Economic globalization: role of inward and outward FDI with economic growth - evidence from Malaysia

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Abstract

When a nation that links itself to the global market, this means that the nation would embark itself in the path towards globalization. Global markets offer greater opportunity for domestic firms to tap into larger markets around the world. This translates the possibility of having more access to more capital flow, technology, cheaper imports, and larger exports. One of the ways a domestic firm gets foreign capital, would be through Foreign Direct Investments (FDI). This study aims to look at Malaysia's inward and outward FDI and determine their relationship with economic growth. Annual data covers over the period of 1984 to 2013 and tested based on the autoregressive distributed lag (ARDL) model. The results show that there is a positive long-run relationship between inward FDI with economic growth. It was noted that outward FDI have an indirect relationship with economic growth. There is unidirectional granger causality between them as well as between inward and outward FDI.

Introduction

According to Milanović (2002), World Bank had defined globalization as "freedom and ability of individual and firms to initiate voluntary economic transactions with residents of other countries." Gordon (2006) defined globalization as an economic and political interdependence on a worldwide scale. Almsafir (2002) defined globalization as a process of making world economy dominated by capitalist models as well as a process whereby an increased portion of economic or other activity is carried out across national borders. It is thus noted that a nation that links itself to the global market would embarked itself in the path towards globalization. Global markets offer greater opportunity for domestic firms to tap into larger markets around the world. This translates the possibility of having more access to more capital flow (finance), technology, cheaper imports, larger exports (good and services), and labor.

The country of interest (Malaysia) in this study also is one of the developing countries that area recipient of inward FDI and also the source of outward FDI. Oguchi, Amdzah, Bakar, Abidin, and Shafii (2002) stated that during the 1970s and 1990s, FDI helped many Asian countries achieve economic growth. Malaysia was one of the countries that actively accepted foreign investment to advance its economic growth during that time.

According to (Goh and Wong, 2011), main reasons cited for Malaysia's outward FDI is to overcome local resource limitation and to search for new markets. Decisions to invest abroad are fueled by higher profit opportunities of the host market and also help make Malaysian firms to be part of the global production network, while concurrently developing themselves into regional or global players. Based on United Nations Conference on Trade and Development (UNCTAD)'s statistical databases, Malaysia's outward stock increase from USD 753 million in 1990, to USD 96,896 million in 2010 reflect that the reasons as good motivators to gain outward FDI.

According to Ariff (2004), Malaysia is the fourth most open economy in the world, with its Gross Domestic Product (GDP) mainly made up of imports and exports. FDI forms the backbone of the Malaysian economy. This nation embarked on a journey towards economic openness which paves the way to a rapid rise of economic growth and development. In 2014, according to World Bank, Malaysia now exceeds the US$ 11,000 mark, more than twice the increase in value compared to 2004, when it just exceeds the US$ 4,000 mark.
This study is to look at Malaysia's inward and outward FDI and determine their relationship with economic growth.

Literature Review

As shared, there are a lot of literature that looks at the individual relationship of inward FDI and outward FDI with economic growth. This study concentrates on the interaction of both and their effect on economic growth. The dynamics between both variables are looked at individually. Econometric studies and analysis were also conducted in many of these studies.

One of the ways a domestic firm gets foreign capital, would be through Foreign Direct Investments (FDI). FDI is defined by the International Monetary Fund (IMF)/ Organization for Economic Co-operation and Development (OECD) as investments that involve a long-term relationship reflecting a long interest of a resident entity in one economy (direct investor) in another entity in a foreign economy (IMF/OECD, 2008). FDI has long been established as an economic globalization indicator, as it is one of the means to integrate the domestic economy with the global economy, as such, increasing the integration of economies around the world (IMF, 2008).

IMF/OECD (2008), defines that inward FDI is foreign direct investment by a foreign firm establishing a facility within the domestic country. While, outward FDI is defined the investment located within the domestic country that is acquired by a foreign owner (IMF/OECD, 2008).Inward FDI and outward FDI, despite its conflicting contributing factors, have a similar end in mind. Countries embarked on the attracting inward FDI or supporting firms towards outward FDI in the bid to ensure economic growth.

The path of a developing country begins as a recipient of FDI. And as the country enjoys economic growth brought upon by inward FDI, would then become a net source for FDI. As such, in the long run, increased outward FDI is both a cause and a consequence of economic growth (Stal and Cuervo-Cazurra, 2011; Rugman, 2010; Herzer 2010; Zhang and Daly, 2010). As according to Saad, Noor and Nor (2014), further supporting this path, that it should be noted that, GDP, inward FDI, productivity levels, exchange rate, export levels and patent, in the context of Malaysia are the major push factors for its outward FDI. Outward FDI is said to be one of the measures to indicate the performance and capability of developing countries enterprises.

Inward FDI provides a means for developing countries to transform their economy through privatization, economic liberalization, trade and market expansion, new financial organization formation, enhanced institutional quality, creation of employment opportunities, increased communication, national income increase, improved technological capitals and human labor forces and competition through transfer of technology and managerial know-how. All these would result in the integration of the domestic economy with the global economy which is a factor to measure the globalization (Aizenman and Noy, 2005; Hailu, 2010; Adams, 2008; Moghaddam and Redzuan, 2012; Almfraji, Almsafir, and Yao, 2014; Almsafir, Nor, and Al-Shibami, 2011; Meon and Sekkat, 2007).

The study by Karimi and Yusop (2009) looks at the causal relationship between FDI and economic growth. The Toda-Yamamoto test and bounds testing (ARDL) were used for a time

series data from a period of 1970- 2005 for Malaysia. This study found that there is no evidence of bi-directional causality and long run relationship between FDI and economic growth. This indicates that FDI has an indirect effect on economic growth in Malaysia.

A study by Desai, Foley and Hines Jr. (2005), using time-series data for US firms found a positive relationship between domestic and foreign investments with economic growth, while Navaretti, Venables and Castellani (2004) found that outward investment increases domestic output and productivity growth for Italian firms. Some of the observed ways on how Outward FDI strengthens economic activities domestically would be through increasing output, competitiveness, home employment, skill of labour, efficiency, and profit. Lee (2010) also supported, through the standard Granger causality tests that increased outward FDI leads to higher GDP per capita. It is however noted, for Singapore that with this higher GDP per capita would actually lead to a decrease in outward FDI.

Other literature looks at the relationship of FDI with other factors such as political regime such as Busse and Hefeker (2007), indicated that government stability, absence of internal conflict, and basic democratic rights are significant determinants of inward FDI. This means that 'good institutions' almost always increase the amount of FDI, however, evidence to show that FDI has positive effects for the host countries is weak. This result is echoed by Hanson, Mataloni, and Slaughter (2001).

Farshid, Ali, and Gholamhosein, (2009) looked into the effects of FDI and trade on East Asia countries such as China, Korea, Malaysia, Philippines and Thailand. They found that with an upgrade of existing knowledge level through upgrades of the human capital in terms of labor training, China and Korea were able to have a higher impact on economic growth from trade and FDI compared to the others in the study. Besides that, macroeconomic stability was found to be essential in order for the impact of FDI to be translated on economic growth (Jallab and Sandretto, 2008).

Inward FDI and human capital development has been noted to strongly contribute to the economic growth of the host country. It is noted though the technology effects of these inward FDIs was not able to be realized since they were not combined efficiently with the human capital to contribute enough to the economic growth. As such, human capital in numbers are not sufficient enough to contribute to economic growth, more efforts in development this human capital is required to attract and accommodate the current inward FDI. Increased inward FDI would allow the openness of the economy and the foreign exchange environment to move favorably (Fadhil and Almsafir, 2015).

This indicated that host countries must be ready for this upgrade in order for the benefits to be felt amongst its people. FDI may pave the way for a country to develop further in technology and knowledge that are not readily available to domestic investors, and in turn promotes growth in productivity through the economy, but it takes a well-educated population to understand and spread the benefits of these new innovations to the whole economy. These findings are echoed in Borensztein et al., (1998); Almsafir, Latif, and Bekhet (2011).

It is well noted that developed countries do receive inward FDI, though mostly from other developed countries. However, according to Acaravci and Ozturk (2012), the effect that FDI flows provide the host country with higher productivity and economic growth, is more obviously seen in developing countries. This observation was explained through a study by Rugman (2010) that concluded that through Multinational Enterprises (MNEs), a developing country would have the best way to integrate into the world economy. Through inward FDI, domestic firms in developing countries would learn how to serve more demanding consumers

and eventually reach the capability level that would enable them to be multinational company (MNC) and start investing abroad. This is echoed by Stal and Cuervo-Cazurra, (2011).

Traditionally, outward FDI is from developed countries such as the US, UK or Japan. However, it is noted that these days, developing countries are becoming an important source of outward FDI in the world, as oppose to the past when this is rare (Pradhan, 2010; Holtbrügge and Kreppel, 2012; Herzer, 2011) studied the effect of companies from developing countries investing in other developing countries and found that these developing countries (host/ origin) had, on an average, experience a positive long-run effect on their domestic productivity of FDI from the developed countries.

Data

The data consist of Malaysia's annual data from 1984 to 2013 which are retrieved from UNCTAD and World Development Indicators (WDI) Online. The three variables are inward FDI, outward FDI and economic growth, where GDP is the proxy for the Economic Growth of Malaysia. IFDI is inward FDI flows, OFDI is outward FDI flows and all variables are transformed to the (Log) form to standardize the variables with each other. Table 1 provides the description of the variables.

Variable	Description	Unit of measurement	Source
GDP	Proxy for Economic Growth. This measures the sum of the value of Malaysia's goods and services including taxes and excluding any subsidies not included in the value of the products	Million USD	World Development Indicators (WDI) Online World Bank Database
IFDI	Measures the inward Net Foreign Direct Investment for Malaysia	Million USD	UNCTAD
OFDI	Measures the outward Net Foreign Direct Investment for Malaysia	Million USD	UNCTAD

Table 1 Summary of Dataset (1984 to 2013)

Methodology

In order to examine the log run relationship and causality relationship between the three variables (inward FDI, outward FDI and economic growth) formulated as the following:

$$GDP = \mu + \beta_1 IFDI + \beta_2 OFDI + \varepsilon_t \quad (1)$$

In (1), where, μ is the intercept; β_i(I = 1, and 2) are the causality's coefficient of independent variables, (ε_t) is the error term. The expected coefficient sign can be positive or negative.

Before this, the data was tested for stationarity for each of the variable to avoid a spurious regression result. Unit root test is used to determine the stationarity of each of the variables.It should be noted that if the time series data are not constant, this would reflect non truth results of regression (Engle and Granger, 1987). The two most popular tests used in this study are; Augmented Dickey-Fuller (ADF) test (Dicky and Fuller, 1979) and Phillips-Perron (P.P) test (Philips and Perron, 1988). These tests would check if the variables are stationary at level, first difference or mutually integrated but not more than first difference. It is noted that if

any variable in the model is stationary at more than first difference, then ARDL technique would not be able to be used for that model.

When all of the variables are found to be independent from unit root and allow us to proceed with co-integration test based on Pesaran, Shin and Smith (2001). This co-integration test examines the long-run co-integrating relationship among variables based on the F-test. The tabulated critical values of F-test classified into two critical values, the lower critical bound (LCB) and the upper critical bound (UCB). The purpose of conducting co-integration test is to examine the existence of long-run equilibrium relationship between variables in the model.

The commonly used co-integration tests, such as the Engle and Granger (1987) and Johansen and Juselius (1990) approaches, require the analyzed variables to be non-stationary with the same order of integration. The bounds testing approach to co-integration based on autoregressive distributed lag (ARDL) framework developed by Pesaran et al. (2001) was selected for this study mainly due to the small sample size of 29 observations.

One of the main advantages of the ARDL model is that it can be applied irrespective of whether the variable is *I*(0), *I*(1) or fractionally co-integrated. The other advantage is that the model takes sufficient number of lags to capture the data generating process in a dynamic framework of general-to-specific modeling framework. Furthermore, the error correction model (ECM) can be derived from ARDL through a simple linear transformation. ECM integrates short-run adjustments with long-run equilibrium without losing long-run information.

Another advantage of ARDL approach is that it is suitable to analyse data with as small sample size as that in this analysis. Pesaran (2001) showed that OLS estimators of the short-run parameters are consistent and the long-run coefficients in ARDL approach are super-consistent in small l sample size. In current study ARDL bounds testing approach is employed to examine the long-run relationship among research variables.

The choice of the most appropriate model would be the ARDL model approach to fix the problem of testing the existence of a level relationship between the variables based on standard F- and T- statistics test used to test the significance level of the variables in a univariate equilibrium correction mechanism. In summary, the reason why this model is chosen is as follows. Under this model, it is not necessary to examine the non stationary property. It also has the ability to determine co-integration for small sample size, which is suited for this study as the sample is small, and allows variables with different optimal lags (Pesaran et al., 2001).

The bounds test investigates the existence of a long-run relationship between the variables with the following unrestricted error correction models:

The ARDL model is displayed by the following equation:

$$\Delta GDP_t = \mu_1 + \sum_{j=1}^{k} \beta_{11}\Delta GDP_{t-j} + \sum_{j=0}^{k} \beta_{12}\Delta IFDI_{t-j} + \sum_{j=0}^{k} \beta_{13}\Delta OFDI_{t-j} + n_{11}GDP_{t-1} + n_{12}IFDI_{t-1} + n_{13}OFDI_{t-1} + \lambda_1 ECT_{t-1} + \varepsilon_{1t} \quad (2)$$

$$\Delta IFDI_t = \mu_2 + \sum_{j=1}^{k} \beta_{21}\Delta IFDI_{t-j} + \sum_{j=0}^{k} \beta_{22}\Delta GDP_{t-j} + \sum_{j=0}^{k} \beta_{23}\Delta OFDI_{t-j} + n_{21}IFDI_{t-1} + n_{22}GDP_{t-1} + n_{23}OFDI_{t-1} + \lambda_2 ECT_{t-1} + \varepsilon_{2t} \quad (3)$$

$$\Delta OFDI_t = \mu_3 + \sum_{j=1}^{k} \beta_{31}\Delta OFDI_{t-j} + \sum_{j=0}^{k} \beta_{32}\Delta IFDI_{t-j} + \sum_{j=0}^{k} \beta_{33}\Delta GDP_{t-j} + n_{31}OFDI_{t-1} + n_{32}IFDI_{t-1} + n_{33}GDP_{t-1} + \lambda_3 ECT_{t-1} + \varepsilon_{3t} \quad (4)$$

In (2), (3), (4), where, μis (i =1, 2, 3) denotes intercepts; β_{ij}s (i,j= 1, 2, 3) represents the coefficients of the variables which are used to test the short run relationship among the variables;n_{ij}s (i,j=1, 2, 3) which represents the long run coefficient among the variables; λ_is (i=1, 2, 3) represents the coefficients of the error correction terms (ECT_{t-1}); which are used to test the long-run causality relationship among the variables; εis (i=1, 2, 3) represent the error terms.

The Granger causality/ Block erogeneity Wald test is applied to a time series to indicate the causality. This test detects if the lags of a variable can granger-cause another variable in the VAR system. The null hypothesis is that all lags of one variable can be excluded the model (Enders, 2003). In this study, this test would help to answer if all the lags of inward and outward FDI be excluded from the GDP model. Rejection of the null hypothesis means that if all lags of inward and outward FDI cannot be excluded from the GDP model, then GDP is an endogenous variable and there is causality of inward and outward FDI on GDP.

Results and Discussion

Unit Root Test Results

The results of the Augmented Dickey-Fuller (ADF) test and Phillips-Perron (P.P) testare presented in table 2. The variables are tested at level *I*(0) and first difference *I*(1) with the inclusion of only intercept, followed by another with intercept and trend.

Variable	Test	Level		First difference	
		Intercept	Trend and intercept	Intercept	Trend and intercept
OFDI	ADF	-1.174885	-3.118917	-6.981205***	-6.847873***
	PP	-0.993274	-3.148168	-6.994906***	-6.860821***
IFDI	ADF	-2.445026	-3.510942*	-7.532552***	-7.373001***
	PP	-2.266837	-3.488753*	-12.51158***	-12.13319***
GDP	ADF	0.208816	-2.448996	-4.719406***	-4.595188***
	PP	0.154645	-2.613223	-4.719360***	-4.562115***

Table 2 Unit Root Test (ADF and PP)

Note: ***, **, * denote 1%, 5%, 10% significance level, respectively. The lag length selection in ADF test is based on Schwarz Info Criterion (SIC) while PP test is based on Newey-West Bandwidth. Both ADF and PP tests examines the null hypothesis of unit root against stationarity.

The ADF and PP test results concluded that all the variables (OFDI, IFDI, GDP) are stationary at *I* (1). However, while the results show that at *I*(0) IFDI are stationary in both tests ADF and PP at 10% significant level. These results confirm that all the variables were consistently stationary at *I*(0) and/or *I*(1) and none of them exceed *I*(1). Thus, these results suggested that the null hypothesis of unit root for all the variables testes in both ADF and PP tests are rejected and it is possible to proceed to the next test.

Lag Length Criteria Results

Table 3 shows the results of lag length for GDP model which is at 1 lag. This result depends on LR, AIC and HQ criteria as suggested by Engle and Granger (1987).

Source: output of Eviews 9.0 econometric software

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-29.31456	NA	0.510420	2.165326	2.212905	2.179871
1	21.39184	94.16903*	0.014658*	-1.385131*	-1.289974*	-1.356041*
2	21.60962	0.388889	0.015509	-1.329258	-1.186522	-1.285622

Table 3 Lag Length Criteria Results

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Bounds F- statistics Test

Since the variables in this study are stationary, it is then possible to move to the next step – bounds co-integration F-statistics test as suggested by Pesaran et al. (2001) to test the null hypothesis of no co-integration among the variables.

The decision role is based on compared F-statistic test with the critical value tabulated by Pesaran et al. (2001). Moreover, if the F-test statistic exceeds the upper critical value, the null hypothesis of no co-integration can be rejected regardless of whether the underlying orders of integration of the variables are *I*(0) or *I*(1). Similarly, if the F-test statistic falls below the lower critical value, the null hypothesis cannot be rejected. However, if the F-test statistic falls between *I*(0) and *I*(1) the result is inconclusive whether to accept or reject. Table 4 provides the results of calculated and critical values of bound F-statistics test for GDP model.

Source: output of Eviews 9.0 econometric software

Model	F-statistics	Bound Critical Values			Decision
		1%	5%	10%	
		I(0), *I*(1)	*I*(0), *I*(1)	*I*(0), *I*(1)	
GDP	0.358	5.15, 6.36	3.79, 4.85	3.17, 4.14	No co-integration
IFDI	5.349	5.15, 6.36	3.79, 4.85	3.17, 4.14	Co-integration
OFDI	2.973	5.15, 6.36	3.79, 4.85	3.17, 4.14	No co-integration

Table 4 Bounds F-Statistics Test Results

Long Run Relationship Results

Table 5 shows the results of long run relationship among the variables. The existence of co-integration among variables warrants the estimation of matrix by ARDL approach to get the long-run coefficients. This shows the relationship of GDP with the other independent variables. Example, a 1% increase in GDP would cause an increase in IFDI by 0.54 % in the long run. IFDI has a significant and positive relationship with GDP while OFDI has an indirect relationship with GDP in the long run.

Source: output of Eviews 9.0 econometric software

Dependent variable is GDP			
Regressor	Coefficient	P-value	T-value
IFDI	0.536903	0.0640	1.937825
OFDI	0.033961	0.2560	1.162552
C	9.078983	0.0384	2.186212

Table 3 Long Run Coefficients

ECT_{t-1} Coefficient Results

The results of the ECT_{t-1} estimation were based on the ARDL approach. If the error correction term is negative and significant, this would mean that the long run equilibrium among the variables is achieved (Pesaran et al., 2001). Table 6 indicates the error correction term for the model.

Dependent variable is GDP			
Regressor	Coefficient	P-value	T-value
dIFDI	0.079284	0.0040	3.165194
dOFDI	0.229980	0.0806	1.821154
ecm (-1)	-0.147669	0.0321	-2.270022

Table 4 Error Correction Terms Coefficients

The ECT_{t-1} result of this study model achieved the appropriate negative signs as stated for this test and is significant at 5% level. This value of the ECT_{t-1} coefficient implies the relativity speed of the model achieving the long run equilibrium. This means that the ECT_{t-1}at a value of -0.14 means that the model is corrected from the short run towards long run equilibrium at about 14% for each period.

This means that the short run relationship between the independent variables (OFDI and IFDI) and economic growth (GDP) would move to the long run equilibrium by 7 years.

Granger Causality Results

Engle and Granger (1987) suggested that if the co-integration exists among the variables then there must be either unidirectional, bidirectional or neutral causality among them. Table 7 indicates granger causality results of the econometric model of this study.

Dependent variable	Excluded	Chi- sq value	df	P-value
GDP	IFDI	0.020321	1	0.8866
	OFDI	0.97222	1	0.3241
	All	1.032598	2	0.5967
IFDI	GDP	9.074468	1	0.0026
	OFDI	4.181763	1	0.0409
	All	9.877368	2	0.0072
OFDI	GDP	12.39881	1	0.0004
	IFDI	0.655759	1	0.4181
	All	12.49956	2	0.0019

Table 5 VAR Granger Causality/Block Exogeneity Wald Tests

The results of the VAR Granger Causality/Block Exogeneity Wald test suggests that out of the three variables (GDP, IFDI, OFDI), GDP is exogenous, while the other two are not exogenous, because the P-values of the joint test for each equation of those variables are 0.5967, 0.0072 and 0.0019, respectively. The results also suggest that GDP has a unidirectional relationship with OFDI and IFDI, while OFDI has a unidirectional relationship with IFDI.

Conclusion

This study discussed the association between inward and outward FDI with the economic growth of Malaysia for year 1984 to 2013. The long-run dynamic interactions between inward and outward FDI and GDP are investigated with the co-integration and Granger causality analyses. In addition, the granger causality tests indicate that GDP has a unidirectional relationship with outward FDI and inward FDI, while outward FDI has a unidirectional relationship with inward FDI. The error correction term coefficient is at 0.14, this means that the short run relationship between inward FDI and economic growth (GDP) would move to the long run equilibrium by 7 years. The findings reveal that both inward FDI is positively and significantly affect GDP in the long run, while and outward FDI has an indirect relationship with GDP in the long run. Therefore, we can conclude that inward FDI benefits the Malaysian economy as a whole by boosting the GDP which in turn will lead to a further increase in outward FDI. It is noted that based on the results, that inward FDI would cause an increase in GDP, while outward FDI would not have a direct effect of GDP.

Future of FDI in Malaysia

As Malaysia embarks itself towards the path of economic growth via foreign direct investments, it would also move towards globalization as it exposes itself to the global market. It would be good to look at other factors that would contribute to higher foreign direct investments for Malaysia's policymakers to focus on for its future.

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