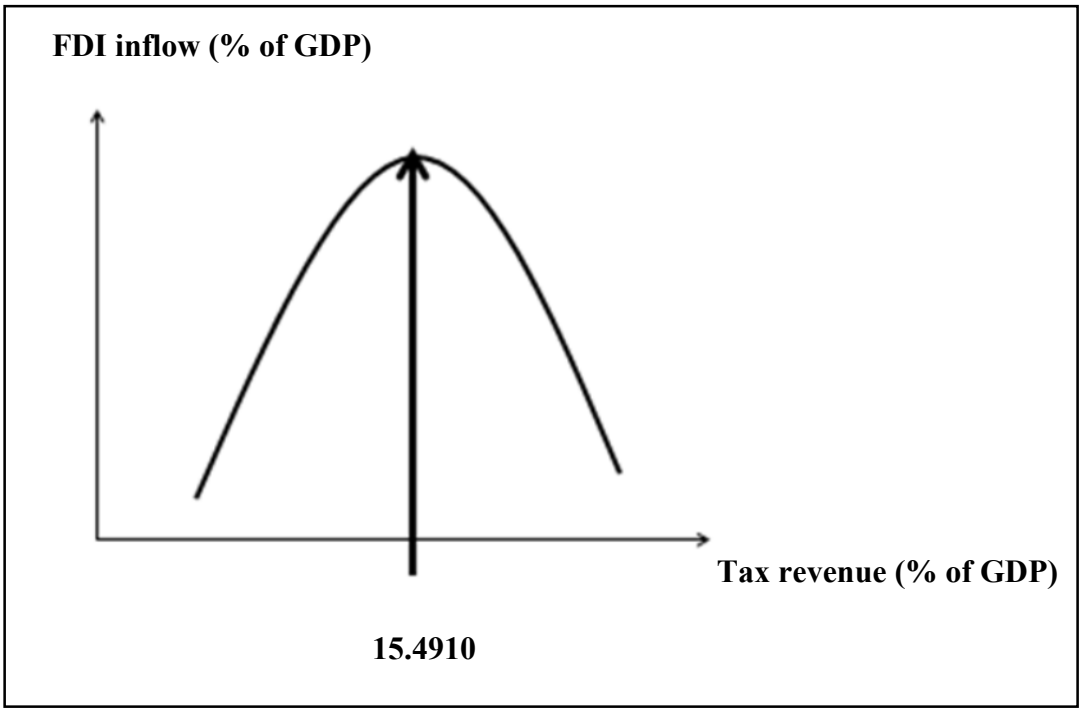


Figure 4.4 Non-linear relationship between FDI and TAX without Singapore

4.5.2 Short run relationship between FDI inflow and its determinants without including Singapore

In this section, the analysis reported on the short run relationship between FDI inflow and its determinants. Model (5) in table 4.8 represents the ARDL model which determines the short run relationship. The lag length for this model is chosen as (2, 1, 1, 1, 1, 1). Model (6) demonstrates the short run effect of the combined effect of tax, external debt on FDI. The lag length for this model is (1, 1, 1, 1, 1, 1). Then, model (7) determines the short run non-linear relationship between tax and FDI inflow and the lag length is (1, 1, 1, 1, 1, 1, 1).

Table 4.8 Short run analysis using Panel ARDL without including Singapore

	(5)	(6)	(7)
COINTE	-0.9510	-0.5075	-0.6747
	(-3.6477)***	(-2.3363)**	(-3.5588)***
D(FD1(-1))	0.2072		
	(1.4383)		
D(LNRGDP)	35.9673	46.7723	57.2422
	(1.7397)*	(2.3720)**	(2.5904)**
D(TAX)	-0.4926	-0.4831	2.6600
	(-2.1968)**	(-1.0919)	(1.0561)
D(LNDEBT)	1.2341		1.7148
	(0.7641)		(1.6490)
D(LNEX)	-19.0487	-6.1433	1.2204
	(-3.6258)***	(-0.8071)	(0.1463)
D(INR)	0.0924	0.0216	-0.3427
	(0.3143)	(0.1257)	(-1.9897)*
D(LNDEBT*TAX)		0.1293	
		(1.0275)	
D(TAX^2)			-0.0854
			(-1.0022)
C	-87.6779	-31.2462	-103.2489
	(-3.3396)***	(-2.1756)**	(-4.4570)***

NOTE:***, ** and * indicate that the variables as stated are significant at 1%, 5% and 10% significance level respectively.

COINTE denoted as the estimated cointegrating relations in the series, C denoted as constant term, D denoted as the first difference form of the variables and (-1) denoted as the lag one of the variables.

Table 4.8 reported the result of short run relationship between FDI and its determinants without including Singapore in the panel analysis. The COINTE term in model (5), (6) and (7) shows negative significant sign. This implies that the variables are adjusted towards each other and achieve equilibrium in the long run. The speed of adjustment in model (5) is 95.10%, 50.75% in model (6) and 67.47% in model (7). In addition, majority of the variables are not significant even at 10% significance level. Despite some of them are significance at certain significant level, but the sign does not meet what expected at first.

CHAPTER 5: CONCLUSION AND POLICY IMPLICATION

5.1 Summary of the Study

FDI inflow is acknowledged as an effective tool for economic growth and development. However, FDI outflow is a loss as it creates an outflow of money which initially can be used as capital fund for development purpose. Therefore, this study keen on investigating the factors which will contribute to FDI inflow. In this study, some independent variables are adopted to examine their long run effect on FDI inflow, such as, tax revenue, external debt, real gross domestic production (RGDP), exchange rate and interest rate. Among these variables, this research is focused more on tax and external debt as there are some doubs on their combined effect on the FDI inflow in the eight selected Southeast Asia countries from year 2000 until 2014.

By adopting panel analysis method, panel unit root test are first carried out to confirm the stationary of all the variables. The results reported that the independent variables contain a mixture of integration order of I (0) and I (1). Thus, it is proceeded with the analysis by adopting Autoregressive Distributed Lag (ARDL) approach to determine the long run and short run relationships between the variables.

Major findings by adopting ARDL approach:

(i) There is significant long run relationship between FDI inflow and its determinants.

(ii) The combined effect of tax and debt bring a negative effect on FDI at first, but after the turning point, the overall effect becomes positive.

(iii) The non-linear relationship between tax and FDI begins with a negative relationship and continue with positive relationship after certain extent.

(iv) The combined effect of tax and debt on FDI inflows is the same whether exclude Singapore or not.

(v) The non-linear relationship between tax and FDI without including Singapore is contradictive with that have total eight Southeast Asia countries.

In short, this research concluded that external debt and tax do play an important role on the FDI inflow for the selected countries. Both external debt and tax can carry positive and negative effect on FDI inflows, but this impact is vary depends on their net effect. If the positive relationship effect of external debt dominates the negative effect of tax, the overall effect on FDI inflow will be positive, vice versa.

Last but not least, it is also worth to mention that, there are two different results from this study, which is one with Singapore and another one excluded Singapore. The key different between both this result is Singapore. Singapore has a strong financial background as compared with other selected countries. Hence, this is the dominant effect which shown contradictive result in this analysis. It is untrue to say that which result is more precise or accurate, but this comparative analysis able to show that a different background of country can dominate the effect on others.

5.2 Discussion and Policy Implications

Based on the findings in Chapter 4, it has brought this study to the policy implication of country to attract FDI inflow. The effort of attracting can be done by adjusting the tax level. Since different level of tax of a country will progress a different impact of FDI inflow; in order to encourage FDI to come with the existing debt level of the respective countries, the level of tax can be adjusted with the assistance of tax square threshold.

A low debt country should create a low tax environment in order to attract the FDI to come in. The optimum level suggested is 15.4910% of GDP (as shown in sub

section 4.5.1.1, figure 4.4). It is due to their negative relationship of tax with FDI inflow as the tax is increased over a certain extent. For instances, an increasing in tax charged will first create a positive impact on FDI inflow. Since the tax is low for the countries, the business environment is still favourable for the foreign investors. In relation, this positive effect of low tax on FDI inflow actually indicates that there is still room for them to increase tax. However, when the tax rate increased to an optimum point, a further increase in tax will start to discourage FDI inflow.

In contrast for the high debt country, tax consolidation will be an optimum policy implication. It is due to the competitive advantage of their country which able to provide a favourable environment for the foreign investor has created them the privilege to raise the tax. Through this, the country can have more income to finance its country. The optimum level will be 13.3486% of GDP (as shown in sub section 4.3.1.3, figure 4.2).

In short, it is important for the government to keep their eye on the volume of external debt borrowed and apply consistently on tax should be charged which will actually influence the attractiveness of FDI inflow.

5.3 Limitations and Recommendations

Limitation is a barrier to further the analysis on this study and yet it is also an experience for this study to further improve in the future. Based on this study, the first limitation is the scarce of data. When this study first searched for data, some of the countries' data is unavailable in several databases such as World Bank, International Monetary Fund (IMF), United Nation Conference on Trade and Development (UNCTAD) and so on. For example, Timor-Leste and Brunei has limited data for the variables that this study wants to adopt such as tax revenues. Hence, this study has excluded the other Southeast Asia countries to be investigated on this study which is Brunei, Timor-Leste and Myanmar. At the same time, this study has only adopted 15 years of duration from year 2000 to 2014. As for the main reason, there are some of

the countries' statistical data are incomplete with the latest data such as the year of 2015 and 2016. In this case, it restricted this study to further investigate on nexus of debt, tax and FDI inflows. Therefore, this study recommends future researchers to investigate and adopt additional Southeast Asia countries and a widen period of time for their research. In addition, the results of future study will be more accurate and consistent if a longer time period is adopted on the study of future researchers.

Last but not least, this study only concern on Southeast Asia countries and this limit the possible outcome and the knowledge gain. In fact, the investigation on the relationship between tax, debt and FDI is worth to be carried out in the other regions as well. Thus, this study encourages future researchers to explore further on the other regions or perhaps they may carry out the analysis of comparative on two different regions. This suggestion can motivate the researchers to explore from different aspects and contribute more ideas for future development and growth in order to attract FDI inflow.

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