‘Push Factors’ Of Outward FDI: Evidence from Malaysia and Thailand

Tajul Ariffin Masron[♣] and Amirul Shah Md Shahbudin[*]

While there are abundant literatures on the determinant of inward foreign direct investment (FDI) into ASEAN, the study on the determinant of ASEAN’s outward FDI is relatively scarce although various studies demonstrated the rising share of FDI from ASEAN, which also have increasingly significant impact in the ongoing process of shifting FDI patterns and global industrial restructuring. Therefore, the aim of this paper is to focus on the country’s specific characteristics (or push factors) as determinants of outward FDI from Malaysia and Thailand.

Keywords: Outward FDI; ASEAN; Push factors

JEL classification: F21, F23

1. Introduction

ASEAN transnational corporations (TNCs) are increasingly significant intermediators in the ongoing process of shifting FDI patterns as well as industrial restructuring, at least at ASEAN or regional level (Hiley, 1999; Bartels, Giao and Ohlenburg, 2006). This phenomenon might be well explained by the model of ‘flying geese’, introduced by Kojima (1973)[1]. According to Aminian, Fung and Lin (2007), flying geese phenomenon can be observed as started from 1960s when outwards FDI (OFDI) of Japanese labor-oriented industries flied to currently

[♣] Corresponding author’s address: School of Management, Universiti Sains Malaysia, 11800 USM Penang, Malaysia. Fax No: +604-6577448. Tel No: +604-6532755. Email: tams@usm.my.
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* Amirul Shah Md Shahbudin, Universiti Sains Malaysia, Malaysia

[1] As summarized in Hiley (1999), flying geese model assumes three phases of economic development or industrial upgrading: (1) a resource-based processing stage, (2) a period of sustained growth in unskilled labour-intensive manufactures; and (3) the emergence of a more sophisticated industrial structure encompassing more skill and capital-intensive activities. One example given in Hiley (1999, p. 81) is a sequential shift from the textile industry to the chemical industry and then further to the steel and electronics industries.

known as first tier newly industrializing economies (NIEs) of Singapore, Hong Kong, South Korea and Taiwan. This outward FDI had transformed the four NIEs into high performing economies through industrial upgrading. After sometimes, these NIEs started to restructure their economies and those industries that lost their comparative advantage in producing domestically started to fly outward, looking for more strategic location fit well with their production condition. Their outward FDI to countries like Malaysia, Thailand and Indonesia and successfully turned these countries into another group of highly performing economies and called as second tier newly industrializing economies. And currently, countries Malaysia and Thailand have also started to be exporters of capital. Therefore, flying geese pattern obviously can be observed in the case of East Asian economies in which latecomers catch up with forerunners in economic activity, at least to some extent at firm level (Hiratsuka, 2006).

As demonstrated in the Table A.I.12 of UNCTAD (2006), at least there are 20 TNCs from ASEAN region among the top 100 non-financial TNCs from developing countries, ranked by foreign assets, in 2004 with the biggest ASEAN TNCs is Petronas (Petroleum Nasional Berhad). Among the 20 TNCs, 6 TNCs are from Malaysia, 1 from the Philippines and the remaining TNCs are from Singapore, telling us the growing important of ASEAN's outward FDI. The importance of ASEAN's outward FDI is further highlighted in Table 1, referring to the Greenfield FDI projects from ASEAN[2]. At least six ASEAN economies contribute in Greenfield projects with a surprise package from Vietnam, which outperformed Indonesia, in terms of number of projects. It is more surprising when we look at the performance of ASEAN's outward FDI stock from 1990 to 2000. The amount (in million US dollar) was around 10 times in 2000 as compared to 1990, and more than two fold if we compare between year 2000 and 2005. Hence, the importance of outward FDI from ASEAN, particularly from its core members (i.e. Indonesia, Malaysia, the Philippines and Thailand) cannot be undermined and anticipated to be among the main sources of FDI inflow to lower income economies such as China and Vietnam (Aminian et al., 2007) in the future.

[2] According to UNCTAD (1998) Greenfield FDI is defined as investment in new productive facilities. The immediate benefit from Greenfield FDI is it will add to the stock of capital in the host country. It becomes more important if we were to assume that no viable domestic investment will take place in the absence of such FDI. Furthermore, it is expected that there will be a transfer of foreign TNCs' intangible assets such as technology and managerial skills, which are embedded in their Greenfield projects.

Table 1: Greenfield FDI projects (no of project) from ASEAN investors

	Greenfield projects (No.)				Outward FDI stock (in Million USD)		
	2002	2003	2004	2005	1990	2000	2005
Indonesia	4	9	9	9	86	6940	13735
Malaysia	39	83	74	70	2671	22874	44480
Philippines	2	31	14	6	155	1597	2039
Singapore	57	90	103	79	7808	56766	110932
Thailand	4	37	18	18	418	2203	3947
Vietnam	6	23	7	12	-	-	-

Source: UNCTAD (2006) Table A.I.1, pp. 265 (for Greenfield FDI projects) and Table B.2, pp. 315 (for Stock of Outward FDI).

Table 2: Correlation between OFDI vs GDP

	Malaysia	Thailand
1980 – 2004	0.9101	0.9103
1980 – 1990	0.9737	0.9468
1991 – 1997	0.9452	0.9342
1998 – 2004	0.8630	-0.1883

Source: Authors' own calculation based on data from World Bank (2009).

The importance of outward FDI to economic development, at least in relation to GDP, we could see from Table 2 that there is strong positive correlation between both variables in both countries, particularly before the wake of 1997 economic crisis. The period after the crisis recorded the lowest or even negative correlation in the case of Thailand. Although we do not have detail information regarding this phenomenon of low correlation, the decreasing level of correlation might demonstrate the falling contribution of outward FDI on economies' economic development. Of course, further justification and explanation are needed. Nevertheless, the importance of outward FDI is further highlighted by Ariff and Lopez (2007) who argued that Malaysia's inward and outward FDI flows are converging over time after comparing the performance of outward FDI versus inward FDI for the period of 1990 to 2005. In short, the outward FDI from ASEAN is getting its momentum to fly high in the near future, provided that proper incentives and strategies are well designed to support the TNCs' operations.

Looking at brief background of ASEAN TNCs, it is undeniable evidence that the rising significance of ASEAN TNCs in the international arena, at least at regional level. Of course, there are two possible factors that contributed to this phenomenon, either in the forms of domestic factors (or called push factors) or external factors (or called pull factors). This study focus on the push factors only[3].

[3] Initially we plan to consider both, push and pull factors in one analysis. However, after considering the limited observation and time series analysis condition, which requires long observation in order to include many explanatory variables, we decided to limit our analysis to the role of push factors only.

The principle intention of this study is to shed more light on the internal factors that might be well explaining the behavior of outward FDI from ASEAN economies. Focusing on two major emerging investors from ASEAN, namely Malaysia and Thailand, we attempt to investigate the domestic determinants or push factors of outward FDI from these economies.

The study has eight sections. Section 2 reviews the determinants of outward FDI in general. Section 3 presents the model specification, estimation procedure as well the data sources. Section 4 presents the results and discussion of the findings. Section 5 summarizes and concludes.

2. Literature Review

Brief Historical Background

In the case of Malaysia, its outward FDI started once economic reforms had been initiated. At that time, the amount of capital involved is limited, Malaysian firms lack experience, and overseas investment is dominated by state-owned enterprises (or commonly called government-linked companies), unlike the situation in developed countries such as the European nations, the US and Japan, whose overseas investment activities have formed a comprehensive system for the division of labor based on the industrial development structure in the home country. Investments in the earlier years were undertaken primarily by the government-linked companies (GLCs), seeking access to natural resources such as oil and gas as well as in the agriculture sector. However, in recent years, private non-GLC companies have become increasingly active overseas investors. These investments have been driven by a variety of reasons including securing market access; gaining access to raw materials, strategic assets, brands and technology as well as decentralisation of operations to diversify risks and improve returns (BNM, 2006, p. 117).

In the case of Thailand TNCs, as mentioned in Pavida (2004), there were three phases that differentiate each type as well as direction of outward FDI from this economy. During the first phase of 1977 to 1988, outward FDI was mainly concentrated in financial institutions and directed towards 1st NIEs such as Singapore and Hong Kong. In the second phase (1989-1997), the scope of outward FDI started to be broadening, shifting from almost 90 percent financial institutions to basic manufacturing. Therefore, the location was also broadened, encompassing mainly ASEAN region. Nevertheless, the third phase (1998-present[4]) is mainly characterized by sharp declined in outward FDI as one of the reasons mentioned by Pavida (2004) was domestic force to focus on domestic survival. This might well also reflected in the lower growth of outward FDI from Thailand for the period 2000 – 2005[5].

[4] 'present' should be treated as up to the time when the study was published – 2004.

[5] This might also offer another support to the result of correlation analysis (Table 2) where we found a negative correlation between GDP and outward FDI in the case of Thailand for the period 1998 - 2004.

Review of Past Studies

Before setting up the empirical model to measure the underlying causes for outward FDI from Malaysia and Thailand, we first outline some theoretical development on the topic that can offer some intuition to us in establishing the empirical model. The basic rationale for FDI by firms in a global market economy is to increase or protect their profitability and/or capital value. This attitudinal or behavioral change among the TNCs in the developing countries took place due to the gradually increasing pressure of globalization (UNCTAD, 2006). They increasingly realize that they are operating in a global economy, not a domestic one, which has forced them to adopt an international vision. The threat of global competition in the home economy and increased overseas opportunities arising from liberalization – adds empirical weight to the idea that there is a structural shift towards earlier and greater FDI by developing-country TNCs. One of the ways to achieve this goal is by engaging in FDI (UNCTAD, 2006). The earlier studies on the motivation of TNCs from developing economies stressed that the main motivation lies on the price competitive advantages, rather than due to frontier-technology-based as well as product-differentiation-based strategy (Lall, 1983; Pradhan 2004). In other words, the nature of the TNCs is basically simple technologies and low requirement of product differentiation, but with large emphasis on labor-intensive technologies.

This idea or theory is also called as vertical FDI (see Helpman, 1984) where the main motivation is to achieve production efficiency by producing in a country that could offer resources (i.e. unskilled-labor and natural resources) at the cheapest rate. Hence, firms that carry out vertical FDI fragment vertically linked production activities in different countries, which can be driven by costs of labor and other resources (Gao, 2005). This type of FDI normally goes to low income developing countries but with abundant and cheap (unskilled) labor. As time passed, the dynamic global business had changed dramatically, leading to changes in the motivation of OFDI. As stated in Dunning (2002), the rapid globalization may introduce new dimension in the use of OFDI such as gaining insider status in emerging trading blocs. FDI that is motivated by this idea is called horizontal FDI (see Horstmann and Markusen, 1992). This market-penetration aiming or tariff-jumping FDI spreads similar production activities across countries in order to gain better access to markets. Gradual process towards full fledge of liberalized economy has hasten local entrepreneur to channel their investment abroad (Ariff and Lopez, 2007). Recently, Carr, Markusen and Maskus (2001) have developed the so called ‘knowledge-capital model’ which is the combination of both, market seeking and efficiency seeking motivations. As a result, country that has more endowed with advanced technology and skilled labor has a tendency to emerge as a location for TNCs’ headquarters. Subsequently, from that country, they started to flow their investment to other low income countries.

In summary, there are four key types of push (and pull) factors help explaining the drive for internationalization by developing-country transnational corporations (TNCs) such as (domestic market) market condition, cost of production, business condition and government policies (Aminian et al., 2007). First, market-related factors appear to be strong forces that 'push' developing-country TNCs out of their home countries (or, in contrast, 'pull' them into host countries). In the case of Indian TNCs, the need to pursue customers for niche products – for example, in IT services – and the lack of international linkages are key drivers of internationalization (UNCTAD, 2006). Similarly, Chinese TNCs has undergone changes in their motivation and destination of their investment in 1990s which shifted their aim to acquire advanced foreign technologies and managerial skills. As a result, the number of Chinese investment in US has increased (Hong and Sun, 2004). In Malaysia, remarkable economic growth prior to the 1997 economic crisis has been resulted in increase in the wealth accumulation which was reflected in high domestic savings. Coupled with the recent economic recession that create sluggishness in the demand for particularly property and construction development sectors had a direct impact in encouraging Malaysian outward FDI (Ariff and Lopez, 2007)[6].

Secondly, rising costs of production in the home economy – especially labor costs – are a particular concern for TNCs from developing countries such as Malaysia and Thailand (Ariff and Lopez, 2007), but with an exception for China and India because of both are very large countries with considerable reserves of labor, both skilled and unskilled. Therefore, costs are not yet being the important issue for China and India although their importance as capital exporters is apparent (UNCTAD, 2006).

Thirdly, competitive pressures on developing-country firms are pushing them to expand overseas. These pressures include competition from low-cost producers, particularly from efficient East and South-East Asian manufacturers. Indian TNCs, for the present, are relatively immune to this pressure, perhaps because of their higher specialization in services and the availability of abundant low-cost labor. For them, competition from foreign and domestic companies based in the home economy is a more important impetus to internationalize. Similarly, competition from foreign TNCs in China's domestic economy is widely regarded as a major push factor behind the rapid expansion of FDI by Chinese TNCs (UNCTAD, 2006). Such competition can also sometimes result in preemptive

[6] Eclectic paradigm of Dunning (1993) suggests locational advantage as one of variables in OLI framework could determine cross-country pattern of FDI. Nevertheless, recently, according to Dunning (2000) the emphasis on location specific advantages is changing in the globalised scenario. Dunning (2002) argued that for FDI from more advanced industrialised countries, instead of location, government policies along with transparent governance and supportive infrastructure has became more important. In contrary, FDI from developing countries, while demanding the same macroeconomic stability, still preserves the traditional economic determinants such as market size and income levels, skills, infrastructure and other resources that facilitate efficient specialisation of production. Although the original discussion offered is on the determinants of inward FDI, to some extent they are also applicable when we do the discussion on outward FDI. Finally, the above mentioned idea is subject to further testing.

internationalization, as when Embraer (Brazil) and Techint (Argentina) invested abroad in the 1990s, ahead of liberalization in their respective home industries. Domestic and global competition is an important issue for developing-country TNCs, especially when these TNCs are increasingly parts of global production networks in industries such as automobiles, electronics and garments (UNCTAD, 2006). In contrast, Daniels, Krug and Trevino (2007) argue that the lack of international competition in the early 1980s in Latin American countries has eventually led to an abrupt decline in economic growth in the region. Severe restrictions on inward FDI has resulted in an unconducive economic environment that did not promote innovation, while less competition has made regional manufacturers within Latin America had few incentives to create internationally competitive products when they faced little international competition in Latin America. Thus, Latin American companies have to develop their core competencies before eventually could vertically or horizontally extend their operations internationally (Daniels et al., 2007)[7].

Fourthly, home and host government policies influence outward FDI decisions. Chinese TNCs regard their government's policies as an important push factor in their internationalization. Indian firms, on the other hand, have been enticed by supportive host-government regulations and incentives. South African TNCs, among others, mention transparent governance, investment in infrastructure, strong currencies, established property rights and minimal exchange-rate regulations as important pull factors. Most importantly, liberalization policies in host economies are creating many investment opportunities, for example through privatizations of state-owned assets and enterprises. Effort towards encouraging local companies in Malaysia to go abroad had been pushed by the Malaysian government through the policy called the New Economic Policy (NEP), under which those companies that are outward-oriented received several incentives such as tax exemption and so on (Ariff and Lopez, 2004). In contrast, according to Pavida (2001) strict control of Thai's government over foreign exchange transactions and capital movements prior to 1990 drove its TNCs, especially domestic banks to set up overseas branches in its key trading partners (i.e. United States) as well as leading international financial centers (i.e. Hong Kong and Singapore).

At firm level, Buckley, Clegg, Cross, Liu, Voss and Zheng (2007) investigates the pull factors of Chinese outward direct investment (ODI) with a special reference to the role of capital market imperfections, special ownership advantages and institutional factors. They test the hypotheses using official Chinese ODI data collected between 1984 and 2001 and find that Chinese ODI to be associated

[7] A theoretical framework for links between competition and firm dynamics can be found in Schumpeterian "creative destruction" models of innovation. With less domestic competition, existing local firms, which have already accumulated substantial (outdated) technology, are less enthusiastic about taking risks of adopting new technology. With competitive pressure from new entrants (i.e. foreign firms), which have successfully reached higher level of technology, will force local firms to innovate. If the innovation is successful, the local firms will survive, and vice versa. In this way, competition sweeps out the unsuccessful local firms and nurtures the successful local firms.

with high levels of political risk in, and cultural proximity to, host countries throughout, and with host market size and geographic proximity (1984-1991) and host natural resources endowments (1992-2001).

3. Model Specifications

Empirical Specification

A large number of variables have been considered in the literature as possible drivers of FDI flows, which can be classified as home country drivers ("push factors") and host country drivers ("pull factors") as what has been discussed in UNCTAD (2006, chapter IV, p. 414). According to Ariff and Lopez (2007), several events can be considered as the motivators for OFDI from ASEAN. At global level, the completion of GATT Uruguay Round in1994 shall be the main driving force among others. At regional level, the proposal of ASEAN Free Trade Area (AFTA) in 1992 has prompted, at least among the members to invest more in international platform by first locating their investment within ASEAN. Finally, at country level, gradual process of liberalization, which is partly due to the idea of AFTA, has further heightened the desire among the local investors to engage in OFDI.

In the nutshell, home country drivers, which refer to conditions that influence firms to move abroad, consist of four main types: market conditions, costs of production, domestic business conditions and home government policies (UNCTAD, 2006). Since the inclusion of explanatory variables in time series analysis is very much sensitive to the length of time dimension, this study will focus only on the above mentioned four push factors that anticipated as having impact on the decision to shift investment abroad. Hence, we set up the long run outward FDI equation as follows:

$$OFDI_t = f\left(MCOND_t, COST_t, DBC_t, GOVPOL_t\right) \qquad (1)$$

where:

OFDI = outward foreign direct investment
MCOND = domestic market condition
COST = domestic cost of production
DBC = domestic business competition
GOVPOL = host country's government policy

The above model will then be firstly estimated by using the following proxies:

$$OFDI_t = f\left(\overset{+}{GDP_t}, \overset{+/-}{LC_t}, \overset{+}{IFDI_t}, \overset{+}{OPEN_t}\right) \qquad (2)$$

where *GDP* stands for gross domestic product, *LC* denotes labor cost, *IFDI* represents inward FDI and *OPEN* stands for country's openness level which will be proxied by exports/GDP. The sign on the upper side of each explanatory

variable are the expected/hypothesized sign. *GDP* represents the level of national income or market condition. As mention in Chenery et al. (1986), the demand for products will be growing as the national income growing. Therefore, coupled with the structural change in the country in terms of increasing differentiated product demand, higher *GDP* helps in realizing economies of scale through specialization. Besides, success in getting large domestic market share will reflects firm's specific strength, which would be added value or advantage in establishing foreign production, especially in markets with demand conditions requiring local product adaptation (Kyrkilis and Pantelidis, 2003). In the other development, country like Malaysia has experienced high level of saving in the past. This capital abundance is a basic necessity for foreign operation. In the computation of relative wage rates, the real manufacturing earnings per employee for the country under study has been converted into US dollars and compared with those for Japan over the period under study as shown below[8]. However, given the unavailability of the real manufacturing earnings, we proceed with GDP per labor as a proxy for local wage rates which we denote with *WL*. If *WC* represents China's wage rates, *ERL* stands for local exchange rate (local currency per 1 US dollar), *ERC* denotes the exchange rate for China (Reminbi per 1 US dollar), and subscript *t* denotes the year under observation, the relative labor cost (*LC* or wage rate) for country L for year t is given by:

$$LC_t = \frac{\left(WL_t / ERL_t\right)}{\left(WC_t / ERC_t\right)} \tag{3}$$

Generally speaking, bulk of FDI from and in developing countries is motivated by cheap labour costs and a reduction of production costs. This low cost resource seeking FDI, which is also termed as "vertical FDI", attempts to benefit from lower labour costs in the other developing countries. Nevertheless, according to Jaumotte (2004), for other types of FDI, quality labour is more important than cheap labour. This argument is particularly true if the TNCs are skilled-oriented firms and therefore, high wage which represents high productivity of labour is inevitable. In the nutshell, the impact of increase in wage could lead to a negative consequence if the former is considered while could be positive if the latter is considered.

Meanwhile, according to Daniels et al. (2007), inward FDI may have provided an important stimulus for outward FDI and the development of TNCs in Latin America. Some Latin American companies responded to these new competitive conditions by clinging to "traditional" strategies such as cost-plus pricing which, while other firms did respond by restructuring their businesses to increase competitiveness. Some of these firms have eventually developed into fully integrated TNCs. As a proxy for the intense competition from foreign firms operating in both countries under study, we use the amount of inward FDI. Finally, as summarized in Kyrkilis and Pantelidis (2003) at least there are two

[8] China is chosen because: (i) it is a neighboring country of the countries under study, and (ii) it has been the biggest and prospective investment location. The formula is taken from Bende-Nabende, Ford and Slater (2001).

obvious advantages of open economy. Firstly, it allows for free mobility of capital as there will be no capital control. Secondly, it permits firms to acquire more information about foreign markets and so on. Hence, it is expected that the level of openness will be having positive impact on *OFDI*. Apergis (2008) also find support that inward FDI exhibits a significant long-run relationship with outward FDI for the panel of 35 economies.

Additional Analyses[9]

In addition to the above proxies, as part of robustness test, we also conduct another analysis for the same model but by using other proxies. Another possible proxy for market condition is interest rate[10]. Country like Malaysia has experienced high level of saving in the past. This capital abundance is a basic necessity for foreign operation. To complement this capital abundance, it will move abroad more quickly if the domestic interest rate is low. Therefore, we expect that the relationship between *IR* and *OFDI* will be negative. For DBC, we examine its implication by using another proxy, namely accumulated number of trade agreement between two ASEAN countries under study with the rest of the world. Some ASEAN members, like Malaysia, Singapore and Thailand, have aggressively pursued bilateral preferential trading agreements with non-ASEAN members. Furthermore, most regional powers, notably Japan, Korea and India, seem to prefer to strike bilateral deals with ASEAN members individually rather than negotiate with ASEAN collectively (Ali, 2005). This proliferation of bilateral agreement could have an impact on the decision to invest abroad as it creates stiffer competition at domestic market. For instance, BNM (2006, p. 118) states that while Malaysia continues to encourage and attract FDI into the country, the government is also playing an active role to facilitate companies' initiatives to venture abroad. Several collaborative measures with other governments via bilateral arrangements as well as through negotiations for Free Trade Arrangements have been taken. Thus, over the years, the scope of Malaysia's investment abroad has broadened from just the oil and gas explorations and extractions and oil palm plantations to other industries, including telecommunications, banking and finance, infrastructure and property development, manufacturing, power generation and retail-related industries[11].

Finally, as for GOVPOL, we investigate its effect by using institutional quality index, provided by Political Risk Services (PRS). According to Dunning (2006) the best way to advance the material living standards of the poorer countries, proxied by gross national product (GNP) per capita, was for them to replicate the

[9] We planned to introduce human capital development as another proxy for labor cost but later on decided to drop it and leave labor cost as a sole proxy for cost of production due to theoretical complexity. This idea will be research in the future.

[10] Initially we also attempt to use domestic saving as another proxy for domestic market condition. However, due to high correlation between domestic saving and GDP, we do not test this proxy as we do expect similar result may appear.

[11] See, for instance, Batra (2007) for more information.

institutions and economic policies of the wealthier nations. It was assumed, had helped the latter to grow and prosper in the first place. It is because adopting the right policies is only one necessary condition for economic success. The sufficient condition is an institutional framework which favours the implementation of such policies and change of policies at the right time (Chen, 1997). This idea is also being supported by other studies such as Hall and Jones (1999) and Acemoglu et al. (2004) that institutions can stimulate development. Hence, the other proxy for government policy is reflected in the level of country's institution quality[12]. Institutional quality data is from the International Country Risk Guide (ICRG) – a monthly publication of Political Risk Services (PRS). Five PRS indicators are employed to measure the overall institutional environment, namely (i) Corruption (ii) Rule of Law (iii) Bureaucratic Quality (iv) Government Repudiation of Contracts and (v) Risk of Expropriation. The first three variables are scaled from 0 to 6, whereas the last two variables are scaled from 0 to 10. Higher values indicate better institutional quality and vice versa. The institutions indicator is obtained by summing the above five indicators, after appropriate re-scaling.

4. Econometric Methodology and Data

It is commonly agreed that most macroeconomic series contain unit root, or follow a random walk process. The use of non-stationary series in ordinary least square (OLS) or generalized least square (GLS) regression will lead to spurious results and hence, the test statistics are invalid or misleading. As a consequence, Augmented Dickey-Fuller test is applied to test the stationarity of the focused series. If the four series are integrated of the same order, we can proceed to the cointegration test proposed by Johansen and Juselius (1990).When analyzing the relationships between outward FDI and the fundamental variables, Johansen's Maximum Likelihood method of cointegration provides a tractable framework. With this approach it is possible to test for the number of long-run relationships (cointegrating vectors) between the variables in the model and to identify which variables should enter the various relationships. The starting point for the analysis is a vector autoregressive model (VAR) as of equation (3). x_t is a (n x 1) vector containing the n endogenous variables; k is a (n x 1) vector containing the intercepts; A_i are (n x n) matrices containing parameters to be estimated; D_t is a vector of deterministic and exogenous variables with

[12] In the case of transition economies (refers to Azerbaijan, Belarus, Bulgaria, Czech. Rep., Estonia, Hungary, Kazakhstan, Latvia, Poland, Romania, Russia, Slovak Rep., Tajikistan and Turkmenistan), a study by Kostevc et al. (2007) reveal that quality of the institutional environment sometimes plays a secondary role, particularly it comes after availability of abundant natural resources (e.g., fossil fuels). For instance, oil-rich Kazakhstan recorded a decrease in institutional quality in several areas such as property right protection and regulation but the inflow of FDI to Kazakhstan has been very large (Kostevc et al., 2007). Similar argument could be made for outward FDI where we do expect that in spite of this low institutional quality, domestic investors might be prefer to stay in Kazakhstan, rather than moving abroad to exploit huge reserve of natural resource in the country. In this case, the impact of institutional quality could be negative, instead of positive.

corresponding parameters in the ψ matrix; ε_t is a (*n* x *1*) vector containing Gaussian disturbance terms; and *p* is the lag length of the VAR.

$$x_t = k + \sum_{i=1}^{p} A_i x_{t-i} + \Psi D_t + \varepsilon_t \quad (2)$$

All variables in x_t are assumed to be at most I(1). If cointegration exists, it is, following the so-called Granger representation theorem, appropriate to reparameterize equation (2) as a vector error correction model (VECM):

$$\Delta x_t = k + \sum_{i=1}^{p-1} \Gamma_i \Delta x_{t-i} + \Pi x_{t-1} + \Psi D_t + \varepsilon_t$$

(3)

where Δ is the first difference operator, Γ_i are (*n* x *n*) matrices containing short-run parameters and Π is a (*n* x *n*) matrix of long-run parameters. The number of cointegrating vectors is determined by the rank of the matrix Π. If this matrix is of full rank, all variables in the system are stationary and the model may be estimated with the variables in levels as in equation (3). If the matrix Π is of zero rank, there exist no cointegrating relationships between the variables in the system. In addition, error correction model will be then used to confirm the existence of long-run relationship. On top of all theses analyses, we will investigate the long-run relationship among the variables. The data for this paper are compiled from World Development Indicators (World Bank, 2009) and various issues of International Financial Statistics (IMF). The data cover the period of 1980 to 2006 and focusing only on Malaysia and Thailand.

Results and Interpretations

Main Analysis

The application of cointegration requires all variables to be non-stationary at level. Before conducting stationarity test first of all, we transformed all series into natural logarithm form. The computed Augmented Dickey-Fuller (ADF) statistic indicates that the null hypothesis of a unit root cannot be rejected for all the series in level (see Table 3). The test has rejected the hypothesis of unit root for all series at level in both countries, implying that all series are integrated of order one or *I(1)*.

Table 3: Unit root test – PP statistic

	Malaysia				Thailand			
	Level		1st Difference		Level		1st Difference	
	C	C & T	C	C & T	C	C & T	C	C & T
ln*OFDI*	-2.45	-1.94	-5.18**	-4.77**	-1.17	-0.96	-4.43**	-8.04**
ln*GDP*	-1.29	-0.42	-3.25**	-3.37**	-1.78	-0.61	-4.54**	-4.61**
ln*LC*	-0.65	-2.87	-4.43**	-4.27**	-0.97	-2.98	-6.55**	-6.39**
ln*IFDI*	-2.04	-2.57	-4.94**	-4.87**	-1.04	-2.28	-4.74**	-4.63**
ln*OPEN*	-0.23	-2.12	-3.64**	-3.32**	-0.04	-2.94	-4.08**	-3.99**

Note: Asterisk ** denotes significant at least at 10% critical value. Lag length selection is based on the automatic selection of Schwarz Information Criterion.

In this analysis we employ the Johansen and Juselius (JJ) approach of testing the presence of multiple cointegrating vectors. There are several advantages in using JJ approach such as assuming all variables to be endogenous. The results of cointegration tests, which are based on maximum eigenvalue and trace tests, are reported in Table 4. Given that there are four explanatory variables in the model, there can be at most 5 cointegrating vectors. Hence, that r could be equal to 0, 1, 2, 3, 4 or 5. It is clear from Table 4 that the null hypothesis of zero cointegrating vector (r = 0) among all variables that enter into the outward FDI equation is strongly rejected at the 1 % level of significance in the trace and maximum eigenvalue tests for both countries, whereas the null hypothesis of, at most, one cointegrating vector (r ≤ 1) cannot be rejected, suggesting that there is a unique statistically significant cointegrating vector. It should also be noted that this finding of one cointegrating relationship is clear supported by both, trace and maximal eigenvalue statistics. Thus, in overall, we can conclude that there exists long run equilibrium among the variables[13].

Table 4: Cointegration tests – trace and maximum eigenvalue tests

	Malaysia	Thailand		Malaysia	Thailand	
H_0	Max-stat		99%	Trace-stat		99%
r = 0	41.42***	57.20***	39.37	80.29***	108.38***	77.81
r ≤ 1	16.52	32.46	32.71	38.87	51.17	54.68
r ≤ 2	14.63	13.95	25.86	22.35	18.71	35.45
r ≤ 3	4.60	4.53	18.52	7.71	4.76	19.93
r ≤ 4	3.10	0.22	6.63	3.10	0.22	6.63

Note: Asterisk *** denotes significant at 5% significant level.

[13] This finding, however, has to be treated cautiously as the limited no of observations allows us to proceed with lag 1 option only. Hence, no lag length selection, which is very important because the results of JJ test tend to be sensitive to the order of vector autoregressive (Cheung and Lai, 1993). Additionally, with a limited number of observations, the JJ test tends to be biased towards finding evidence for cointegration (Reinsel and Ahn, 1992).

Moving on the results of estimated error correction model, which presented at Table 5, we found that there exists adjustment process, correction from short-run disequilibrium to long run equilibrium, reflected in the significant error correction term (*ECT*) at 10 percent critical value. The validity of the model is further tested by using several diagnostic tests, such as normality test, serial correlation test as well as heterogeneity test. In general, we do not find any violation of basic assumptions, thus validating the estimated model.

Table 5: ECM and its Diagnostic tests

Panel I: Malaysia[a]

$$\Delta\ln OFDI = -0.4732 ECT(-1)^{**} + 1.3015\Delta\ln GDP(-1) + 1.0329\Delta\ln OPEN(-1)^{**} + 0.2918^{***}$$

R^2 = 0.3307		S.E. of Regression = 0.1277	
Autocorrelation (2)	0.1869 [0.8312]	Normality	0.4541 [0.7969]
Heterogeneity (1)	0.1433 [0.7091]		

Panel II: Thailand

$$\Delta\ln OFDI = -0.7685 ECT(-1)^{**} + 0.2699\Delta\ln OFDI(-1) + 8.8919\Delta\ln GDP(-1)^{**} - 2.6802\Delta\ln LC(-1) - 0.1555\Delta\ln IFDI(-1) - 1.1554\Delta\ln OPEN(-1) - 0.1188$$

R^2 = 0.3046		S.E. of Regression = 0.5404	
Autocorrelation (2)	0.4989 [0.7892]	Normality	1.1093 [0.3042]
Heterogeneity (1)	0.1623 [0.8522]		

Note: Jarqua-Bera is the test for the normality. Serial Correlation LM Test is the test for autoregressive. ARCH Test is the test statistic for heteroscedasticity. CUSUM test is test for functional form, but skipped in this presentation to save space. Available upon request. Figure in [ ] denote *p*-value and figure in ( ) denote no of lag. Asterisks *, ** and *** denote significant at 10%, 5% and 1% critical values, respectively. [a] Parsimonious ECM.

From unique cointegrating vector, corresponding to the largest eigenvalue of the stochastic matrix may be normalized with respect to *OFDI* and interpreted as the long run *OFDI* function. The resultant equation is presented at Table 6. Table 6 shows the estimation of long run equation for both economies under consideration. In both equations, we found that all variables have their expected sign and thus significantly affect the behavior of outward FDI from both economies. Quite consistent with the statement made in Pavida (2004) and UNCTAD (2006) that domestic market playing the greatest role in explaining the *OFDI* in both cases. In fact, the level of significant is also too high. The second internal factor that affects the behavior of *OFDI* is human capital (*HC*), which is also highly significant. This can be explained by the knowledge-capital model introduced by Carr et al. (2001). Apart from Singapore, Malaysia and Thailand are increasingly and successfully developed their human resources and currently on the top of ASEAN (after Singapore) in this aspect.

Table 6: Long run equation

Panel I: Malaysia			
ln*OFDI* = 6.0186 + 2.0395ln*GDP**** - 0.1799ln*LC**** + 0.4469ln*IFDI**** + 0.4822ln*OPEN**			
[7.1726]	[-5.9854]	[11.8428]	[2.1464]
Panel II: Thailand			
ln*OFDI* = 0.2331 + 3.2704ln*GDP**** - 0.3312ln*LC**** - 0.8102ln*IFDI**** + 0.5583ln*OPEN**			
[20.3310]	[8.6735]	[10.4841]	[2.7905]

Note: Figure in [ ] denotes t-value. Asterisks * and *** denote significant at 10 % and 1 % critical value, respectively.

Moving on the impact of interest rate on the *OFDI*, we found that *IR* has a negative impact with highly significant role on *OFDI*. Those country which has a relatively established capital market as well as low interest rate will definitely attract domestic investors to stay in home country, especially those companies that in need of large financial assistance. Looking at the Malaysian and Thailand background, the impact of *IR* on *OFDI* may not be surprising as both have relatively sound financial system and easy access to capital markets. Finally, the higher degree of country's openness, the higher would be the *OFDI* from both economies. Among the reasons cited in the literature for this positive association between *OFDI* and openness are: (1) no restrictive control such as capital control (Scaperland, 1992), qualitative and quantitative restrictions (Pradhan, 2004) and various promotional measures (Ariff and Lopez, 2007); (2) enable firm to acquire information about foreign market (Kyirkilis and Pantelidis, 2003, Pradhan, 2004). This positive effect also may suggest that the nature of *OFDI* from Malaysia and Thailand is vertical, rather than horizontal FDI. In other words, TNCs from Malaysia and Thailand is more resource-seeking and less likely market-seeking[14].

Alternative Analyses

In this section, we present the analyses that utilize the remaining three proxies. The summary of the results are presented at the following table[15].

[14] This idea is particularly true in the case of Malaysian TNCs. Oil-based TNC such as Petronas moving abroad in search for more oil reserve while palm-oil based TNC like Golden Hope Plantation is expanding its operation overseas due to lack of (low-cost of) land for plantation. However, since the objective is slightly different from efficiency-seeking FDI, the behavior of these TNCs could be well explained by knowledge-capital model of Carr et al. (2001).

[15] We only present the results of long-run equations.

Table 7.A: Alternative proxies – Malaysia (Dep. Var. = Outward FDI)

Variable/Proxy	2	3	4	5	6	7	8
Constant	2.3001	3.9811	0.9845	1.8842	4.8931	3.9872	10.8931
1. MCOND:							
i. *GDP*	3.8799*** [5.2301]	2.1193** [3.7610]	3.0016*** [4.9711]	-	-	-	-
ii. *IR*	-	-	-	-2.1993 [-1.3022]	3.1093 [1.6999]	3.110 [1.0039]	-0.4200 [-0.8933]
2. COST:							
i. *LC*	- 0.3766* [1.9200]	- 0.6113* [2.2291]	- 0.4955 [0.7669]	- 0.0091* [2.6604]	- 0.0193 [0.0291]	- 0.0955 [0.7669]	3.0034* [2.9881]
3. DBC:							
i. *IFDI*	0.3920** [3.8811]	-	-	0.4221*** [4.1190]	0.6173** [3.6771]	-	-
ii. *TA*	-	0.0139 [0.2999]	0.1006* [1.9882]	-	-	0.3449 [0.9943]	0.4430 [1.7704]
4. GOVPOL:							
i. *OPEN*	-	0.3001** [3.5508]	-	0.4126*** [6.1109]	-	0.2997** [3.5529]	-
ii. *IQ*	0.2291* [2.0199]	-	0.3911** [3.2910]	-	0.2573* [0.9747]	-	0.1985* [0.8871]

Note: Asterisks *, ** and *** denote significant at 10%, 5% and 1% respectively. Figure in [ ] stands for t-value.

Table 7.B: Long run equation for the alternative proxies – Thailand

Variable/Proxy	2	3	4	5	6	7	8
Constant	3.0019	8.3982	6.4401	3.8726	4.6732	3.9018	1.7399
1. MCOND:							
i. *GDP*	3.7114* [1.8857]	3.2781** [3.6772]	2.3988** [3.7822]	-	-	-	-
ii. *IR*	-	-	-	-0.3317 [0.8773]	2.9199 [0.6693]	1.0026 [1.4933]	3.3776 [1.5593]
2. COST:							
i. *LC*	- 0.6177** [3.8911]	-0.9175** [8.1196]	-0.6738** [3.8281]	-0.4918*** [7.8826]	-0.4410* [1.9649]	-0.3899** [3.8255]	-0.2854** [3.7331]
3. DBC:							
i. *IFDI*	0.5003*** [6.2986]	-	-	0.6338*** [8.4489]	0.3097*** [5.2885]	-	-
ii. *TA*	-	0.0028* [2.4338]	0.1639 [0.2097]	-	-	0.0827* [2.4592]	0.0522 [0.6755]
4. GOVPOL:							
i. *EXP*	-	0.4338** [3.8991]	-	0.4593* [2.6541]	-	0.3982*** [6.3900]	-
ii. *IQ*	0.5664** [3.6771]	-	0.3298* [1.9996]	-	0.5439*** [8.4503]	-	0.3997** [3.7637]

Note: Asterisks *, ** and *** denote significant at 10%, 5% and 1% respectively. Figure in [ ] stands for t-value.

General observation from Table 7 finds support to the main analysis that market condition, in terms of good economic performance provides the strongest support to the intention to invest abroad. However, the same conclusion is unlikely supported by the interest rate. This could probably explain by the fact that most of the TNCs are publicly listed companies and could source additional funding by offering new stocks to the public. The established capital market in Malaysia has eased this matter. More or less similar conclusion can be drawn for Thailand. The other specifications also offer the same results where economic

performance (GDP) is the main source of driver for Thai's TNCs to go abroad. Although the impact of interest rates in the case of Thailand seems to be significant, but low magnitude of the coefficients and only the case of model 5 and 7 demonstrate the possibility that the role of interest rates in driving the TNCs to move overseas is minimal or negligible.

Moving to cost of production, it is found that labor cost (*LC*) as significantly exerted a negative impact on *OFDI*, albeit small. This implies that many TNCs in Malaysia and Thailand are moving abroad because of increasing cost of domestic operation, searching for low cost location. Nevertheless, this negative impact of increasing cost has been compensated by the implication from the inflow of FDI. The significant positive impact demonstrates the possibly the domestic TNCs have become more innovative and competitive. Although we argue in the review of previous studies that stiffer domestic competition by itself has induced the TNCs to embark on high technology edge, it could be due to technology transfer from inward FDI. This point could be further justified from the insignificant impact of TA in model 3, 7 and 8 in the case of Malaysia and model 4 and 8 in the case of Thailand. In the nutshell, competition by itself has less implication on domestic firms' competitiveness. Finally, on the implication of government policies, we found a consistent result of significant positive impact of openness on *OFDI*. However, the implication of *IQ* is mixed. The negative impact of *IQ* is not too surprising as it represent the level of ease of doing business as well as to some extent, it represents the stability of the country's economic policies. The better the indicator, the lesser would be the desire to go abroad.

Conclusion

This study investigates the possible push factors that driven the multination enterprises from Malaysia and Thailand to invest abroad. Motivated by scarce literature on ASEAN context, we focus on the push factors only for the period from 1980 to 2006. Generally, we found that all selected explanatory variables played significant role in explaining the decision of domestic investors to invest abroad, but among them, domestic market condition plays the most important role in both economies, followed by government policies.

Due to limited sample size, we focus only on the above factors. However, there are other push factors that should also be investigated in future so as to provide us with better picture as to what actually motivate the investor to go outside. Among the non-investigated factors are cyclical factors, structural change, depletion of resource as well as level of technology. Therefore, given that the time period considered in this study is short, relative to the number of explanatory variables, the results may have to be treated cautiously. More importantly, further investigation is definitely needed.

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Table 1: Greenfield FDI projects (no of project) from ASEAN investors

	Greenfield projects (No.)				Outward FDI stock (in Million USD)		
	2002	2003	2004	2005	1990	2000	2005
Indonesia	4	9	9	9	86	6940	13735
Malaysia	39	83	74	70	2671	22874	44480
Philippines	2	31	14	6	155	1597	2039
Singapore	57	90	103	79	7808	56766	110932
Thailand	4	37	18	18	418	2203	3947
Vietnam	6	23	7	12	-	-	-

Source: UNCTAD (2006) Table A.I.1, pp. 265 (for Greenfield FDI projects) and Table B.2, pp. 315 (for Stock of Outward FDI).

Table 2: Correlation between OFDI vs GDP

	Malaysia	Thailand
1980 – 2004	0.9101	0.9103
1980 – 1990	0.9737	0.9468
1991 – 1997	0.9452	0.9342
1998 – 2004	0.8630	-0.1883

Source: Authors' own calculation based on data from World Bank (2009).

Table 3: Unit root test – PP statistic

	Malaysia				Thailand			
	Level		1st Difference		Level		1st Difference	
	C	C & T	C	C & T	C	C & T	C	C & T
ln*OFDI*	-2.45	-1.94	-5.18**	-4.77**	-1.17	-0.96	-4.43**	-8.04**
ln*GDP*	-1.29	-0.42	-3.25**	-3.37**	-1.78	-0.61	-4.54**	-4.61**
ln*LC*	-0.65	-2.87	-4.43**	-4.27**	-0.97	-2.98	-6.55**	-6.39**
ln*IFDI*	-2.04	-2.57	-4.94**	-4.87**	-1.04	-2.28	-4.74**	-4.63**
ln*OPEN*	-0.23	-2.12	-3.64**	-3.32**	-0.04	-2.94	-4.08**	-3.99**

Note: Asterisk ** denotes significant at least at 10% critical value. Lag length selection is based on the automatic selection of Schwarz Information Criterion.

Table 4: Cointegration tests – trace and maximum eigenvalue tests

	Malaysia	Thailand		Malaysia	Thailand	
H_0	Max-stat		99%	Trace-stat		99%
r = 0	41.42***	57.20***	39.37	80.29***	108.38***	77.81
r ≤ 1	16.52	32.46	32.71	38.87	51.17	54.68
r ≤ 2	14.63	13.95	25.86	22.35	18.71	35.45
r ≤ 3	4.60	4.53	18.52	7.71	4.76	19.93
r ≤ 4	3.10	0.22	6.63	3.10	0.22	6.63

Note: Asterisk *** denotes significant at 5% significant level.

Table 5: ECM and its Diagnostic tests

Panel I: Malaysia[a]

$$\Delta \ln OFDI = -0.4732 ECT(-1)^{**} + 1.3015 \Delta \ln GDP(-1) + 1.0329 \Delta \ln OPEN(-1)^{**} + 0.2918^{***}$$

R^2 = 0.3307		S.E. of Regression = 0.1277	
Autocorrelation (2)	0.1869 [0.8312]	Normality	0.4541 [0.7969]
Heterogeneity (1)	0.1433 [0.7091]		

Panel II: Thailand

$$\Delta \ln OFDI = -0.7685 ECT(-1)^{**} + 0.2699 \Delta \ln OFDI(-1) + 8.8919 \Delta \ln GDP(-1)^{**} - 2.6802 \Delta \ln LC(-1) - 0.1555 \Delta \ln IFDI(-1) - 1.1554 \Delta \ln OPEN(-1) - 0.1188$$

R^2 = 0.3046		S.E. of Regression = 0.5404	
Autocorrelation (2)	0.4989 [0.7892]	Normality	1.1093 [0.3042]
Heterogeneity (1)	0.1623 [0.8522]		

Note: Jarqua-Bera is the test for the normality. Serial Correlation LM Test is the test for autoregressive. ARCH Test is the test statistic for heteroscedasticity. CUSUM test is test for functional form, but skipped in this presentation to save space. Available upon request. Figure in [ ] denote *p*-value and figure in ( ) denote no of lag. Asterisks *, ** and *** denote significant at 10%, 5% and 1% critical values, respectively. [a] Parsimonious ECM.

Table 6: Long run equation

Panel I: Malaysia

$$\ln OFDI = 6.0186 + 2.0395 \ln GDP^{***} - 0.1799 \ln LC^{***} + 0.4469 \ln IFDI^{***} + 0.4822 \ln OPEN^{*}$$

[7.1726] [-5.9854] [11.8428] [2.1464]

Panel II: Thailand

$$\ln OFDI = 0.2331 + 3.2704 \ln GDP^{***} - 0.3312 \ln LC^{***} - 0.8102 \ln IFDI^{***} + 0.5583 \ln OPEN^{*}$$

[20.3310] [8.6735] [10.4841] [2.7905]

Note: Figure in [ ] denotes t-value. Asterisks * and *** denote significant at 10 % and 1 % critical value, respectively.

Table 7.A: Alternative proxies – Malaysia (Dep. Var. = Outward FDI)

Variable/Proxy	2	3	4	5	6	7	8
Constant	2.3001	3.9811	0.9845	1.8842	4.8931	3.9872	10.8931
5. MCOND:							
iii. *GDP*	3.8799*** [5.2301]	2.1193** [3.7610]	3.0016*** [4.9711]	-	-	-	-
iv. *IR*	-	-	-	-2.1993 [-1.3022]	3.1093 [1.6999]	3.110 [1.0039]	-0.4200 [-0.8933]
6. COST:							
ii. *LC*	- 0.3766* [1.9200]	- 0.6113* [2.2291]	- 0.4955 [0.7669]	- 0.0091* [2.6604]	- 0.0193 [0.0291]	- 0.0955 [0.7669]	3.0034* [2.9881]
7. DBC:							
iii. *IFDI*	0.3920** [3.8811]	-	-	0.4221*** [4.1190]	0.6173** [3.6771]	-	-
iv. *TA*	-	0.0139 [0.2999]	0.1006* [1.9882]	-	-	0.3449 [0.9943]	0.4430 [1.7704]
8. GOVPOL:							
iii. *OPEN*	-	0.3001** [3.5508]	-	0.4126*** [6.1109]	-	0.2997** [3.5529]	-
iv. *IQ*	0.2291* [2.0199]	-	0.3911** [3.2910]	-	0.2573* [0.9747]	-	0.1985* [0.8871]

Note: Asterisks *, ** and *** denote significant at 10%, 5% and 1% respectively. Figure in [ ] stands for t-value.

Table 7.B: Long run equation for the alternative proxies – Thailand

Variable/Proxy	2	3	4	5	6	7	8
Constant	3.0019	8.3982	6.4401	3.8726	4.6732	3.9018	1.7399
5. MCOND:							
iii. *GDP*	3.7114* [1.8857]	3.2781** [3.6772]	2.3988** [3.7822]	-	-	-	-
iv. *IR*	-	-	-	-0.3317 [0.8773]	2.9199 [0.6693]	1.0026 [1.4933]	3.3776 [1.5593]
6. COST:							
ii. *LC*	- 0.6177** [3.8911]	-0.9175** [8.1196]	-0.6738** [3.8281]	-0.4918*** [7.8826]	-0.4410* [1.9649]	-0.3899** [3.8255]	-0.2854** [3.7331]
7. DBC:							
iii. *IFDI*	0.5003*** [6.2986]	-	-	0.6338*** [8.4489]	0.3097*** [5.2885]	-	-
iv. *TA*	-	0.0028* [2.4338]	0.1639 [0.2097]	-	-	0.0827* [2.4592]	0.0522 [0.6755]
8. GOVPOL:							
iii. *EXP*	-	0.4338** [3.8991]	-	0.4593* [2.6541]	-	0.3982*** [6.3900]	-
iv. *IQ*	0.5664** [3.6771]	-	0.3298* [1.9996]	-	0.5439*** [8.4503]	-	0.3997** [3.7637]

Note: Asterisks *, ** and *** denote significant at 10%, 5% and 1% respectively. Figure in [ ] stands for t-value.