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ANALYSING THE IMPACT OF FINANCIAL MARKET ON MALAYSIAN FOREIGN DIRECT INVESTMENT



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ANALYSING THE IMPACT OF FINANCIAL MARKET ON MALAYSIAN FOREIGN DIRECT INVESTMENT



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Thesis Submitted to

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ABSTRACT

This study investigates the impact of financial market on foreign direct investment (FDI) in Malaysia using yearly data over the period of 1981to 2014. Using stock market and credit market as proxy of financial market, the Johansen cointegration test and Vector Error Correction Model (VECM) are employed to determine the long run relationship. The VECM results indicate that the stock market does not have significant influence on FDI while the credit market has a significant and positive impact on FDI. This shows that even though the financial market does not become the main source of financing for foreign investors, its development is still an important agenda in attracting foreign investors to invest in Malaysia. Hence, this study provides insights for policy recommendation in the future in promoting FDI. In order to attract foreign investment, policy makers should not just focus on providing various incentives, but also should look at other factors which may indirectly affect the flows of FDI, such as the development of the financial market.

Keywords: Financial market, Foreign direct investment, cointegration test, VECM

ABSTRAK

Kajian ini mengkaji hubungan di antara pasaran kewangan dan pelaburan langsung asing di Malaysia menggunakan data daripada tahun 1981 hingga 2014. Ujian kointegrasi Johansen dan VECM digunakan ke atas pasaran saham dan pasaran kredit iaitu proksi bagi pasaran kewangan untuk mengkaji hubungan jangka panjang antara pemboleh ubah. Dapatan VECM menunjukkan bahawa pasaran saham tidak mempengaruhi pelaburan langsung asing manakala pasaran kredit mempunyai kesan positif terhadap pelaburan langsung asing. Ini menunjukkan bahawa walaupun pasaran kewangan tidak menjadi sumber utama pembiayaan bagi pelabur asing, pembangunannya masih merupakan agenda penting dalam menarik pelabur asing untuk melabur di Malaysia. Oleh itu, kajian ini membantu dalam memberikan pandangan mengenai polisi bagi meningkatkan pelaburan langsung asing di masa hadapan. Dalam usaha untuk menarik pelaburan asing, pembuat dasar tidak seharusnya hanya memberi tumpuan kepada menyediakan pelbagai insentif, tetapi Universiti Utara Malavsia juga perlu melihat faktor-faktor lain yang secara tidak langsung boleh mempengaruhi aliran pelaburan langsung asing, seperti pembangunan pasaran kewangan

Kata kunci: Pasaran kewangan, Pelaburan langsung asing, ujian kointegrasi, VECM

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

For a few decades, foreign direct investment (FDI) has become one of the main sources of capital flows. The debt crisis in 1980s eventually caused the policymakers to develop policies that attract more direct cross-border investment capital flows. By 1990s, FDI became the largest source of external financing for developing countries (Chowdhury & Mavrotas, 2006). Compared to 1980, the total of FDI net inflow has increased worldwide about 17 times from \$51.46 billion to \$1561.36 billion in 2014 (World Bank, 2016). FDI could be defined as the direct investment of equity that flow into the economy of a country. It consists of equity capital, reinvestment of earnings and other capital of one country that enters into another country. However, the foreign investor must at least own ten percent of voting shares in order to be considered as FDI (World Bank).

One of the main benefits of FDI is its positive impact on economic growth (Bosworth, Collins and Reinhart, 1999). There are a number of studies examining the effect of FDI on economic growth. Many studies reveal that there is a positive relationship between FDI and economic growth. The FDI can benefit countries by improving employment, productivity and knowledge transfer as well as allowing incorporation with global value chains which then will cause the growth to accelerate (Echandi, Krajcovicova and Qiang, 2015).

Aside from the policies introduced by the host countries to promote FDI, it is also known that sound and well-functioning financial system of the country plays an important role. Financial market can affect the level of FDI inflow in a certain country. Most foreign companies would consider this as a factor before making a decision to invest. A more developed financial market can be seen as advantage to the host country. Multinational companies are said to finance with less external debt in countries with underdeveloped capital markets as it will increase the costs (Desai, Foley and Hines, 2006).

According to Alfaro, Chanda, Kalemli-Ozcan and Sayek (2004), financial market development also plays an important role in maximizing the gain of FDI. In order for FDI to gain the benefits, a developed financial market is needed. When the financial market achieves a certain threshold level, the FDI could positively impact the growth of the economy. Therefore, financial market plays an important role that link the effect of FDI on economic growth.

Malaysia is also not excluded in being one of the Asia countries that encourage FDI. FDI is seen as a crucial factor in promoting growth in Malaysian economy as it brings in not only capital investment but also technology and management knowledge. There are several main sectors that attract the foreign companies to invest in Malaysia that are electronics and electrical products, chemicals and chemicals products, non-metallic mineral products, plastic products, basic metal products, food manufacturing and scientific and measuring equipment (Ministry of Finance, 2001). Introduction of Investment Incentives Act 1968, establishment of free trade zone in 1970s, provision of export incentives as well as increasing of open policy in 1980s had led to a stream of FDI (Ang, 2008). In order to draw more FDI inflow into the country, under the Promotion of Investment Act (PIA) 1986, government initiated a more open economy incentives as increased a larger percentage of foreign equity ownership in enterprise.

Figure 1.1 illustrates the flows of FDI for Malaysia. The inflows of FDI to Malaysia increased slowly in 1970s and drastically increased starting 1988 onwards with annual average growth rate of 68.59 percent in 5 years (from 1988 until 1992) (World Bank, 2016). Unfortunately the inflow of the FDI slowed down and decreased gradually after 1992. The past financial crises of 1997 and 2008-2009 also had worsened the FDI inflows. The increase of wage rate in Malaysia compared to other Asian countries such as China, Indonesia and was one of the main causes of a decrease in the inflows of investment for Malaysia, and this was shown by a decrease in the flows of FDI from Taiwan and Japan (Har, Teo and Yee, 2008). However, the government tries to improve the economy to high income status by promoting investment in higher value added manufacturing and service sectors. As a result the FDI inflows slowly recover (Department of State: 2014 Investment Climate Statement, 2014).



Figure 1.1

According to Bank Negara Malaysia (BNM), in 2013, Singapore was reported to become the largest source of new FDI with \$5.2 billion followed by Japan, Netherlands, Hong Kong and United States. In 2014, Malaysia became the 15th most attractive destination for FDI (MIDA, 2014).

Universiti Utara Malaysia

1.2 Problem Statement

There are numerous studies on the relationship between FDI and the development of the financial market as well as the role of the financial market in enhancing the impact of FDI on economic growth (Alfaro, Chanda, Kalemli-Ozcan and Sayek, 2004, 2010; Hermes and Lensink, 2003; Azman-Saini, Law and Ahmad, 2010). According to these studies, FDI could promote growth. However, it is vague to say that FDI alone could increase a country's economic growth. Instead, financial market plays an important role in order for the country to absorb the advantages of FDI and contribute to growth. Another study that relates FDI and financial market development are the determinants of FDI (Deichmann, Karidis and Sayek, 2003; Ang, 2008; Bekhet and Al-Smadi, 2015). Ang (2008) who studied the determinants of FDI in Malaysia found that financial development is one of the determinants of FDI along with infrastructure development and trade openness. Using a composite index which is a measure of four development indicators as a proxy of financial development, the analysis showed that financial development facilitates adoption of technologies benefit in local economy as well as stimulate the spillover effect.

In spite of this, it is unclear how financial market and FDI interact as there are only a few studies that studied the direct relation between financial market and FDI and how they influence the FDI (Adam and Tweneboah, 2009; Soumaré and Tchana, 2015). Adam and Tweneboah (2009) focused only on the relationship between stock market and FDI in Ghana and found that there is a long run relationship between the two variables. On the other hand Al Nasser and Soydemir (2011) using the Granger causality test found that banking sector affect FDI while there is bidirectional relationship between stock market and FDI in Latin American countries. According to Soumaré and Tchana (2015), the emerging markets showed the same result between stock market and FDI. However, for banking sector indicators, the relationship is vague and inconclusive. The same authors on the contrary found that in the case of Africa, financial market development and FDI is proven to have bidirectional positive relationship. Gebrehiwot, Esfahani and Sayim (2016) who studied on the Sub-Saharan African region however found that the relationship between the variables is inconclusive. At the lack of empirical investigation on this specific relationship between financial market and FDI, it is inspiring to fill the gap in Malaysian context. As the FDI bring benefits to the economy, it is important to bring as much external capital as possible. Through understanding the impact of financial market on FDI, the policymakers can consider the role of financial market in order to regulate the policies to encourage FDI.

1.3 Research Questions

Increasing of FDI is seen as a crucial factor in promoting growth in Malaysian economy. In order to encourage FDI, there are several questions that need to be answered. They are:

- What is the effect of financial market on FDI in Malaysia?
- What suggestion can be made in policy recommendation?

1.4 Research Objectives

The objectives of this research are as follow:

- To analyse the impact of financial market on FDI
- To suggest for policy recommendation

1.5 Significance of study

FDI plays an important factor in promoting economic growth. However, in order for a country to absorb the benefits of FDI, financial market also plays an important role. Financial market development of a country could impact their FDI inflows. A more developed market could attract foreign investor thus increases the FDI inflow. The study on the relationship between these two variables could assist the policy maker in revising the policies. Furthermore, this study could add to the existing literature.

1.6 Organization of the Thesis

This research is organized as follows. Chapter one deliberates on the background of study, problem statement, research questions, research objectives, significance of the study and organization of the study. Chapter two reviews the existing literature related to the study. Chapter three discusses the research methodology adopted in this study. Chapter four presents and explains the results of the study. Lastly, chapter five concludes and summarizes the study.

CHAPTER 2

LITERATURE REVIEW

Since the past decades, FDI has been increasing and becomes a significant factor in promoting growth in economy. Financial market has become one of the factors that encourage FDI. Countries with sound or developed financial system are likely to attract FDI. However it is important to review in detail the past literature on the relationship between these two variables.

Since FDI is expected to bring benefits and promoting economic growth of the host countries, numerous studies examine the relationship between FDI and economic growth (Carkovic and Levine, 2002; Har et al., 2008).

However, it is said that the benefits that FDI bring could only be absorbed when the host countries have a developed or sound financial system. Following these, some studies analyse the relationship between FDI and economic growth and how financial markets play a role here.

According to Hermes and Lensink (2003), the development of a host country's financial system is an important requirement for a host country to absorb the benefit of FDI on economic growth. Through empirical investigation using cross-section data of 67 countries between 1970 and 1995, 37 of the countries which are mostly in Asia and Latin America have a developed financial system. This condition influenced positively to the technological diffusion related to FDI which eventually allow FDI to positively contribute to their economic growth.

Alfaro et al. (2004) who also studied on the role of financial markets on FDI and economic growth found that FDI alone plays an indefinite role in promoting economic growth. Using two categories that are banking sector and stock market as a proxy of financial markets, the author empirically analyses the data using cross-country data from 1975 to 1995. The result also found that the financial markets indeed plays an important role in absorbing the advantages that FDI could offer though the level of financial market development. Inefficient financial markets, on the other hand, could limit the potential benefits as well as long term stable flows. In 2010, the same authors investigated the role of financial markets on linkages and again found the same result.

Kholdy and Sohrabian (2005) investigated several links of relationship between financial markets, FDI and economic growth using Granger causality model. Data of 25 developing countries over 1975-2002 period resulted in bi-directional relationship between financial markets and FDI. This relationship is found in mostly in the countries that have relatively high gross domestic product (GDP) per capita and developed financial market.

Azman-Saini et al. (2010) extending the study on the role of financial markets and found a new evidence. Cross-country datasets from 1975 to 2005 of 91 countries were used in a threshold regression model. Focusing only on banking sector as the proxy of financial markets, the authors found that financial market development promote advantage of FDI on economic growth. However, the positive impact is only effective when the financial development reaches a certain level of threshold.

Baharumshah, Slesman and Devadason (2015) using three various types of foreign capital inflows that are FDI, portfolio equity and debt inflows, investigates the relationship between foreign capital inflows and economic growth and the role of financial markets. The study uses cross-section data of 80 countries of period 1975 to 2007. Agreeing, the authors proved the relationship between private foreign capital and economic growth is characterised by a nonlinear relationship based on financial market. Aside from that, they also agree that the countries will receive benefits only when the financial market development exceeds a certain threshold level in spite of the size.

Aside from the role of financial market in improving the absorbing positive benefit of FDI, there are several literature that indicates financial markets is one of determinants of FDI inflows. Deichmann et al. (2003) studied the determinants of FDI in Turkey. Using data between 1954-1995 period time and bank credit as financial market development, the authors found that the depth of local financial markets presents the highest level of significance as a factor. This is mainly because the foreign manufacturing prefers to carry out financial transaction where financial services are well developed.

Ang (2008) studied the determinants in Malaysia using time series data for period 1960 until 2005. The level of financial development is proven to be one of the determinants and have a positive relationship with FDI. Financial market development which is measured as ratio of private credit to GDP is seen as a mechanism in adopting new technologies in economy.

Bekhet and Al-Smadi (2015) study the determinants of FDI in Jordan context. Financial market development which is one of the determinants was measured by using money supply (M2) and stock market index for the period of 1978-2012. The bound testing approach indicates that there are short and long run relationship between financial market development and FDI. However, Granger causality test found that M2 and FDI have a bidirectional causal relationship while unidirectional causal relationship was shown from FDI to their stock market index. This indicates that in terms of equity market, increasing of FDI will impact their stock market.

A study by Henry (2000) questions whether stock market liberalisation can cause investment to increase. In this study, market liberalisation can be considered as financial market development. Sample of 11 developing countries was analysed. After one year of market liberalisation, the growth rate of investment of 9 out of 11 countries increased. The growth rate of private investment is seen to follow the stock market liberalisation for three consecutive years. Analysing the FDI in terms of ratio of FDI to private investment, the author found that the ratio also increases following market liberalisation may be positively correlated to other changes that lessen the operating risk of foreign multinationals in less developed countries which can cause the cost of capital to fall. Assuming the cost of capital constant, FDI increases if the openness of market is positively related with other economic reforms that increase the expected future cash flows from domestic investment. Another study that analyses on market liberalisation and FDI is Desai et al. (2006). Using data of United States based multinational firms, the study found that the firms tend to manipulate the reported local profitability and increased their frequency of dividend repatriations to avoid strict capital controls. As a result, the firms that avoid capital controls face lower interest rates in local borrowing. This indicates that an effective market will have a lower risk and capital cost. Since often local affiliates of foreign investors borrow from local banks, high cost of capital will restrain FDI as the potential foreign investors will discourage to establish affiliates with the host countries. Positive relationship was found between the capital control liberalisations and FDI as it is said to be associated with the increasing of the multinational activity.

There are several literature that are closely related to this study. However, most of the study only focuses on equity market. Claessens, Klingebiel and Schmukler (2001) questions the relation between FDI and stock market whether its complements or substitutes. Providing 77 countries as the samples, the authors found that the variables are positively related making FDI a complements of stock market development. The process of developing stock market will lead to greater access to international markets.

Adam and Tweneboah (2009) focusing in Ghana, analyse the relationship between FDI and stock market using quarterly data from 1991 to 2006. Multivariate cointegration analysis showed that there are long term relationship between FDI and stock market development. Listing of one the multinational company which holds fifty percent of the total market has benefited the market as it allowed foreign single holding. Stock market development was also reported to play crucial role in attracting FDI based on their impulse response.

Lastly, the literature on the direct relationship between financial market and FDI are presented. Desbordes and Wei (2014) study the effect of source countries' and destination countries' financial development on FDI. Using data of period 2003 to 2006, the study focuses on Greenfield FDI projects of 83 source countries and 125 destination countries using difference-in-difference approach. The study found both source and destination countries' financial development has positive impact on FDI directly and indirectly. High financial development would improve access to external finance for firms to expand in foreign markets as well as promotes the economy of the countries.

Hajilee and Al Nasser (2015) analyse the relationship between financial market development and FDI in Latin American countries. Using data of 14 Latin American countries of period 1980 to 2010 and bound testing approach to cointegration and error correction model, the study found that financial market development has short and long run relationship in most of the countries. The financial market has a positive impact on FDI inflows in 11 countries.

Soumaré and Tchana (2015) examined the causality between FDI and financial market development in emerging markets. Panel data of 29 emerging markets for the period of 1994-2006 was used and the authors divided the variables of financial market development into banking sector and stock market. The Granger causality test reported that there is positive bidirectional relationship between stock market

development and FDI. Foreign investment could help develop the stock market by its investment spillover effects. The more FDI could raise the possibility that the multinational companies will be listed in the equity market. On the other hand, well developed stock market could attract more FDI. However, in terms of banking sector development, the causality is ambiguous and inconclusive.

Gebrehiwot et al. (2016), on the other hand, found a different result in the case of Sub-Saharan African region. Data from 1991 to 2013 were used and Granger causality test as well as two-step panel regression model (2SLS) were applied. The authors found that several indicators used to represent stock market and banking market gave different results concluding the relationship between financial market development and FDI to be inconclusive.

This chapter highlights the related literature on FDI and financial market. The literatures proved that financial market plays an important role for FDI to promote economic growth. However, the direct impact of financial market, proxied by stock market or banking sector, on FDI varies. Developed market with developed financial markets tends to have positive relationship with FDI as an effective financial market attracts foreign investors to invest.

CHAPTER 3

METHODOLOGY

3.1 Introduction

Chapter 3 discusses the methods that are used in this study. To assess the relationship between financial market and FDI, Johansen cointegration test is applied. All variables are subjected to several unit root tests before applying the cointegration test.

3.2 Research Framework

This study analyses the impact of financial market on FDI specifically in Malaysia which is believed to have positive relationship. As FDI has been the key driver of economic growth in Malaysia, the policymakers had been developing policies in order to encourage investment inflows. FDI is believed to not only bring in capitals but also management knowledge, technology, productivity as well as improving the employment rate (Har et al., 2008). Aside from the policy reforms, a well-developed financial system is also one of the determinants that promote FDI inflows (Ang, 2008). According to previous studies, there are several variables that can be used as a proxy of financial market development (Beck, Demirgüç-Kunt and Levine, 2000).

For this study, the independent variables are stock market and credit market. Stock markets are the platform for investors to buy and sell shares of publicly traded companies. It is considered as one of the most fundamental area of market economy. Stock market size and activity are often used as a proxy of the financial market. The relative stock market size is captured by using stock market capitalization while the value of stock traded is used for stock market activity. In this study the size of the stock market is used as the proxy of the stock market.

Another proxy of the financial market that is used in this study is the credit market. This market includes banks or depository corporations (except for central banks) and other financial institutions. This market is captured using the private credit by deposit money bank as well as other financial intermediaries. These measure the activity of the financial sectors in one of its main function that is providing capital to investors. The general research framework of this study is illustrated by Figure 3.1.



3.3 Data

This study uses Malaysia's annual data for the period of 1981 to 2014. The data is attained from the World Bank's World Development Indicator database.

The data that is used is summarised as below:

- a) Foreign direct investment (FDI) The ratio FDI net inflows to gross domestic product (GDP). FDI is the sum of equity capital, reinvestment of earnings, other long term capital and short term capital as shown in the balance payments. FDI is not converted into logarithm form as the data is normally distributed.
- b) Stock market capitalization (SCAPT) The ratio of stock market capitalization to GDP. Market capitalization is a product of the share price and the number of shares outstanding. In order to normalize the data, the SCAPT is converted into logarithm form.
- c) Private sector credit (PRIVCR) The value of credits provided to the private sector by financial institutions divided by GDP. The data is converted into logarithm form to normalize the data.

3.4 Stationary Test

In order to run a regression analysis, the underlying time series data must be stationary. This is to ensure that there is no problem of spurious regression. There are several well-known tests that can be used to test the stationary of the data such as Augmented Dickey-Fuller (ADF) test, Phillip-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS). In this study, ADF and PP tests are used. The null hypothesis of both the ADF and the PP test is the data has a unit root or it is nonstationary.

3.5 Model

In this study, a simple model is used in order to analyse the relationship between financial markets and FDI. The dependent variable is FDI while the independent variables are the stock market (SCAPT) and the credit market (PRIVCR). The model is represented as equation 3.1 below.



LOGPRIVCR = Logarithm of the private sector credit in Malaysia

 β = parameters to be estimated

 $\varepsilon = \text{error term}$

t = time

The financial market development as represented by SCAPT and PRIVCR is expected to have a positive effect on FDI. A well-developed financial market in a host country can attract foreign investor to invest.

3.6 Methods of Estimation

At first, this study applied the ordinary least square (OLS) method in estimating the regression model. However, if the variables are non-stationary at level, this method is disregard as it can cause phenomenon of spurious (Giles, 2007). According to Adam and Tweneboah (2009), the cointegration technique is useful in analysing the long run relationship among variables as it overcomes the problem of non-stationarity and allows both levels and first difference variables. Therefore to study the relationship between the underlying variables of FDI, stock market and credit market, Johansen cointegration test and Vector Error Correction Model (VECM) are applied.

Johansen (1991) test estimates long run relationship of variables in the context of vector autoregressions (VARs). The general VAR model is considered as:

$$X_t = \Gamma_1 X_{t-1} + \dots + \Gamma_k X_{t-k} + \Pi X_{t-k} + \mu + \varepsilon_t$$
(3.2)

Where ε_t is independent Gaussian variables and the parameters Γ and μ are assumed to vary without restriction. The long run VECM equation is the developed as:

$$\Delta X_t = \Gamma_1 \Delta X_{t-1} + \dots + \Gamma_{k-1} \Delta X_{t-k+1} + \Pi X_{t-k} + \mu + \varepsilon_t$$
(3.3)

where

$$\Gamma_i = \Pi_1 + \dots + \Pi_1 - I \qquad \qquad j = 1, \dots, k$$

 Δ = the difference

 X_t = variable integrated of order 1, I(1)

 μ = vector of constants

 $k = \log$ structure

 $\varepsilon_{\rm t} = {\rm error \ terms.}$

The matrix Π is a long run impact matrix which decides the cointegration vectors. When the matrix is 0, there is no cointegration between the variables. There are two types of Johansen test that are Trace and Max-Eigenvalue. The test models are:

$$Trace = -T \sum_{i=r+1}^{n} \ln(1 - \lambda_i)$$
(3.4)
$$Max = -T \sum_{i=r+1}^{n} \ln(1 - \lambda_i)$$
(3.5)

Equation 3.4 and 3.5 is Trace test and Max-Eigenvalue test models respectively. The null hypothesis for both tests is there are r no integration vectors among the variables at most while the alternative hypothesis is there are r+1 integration vectors among the variables at least.

Cointegration test is sensitive to lag selection therefore it is a must to carefully select the ideal number of lag in order to avoid diverse result. There are several criteria available in order to choose the lag number including LR test statistic (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criteria (SIC) and Hannan-Quinn Information Criteria (HQ). In this study, the lag choice is determined using AIC.

3.7 Variance Decomposition and Impulse Response

In addition to the cointegration test, this study also analyse the variance decomposition as well as impulse response. The variance decomposition analysis highlights the reliability of each independent variable in explaining the dependent variable. It also shows whether the dependent variable is endogenous or exogenous.



This chapter highlights the methodology of the study including the data, model and methods used in order to accomplish the objective of the study. The next chapter will discuss the results of the tests.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the result of the tests. This study first employed the OLS test in estimating the regression. However, since the OLS method result is considered to be spurious due to the non-stationarity of the data, this study proceeds with the Johansen cointegration test and VECM in analysing the relationship between the underlying variables.

4.2 Descriptive Statistic

Table 4.1 summarises the data used in this study. The average of FDI per GDP for 34 years is 3.96 with median of 4.09. The average of both stock market and credit market is 4.78 and 4.64 respectively. The Jarque-Bera test indicates that FDI, SCAPT and PRIVCR are normally distributed as the probabilities are greater than 5 percent.

Table 4.1							
	Descrip	otive Statistic					
	FDI LOGSCAPT LOGPRIVCR						
Mean	3.963829	4.787639	4.642168				
Median	4.096086	4.869902	4.680021				
Maximum	8.760533	5.771421	5.065785				
Minimum	0.056692	3.946881	4.056321				
Std. Dev.	1.937996	0.476351	0.251306				
Skewness	0.383080	-0.027146	-0.513155				
Kurtosis	3.298190	2.573951	2.823797				
Jarque-Bera	0.957550	0.261326	1.536174				
Probability	0.619542	0.877514	0.463900				

4.3 Correlation Test

Table 4.2 shows the correlation matrices between the variables. Both variables for financial markets show different relationship with FDI. The stock market has a positive relationship with FDI with a correlation of 36 percent. On the other hand, the credit market and FDI shows a negative relationship of roughly 13 percent. Meanwhile, the stock market and the credit market have a positive correlation of about 60 percent.



4.4 Unit Root Test

In order to apply the cointegration test, each of the variable must be tested for stationarity. The Johansen-Jeselius cointegration test requires all underlying variables to be stationary at first difference. Table 4.3 presents the results of the unit root tests of ADF and PP for all variables.

Unit Root Tests						
Augmented-Dickey Fuller (ADF)						
Intercept Trend and intercept						
	Level First Difference		Level	First Difference		
FDI	-2.7810	-6.3998*	-2.7691	-6.2942*		
LOGSCAPT	-2.5377	-7.9921*	-2.6696	-5.6867*		
LOGPRIVCR	-2.4627	-5.1437*	-2.1081	-4.6739*		

Table 4.3Unit Root Tests

Phillips-Perron (PP)						
]	Intercept	Trend and intercept			
	Level First Difference		Level	First Difference		
FDI	-2.8040	-6.4707*	-2.8001	-6.3566*		
LOGSCAPT	-2.4472	-8.2300*	-2.6853	-8.4573*		
LOGPRIVCR	-2.4630 -5.1313*		-2.1550	-5.2122*		

Notes: * represents significant at 5% level.

All the data are significant at 5 percent level at first difference with both ADF and PP test thus rejecting the null hypothesis that the data is stationary. Therefore, the requirement is fulfilled as all the data are stationary at first difference.

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4.5 Ordinary Least Square (OLS)

To estimate the linear regression, an OLS method is used. Table 4.4 highlights the result of the OLS method. The coefficients of the variables are significant at 5 percent level. The result for the estimated regression model is as follows:

$$FDI_t$$
=9.9263 + 2.7991LOGSCAPT_t - 4.1713LOGPRIVCR_t + ε_t (4.1)

R-squared from the table indicates how much the independent variable able to explain the dependent variable. This means that the financial market can explain only around 32 percent of FDI inflows in Malaysia. Durbin-Watson statistic is 1.4812 which indicates that there is positive autocorrelation in the residual from the regression.

Table 4.4					
	OLS	Method			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
LOGSCAPT	2.799179	0.754243	3.711245	0.0008	
LOGPRIVCR	-4.171312	1.429672	-2.917670	0.0065	
С	9.926302	5.327092	1.863362	0.0719	
R-squared	0.318908	Mean dep	endent var	3.963829	
Adjusted R-squared	0.274966	S.D. depe	endent var	1.937996	
S.E. of regression	1.650182	Akaike inf	fo criterion	3.923746	
Sum squared resid	84.41614	Schwarz criterion		4.058425	
Log likelihood	-63.70368	Hannan-Q	uinn criter.	3.969675	
F-statistic	7.257564	Durbin-W	atson stat	1.481200	
Prob(F-statistic)	0.002598				
1 12					

However since the variables are non-stationary at level, the estimation is discarded. The estimation is invalid as the result is considered spurious.

4.6 Cointegration Test

Prior to test the cointegration relationship of the underlying variables, there is a need to decide on the lag. Table 4.5 highlights the choice of lag based on several criteria. In this study, the lag number is chosen by using AIC test statistic criteria which is lag

6.

Optimal Lag Length Criteria							
Lag	LogL	LR	FPE	AIC	SC	HQ	
0	-59.19732	NA	0.017062	4.442666	4.585402	4.486302	
1	-29.63398	50.68001*	0.003951	2.973856	3.544801*	3.148399	
2	-18.69138	16.41391	0.003531	2.835098	3.834252	3.140550*	
3	-8.152526	13.54995	0.003381*	2.725180	4.152542	3.161539	
4	-0.330398	8.380851	0.004197	2.809314	4.664885	3.376581	
5	7.622828	6.817051	0.005740	2.884084	5.167863	3.582258	
6	20.17259	8.067707	0.006767	2.630529*	5.342517	3.459611	

Table 4.5

* denotes lag order selected by the criterion

The results of Johansen cointegration test is presented in Table 4.6. Both trace and max-eigenvalue statistics rejected the null hypothesis of no cointegration relationship. The results indicate that there is at least one cointegration among the underlying variables.



4.7 Vector Error Correction Model (VECM)

Table 4.7 presents long run VECM results of the cointegration relationship. Based on the result, the credit market is significant at 5 percent level. This indicates that the credit market has a significant long run positive relationship with FDI. A 1 percent increase in ratio of private credit per GDP will increase the ratio of FDI per GDP by 11.23 percent. This indicates the importance of the credit market in attracting the flows of FDI. A more developed or less restricted capital control could reduce the capital cost thus attracting FDI. Desai et al. (2006) analyse that a strict capital control can discourage FDI as the restriction can cause higher interest rate. Since local affiliates of multinational companies seek funding through local borrowing, a high rate can cause the foreign investors to not establish affiliates in the first place.

On the other hand, the stock market is reported to have no significant long run relationship with FDI.

	Table Vector Error Co	e 4.7 prrection Estimates	
Variable	Coefficient	Standard Error	T -statistic
FDI	1		
LOGSCAPT	0.9368	1.3231	0.7080
LOGPRIVCR	-11.2326	2.7571	-4.0740*
C	44.1858		
*significant at 5% 1	evel	UI	
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Table 4.8 highlights the variance decomposition of FDI. Based on the result, the variation of FDI is explained more by the private credit rather than the stock market. This indicates that FDI is endogenous as it depends on other external factors to explain its variation.

1 able 4.0								
	Variance Decomposition of FDI							
Period	S.E.	FDI	LOGSCAPT	LOGPRIVCR				
1	1.110768	100.0000	0.000000	0.000000				
2	1.617244	53.76800	33.70027	12.53174				
3	2.324542	26.02556	37.05322	36.92122				
4	3.403758	15.03409	33.85804	51.10786				
5	4.575489	8.397907	28.12686	63.47523				
6	5.259434	6.810057	23.34381	69.84613				
7	5.711795	5.774437	21.03305	73.19251				
8	6.011765	5.609715	19.31351	75.07677				
9	6.180507	7.972268	18.54459	73.48314				
10	6.320897	7.958860	18.72630	73.31483				

Table 10

4.9 Impulse Response

The impulse response analysis shows the reaction of one variable to itself as well as other variables. Figure 4.1 highlights the graphs of impulse response analysis. In analysing the impulse response, only few responses will be focused on that are the responses of FDI to both independent variables and vice versa. First analysis is the niversiti Utara Malaysia response of FDI to LOGSCAPT. One standard deviation shock in the stock market increased FDI in short run but is seen to have negative impact on FDI on long run. Response of FDI to LOGPRIVCR however, shows that the shock has a negative impact on FDI in short run but increases as the time goes. On the other hand, the response analysis of LOGSCAPT to FDI shows the FDI have a negative impact on stock market while analysis of LOGPRIVCR to FDI shows that FDI have positive impact in short and long run.

Figure 4.1

Impulse Response Analysis



4.10 Diagnostic Test

In order to ensure that the result of this study is accepted, a few requirements must be satisfied using a number of diagnostic tests. The tests that are applied are serial correlation test, normality test and heteroscedasticity test.

4.10.1. Serial Correlation Test

Table 4.9 shows the VECM serial correlation. Based on the results, the probabilities are more than 5 percent, thus indicating failed to reject the null hypothesis. This proves that the model satisfies the serial correlation assumption.

	Table 4.9EC Residual Serial Correlation LM Test					
VE						
	Lags	LM-Stat	Prob			
	1	6.636944	0.6749			
	2	7.529706	0.5821			
	3	13.33750	0.1479			
	4	9.898990	0.3587			
	5	3.894137	0.9182			
	6	7.662142	0.5685			
RA	7	9.377294	0.4032			
12	8	4.611746	0.8668			
	9	2.585542	0.9785			
A	10	11.97127	0.2149			
	11	9.574337	0.3860			
31 // //	12	5.769896	0.7627			
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4.10.2. Normality Test

Table 4.10 shows the normality test of Skewness, Kurtosis and Jaque-Bera. The second requirement is that the result must be normally distributed. The tests above show that all three joint probabilities are more than 5 percent. The null hypothesis that the residuals are multivariate normal is fail to be rejected thus the requirement is satisfied.

			Tabl	e 4.10			
		Resi	dual No	rmality	v Test		
Component	Skewi	ness	Chi-s	q.	df.	Pro	ob.
1	-0.435666		0.854120		1	0.3554	
2	-0.276941		0.345133		1	0.5569	
3	-0.334923		0.504780		1	0.4774	
Joint			1.7040)33	3	0.6.	360
Component	Vuet	ogia	Chi		df	Dro	
	2 5 10 2 6 4		<u>Cn1-sq</u>		1	$\frac{\text{ur}}{1} \qquad \frac{\text{Prob}}{0.6102}$	
1	2.319304 1 771000		0.239887		1	0.0102	
2	3 183245		0.037776		1	0.8459	
Joint	5.1052+5		1.994397		3	0.5736	
Comp	onent	Jarque	-Bera	df 2		Prob.	
-	1 1.114		1006 2 1867 2			0.3729	
UTARA	3	0.541	2556	$\frac{2}{2}$) 7624	
Io	int	3.698	3430	6	(7174	
	AVSIA						
).3. Heterosce	dastici	ty Test	rsiti	Uta	ra Ma	alaysi	а

Table 4.11 shows the result of heteroscedasticity test. The requirement is that there is no heteroscedasticity among the variables. Since the probabilities is more than 5 percent significant level, the null hypothesis that there is no heteroscedasticity fails to be rejected. Therefore the assumption that there is no heteroscedasticity is satisfied.

Table 4.11VEC Residual Heteroscedasticity Test					
Chi-sq	df	Prob.			
76.68917	84	0.7018			

4.11 CUSUM Test

The stability of the variables is also tested using CUSUM test and the result is shown in Figure 4.2 below. The result indicates that the model is within the 5 percent significant level.



4.12 Summary

The OLS method shows that financial markets have a significant relationship with FDI. The stock market has a positive impact on FDI while credit market has a negative relationship with FDI. An increase in the size of the stock market will impact FDI positively. A developed stock market can attract foreign investor. However, this result is discarded as it is considered spurious due to the non-stationary of the variables.

Therefore in order to test the relationship among the underlying variables, this study conducts the Johansen cointegration test. According to the test, there is at least one cointegration relationship between the underlying variables. VECM long run relationship shows that there is no relationship between FDI and the stock market while the credit market has a significant positive relationship. A strict capital control would have a high cost of capital which eventually will discourage FDI. Market liberalization has a positive relationship with FDI as a more open market can reduce the cost of capital. This will then encourage potential foreign investors to establish affiliates with host country's companies. This is in line with Desai et al. (2006).



CHAPTER 5

SUMMARY AND CONCLUSION

5.1 Summary of Findings

This study analyse the impact of financial markets on FDI in Malaysia. The study uses yearly data from 1981 to 2014 which is obtained from the World Bank's database.

The increasing in FDI for the past decades have been seen as the key driver to economic growth and financial market development is said to have play an important role for countries to absorb the benefits offered by FDI. However, there is no definite answer on the direct relationship between financial market and FDI. In order to achieve the objective of this study, that is to test the impact of financial market and FDI, this study applies the Johansen cointegration test and VECM technique.

Both trace and max-eigenvalue of Johansen cointegration test show that there is cointegration relationship among the underlying variables. The VECM shows that the credit market has a positive relationship, while the stock market surprisingly has no relationship with FDI. The result is in line with Desai et al. (2006) who study the capital control on multinational firms in United States and FDI. Hajilee and Al Nasser (2015) also found that there is a relationship between the banking sector and FDI in Latin American countries.

Unexpectedly, unlike previous studies, the stock market does not have an impact on FDI (Claessens et al., 2001; Adam and Tweneboah, 2009; Soumaré and Tchana, 2015). This might be because the stock market has been subjected to speculative trading activities (Ang & McKibbin, 2007).

A strict capital control causes the foreign investors to discourage in investing in the host countries as the cost of external financing is higher. Higher financial market development tends to improve access on the external capital such as loans which could attract potential foreign investors to form affiliates. This explains the positive relationship between the credit market and FDI. According to Ang (2008), the financial development acts as a mechanism in helping the adoption of new technologies. Therefore an efficient credit and financial services can increase technology transfer as well as cause spillover efficiency.

Financial liberalization is likely to give positive impact on FDI. However, financial liberalization without an efficient and well-functioning financial system is futile. The government and the policymaker need to ensure that the financial system is properly shaped before starting any liberalization program. Effectiveness in private sector such as public sector surveillance, credit evaluation, and a sound legal framework are some crucial points that may be taken into matter for the financial market to improve and eventually promote FDI.

The policymaker cannot only focus on credit market but financial system as a whole in order to promote FDI inflows. However, a proper, thorough plan, and monitoring is needed. Aside from a sound financial system, the government could also create an environment that can attract FDI such as a stable political environment, provision of adequate property right, trained work force and strict accounting and audit control.

5.2 Recommendation for Future Study

There are several recommendations for future study that could be considered. First, this study could be further extended by using different proxy as variable. There are several proxy introduced by Beck et al. (2000) that can be used in measuring the financial market such as value of stock traded and liquid liabilities. Second, the period of study could be extended. An extension of period study could make the result more precise. Panel data could also be used in studying the relationship between the variables.

Aside from that, a more detailed analysis on the causal of financial market and FDI using Granger causality test could also be studied to further explain the relationship. Using this, a more detail on the direction of the relationship could be observed.

5.3 Limitation of Study

One of the limitations of this study is the size of the sample data as the data are only available yearly. The size is considered small in order to analyse the relationship using Johansen test. Furthermore, this study should adopt a number of controlled variables which have been shown by previous studies to significantly affect FDI. This might affect the estimation result.

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