Determinants of Services FDI Inflows in ASEAN Countries

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ABSTRACT

Since 1990s, there has been tremendous increase in the movement of foreign direct investment (FDI) especially to developing countries. An interesting development in the international capital flows is that the FDI is increasingly shifting towards services industry in recent years. The main concern in this regards is whether developing countries would be able to attract the services-based FDI and get benefits from the inflows. This study empirically investigates the determinants of services-based FDI in ASEAN countries using a static linear panel data analysis**.** The data for the empirical estimation covers from 2000 until 2010. The empirical findings indicate that services FDI is positive and significantly determined by human capital, the availability of quality infrastructures, market size and trade openness, whereas inflation (proxy for macroeconomic stability) is found to be negative and insignificant. These findings reveals that ASEAN countries should focus on enhancing growth, stock of human capital, infrastructure

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Any remaining errors or omissions rest solely with the author(s) of this paper.

and promote more liberal trade policies in order to attract FDI in service sector.

INTRODUCTION

FDI is widely viewed as one of the principal vehicles for enhancing the economic growth of a country, especially the developing countries. This largely takes place through the entry of multinational corporations (MNCs) which exert various spillovers effects on the host countries. The main form of spillover includes transfer of technology that directly contributes to the increase in productive capital stock, technological growth, transfer of managerial skills and global market access. In the beginning of 19th century, foreign investments were mainly involved in agricultural and extractive industries, which produced primary commodities. However, in the late 1970s, the political movements and post-independence period pushed most of the countries to diversify and restructure the investments from agricultural sector to manufacturing sector. In the late 1980s, foreign investment has been directed to non-manufacturing sector or services sector such as finance, communication and information technology, distribution services, transportation, and business activities. The flows of services FDI has been continuously expanding at the expense of manufacturing and agricultural based FDI. This rapid development is very much influenced by the establishment of World Trade Organization (WTO) in 1995 and the implementation of General Agreement in Trade in Services (GATS).

The shift towards services FDI has brought many structural changes in the host countries in terms of the contribution of the services sector to GDP, employment and exports performance. However, the main concern here is whether this transformation is beneficial to host countries and what are the important factors that need to be in place in order to attract them. This study has been motivated by the growing importance of FDI in services, especially since the implementation of GATS. Recent developments at the global economy demonstrates that more countries (including developing countries) has been opening up the services sector and there is significant shift in the pattern of FDI flows towards services industries which triggers the need to reconsider the determinants of cross border investments. Countries, especially developing countries, need to reassess if the determinants that were instrumental in attracting manufacturing FDI would be as effective for attracting services based FDI. This is because there is some rationale to believe that the determinants of

services sector FDI might differ from those of FDI in aggregate. Given the recent volatility in FDI inflows worldwide and the shift towards the services sector, the implications of this study could be far-reaching.

Generally, FDI in services remains more restricted compared to FDI in manufacturing since it is subject to more restrictions or non-tariff measures. For example industries such as telecommunications, banking, transportation and electricity provision are typically subject to economic or prudential regulation as these industries are regarded as strategic or sensitive industries by the host countries (Jensen, Rutherford; Tarr, 2007). Even though, services FDI are different in nature from FDI in manufacturing, theoretically, it is believed that it has the potential to enhance the efficiency, productivity, and growth in the host countries, directly or indirectly. Therefore, the main critical issue in this regards is whether both, manufacturing-based FDI and services-based FDI have the same pull factors (determinants).

Although, the factors that influences FDI inflows have been identified in numerous studies, the significance and magnitude of their impact on FDI may vary in terms of the national political, economic, legal cultures, traditions and infrastructures together with the economic objectives and policies pursued by host governments (Bitzenis, Tsitouras, and Vlachos, 2009). Despite a voluminous literature on the determinants and spillover effects of total FDI or manufacturing-based FDI, there is a lack of studies on the determinants of FDI in services sector (Resmini, 2000; Wong, Tang, and Fausten, 2009). Due to the differences in the characteristics of the manufacturing and services sectors, it is important to find out the determinants for services FDI.

Previous studies generally focused on FDI in manufacturing sector or FDI in its aggregated form. Empirical literature on the determinants of services FDI are clearly lacking. The study contributes in two ways besides complementing the existing few studies on the determinants of services FDI. Firstly, the study provides empirical evidence to confirm that no new theories are required to model the determinants of FDI in services. Secondly, it compares the relative importance of services FDI determinants vis-à-vis the traditional determinants that attract manufacturing FDI. Moreover, the present study gives important implications on the policies at national and international levels.

We focused on ASEAN (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam) countries for two main reasons. First, it is observed that the region's economic performance has been very impressive over the past few decades. The economic growth recorded in 2010 has increased to 7.5 percent compared to a growth of 6.9 percent in 2000 (World Bank, 2012). Moreover, ASEAN countries consist of a heterogeneous group of

countries with varying levels of development. The magnitude of the services growth and its contribution to the employment differ due to different levels of economic development, trade intensities, and resource endowments as well policies and incentives toward foreign investments. Nevertheless, in aggregate, the services sector is gaining importance and becoming a continuous expanding component of GDP and employment within ASEAN countries.

Second, various developments that took place within ASEAN also have contributed to the structural transformation. The most important one is the establishment of ASEAN Economic Community (AEC), which designed to deepen the economic integration in Southeast Asia as a whole. To achieve this objective, the ASEAN Economic Community Blueprint lays out agenda to establish an ASEAN single market by 2015. Free flow of services is one of the important goals of AEC. This is because services sector is an indispensable part of ASEAN economy. The growth and competitiveness in agriculture, manufacturing, and natural resources production is highly dependent on the availability and quality of the required services. Thus, in order to attain optimal economic growth and attract foreign investment, the competitiveness and performances of the services sector should be enhanced greatly. In fact, the importance of integrating ASEAN's services as one of the critical elements in raising the competitiveness of ASEAN services industries had been taken seriously since the implementation of ASEAN Framework Agreement on Services (AFAS) in 1995. Against this background, the present study intends to investigate the determinants of foreign direct investment in services to ASEAN countries.
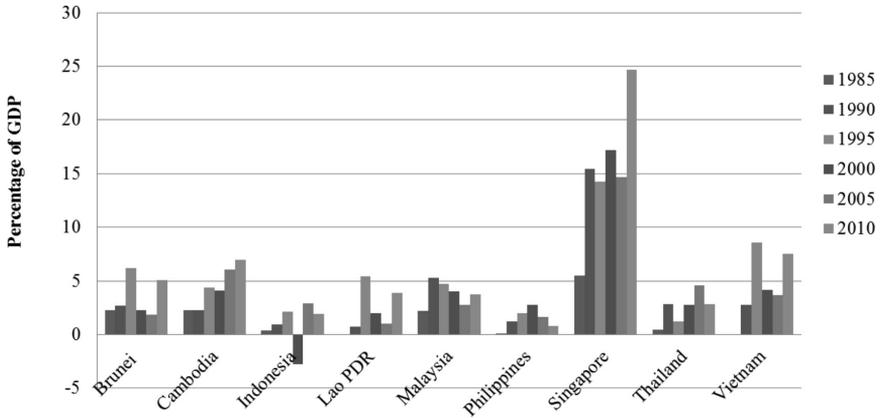
The paper is organized as follows. The second section discusses the FDI trends in ASEAN; the third section provides a brief literature review; the fifth section sets out the methodology; and the sixth section analyzes the empirical results of the determinants of services FDI. Finally, the last section presents a summary and conclusion of the study.

BACKGROUND OF THE STUDY

Trends of FDI Inflows into ASEAN

For the past three decades, foreign direct investment (FDI) has been playing a leading role in many of the economies around the world. A sharp increase in FDI inflow has been witnessed since mid-1980s and early 1990s. The global FDI inflow continued to increase in terms of output and share until the year 2008 when the world economy experienced an economic downturn. Back in the year 1972, ASEAN recorded $539 million net FDI inflow. One decade later (1982), it had a
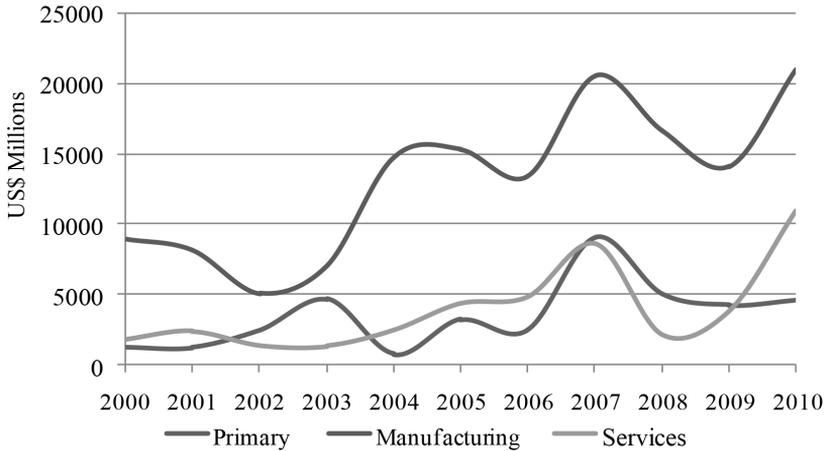
tremendous growth of over 500 per cent that reached $34,309 million. The inflow continued to increase and reached $14.737 billion in 1993. Major turning point occurred in 1997/1998 when Asia went through the financial crisis. Its initial effect was a decline in inflow by 23 per cent in which managed to improve in 1999 to $9.4 billion. This improvement was largely contributed by investment from the United States. The ASEAN recorded the highest FDI inflow of $13.7 billion and $20.2 billion in 2002 and 2003, respectively (ASEAN, 2004).

Source: World Development Indicators, Online Database, 2012

Figure 1 Trend of FDI inflow to ASEAN (% of GDP) from 1985-2010

On average, the inflow was pouring consistently to almost all ASEAN countries until 2007. In 2009, countries were expected to recover from the economic crisis, but instead all registered a marked decline (World Bank, 2012). Figure 1 shows that Singapore attracted more FDI than any of its ASEAN counterparts. The least recipient of FDI was Philippines, closely followed by the Indonesia. On the other hand, Malaysia also recorded a declining inflow trend. It began with 2.18 per cent in 1985 followed by an increase to 5.2 per cent; later on it registered a decline from 4.7 per cent to 3.7 per cent in 1995 and 2010, respectively. On sectoral basis, FDI inflows to all three economic sectors, namely manufacturing, primary and services have shown an unstable trend throughout the period 2000-2010 (refer to figure 2). In 2002, FDI inflows to manufacturing sector dropped sharply before it began to resurge in 2003 and 2005 with an inflow amounting to $7113 million and $15371 million, respectively.

Figure 2 ASEAN FDI inflows by economic sectors

Following the global recessions in 2007, ASEAN registered a huge fall in manufacturing inflow from $20619 million accounted in 2007 to $16674 million and $14143 million in 2008 and 2009, respectively. The inflows of services based FDI also shows an unstable trend. Record in 2000 shows that the registered inflow amounted to $1798 million was followed by an increase to $2451 million in 2001. A decline to $1431 million and $1353 million in both 2002 and 2003 was registered respectively. It then showed a dramatic increase from $2458 million in 2004 to $8672 million in 2007. ASEAN experienced a huge drop in inflow of services direct investment in 2008 to $2183 million. This dramatic fall provides evidence of the impacts of financial crisis on foreign investment in ASEAN. However, the region recovered and as a result received huge sector's FDI inflow amounting to $10944 million in 2010.

Thus, it can be concluded that FDI in services has been growing rapidly and become an increasingly important factor in various economies, especially ASEAN countries within the last two decades. According to ASEAN (2011), the inflow of services FDI surged from $1798 million in 2000 to $10944 million in 2010. This implies that inward services FDI to the ASEAN steadily rose by 608.67 percent, except in 2008 due to the global financial crisis and economic slowdown that eventually affected the growth of the ASEAN countries (UNCTAD, 2010). The decline in the growth performances of the ASEAN countries, to some extent,

indicates that these countries do very much depends on FDI for the stability and sustainability of their economies. To overcome this, the ASEAN countries strategize to diversify their economic activities and reduce the dependency on the manufacturing by moving towards the services sectors as the next engine of growth. In order to enhance the efficiency and contribution of services sector, the presence of foreign services providers is crucial to stimulate competition and increase productivity of the domestic firms. Thus, the first issue here is how to attract more services-based FDI into ASEAN countries.

At present, numerous literatures exist on the determinants of FDI. However, most of these studies focused on aggregated FDI or the manufacturing sector. For instance, a literature survey on the determinants of FDI over the last three decades by Agarwal (1980) and Chakrabarti (2001) generally have either ignored the role of services FDI or considered services as part of manufacturing FDI. Recently few studies have attempted to examine the determinants of services FDI in aggregate and sector-specific such as Kolstad and Villanger (2008), Terpstra and Yu (1988), Moshirian (1997), Cullen-Mandikos and MacPherson (2002) and Buch and Lipponer (2004). Thus, in spite of the rapid growth of services FDI, there exists very limited empirical literature on the determinants of FDI in services, especially on developing countries. To the best of our knowledge, there is no study found on ASEAN countries as well. It is important to find out the determinants of services FDI as this could eventually assist host countries with policy formulation on how to attract more services-based FDI.

LITERATURE REVIEW

A shift of FDI from manufacturing to services sector had occurred predominantly since mid-1990s with a worldwide growth and internationalization of the services sectors. The increasing internationalization of the services sector and the flows of services FDI have been stimulated by the implementation of WTO's General Agreement on Trade in Services (GATS). Despite the significance changes in the patterns and type of FDI, there exists very limited literature on the determinants of services FDI. The existing theoretical and empirical literatures on FDI are mostly on aggregated FDI or manufacturing based FDI. These studies covered various issues related to FDI such as the concepts and definition, theories, determinants and impact of FDI on host countries, at both micro and macro level. As for services FDI there are very limited literatures available. Therefore, the review firstly will briefly review studies related to manufacturing FDI or aggregated FDI and then followed by five studies that has been undertaken so far in the area of services FDI.

Generally, voluminous literatures available are on the issue of manufacturing FDI. Literature on FDI in services is still lacking. This limitation and a prevailing scarcity of empirical studies do not give justification of ignoring the investigation of the determinants of service FDI. Wide-ranging theories on FDI were developed by prominent scholars such as Vernon's (1966) theory of the product cycle, Hymer's (1978) industrialization theory, Rugman's (1981) internationalisation theory, Kojima' s (1973) dynamic comparative advantage, Dunning's (1973 and 1981) eclectic paradigm theory and Markusen (1997) knowledge and capital theory. The theoretical discussions on FDI are to some extent related to classical international trade theory such as the Ricardian model and Hecksher-Ohlin model. The first classical model on the determinants of FDI was developed by Dunning (1973 and 1981).

Since the work of Dunning, numerous empirical studies was undertaken to investigate the issue on the determinants of FDI, especially in the case of developing countries. Beside looking at the three advantages highlighted by Dunning, earlier studies focuses on factors like county size, exchange rate, labour cost and political factors including political instability (e.g. Aggarwal, 1980; Schneider and Frey, 1985). Some studies also emphasized the role of tax policy, trade policy and also foreign investment policies in explaining the inflows of FDI. For instance, Scaperlanda and Mauer (1969) and Torrisi (1985) argue that as the market size grows and expands to some critical value, which is usually approximated by GDP or GNP; this would attract foreign investments, as the production in the host country would be profitable because of economies of scale. This was further asserted by Tsai (1994) who found that market size and economic growth have positive relationship with FDI inflow.

Beside market size, trade openness is another important variable that is regarded to have significant influence on FDI inflows. Theoretically, openness is positively associated with vertical FDI and negatively with horizontal FDI. Vertical FDI is largely driven by motives to reduce both trade and transport costs, whereas horizontal FDI is undertaken when trade barriers imposes high cost. Most of the studies found a positive and significant relationship between trade openness and FDI inflows (Asiedu, 2002; Salisu, 2003; Kandiero and Chitiga, 2006). In recent years, scholars and policy makers have emphasized that human capital plays a significant role to make countries more attractive to both domestic and foreign investment. The availability of quality human capital is important to absorb the various positive spillovers from FDI or MNCs. Investors and MNCS are not merely looking for a cheap work force but also a quality human capital. However, human capital and FDI interact in a two-way link. FDI inflows can create spillover effects in terms technology transfer and knowledge to the locals and at the same

time the availability of quality human capital in host country would, on the other hand determines the flows of FDI. In other words, host countries with relatively high levels of human capital may be able to attract large amounts of FDI and in turn, this FDI inflow would contribute to the further development of labor skills.

A study by UNCTAD (2000) indicates that Ireland was able to attract huge FDI inflows into electronic industry due to its ability to create highly skilled human resources. From this fact, many studies have examined the quality of human capital with education levels and its effect on FDI inflows. Noorbakhsh, Paloni and Youssef (2001) using secondary school enrolment as the proxy for human capital found a positive relationship with FDI inflows. Using different indicator, Salisu (2003) found that illiteracy rate discourages the FDI. Moreover, Rodriguez and Pallas (2008) also observed a positive relationship between investment on human capital and international transactions.

Moreover, macroeconomic uncertainty or instability also plays an important role in determining the inflows of FDI to host country. Macroeconomic instability implies higher costs for the companies and distorts investors' perception on the future profits. Foreign investors may likely adopt a ''wait and see' attitude if they are uncertain about the economic atmosphere of the host countries. Thus, instability in macroeconomic variables can limit inflows of foreign investment. In this respect, most empirical studies have used inflation rate as an appropriate measure for economic stability, since there is a strong and positive correlation between high inflation rate and economic instability. Economic instability discourages foreign investors and affects the future level of investment. FDI is a forward-looking activity that is based on future expected earnings on investment. Thus, unstable and uncertain economic performance characterized by high inflation rates discourages foreign investors (Glaister and Atanasova, 1998). On the other hand, a stable macroeconomic environment would attract more FDI because investors are certain about the direction of the economy and future pattern of their investments (Hess, 2000; Wint and Williams, 2002; Ismail, 2009). Sayek (2009) indicate that high inflation rates in developing countries coincide with low FDI inflows and vice-versa.

Generally, facilities such as transport (e.g. ports, railways and roads), energy (e.g. electricity), telecommunications (e.g. internet and telephone) and basic utilities (e.g. hospital and water supply) have long played an important role in integrating markets across nations by reducing transaction costs or trade costs. In fact, foreign investors need to operate efficiently under reliable utilities and get easy communications with their clients. Reliable and quality infrastructures become the most important traditional determinant for FDI (UNCTAD, 1996). Many studies have indicated a positive relationship between various types of infrastructure with FDI inflows. For instance, Loree and Guisinger (1995) found a positive association

between telecommunication and FDI. Similarly, OECD (2000) showed that infrastructure plays a major role toward FDI decision in China.

In recent years, the effect of information and communication technology (ICTs) on FDI has been extensively examined. Gholami, Lee and Heshmati (2006) examined the simultaneous causal link between investments in information and communication technology (ICTs) and flows of FDI. Their findings indicated that there is a causal relationship between ICTs and FDI in developed countries, which means that a higher level of ICTs investment leads to an increase of FDI inflows. Similarly, Haile and Assefa (2005) also indicate that an improvement in infrastructure is essential to attract FDI to Ethiopia. However, in Ndikumana and Verick (2008) study, the coefficient of infrastructure gave unexpected results. They used number of telephone subscribers as the proxy for the infrastructure and found a negative and significant relationship with FDI in Sub-Saharan African countries. They made an argument that this might reflect the possibility for the resource-rich countries of Sub-Saharan Africa to attract much FDI inflows regardless of their undeveloped telecommunications networks.

Based on the review above, it is noted that most of the existing literature on the determinants of FDI are largely based on manufacturing or aggregated FDI. There are very few studies that has been conducted on the services based FDI (e.g. Kolstad and Villanger, 2008; Golub, 2009; Ramasamy and Yeung, 2010 and Walsh and Yu, 2010) and most of the studies tend to be sector-specific: for instance, banking services (Moshirian, 2001; Buch and Lipponer, 2004), insurance services (Moshirian, 1997), advertising services (Terpstra and Yu, 1988) and legal services (Cullen-Mandikos and MacPherson, 2002). As far as the present study is concern, only three studies are largely related, namely; Kolstad and Villanger (2008), Ramasamy and Yeung (2010) and Walsh and Yu (2010).

Kolstad and Villanger (2008) made the first attempt to investigate on the determinants of services FDI on data from 57 countries covering the period of 1989–2000. They analysed the determinants of FDI flows in services as a whole, and in the major service industries (transport, financial, business and trade). The findings reveal that institutional quality and democracy appears to be more important for FDI in services than general investment risk or political stability. When splitting the sample in high- and low-income countries, they found that different political economy variables impact different groups of countries. Political risk in general and institutional quality in particular, is found to be important to services FDI in high-income countries, while the level of democracy is important to services FDI in developing countries. Consistent with the fact and observation that many services are non-tradable in nature, the study found that service FDI is market-seeking, and thus are unaffected by trade openness.

In addition, Ramasamy and Yeung (2010) examine the determinants of services FDI on OECD countries using macro-level variables. The results from GMM estimations reveal that market size, growth, quality of labour force, infrastructure and risk factor has positive and significant impact on services FDI inflows. Meanwhile, cost of the labour and cost of the capital found to have negative and significant influence on services FDI. Finally, Walsh and Yu (2010) analyse various macroeconomic, developmental, and institutional/qualitative determinants of FDI on a sample of emerging market and 27 advanced countries on sectoral basis (primary, secondary and tertiary sector). The baseline macroeconomic specification model includes openness, GDP growth, average inflation over the three previous years, the logs of GDP per capita and the real effective exchange rate, and (to estimate clustering effects) the stock of FDI. Using a GMM dynamic approach, the findings reveals that, while FDI flows into the primary sector show little dependence on any of these variables, secondary and tertiary sector investments are affected in different ways by countries' income levels and exchange rate valuation, as well as development indicators such as financial depth and school enrollment, and institutional factors such as judicial independence and labor market flexibility. While both secondary and tertiary FDI appear to benefit from agglomeration or clustering effects, it is found that FDI in services appears to be much more strongly impacted by macroeconomic conditions than FDI in manufacturing. In addition, a weaker real effective exchange rate appears to draw more manufacturing FDI into an economy, but reduces the amount of tertiary FDI. Tertiary FDI flows are also higher in more rapidly growing economies, and those which are more open.

Based on the above empirical review, few insights could be drawn. Firstly, the empirical review established that there are various factors that could affect the flows of FDI (aggregated and service based) which tends to vary across regions, countries and time. Secondly, it is observed that factors that are important for manufacturing FDI, is not necessarily applicable to services FDI, though some factors seems to be relevant for both cases. Thirdly, studies pertaining to services FDI, specifically focusing economic bloc in Southeast Asian region and developing countries, in general, is clearly nonexistence or lacking. Thus, given the large and growing role of services FDI in total FDI flows and the shift towards the services sector, the present study intends to complement the existing literature by examining the factors that attract service FDI in the case of ASEAN countries.

RESEARCH METHODOLOGY

Theoretical Framework

There are many theories which explain the emergence and development of FDI. For instance, the explanation of FDI is largely based on frameworks developed by Heckscher and Ohlin (1933) on factors endowments theory. The theory predicts that a country with comparative advantage such as large market size can highly attract multinational companies (MNCs). Meanwhile, a pioneering study by Hymer (1960) drew attention to the role of multinational firms as global organizations that produce in various countries in order to be able to compete against rivals. In addition, foreign firms which are characterized by monopolistic advantages such as ownership of patent, know-how, managerial skills that are missing in local companies can successfully engage in cross border activities.

Moreover, Vernon's (1966) product life cycle theory relates FDI to innovation and economies of scale in determining trade patterns. It states that FDI is a stage in a life cycle of a new product from its invention to maturity. It further postulates that a home market is designed for a new manufactured product, but when such market got saturated the product is exported to other countries. In a different circumstance, when a new product faces intense competition from similar products, it then needs to look for lower cost foreign locations to ensure competitive price can be offered to consumers. This theory shows how market seeking and cost reduction motives lead to FDI.

Similarly, framework that was developed by Dunning (1981) suggests that the propensity of a firm to initiate foreign production will depend on the specific attraction of its home country compared to the resource implication and advantages of locating in another country. This framework, known as OLI paradigm, also provides sufficient theoretical perspective on the determinants of foreign direct investments. It makes explicit that for a firm to engage in foreign direct investment it must fulfil these advantages. The framework of ownership and internalization advantages are internal factors for the firm and are determinants of FDI flow between developed and developing countries, while location advantages are country specific characteristics regarded as an external factor.

Briefly, ownership advantage is owned by the firm itself, and must be within the firm that makes it superior and competitive over other firms. In order for the firm to be successful in a foreign country, it should operate at a low cost while earning higher profit in comparison with the native firms. Location advantage is a country specific advantage, and includes market related factors, economic as well as political factors. In addition, the internalization advantage is important to multinational firms as it enables them to gain accumulated profits from internal production derived

from exploiting ownership advantages rather than from franchised market. Thus, the firm chooses ways to perform its daily operations which usually competes with its counterparts and acquires the competitive advantage in the complete absence of market or imperfect market

On the other hand, the host country determinants of FDI are of the three groups, namely political factors, business facilitation and economic factors. Relying on this argument, we find it necessary to mention significant roles played by various locational factors in determining inward FDI inflow. For instance, a well-established market size permits economies of scale and factor specialization, resulting in cost minimisation and market growth, consequently, tend to improve the supply side (services and inputs) in the host economy. Foreign investors take into consideration the size of the host market prior to relocation of their production since it plays a decisive role in attracting FDI (Morrissey and Rai, 1995; Wang and Swain, 1995).

Based on theory, an open economy is positively associated with vertical FDI and negatively with horizontal FDI. Vertical FDI is largely driven by motives to reduce both trade and transport costs, whereas in horizontal FDI a firm can invest when trade barriers impose a considerable cost. This may actually suggest that the restrictions in an economy are deliberately applied to attract merely horizontal FDIs. As horizontal FDIs' objectives are mainly to penetrate the hosts market is seen not bothered by the trade costs and trade restrictions (Markusen, 1984).

Meanwhile, low inflation rate which accounts for the stability of an economy is also important in welcoming FDI. Economy characterized by low inflation has a high opportunity to attract FDI inflow. On the contrary, unstable and uncertain economic performance characterized by high inflation rates discourages foreign investors. Hence, a stable macroeconomic environment is paramount for FDI as investors become more certain about the direction of the economy and future pattern of their investments (Glaister and Atanasova, 1998; Hess, 2000; Wint and William, 2002 and Ismail, 2009).

The human capital which is perceived as socio-cultural factor plays a significant role in making a country more attractive to international investment (Noorbakhsh *et al*., 2001; Rodriguez and Pallas, 2008 and Walsh and Yu, 2010). Human capital is required to absorb FDI inflow as foreign firms, which invest in a host country, are looking for certain level of work skills and endowments. In fact, foreign investors are not simply looking for work force but they set thresholds of human capital prior to investing in a foreign location.

Rewards such as good physical infrastructure, easy access to water and electricity, roads, harbour and telecommunication infrastructures certainly influence the level of foreign investment. In recent studies such as UNCTAD (1996), OECD (2000), Gholami *et al*. (2006) and Ndikumana and Verick's (2008), the absence

of quality infrastructure can inevitably discourage foreign investors as it increases transaction costs. It was further stressed that foreign investors' efficient operation depends highly on reliable utilities of infrastructure system.

Model Specification

The objective of the present study is to examine the determinants of FDI in services. Generally, literature examines a large number of variables that have been set forth to explain FDI. Some of these variables are included in formal hypotheses or theories of FDI, whereas others are suggested because they make sense instinctively (UNCTAD, 1998). At the same time, the existing empirical studies have considered different combinations of these variables, not only due to their importance but also in terms of the direction of the effect (Shahmoradi and Baghbanyan, 2011). Meanwhile, the study uses a log linear model based on recent empirical papers that have been done on the determinants of FDI. From the econometric perspective, the study employed a log linear model based on recent empirical papers that have been done on determinants of FDI (Shahmoradi and Baghbanyan, 2011; Castiglione *et al*., 2012). The model is specified as follows;

$$\ln FDI_{it} = \alpha_0 + \beta_1 \ln MS_{it} + \beta_2 \ln TO_{it} + \beta_3 \ln INF_{it} + \beta_4 \ln HC_{it} + \beta_5 \ln ICT_{it} + \varepsilon_t$$

All the variables are transformed into the natural logarithm. The dependent variables is services FDI represented by FDI, whereas set of explanatory variables are market size (MS), trade openness (TO), inflation (INF), human capital (HC) and infrastructure (ICT). The term ε represents error term and the subscripts i and t denote country and time, respectively. The market size plays an important role in attracting FDI. However, empirical evidence for market size has been mixed. The market size will indicate the overall capacity of economic activities of the ASEAN countries. The GDP per capita used as the proxy for market size which indicates the absorptive capabilities of the recipient economy (Agiomirgianakis *et al*., 2006). It is expected that the market size will be positively related with services FDI inflow (Goldberg and Johnson, 1990; Kolstad and Villanger, 2008; Hussain and Kimuli, 2012).

Theoretically, the degree of trade restrictions or openness could affect FDI inflow, either positively or negatively, depending on the motivation of the FDI activities (Dunning, 1993). If FDI inflow is motivated by market seeking motives, then it would have a negative relationship with trade openness. This is because high degree of openness acts as disincentive for market-oriented (horizontal) FDI. The horizontal FDI is intended to serve the market of the host country with its

products. On the other hand, export-oriented (vertical) FDI prefers to invest in a more open economy. Hence, a positive relationship would indicate that services FDI is export-oriented rather than market-oriented. In this study, trade openness (TO) is measured by the sum of export and import to GDP ratio (Asiedu, 2002; Kolstad and Villanger, 2008; Walsh and Yu, 2010) which could have positive or negative relationship with the services FDI inflow.

As for inflation (INF), consumer price index is used as proxy for macroeconomic instability (Ismail, 2009 and Castiglione *et al.*, 2012). Increasing price level or inflation indicates macroeconomic instability. It is argued that high inflation would deter FDI inflow because it increases uncertainty and eventually discourages or adversely affects long-term investments to the host countries. It is expected that there would be a negative relationship between inflation and services FDI inflow. Most empirical studies put much emphasis on human capital as a crucial attraction for multinational firms or FDI. From this perspective, it is believed that the better the human capital, the more attractive a country or region is to services FDI. In fact, a country with a minimum threshold of human capital has been found to be able to increase productivity of foreign firms more than that of domestic firms (Borensztein *et al.*, 1998). Thus, a positive relationship is expected between inflow of services FDI and human capital. Secondary school enrolment has been chosen as proxy for human capital (Noorbakhsh *et al.*, 2001; Akin and Vlad, 2004; Hussain and Kimuli, 2012).

Moreover, well-established and developed infrastructure facilities are also crucial for FDI inflows. It increases the productivity of the investments and decrease the cost of doing business. Infrastructure covers many dimensions, ranging from physical assets such as roads, sea ports, railways, and telecommunications, to institutional development, such as accounting and legal services. In the present study, the availability of quality infrastructure is measured using information and communication technologies (ICTs) that include internet usage, mobile phone subscription and telephone networks to represent infrastructure (Asiedu; 2002; Haile and Assefa; 2005; Ndikumana and Verick, 2008). ICTs can be particularly important to services firms, while physical infrastructure likes roads and ports may be less important in services industry (Ahmad *et al.*, 2011).

Data Sources

The study compiles the data from three main sources namely; ASEAN Secretariat, World Trade Organization, International Labor Organization, and World Development Indicators (refer to Table 1). This study employs traditional panel data estimation techniques of pooled ordinary least square (OLS), random effects and

fixed effects. The Breusch-Pagan Lagrange multiplier and Hausman tests provides the statistical inferences on the appropriate model for the regression. A panel approach is most preferable since it overcomes the need of very lengthy time series data to provide good estimates of particular dynamic reactions (Wooldridge, 2002). In the meantime, the approach improves econometric efficiency of the estimates because of an increase in degrees of freedom and reduction of collinearity among explanatory variables (Hsiao, 2003).

Table 1 Sources of data

Variables	Sources
Service FDI inflows	ASEAN FDI database
Trade openness	World Development Indicators, Online Database
Inflation	International Labor Organization, Online Database
Human capital	World Development Indicators, Online Database
Infrastructure	World Development Indicators, Online Database
Market size	World Development Indicators, Online Database

RESULTS AND DISCUSSION

Table 2 presents a summary of statistics for the variables used in the analysis. There is a considerable variation of inflow in services FDI across the countries. The mean value of services FDI inflow is 100 million with a standard deviation of 117 million, while the mean value of the GDP per capita (proxy of market size) is 6756.32 million with standard deviations of 10600.21 million, respectively. The descriptive statistic indicated a high variation across countries especially in the case of the market size variable. Meanwhile, infrastructure (measured by telephone lines, per 100 people) registered a mean value of 11.78 with a standard deviation of

Table 2 Descriptive statistics

Variable	Mean	Standard deviation	Min	Max
Services FDI	1.00E+10	1.17E+10	30000	4.50E+10
Market size	6756.32	10600.21	134.4475	34758.41
Inflation	83.45	14.00	44.01	100
Trade openness	139.3409	95.2839	32.32528	439.6567
Human capital	4215282	4629715	33347	1.67E+07
Infrastructure	11.78	12.75	0.2	49.7

12.75. As for the human capital which is measured by secondary school enrolment, the mean value 4.2 million with a standard deviation of 4.6 million. In addition, trade openness has an average value of 139.3 million with a standard deviation of 95.2 million. Inflation has a mean value of 83.4 per cent with a standard deviation of 14.0 per cent.

The Table 3 show regression results of pooled OLS, random effects (REM) and fixed effect models (FEM). The pooled OLS is a restricted model as it assumes that countries are homogenous. It does not explain the existence of country's specific effects such as the differences in technology, resource endowments and institutional. However, the random and fixed effects models acknowledge the heterogeneity among countries by introducing intercepts and other parameters, which are likely to vary across different countries. Based on Breusch-Pagan test of homogeneity, the result favoured the alternative hypothesis, suggesting that these countries are homogenous. This means that pooled OLS is the most consistent estimator in this case. Therefore, the interpretation of results will be based on the pooled OLS model. At the same time, Hausman specification test (Hausman, 1978) was used to test random effect model versus fixed effect model. The results shows that random effect is preferred to fixed effect. However, it is useful to note certain complications that may arise from OLS estimator such as serial correlation. For this reason, we first performed tests to check for correlation between error terms and independent variables. The presence of insignificant p-value indicates

Table 3 Results of estimated models for determinants of services FDI

Dependent variable: Services FDI inflow			
Variables	**Pooled OLS**	**REM**	**FEM**
Constant	-5.09(-0.89)	-6.23(-0.9)	0.23(0.04)
Market size	0.21(1.69)*	0.24(-1.55)	0.01(0.04)
Trade openness	0.63(3.08)***	0.59(2.10)**	0.42(0.48)
Price level	-0.06(-0.33)	-0.3(-0.20)	-0.03(-0.18)
Human capital	2.60(2.09)**	2.82(1.89)**	1.19(0.48)
Infrastructure	0.26(2.5)**	0.33(2.13)**	0.64(2.56)**
R^2	0.1523	0.1491	0.0687
Breusch-Pagan test	0.07(0.7947)		
Hausman test		3.68(0.5970)	
No. of observations	99	99	99

***, ** and * denote 1%, 5% and 10% significance levels, respectively. Value in parenthesis denote the t-values

the inexistence of autocorrelation in our specified model. Thus, the results will be interpreted based on the pooled OLS model following results obtained from the robust test run (refer to table 4).

Table 4 Result of pooled OLS using robust standard error

Dependent variable: Services FDI inflow	
Variable	**Coefficient**
Constant	-5.09(-1.09)
Market size	0.21(2.65)***
Trade openness	0.63(2.41)**
Price level	-0.06(0.49)
Human capital	2.60(2.60)***
Infrastructure	0.26(2.07)**
No of observations: 99 R² = 0.1523	

***, ** and * denote 1%, 5% and 10% significance levels, respectively.
Values in parenthesis denote the t-values.

Results from the Table 4 indicate that market size and human capital are positive and statistically significant at 1 per cent level, whereas trade openness and infrastructure are positively related to services FDI at 5 per cent significance level. In addition, inflation (proxy for macroeconomic economic stability) is found to be negative and insignificant, which is in line with the finding by Kolstad and Villanger (2008). The relationship between market size and services FDI can be explained by looking at the motives of FDI to the host country, which can be market-oriented FDI, or non-market oriented FDI (Aleksandra, 2010). Several scholars believed that services-based FDI is more of market seeking FDI rather than an export-oriented type of investment (Aleksandra, 2010; Banga, 2005). Thus, many services based multinational firms established their operations in foreign location because of the simultaneity requirement in production and consumption of services. This means that a country with a large market size is most likely to attract more services FDI inflow. For instance, FDI in services sectors such as banking, insurance, tourisms, and to some extent real estate prefers large metropolises, since these centers are major players in the global economy. Similarly, bigger market induces higher effective demand for the kinds of goods and services produced by MNCs. The finding of the present study concurs with previous studies on particular industries within the services sector by Moshirian (insurance services, 1997), Banga (services; 2005), Kolstad and Villanger (services, 2008) and Ramasamy and Yeung (services;

2010), which also found a positive association between market size and services based FDI.

As for the trade openness, generally, many have argued that foreign investors prefer countries with liberal trade regimes, and trade openness could be considered as important determinants of FDI (Asiedu, 2002; Frenkel *et al.,* 2004; Goh and Wong, 2011; Shahmoradi and Baghbanyan, 2011). The significance of trade openness or the implementation of a liberal trade policy has been observed in the case ASEAN countries in which several ASEAN countries have abandoned import-substitution trade strategies in favour of a more open international trading regime in the 1980s. This initiative produces a positive outcome for most of the ASEAN countries, especially, Indonesia, Thailand, Malaysia and Singapore which managed to attract substantial amount of foreign investment. For the present study, the result reveals a positive and significant relationship between trade openness and services FDI. However, existing literature on service FDI seems to have mixed outcomes on the relationship between trade openness and service FDI. For instance, Kolstad and Villanger (2008) found insignificant relationship between the variables and contended that services-based FDI is categorically assumed to be market seeking (horizontal FDI) rather than serving as an export platform, thus, is unaffected by trade openness. On the other hand, Walsh and Yu (2010) and Ramasamy and Yeung studies indicated a positive and significant relationship between them.

The need to include human capital in this study was imperative due to the importance of this factor in absorbing FDI inflow, in general. Host economies with relatively high level of human capital attract large amounts of FDI (Noorbakhsh *et al.,* 2001; Castiglione *et al*., 2012). This argument applies to services based FDI and services sector as well. The supply of many services requires physical interaction between individuals (providers and customers). Thus, skilled work force is important in dealing with different customers in services industries such as banking, health, insurance, transportation, travel and tourism. It is impossible for a foreign firm to send low ranked managers or executives from source country to run the production activities without affecting their investment resources. Thus, a chance for host country being chosen as the location for investment increases if it has abundance of human capital. Findings of this study suggest that human capital is an important location specific advantage of ASEAN countries. Our result complements with the preceding study by Ramasamy and Yeung (2010), but surprisingly Walsh and Yu (2010) drew a contrasting result suggesting little influence human capital has on FDI flow.

The importance of infrastructure such as transportation (e.g. ports, railways and roads), energy (e.g. electricity), telecommunications (e.g. internet and telephone) and basic utilities (e.g. hospital and water supply) in integrating markets across

nations, especially through the inflows of FDI, has been widely acknowledged (Loree and Guisinger, 1995; UNCTAD, 1996; OECD, 2000; Gholami *et al.*, 2006; Ismail, 2009; Shahmoradi and Baghbanyan, 2011; Castiglione *et al.*, 2012). Their absences inevitably discourage foreign investors as it increases transaction costs. In fact, foreign investors' efficient operation depends highly on reliable utilities, telecommunication system and infrastructure. For a production firm to operate efficiently, it needs reliable utilities, which will ensure uninterrupted supply of raw and intermediate materials as well as production activities. Manufacturing and natural resource based firms which are largely export oriented depends on ports, railway and roads for cross-border sales of their products. However, the services-based firms heavily rely on the information and communication technology (ICTs) type of infrastructure to support their complex offerings of services to customers. The ASEAN's reliable ICTs network proved to be an important determinant for services FDI, whereby it not only attracts capital, but also creates the conditions under which domestic multinational companies emerge and capable of investing abroad. Our results complement the finding by Ramasamy and Yeung (2010) which indicated a positive and significant result asserting that countries that have an established infrastructure would attract greater amounts of FDI, both services and manufacturing. It is further emphasized that the services sector, in particular, relies on the infrastructural networks in the host country to serve its customers at home and abroad. The need for an efficient transportation and communication system is a necessary condition to attract services FDI.

CONCLUSION

This paper empirically investigates the determinants of foreign direct investment in services in ASEAN countries using a static linear panel data analysis**.** The data for the empirical estimation covers from 2000 until 2010. Empirical results indicate that the inflow of services FDI to ASEAN countries is determined by market size, trade openness, human capital and infrastructure. Meanwhile, the relationship between inflation (indicator of macroeconomic stability) and services FDI is found to be negative and insignificant. Thus, we may conclude that ASEAN countries may be able to attract services FDI by focusing on increasing their market size, adopting a more liberal trade regime, increasing the accumulation of human capital and establishing quality infrastructure. ASEAN countries could attract foreign investor in services by adopting services stability policy, enhancing services integration and liberalization, promoting trade and investment services alliance network in ASEAN economies, and accelerating the implementation of the existing ASEAN investment agreements.

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