

Do Local Banks Credits to Private Sector and Domestic Direct Investments Affect FDI Inflow? (Malaysia Evidence)

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Abstract: This study analysis the factors affecting foreign direct investment inflow in manufacturing sector in Malaysia in between 1974 to 2009, mainly focused on two determinants; domestic credit to private sector by local commercial banks and domestic direct investment. Growth Domestic product and the Trade Openness are also included in the model respectively; the results indicate that Gross Domestic Product of manufacturing, Trade openness, domestic credit to private sector and domestic direct investment significantly influenced the level of foreign direct investment inflow into Malaysia. This study manipulate the cointegration test method and Vector Auto Regression Granger causality between logarithm of foreign direct investment, domestic credit to private sector and domestic direct investment respectively which illustrates both variables are cointegrated and also Granger caused of foreign direct investment.

Key words: Foreign Direct Investment (FDI) • Domestic Credit to Private Sector (DCPS) • Domestic Direct Investment(DDI) • Growth Domestic Product (GDP) • Trade Openness(TO)

INTRODUCTION

Foreign direct investment (FDI) has been identified as a major concept which leads to the strong economic growth by the Malaysian economy. During last decades the early openness to foreign direct investment, resulted in Malaysia's industrialization rapidly. Before Malaysia's independency in 1957, Malaysian FDI flow was concentrated in plantation, mining, commercial enterprises, agriculture and utilities. Then, after independency, pattern of FDI changed; government expands existing activities and diversifies FDI inflow to agricultural crops and manufacturing. During 1960s, Malaysia's policy for attracting FDI, concentrated on the development of import-substituting industries (ISIs). But after one decade 1970s, their policy switched to more export-oriented industries (EOIs) particularly, labor-intensive industries, at that period of time Malaysia were a labor abundant and consider as educated work force country, it fulfilled the needs of foreign firms [1-3].

Take a backward look on history of FDI inflow in Malaysia shows, during the 1980s decade, the average FDI per annum flow into manufacturing sector was about RM2.3 billion (roughly US\$1 billion), however in 1980, it was just over RM 0.7 billion equal to (US\$0.34 billion), nevertheless in the year of 1990, it enormously surged to just over RM17.5 billion. This happened while manufacturing sector was experiencing more than half of the share of inward FDI; the share was hardly over 40 % in 1980 [3]. In three years time in 1993, United States (USA) and Japan were the overriding players of FDI which granted half of aggregate FDI inflow in Malaysia manufacturing sector. This continued till 1997 when the Asian financial crisis happened, immediately Malaysian government changed its policy to a severe fortifications which causes a plummet in inward FDI figure. During 1996 to 2000, the aggregate amount acquiesce in FDI in manufacturing sector was well over RM 70 billion. This was around half of total proposed capital investment (TPCI) by local and foreign investors reported by Malaysian Industrial Development Authority [4].

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Since long ago investing on manufacturing sector has been considered as the most dynamic and important sector for economic development by Malaysian government. These direct investments could come from domestic investors or by foreigners. Realizing foreign direct investment as major player underlying Malaysia's industrialization, convince Malaysian government to initialize a variety of incentives. Such as initiating market liberalization policy, enactments incentives act, free trade act, incentives on tax payments, free trade zones established by 1970, from Economic Report 2007/2008. Kuala Lumpur: Ministry of Finance.

Problem Statement: With respect to the policies mentioned previously and microeconomic management, it is generally believed that sustainability in economical growth and robust financial system return Malaysia to a deliberating target for FDI. Subsequently, since 1990s the ratio of FDI inflow to GDP experienced a chronic plummet. Hence unsatisfying plummeted pattern of FDI inflow has become a momentous concern of policy makers and researchers, but little attention paid to internal cooperation between different investment incentives in Malaysian manufacturing sector respectively. Ergo, this warrants a research work to denude the key instruments stimulating inward FDI in manufacturing sector in Malaysia. Hitherto empirical studies relied on cross-country panel data analysis which comprised mixed results. Subsequently, while researchers frequently have rendered empirical evidence on the impact of economic and trade openness growth at nation level, but still the analysis indoors the framework on manufacturing industries is not yet completed.

Literature Review: The rate of growth is defined as percentage change in real gross domestic product (GDP) annual basis. This delineation has been announced by Global Development and Environment Institute. If economic growth observed at a commensurate and surging rate, as a consequence the investment risk highly slumped and consider as an incentive. The first element included in the model of this study is trade openness, many studies indicate that there exists a positive relationship between FDI and trade openness. For instance there have been three different researches conducted in three different time spots by [5-7], all conclude if there is a 1% surge in trade openness then percentage increase in FDI inflow will be 1.094-1.323.

Accordingly, studies represent the greater liberalization may be advantageous to inward FDI. Meanwhile the

argument exists among economist who indicates trade openness is considered as major reason behind growth in developing countries [8-12]. The reason that why trade openness leads to economic performance comes from the belief on liberalization, which can expand the demanding labor market and specialization, ergo Much more improved productivity and export ability which administrate to economic performance.

Additionally, several developing countries followed case with the export led schemes, with greater efficiency as a consequence of trade openness. In fact it is widely accepted that trade openness comparatively outperformed nation, in compare with less openness [13, 14].

A study by Lloyd and MacLaren on the East Asian economies supported that swift growth in this region was mainly the outcome of economical openness [15].

Other conspicuous analysis advocates the openness and growth relationship [10, 16-19], in contrast Harrison and Rodriguez, however have been more reserve in supporting the openness-led growth nexus [20, 21]. Albeit there exist considerable studies which examine the relationship between trade openness and growth in developing countries such as researches by Edwards, Sachs, Sarkar and, Yanikkaya but still research in this area is far to get accomplished [10, 22-24]. Several empirical studies relied on cross-country panel data analysis which illustrated mixed results. Subsequently while many empirical evidences have been constructed on the impact of trade openness on economic growth in different nations, but still a few studies have been established on manufacturing sector specifically.

Meanwhile Malaysia is desirable for being studied, as it carries the highest growth and open economy among developing countries. The backward look indicated the GDP of Malaysia surged to 6.7% during 1971 to 1990, following by 1.4% increase during next decade till 2000; it reached to the highest peak of averaging at 8.1% per annum between Association of Southeast Asian Nations (ASEAN) economies, reported from the first, second and eighth outline perspective plan Kuala Lumpur: Government Printer. It is noteworthy to say Malaysia in compare with other ASEAN countries act as an active player in the process of liberalizing the investment regime in manufacturing sector and outward strategies during 1980's onward, however, it witnessed enormous plunged in tariff rate [16]. As a result, industrial sector has been admired as a remarkable actor for economic growth and export performance. In the year of 2006 the manufacturing output witnessed 7.1% of growth, contributed roughly one third of real GDP growth of Malaysia [25].

This paper focuses on two other factors, as domestic credit to private sector by banking system and domestic direct investments. There are several papers worked on the various links among foreign direct investment (FDI), economic growth and financial markets. One of those handled by Alfaro [26]. Their exploration expresses the countries which encompass the flourished and integrated financial markets benefited the most from the FDI.

King Have implemented several financial market series, ranging from the stock market to the volume of lending in an economy [27]. These variables can be categorized into two different broad sections: The banking sector and the stock market. Levine in turn builds on King introduced some variables for measuring the effectiveness of financial market of countries as following [28, 29]:

- Liquid liabilities of the financial system
- Commercial-central Bank Assets
- Private Sector Credit
- Bank Credit

In this study the private sector credit is equal to the value of credits specified by financial intermediaries invested in private sector divided by GDP. In contrast some Nobel Prize winner economists rejected the impact of financial sector on economic growth; interestingly some do not even consider finance worth discoursing [30]. Even though there is no discussion about finance in a collection of studies by the economic gurus including of three winners of the Nobel Prize [31].

On the other hand, extremely opposite view is expressed by another Nobel Prize winner, Miller (1998) when he remarks the proposition which indicates financial marketplaces contribute to economic growth is too apparent for serious discussion [32]. Thus there is heterogeneity of views on the role of finance in economic growth.

Proposed Approach: Although the literature review represents many studies, which have been conducted on FDI but still there are some lacking points in these studies, not many studies have been conducted on different sectors separately, but they were mostly implemented on total FDI. Despite some studies have been conducted on FDI determinants, but still there are not so many researches focusing on collaboration between different domestic determinants and their influence on FDI. While many studies have been conducted based on the relationship between FDI and financial development of the host country from the

foreign investors point of view, such as interest rate, growth rate and so forth, other important factors such as domestic direct investment and credits which devoted by local banking system to private sectors have not been undertaken considerably.

In addition the concentration of most studies has been based on realizing whether there is a significant relationship exist between FDI with that variable or not and there are a few number of studies that shows how much these determinants contribute to attract FDI, this study focused on manufacturing sector, we use econometric techniques to show the long run relationship between variables and FDI and whether they have positive or negative relation exist between them. With respect to literatures many studies conducted based on the relationship between financial developments and FDI not only in Malaysia but globally. These researches have been conducted from different points of view from this study. This study mainly focused on domestic credit to private sector (DCPS) and domestic direct investment (DDI) which are different from financial developments, although some researchers believe the increase of FDI will decrease the amount of domestic direct investment but in contrast this study shows a long run positive relationship between these two variables.

MATERIALS AND METHODS

This paper employs Granger-causality test in vector auto regression (VAR) framework to examine causal relationship among domestic credit to private sector devoting by banking sector and domestic investment by local investors with inward FDI in manufacturing sector of Malaysia. All variables presented in logarithmic forms and described based on GDP ratio. Description of data is presented first and then procedure to examine the stationarity of underlying time series and unit root test through augmented dickey-fuller (ADF) test equation is described. Next, unrestricted co integration rank test (Trace) is described followed by granger-causality methodology in VAR and finally the section is concluded with the discussion on the FDI inflow model based on least squares.

Data: Present study examines the causal relationship among DCPS devoted by local banking sector, DDI on manufacturing sector by local investors, trade openness (TO) and GDP with FDI in Malaysia. This study is constructed based on annual data from 1974 to 2009. All variables are as a percentage of GDP and in logarithmic form represents as LFDI, LDCPS, LFDI and LDDI. FDI,

GDP and domestic investment on manufacturing sector is attainable from Bank Negara Malaysia (BNM), DCPS and trade openness are taken from World Bank Database World Development Indicators v.2010 [33].

Stationarity of Time Series: Based on Engle and Granger, Granger-causality method applied to find out if there exist causal relationships between variables empirically [34]. Causality in the sense Granger is inferred when values of a variable, say, X_t , have explanatory power in a regression of Y_t on lagged values of Y_t and X_t . If lagged values of X_t have no explanatory power for any of the variables in the system, then X is viewed as weakly exogenous to the system. This study tests for Granger-causality relationships among domestic credit to private sector, domestic direct investment and foreign direct investment.

Augmented Dickey-Fuller Test Equation: As Banerjee explained in econometrics and statistics, an ADF is a test for a unit root in a time series sample [35]. This is an augmented version of the Dickey-Fuller test which is for a larger and complicated set of time series. The ADF statistic is a negative number. The more negative it is, implying the stronger rejection of the hypothesis which, there is a unit roots at some level of confidence.

Cointegration Test: Engle and Granger represented the possibility that a linear least square regression of two or more non-stationary variables may be stationary [34]. If such stationary combination exists, then the non-stationary time series are said to be co-integrated. The VAR based co-integration test using the methodology developed in Johansen is described below [36]. Consider a VAR of order p

$$y_t = A_1 y_{t-1} + \dots + A_p y_{t-p} + Bx_t + \epsilon_t$$

Where, y_t is a k -vector of non-stationary $I(1)$ variables, x_t is a d -vector of deterministic variables and ϵ_t is a vector of innovations. This VAR can be rewritten as follows:

$$\Delta y_t = y_{t-1} + I = I_{p-1} \Gamma y_{t-1} + Bx_t + \epsilon_t$$

Where, $\Pi = I - A_1 - \dots - A_p$ and $\Gamma = A_1 + \dots + A_p$

Granger's representation theorem asserts that if the coefficient matrix Π has reduced rank $r < k$, then there exists $(k \times r)$ matrices α and β each with rank r such that $\Pi = \alpha \beta'$ and $\beta' y_t$ is $I(0)$. Johansen's method is to estimate the Π matrix from an unrestricted VAR and to test the null hypothesis that the restriction implied by the

reduced rank of Π can be rejected against the alternative hypothesis that the matrix Π has full rank. Johansen procedure provides two statistics, one is Likelihood Ratio test LR test based on the maximum Eigen value of the stochastic matrix and the value of the LR test based on the stochastic matrix [34, 36].

RESULTS

Augmented Dickey-Fuller Unit Root Test: In this study, time series data is used, which mostly are non-stationary as a result of trends and seasonal variations in observed data. Running a regression with non-stationary data always resulted into inefficient coefficient and error terms, though the regression will still be valid. The data needs to be stationary to eliminate this problem. Therefore, to make the data stationary one has to perform a unit-roots test either at level form or 1st difference. Findings in table 1, page 15, shows all variables are non-stationary at level form. However at 1st difference all variables are stationary.

Unrestricted Cointegration Rank Test (Trace): Results of cointegration test between Logarithm of FDI, DCPS, DDI (LFDI, LDCPS and LDD) are reported in table 2 and table 3 in page 15. In each case both trace statistic and maximum Eigen value statistic are greater than critical values at 5% significance level suggesting that there is cointegrating relations between LFDI, LDCPS and LDDI.

VAR Granger Causality/Block Exogeneity Wald Test: Having found the cointegration relationship between LFDI, LDCPS and LDDI, Granger-causality test in level VAR is carried out next and the results are reported in Table 4 in page 16 clearly. The first column of each table defines the dependent variables; second column display Wald χ^2 statistics for the joint significance of each of the other endogenous variables with their associated probabilities in parentheses.

VAR Granger-causality results reported in Table 4 suggest that the null hypotheses that LDCPS and LDDI do not Granger-cause LFDI are not rejected, which indicates absence of causality from LDCPS and LDDI to LFDI. In LFDI equation LDCPS does not Granger-cause LFDI hypothesis is rejected at 5% level and also in LFDI equation LDDI does not Granger-cause LFDI hypothesis is rejected at 5% level as well. Therefore LDCPS and LDDI both do not Granger-cause with LFDI but in contrast LFDI is Granger-cause with both of them. As result can say, the changes in LDCPS and LDDI can predict the LFDI in long run basis.

Table 1: Augmented Dickey-Fuller Test

Variables	Level	1 st Difference
LFDI	-0.20	-3.15*
LGDP	-0.02	-3.72*
LTO	0.62	-7.58*
LDDI	0.09	-7.60*
LDCPS	2.12	-3.67*

*, ** and *** indicates significant at 1%, 5% and 10% level.

Table 2: Unrestricted Cointegration Rank Test (Trace) between LFDI and LDCPS

Hypothesized	No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *		17.61	12.32	0.00	11.43	11.22	0.00
At most 1 *		6.98	4.13	0.01	6.98	4.13	0.00

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 3: Unrestricted Cointegration Rank Test (Trace) between LFDI and LDDI

Hypothesized	No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *		19.96	15.49	0.01	16.21	14.26	0.02
At most 1 *		3.84	3.84	0.05	3.84	3.84	0.05

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 4: VAR pair-wise Granger-causality between LFDI, LDCPS and LDDI

Dependent Variable	Long-run Causality, Wald χ^2 statistic (probability)		
	LFDI	LDCPS	LDDI
LFDI		5.85 (0.05)**	11.23 (0.02)**
LDCPS	0.87 (0.64)		
LDDI	0.94 (0.91)		

T** Indicates significant at 5% level.

Table 5: Method(Least Squares)

Sample (adjusted): 1974 2009				
Included observations: 36 after adjustments				
	Coefficient	Std. Error	t-Statistic	
LGDP	2.84	0.90	3.13	0.00*
LDDI	0.64	0.21	3.00	0.00*
LDCPS	0.81	0.38	2.11	0.05**
LTO	2.77	1.3	1.99	0.06**
C	-21.29	4.28	-4.96	0.00*
R-squared	0.520875		Mean dependent var	-11.06674
F-statistic	5.707477		Durbin-Watson stat	1.800423
Prob(F-statistic)	0.002855			

* 99% Significant, ** 95% significant, ***, 90% Significant

Proposed Model: Since type of data is time series oriented, Econometric views (Eviews) software chosen for running the model. The analysis is based on annually data from 1974 to 2009. The Model used in this study contains five variables which four of them are independent variables and one dependent variable. This model contains two control variables as GDP and trade openness, also includes two other variables DDI and DCPS which are the domestic direct investment by local investors and domestic credit to private sector by banking system. Table 5 in page 16 represents the least square model of this study.

The estimated FDI function derived from the analysis:

$$\text{LFDI} = -21.29 + 2.84 \text{ LGDP} + 2.77 \text{ LTO} + 0.81 \text{ LDCPS} + 0.64 \text{ LDDI} + U$$

As it is illustrated in table 5 the LGDP of manufacturing coefficient is 2.84 and positive, so there is a positive relationship between these two variables; since probability is less than 0.01 so there is a 99% significant linear relationship between LFDI and LGDP.

The LDDI of manufacturing coefficient is 0.64 and positive, so there is a positive relationship between these two variables; since probability is less than 0.01 so there is a 99% significant linear relationship between LFDI and LDDI.

The LDCPS of manufacturing coefficient is 0.81 and positive, so there is a positive relationship between these two variables; since probability is equal to 0.05 so there is a 95% significant linear relationship between LFDI and LDCPS.

The LTO of manufacturing coefficient is 2.77 and positive, so there is a positive relationship between these two variables; since probability is equal to 0.06 so there is a 90% significant linear relationship between LFDI and LTO.

DISCUSSION

The main objective of this study is analysis of determinants which influencing FDI inflow in the manufacturing sector in Malaysia. There have been several studies conducted on this issue but still there are some lacking points in these studies, not many studies have been conducted on different sectors separately and they were mostly conducted on total FDI. This study

mainly focused on collaboration between different domestic determinants and their influence on FDI. Albeit there exist several studies on the relationship between financial development and FDI, such as interest rate, growth rate and so forth, other important factors such as domestic direct investment and credits which devoted by local banking system to private sectors have not been undertaken considerably.

This study mainly focused on DCPS and DDI which are different from financial developments, as previously mentioned in problem statement although some researchers believe the increase of FDI will decrease the amount of domestic direct investment but in contrast this study shows a long run positive relationship between these two variables and FDI. The results indicate that GDP of manufacturing, TO, DCPS and DDI significantly influenced the level of FDI inflows into Malaysia. This study shows LFDI, LDCPS and LDDI not only cointegrated but LFDI is Granger caused with both of these variables. And this indicates as much as domestic credits by local banks increase, it can affect positively on FDI and attract more inward FDI, in contrast the increase in FDI cannot conclude more domestic credits devoted by local banking system. There is same situation for domestic investment as well, as much as domestic investments by local investors increase it affects positively on FDI inward flow to country. Domestic credits to private sector can show the confidence of local banks to invest their money on local projects and market segments, as much as they devote more credits to investor means there should be more confidence for its return on investments, therefore should be more attractive for foreign investors to invest as FDI in host country. Domestic direct investment also shows how much local investor are interested to invest in special sector, the dominance of local investor on local market and deeper understanding on local market can send positive signal to foreign investors to invest on this area.

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