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What are the Determinants of FDI to Vietnam?

Master Thesis

For

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Abbreviations

ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
ASEAN	Association of Southeast Asian Nations
BTA	Bilateral Trade Agreement
FDI	Foreign Direct Investment
GDP	Gross Domestic Production
GNI	Gross National Income
GSO	General Statistics Office of Vietnam
IMF	International Monetary Fund
MNE	Multinational Enterprise
MPI	Ministry of Planning and Investment (Vietnam)
OECD	Organization for Economic Operation and Development
OLI	Ownership, Location and Internalization
OLS	Ordinary Least Squares
RMB	China Currency Renminbi (Yuan)
UNCTAD	United Nations Conference on Trade and Development
VIF	Variance Inflation Factor
VND	Vietnam Currency Dong
WTO	World Trade Organization

1. Introduction

1.1 Introduction

This document is a Master thesis for the program MSc Supply Chain Management of the department of Organization and Strategy within the School of Economics and Management of Tilburg University. The purpose of this study is to find out the determinants of foreign direct investment in Vietnam. In the remaining of this chapter, the area of my research and the central question will be introduced, followed by two research questions that will be subsequently answered to be able to solve the central question. And the structure of the thesis will be present at the end of chapter 1.

1.2 Problem Indication

Foreign direct investment (FDI) is a traditional method of a company producing outside its national boundary and a significant source of economic growth, and perhaps the clearest sign of globalization. Not only provide investment capital, managerial and technological skills, job creation, industrial upgrading. FDI can also integrate the country's economy into the global economic network (Kaminski, Bartłomiej, & Smarzynska, 2001). The latter one is more important that, from national view, economic isolation is dead-end, especially in the current time of globalization. Holding some different sounds against numerous FDI inflows from Multinational Enterprises (MNEs), many countries from developing and transitional economies have designed and executed relevant policies to create hospitable and open environment for FDI. FDI inflow to developing countries, in terms of the share of host countries' Gross Domestic Product (GDP), actually has exceeded those to the developed world.

In 1986, after a long evidence of economic hardship, Vietnam came to the way of reform, economically restructuring from centrally planned to market oriented, which was known as *'doi moi', in the meaning of renovation.* With the high GDP growth rate (7%) and sharply decreasing poverty rate (from 58.1% to 22%) during the last two decades, Vietnam has become one of most rapid growing economies in the world (ADB 2006).

Behind the remarkable economic performance is the boost from continual and substantial international trade and FDI inflow (Le Dang Doanh, 2002). The contribution of inward FDI to economic growth has been a consensus in Vietnam's society, from the common people to policy makers (Nguyen & Nguyen, 2007). How to consolidate the current strengthens and exploit the potential advantages is what the Vietnam's government concern about in order to keep the position as an attractive FDI host country. Starting from the investigation conducted by Buckley and his colleagues (2007) pointing to the determinants of Chinese outward foreign direct investment, I am going to carry out my research under the similar theoretical structure and with the help of other studies as well, for an in-depth understanding on the characteristics of Vietnam attracting FDI inflow.

1.3 Problem Statement

The central question going to deal with is as following:

What are the determinants of FDI to Vietnam?

This longitudinal research is set from 1986, the first year starting reform policy, to 2009, for the latest data availability. During the period of time, Vietnam witnesses the dramatic change of FDI inflow from nearly zero to 8,050 million US dollars in 2008.

1.4 Research Questions

For the problem to be answered, the research questions are formulated as following:

1. What characteristics of host country can be identified influencing location decision of Foreign Direct Investment?

After reviewing a body of literatures, a group of characteristics influencing FDI in empirical works can be summarized, and a table will provide more information in detail.

2. What is the significance of each characteristic on the FDI decision in the context of Vietnam?

All the characteristics identified will be formulated in a linear regression function, and then process the data collected with the help of SPSS software. The coefficients for characteristics indicate the level of significance.

1.5 Structure of the Thesis

The research will be split up into six chapters (See Figure 1): Introduction, Theoretical Framework, Methodology, Results and Discussion, and Conclusions and Limitation. Chapter 1 introduces the background and purpose of this research, and leads to central question and research questions. Chapter 2, theoretical framework, does the literature review connecting theories to the research area, creates hypotheses, and finally builds a model involving all characteristics to be tested. Chapter 3, methodology will present the research strategies adopted and what data being used to secure the reliability of source. Chapter 4, results will be present and discussed corresponding to each of hypotheses. The last chapter draws a conclusion based on the results and generalizes limitations about the area my findings cannot explain in this research, and some recommendations for future work.
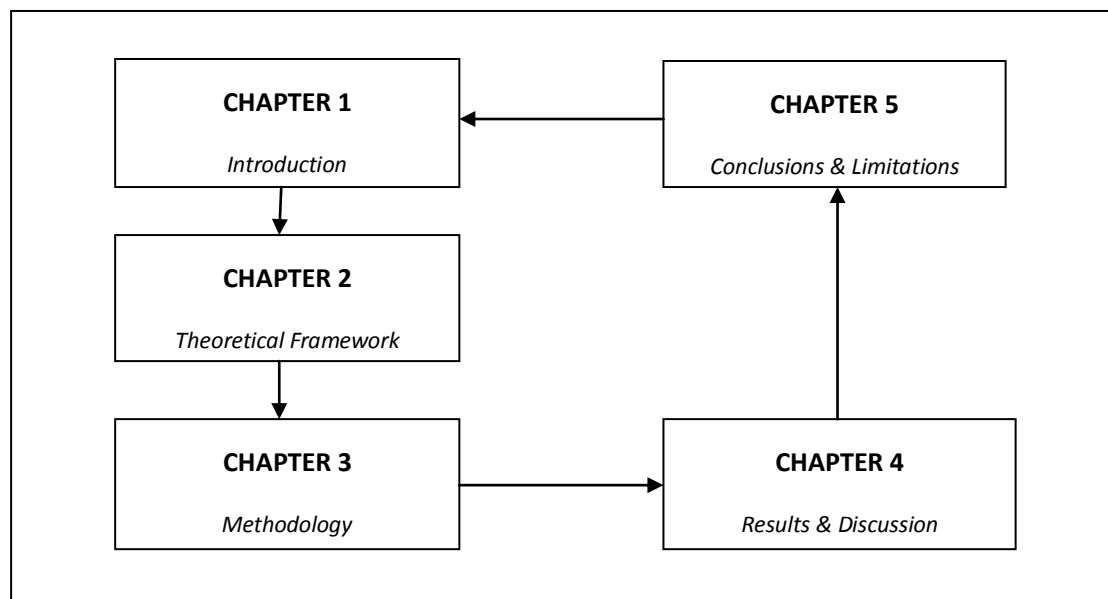

Figure 1: *Outline of the thesis*

2. Theoretical Framework

2.1 Main Concepts and Definition of FDI

A country can invest outside its national boundary directly or indirectly. Unlike a portfolio investment, which is considered an indirect investment through the stock and bond markets for a short-term profit, the classic definition of FDI is a company, on a long-term purpose, making physical investment into building machinery and equipment in a different nation district from the company's country of origin. Not only capital are transferred, a source of advanced technology, managerial skills, and other tangible and intangible assets will also flow to the host country and company, and as such can stimulate the economic development (Granham & Spaulding, 2005). FDI is split up to two categories: inward and outward foreign direct investment. From the global view, the total amounts of inward and outward FDI are always equal to each other; meanwhile, from the view of a nation, the inward and outward FDI lead to a net FDI inflow, which can be either positive or negative.

FDI can be classified into the following categories: market-seeking, export-oriented and government initiated FDI (Moosa, 2002). A market-seeking FDI happens on the purpose of the investors' acquiring the host market and the growth of potential demands. A company in the host country providing raw material, intermediate and final goods mainly for exports, rather than for the domestic market, can be called export-oriented FDI. Governments, normally developing countries, promote investment from overseas to invest in specific sectors and industries aiming at dealing with socio-economic issue, such as regional disparities, unemployment, and so forth (Accolley et al, 1997). More in-depth research about FDI will be present in the following sections.

2.2 Development of FDI Theories

 2.2.1 The Early Neoclassical Theory

In the traditional theory of macroeconomics, the pressuring margin of domestic market encourages the companies from industrialized countries to engage in FDI activities in less industrialized countries (Pitelis & Sugden, 2000). The neoclassical theory of FDI states that,

being rich in wealth and poor in labor quantity or with high expense of labor in affluent countries, the companies tend to transfer productive assets to underdeveloped, labor-intensive countries for higher return of capital (Cantwell, 2000). The theories clearly point out the flow of capital from capital-intensive to capital-poor countries. However, both of the theories hypothesize in a perfect capital market with riskless capital movement assumption (Harrison, 2000), which is too ideal to apply to the reality.

2.2.2 The Product Life Cycle Theory

This economic theory of FDI was conceptualized by Raymond Verron in 1966. It is for the relationship analysis concerning product life cycle and possible FDI flow. There is no unified standard for the product at the early stage, e.g. cost per unit and specification of the goods. All the specifications converge with the increasing demand from domestic market at the same time; the clones of standardized products are also introduced. For the home market getting saturated and intensive competition with domestic rivals, the company will export the products to foreign countries, normally seeing cost of production as an determinant of location choice, since there will be no revolutionary changes on the standardized product when the product enters into the phase of maturity. Vietnam becomes more popular with foreign investors when the costs of investment in its rivalrous countries increase, so recently we can find some news report more MNEs cut down part of their production function in China and transfer to their affiliates in Vietnam, such as the advertisement sheet for McDonald's food has provided by Vietnam instead of China. All FDI can be seen mostly in the maturity and decline stages (Dunning, 1993). Generally, the merit of Verron's product life cycle theory superior to other theories is the capability of dealing with changes overtime.

2.2.3 The Internalization Theory

The Internalization theory was developed by Buckley and Casson in 1976 to explain the existence and functions of MNEs. The costs of some transactions can be reduced by internalized operation, in other words, producing within a company instead of between companies. Consequently, the return on asset (ROA) will be higher for less cost. Another reason of internalization to is to replace imperfect external markets. For instance, an MNE

from developed country plans to invest in a developing market where is lack of the qualified relevant personnel, usually from top layer of the management hierarchy or technician from core technology department, and cannot train the local staff well in a short time, and this enterprise will move and make use of the old cast in a different location. In addition, some core technology or know how is the absolute secret to the company that will not transfer to other companies. Finally, some scholars state that internalized operation can present conflict happening when the buyer and producer have different ideas on product price setting, especially in the situation that each of the parties has a monopoly position (Krugman, 2003).

2.2.4 The Eclectic Paradigm

The eclectic paradigm developed by John Dunning (1981, 1988) has been the mainstream or generated theory of FDI in the location aspect. Dunning attempted to integrate a variety of isolated theories of international economics in one approach (Hagen, 1998). He drew partly on macroeconomic theory and trade, which is about the characteristics of host countries attracting FDI inflow, as well as microeconomic theory and firm behavior, which is the reason why an MNE invest in a specific location abroad. Three determinants of FDI are identified in this paradigm, including Ownership, Location, and Internalization advantages that determine extent, form and pattern of an company's international production, it is also known as the OLI-Model. The ownership advantage is the precondition for the company to initiate FDI. It can be not only material such as capital and resource, but also immaterial like technology and managerial skills. The location advantage refers to a certain location that can provide some specific advantage refers to a certain location that can provide some specific advantages to be the company in the host country, e.g. access to cheap inputs, existence of raw material, special taxes or tariffs (Twomey, 2000). The internalization advantage is obtained by directly controlling production and distribution via foreign branches or subsidiaries on the purpose of cost reduction. Corresponding to the three advantages of host country, in Dunning's theory, there are three primary motivations of international investor to invest abroad (Dunning, 1977, 1993): market, efficiency (cost reduction), cost resource. The market-seeking investors aim at acquiring large and fast growing markets. The efficiency-seeking investors pay more attention on how to minimize the total cost, such as

choosing a location close proximity to home country in terms of geographic distance, in order to reduce the expense of transportation, or locating in a country with lower labor cost. Resource-seeking investors weigh more of abundant and steady supply of raw materials and energy sources from the host country.

2.3 Determinants Identification

For the Anglo-Saxon background of the research respondents, manufacturing industry in US and UK, the theory of Dunning was developed and expanded from the moment of its birth (Dunning, 2003) for the dynamic changes of circumstances (Devinney et al, 2003). In this study, the inward FDI is not only from developed countries, but also from emerging economies, like Taiwan, Malaysia and China that even contributed significantly for Vietnam's FDI growth. Considering the evolution of Eclectic Paradigm, on the purpose of achieving a widely recognized view in current situation, consulting the Buckley et al's recent research (2007) based on the same theory and concerning China is an effective method to investigate another developing country, Vietnam, with remarkable economic performance to find out its specific characteristics attracting global investors.

It is generally accepted that the factors determining FDI choice in a host country lie on what they want to seek from a specific location (Leitão & Faustino, 2010). Unfortunately, all available data of FDI inflow are aggregated at the country level rather the data collected according to the final goal of investment. So, the factors' universality to increase the productivity of capital is one of the selecting criteria for the candidate determinants.

In the remainder of this section, the characteristics of host countries, which determine the FDI inflow, will be summarized from a body of academic articles (See Appendix 1). Hypotheses for each determinant, associating with FDI inflow in Vietnam will be given.

2.3.1 Host Market

Some characteristics of host market have been recognized as the fundamental determinants of FDI inflow. Such as the host market size, most commonly using GDP of a country indicates

the size of local market. Numerous empirical studies confirm the positive relationship between market size and FDI inflow (Chakrabarti, 2001), since a growing market realizes the efficient utilization of resources and the benefits from scale and scope economies (UNCTAD, 1998). Consequently, the growth rate of host market is also introduced as a characteristic of host market appealing FDI inflow. The faster market increases in size, the more opportunities present for generating profits than the markets grow at a low rate or even not at all (Lim, 1983). I therefore hypothesize as the following:

H1: FDI in Vietnam is associated positively with host market size;
H2: FDI in Vietnam is associated positively with host market growth.

2.3.2 Natural Resource Endowment

Natural resources, historically, are the most significant determinants of FDI. In the period from 19th century to the eve of World War II, natural resource owned 60% of the world stock of FDI. It is also true for Vietnam. After occupying of Indochina in 1984, France accelerated exploiting Vietnamese mineral resources (Blondel, 1931). During the World War II, practically all minerals were exploited for the purpose of the Japanese Empire's military campaigns into Southeast Asia mainland and Japanese domestic production (Kušnír, 2000; Chieu, 1986). From 1986, the year beginning economic reform, to now, Vietnam's large natural mineral resources have been one of the main factors attracting such a large amount of FDI inflow (Mirza & Giroud, 2004). Birhanu (1999) also emphasized the importance of sufficient deposit of minerals to host country attracting foreign investment, particularly the investing countries that are lack of natural resources. So I derive the following hypothesis:

H3: FDI in Vietnam is associated positively with host country's natural resources endowments.

2.3.3 Low Labor Cost

As the stated in neo-classical economic theory, labor cost plays an important role in the location decision of FDI, and being measured by the salary and wage paid to the employees

(Williamson, 2011). However, there are no direct historical data available, I use Gross National Income (GNI) per capita, the average income of a country's citizens, to reflect the average labor cost to companies. The availability of numerous cheap labors in China replaced the positions of employees from Europe and United States for the big wage gap on the same job (Sachs, 1996). Consequently, Vietnam, a country overall less developed than China with lower national wage level is expected to continually attract foreign investment. Thus:

H4: FDI in Vietnam is associated negatively with labor cost.

2.3.4 Host Inflation Rate

A volatile and unpredictable inflation rate in the host market creates uncertainty and discourages MNEs' FDI activities (Buckley et al, 2007). The high inflation rate devalues domestic currency, and reduces the real return on investment as a result. Hence, the government launches policies reducing inflation rate to create an investment environment with less risk (Birhanu, 1998). Therefore, a low and predictable inflation rate is expected to stimulate the inflow of FDI, and vice versa. Thus:

H5: FDI in Vietnam is associated negatively with host country inflation rates.

2.3.5 Exchange Rate

An undervalued exchange rate of host country creates more profitable opportunities for foreign investment, since the real value of foreign investors' capital assets goes up (Kohlhagen, 1977; Logue & Willet, 1977; Stevens, 1993). Translate it into the common language that the foreign currency becomes more valuable, so the foreign investors can spend less on the same project in host market than the expense required before, when we assume the price staying still in a short time. It is also the reason for exports growth when the host currency gets worthless. However, it is not always the truth for frequent and continuous declines in the value of host currency (Accolley et al, 1997), because we know that capital is more like to arrive in a stable environment (Bussea & Carsten, 2005). For the steady-decreasing nominal exchange rate, given as VND/USD, in the last decade, which

indicates a relatively stable capital market in Vietnam, therefore I hypothesize that:

H6: A relative depreciation of the host country's currency results in increasing FDI inflow to Vietnam.

2.3.6 Exports and Imports

Theoretically, FDI happens for differences in factors endowment between the host and home countries. It can explain why half of FDI in Vietnam has flown to the competitive industries of Vietnam (Pham, 2001) of which Vietnam is rich. Capital flows from affluent countries to developing countries with abundant and cheap labor in exchange for finished products (Nguyen & Nguyen, 2007). In Vietnam, contribution of FDI toward export to the total export has increased significantly in the last two decades (Schaumburg, 2003). Further, FDI in such export-oriented industries has been the main force driving the fast growth of exports. Thus:

H7: FDI in Vietnam is associated positively with Vietnam's exports.

Understanding literally, the relationship between FDI inflow and import to Vietnam seems negative, contradict to the above hypothesis. However, it is not the case, since both exports and imports indicate the intensity of trade relations (Buckley et al, 2007). As the home country investing overseas, from the National view, no government is content to endure a standing large imbalance of international trade and approaches to diminish it. Just like U.S. government spare no effort to push RMB Yuan up in order to solve the domestic socio-economic problems, like unemployment, partly related with trade deficits with China year after year. In the company level, once the small-scale FDI in the early phase was running successfully, it predicts a more substantial investment followed (Buckley & Casson, 1976), including manufacturing facility, advanced technology and high-level specialist in the case of investing a developing country like Vietnam. Thus, I derive the following hypothesis:

H8: FDI in Vietnam is associated positively with Vietnam's imports.

2.3.7 Political Risk

A country experiencing political disputes or crises will discourage market-oriented companies investing local production directly, and reversely turn to arm's length serving modes, i.e., exporting or licensing (Buckley et al, 2007); for resource-oriented firms, the substantial sunk costs in advance are the biggest barrier preventing them from investing in such an instable country (Buckley & Casson, 1981, 1999). The political risk index can be used to measure the political stability of host countries, which integrate 12 components measuring various dimensions of the political and business environment of an economy. The higher value of index indicates higher political stability. Thus, I hypothesize that:

H9: FDI in Vietnam is associated negatively with increasing political risk of host country.

2.3.8 Openness to FDI

Openness to local market to foreign investors makes the precondition for FDI movements, which can be regarded as the contribution of total trade (import plus export) to GDP. Multinationals prefer to locate in a country with more open investment environment (Chakrabarti, 2001), since the imperfections of local market, e.g. trade protection, will lead to rising transaction costs, which can be meliorated when the level of openness going up. After opening the door to foreign investors, Vietnam's export growth contributes much more for the GDP arising (Hoang, 2006). For the above findings, a positive relationship can be expected, thus:

H10: FDI in Vietnam is associated positively with the degree of openness of host country's investment environment.

2.3.9 Infrastructure Development

The inefficient infrastructure means high costs for transaction, which also weakens competitiveness of host country attracting foreign investment. So a good infrastructure creates a favorable climate for FDI because of the easy and speedy access to potential market and natural resources. Birhanu (1999) indentified the service infrastructure provides

affects FDI inflow, covering telecommunication service, roads, ports and railways network, water and electronic supply, information system, and institutional service. Considering the availability of data for a long period of time required by my research, rail line is chosen as the measurement for the level of infrastructure development. Thus, I predict a positive relationship as the following hypothesis:

H11: FDI in Vietnam is associated positively with level of infrastructure development in host country.

2.3.10 Linear Regression Function

Since all the dependent variables involved are in different dimension (unit), such as million dollars, percentage, and kilometers, I transfer them into the natural logarithm form as the way of standard processing (Weisberg, 2005).

To find out the significant determinants of FDI in Vietnam, a linear regression function is introduced based on a body of theoretical and empirical researches (Equation 1):

$LnIFDI = \alpha + \beta_1 LnGDP + \beta_2 LnGDPG + \beta_3 LnNRE + \beta_4 LnGNI + \beta_5 LnINF + \beta_6 LnEXR + \beta_7 LnEXP + \beta_8 LnIMP + \beta_9 LnPRI + \beta_{10} LnOFDI + \beta_{11} LnID + \varepsilon$

3. Methodology

3.1 Research Design

The purpose of my study is to find out the significant determinants to FDI inflow in Vietnam, by the means of hypothesis-testing (Sekaran, 1992). The category of research depends on how much knowledge obtained before starting the research, and the type of information required to achieve goal of the thesis.

A descriptive research will be operated based on existing theories and information within a limited research area (Foster, 1998), on the purpose of describing data and characters about the population or phenomenon being studied. The thesis organizes a descriptive study because of the leading position of Dunning's Eclectic Paradigm for the main studies on the topic of location decision by MNEs, and the linear regression function build to find the relationship between FDI inflow performance (dependent variable) and characteristics of Vietnam's market (independent variables). There are two research approaches (Denscombe, 2000), opposite to qualitative research, a quantitative research method is suitable to my thesis, since it is mainly based on collecting and analyzing quantitative data (Bryman, 2001) with well defined model to investigate the association between quantitative properties and phenomena.

3.2 Data Collection

All data involved in this study is secondary, nevertheless, there are relevant and reliable for the reasons that I will use the same technique in Buckley et al's (2007) research for reference, each testing objective, the relationship between dependent and independent variables can be measured quantitatively, supported by trustworthy data sources like World Bank, IMF, UNCTAD data base, Vietnam Statistical Yearbook, etc.

As to the step to identify determinants to FDI decision in location aspect, the articles are searched in online databases such as Science Direct, and website such as Google Scholar, by using key words or the names of economists who made a contribution somewhat with

respect to this topic. The articles are preferred for the higher frequency being cited, as well as the relevance. Appendix 1 summarizes the main vein of determinants have been explored, being grouped into economic factors, such as host market size, growth, natural resource, labor, export and import and so forth, and non-economic factors like political stability and geographic distance. There is more concern about the influence of economic factors on FDI decision for a mass of empirical literature released; in contrast, the empirical studies on non-economic factors only account a small number. There are many sources providing data for the quantitative part of the research, see Table 1 for the information in detail.

Hypotheses	Proxy	Expected Sign	Data Source	Referred Article[1]
FDI (dependent variable)	Annual inflow of Vietnamese FDI		UNCTAD FDI database	1)
Host market size (H1)	GDP: Host country GDP	+	UNCTAD FDI database	2)
Host market growth (H2)	GDPG: Annual percentage increase in GDP	+	UNCTAD FDI database	2)
Natural resource (H3)	NRE: The ratio of mineral exports to merchandise exports of host country	+	World Bank Development Indicator	2)
Labor cost (H4)	GNI: GNI per capita of host country	-	World Bank Development Indicator	3)
Host inflation rate (H5)	INF: Annual inflation rate of host country	-	IMF-World Economic Outlook Database	2)
Exchange rate (H6)	EXR: Annual average exchange rate of host currency against USD	+	World Bank Development Indicator	2)
Exports (H7)	EXP: Vietnam's exports to home country	+	Vietnam Statistical Yearbook	2)
Imports (H8)	IMP: Vietnam's imports from home country	+	Vietnam Statistical Yearbook	2)
Political risk (H9)	PRI: Host country's political risk index (lower values mean more risk)	+	International Country Risk Guide	2)
Openness to FDI (H10)	OFDI: The ratio of inward FDI stock[2] to host GDP	+	UNCTAD FDI database	2)
Infrastructure Development (H11)	ID: The length of rail line in host country	+	World Bank Development Indicator	1), 3)

Table 1: The determinants of Vietnamese FDI inflow. All monetary values are in USD.

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[1] 1) Hoang (2006); 2) Buckley et al (2007); 3) Nguyen & Nguyen (2007).

[2] FDI stock is the value of the share of capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprise. Inward stock is the value of the capital and reserves in the economy attributable to a parent enterprise resident in a different economy. The ratio of inward FDI stock to GDP of the host country is constructed to measure the degree of openness to FDI in host market.

3.3 Method

Before doing the regression analysis, we need to test the validity of available data at first. Only the variables which are normally distributed can be processed further. In addition, the one with too many missing value should be deleted for the invalid analysis resulted.

Correlation is used to test the degree of association between variables. The high correlation will influence the robustness of results. The correlation is measured by Pearson product-moment correlation coefficient, giving a value between +1 and −1 inclusive (Rodgers & Nicewande, 1988). What's more, the higher correlation indicates a possible problem---Multicollinearity, which means the explanatory variables are highly linearly correlated. Multicollinearity could influence the significance of variables; the higher Multicollinearity will bring to higher standard errors. A practical consequence of Multicollinearity is that it reduces the significance of the coefficient of a particular x, the coefficient is significant but observer would not detect. Meanwhile, Multicollinearity is a problem of degree and not of kind. The Tolerance and Variance Inflation Factor (VIF) will be used to quantify the severity of Multicollinearity in the ordinary least squares (OLS) regression analysis (Hair et al, 2006).

Another problem which will influence the results of regression analysis is missing value. One of the effective methods to deal with this problem is multiple imputations. Rubin's (1987) multiple imputation procedure replaces each missing value with a set of plausible values that represent the uncertainty about the right value to impute.[3] After the imputation procedure, our dataset is free of missing values.

As to the linear regression analysis, the statistical model of OLS is a method for estimating the effects of one or more independent variables on a continuous dependent variable and the regression coefficient in the front of each independent variable indicate the degree of significance to the dependent variable. Thus, I will use OLS to analyze the data for all the estimations.

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[3] http://support.sas.com/rnd/app/papers/multipleimputation.pdf

The results may vary for the different ways of grouping data. To investigate heterogeneity within the data, I will break the dataset in two ways. First, I investigate the impact of Vietnam's accession to the Association of Southeast Asian Nations (ASEAN) dating from 1995. Joining in ASEAN is considered to attract more foreign investment in Vietnam, since Vietnam also signed the Protocol for the accession to ASEAN Free Trade Area (AFTA), a trade arrangement aiming at reducing tariff rate and removing non-tariff barriers among all ASEAN countries to increase competitive edge as a production base in the global market. Consequently, I divided the period into 1986-1994 and 1995-2009. Second, provided by Vietnam Statistical Yearbook, 47 economies in total are home to Vietnam's inward FDI in period 1988-2009 in term of numbers of projects and total registered capital. I am curious about whether the economies vary in the different stages of economic development will also vary in their investment behavior. In other words, it is possible that significance of the same determinant will be different according to the level of nations' economic development. Therefore, I select the membership status of Organization for Economic Co-operation and Development (OECD) to draw the line for the developed countries with widely-agreed, mature market economic structure, and the developing countries who are improving their economic structure (See Table 2).

OECD Countries	Non-OECD countries
Australia, Austria, Belgium, British West Indies, British Virgin Islands, Canada, Czech Republic, Denmark, France, Germany, Luxembourg, Poland, Israel, Italy, Japan, South Korea, Turkey, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States	Bahamas, Belize, Bermuda, Brunei, Bulgaria, Cayman Islands, Channel Islands, China, Cook Islands, Cyprus, Hong Kong SAR (China), India, Indonesia, Malaysia, Mauritius, Panama, Philippines, Russian, Samoa, Singapore, Taiwan, Thailand, United Arab Emirates

Table 2: *Foreign Direct Investment in period 1988-2008 by countries. Source: GSO.*

4. Results and Discussion

4.1 Research Background – An Overview of FDI in Vietnam

After 1986, adopting economic innovation policies, Vietnam opened its door to global investors, and the National Assembly enacted the 'Law on Foreign Investment' to encourage multinationals investing capitals and technologies in Vietnam, guaranteeing the ownership and rights of foreign investors in jure. In the following years, a series of revised policies including tax and tariff, monetary, land, etc, have been put in place to improve the investment environment. Vietnam has become the third competitive economy attracting FDI in the ASEAN behind Singapore and Malaysia (Mirza & Giroud, 2004).

4.1.1 Trend of FDI inflow in Vietnam

Figure 2 depicts the level of FDI in Vietnam from 1988-2005. Due to openness to FDI and policy liberalization, both registered capital and number of investment projects increased rapidly from 1988 to the mid 1990s. Meanwhile, the implemented capitals responded to all the adjustments a couple of years later, and the rate of growth was not as dramatic as the above two measures. After the 'investment boom' period, Vietnam underwent an economic
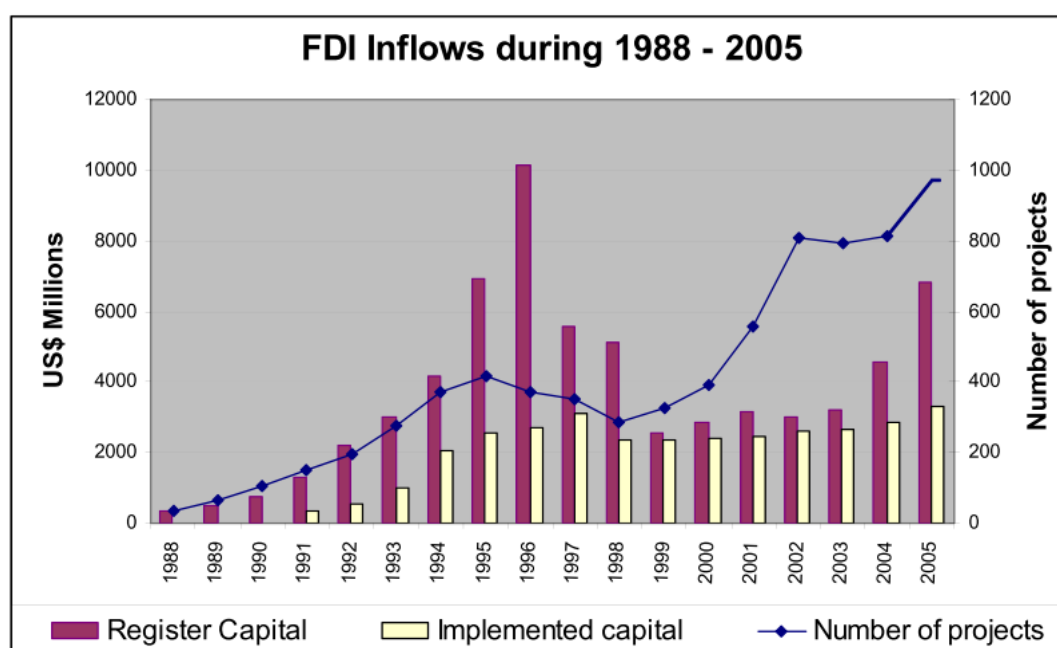

Figure2: FDI inflows into Vietnam during Period 1988-2005. Source GSO.

recession for the Asian economic crisis (Nguyen & Nguyen, 2007). The FDI inflow started to recover from 1998, a going-up tendency for all the measures of inward FDI was shown clearly in the figure. Regional recovery and the Bilateral Trade Agreement with U.S. drove Vietnam's economy takeoff again in the early stage; the positive influence of Vietnam's accession in the World Trade Organization (WTO) was the impetus for continuing growth (Nguyen & Nguyen, 2007).

4.1.2 Countries of Origin

Table 3 lists the top 10 foreign countries based on their cumulative investment during 1988-2006, which contributed around 80% to the total investment. The investment from East and Southeast Asian Regions dominated the list for 6 out of 10 countries, contributing 63 percentage of the total FDI capital. European investors maintained their advantageous position somewhat for the historical connection with Vietnam. More inward FDI from U.S. flows to Vietnam after signing the Bilateral Trade Agreement (Parker et al, 2005).

No.	Countries and Territories	Number of projects	%	Total capital	%	Registered capital	%
1	Taiwan	1550	0.23	8112.35	0.13	3576.90	0.13
2	Singapore	452	0.07	8076.01	0.13	2982.22	0.11
3	Korea	1263	0.19	7799.43	0.13	3228.95	0.12
4	Japan	735	0.11	7398.91	0.12	3277.00	0.12
5	Hong Kong	375	0.06	5279.52	0.09	1952.51	0.07
6	British Virgin Islands	275	0.04	3225.64	0.05	1133.75	0.04
7	Netherlands	74	0.01	2365.34	0.04	1373.47	0.05
8	France	178	0.03	2197.72	0.04	1339.94	0.05
9	US	306	0.04	2111.46	0.03	1151.24	0.04
10	Malaysia	200	0.03	1647.85	0.03	763.17	0.03
	Total	5408	0.79	48214.24	0.80	20779.13	0.78
	All countries	6813		60473.69		26505.82	

Table 3: *FDI by country of origin during 1988-2006.*

4.1.3 Policy and Environment for FDI

Vietnam government aims at the long-term development to become an industrialized

country. Since 1987, successions of laws, regulations and policies have been adopted to remove obstacles and threats preventing foreign investment in Vietnam. The adverse factors cover many aspects, like protection of rights, preferential treatment and investment form, which are more liberal than those of its neighbor countries (Schaunmburg, 2003).

Amending and replacing laws and policies are the methods to tackle the newly arising problems and accommodate to the changing domestic and foreign investment environment. The first 'Law on Foreign Investment' was passed in 1987, being revised in 1992, 1996, 2000, and finally being substituted by a new law integrating domestic and foreign investment (Unified Investment Law, 2006). In addition, some changes are made on the purpose of tax reduction, investment convenience and advance technology introduction.

Some of these changes are due to internal motivation and others are caused by external pressure (Nguyen & Nguyen, 2007). Take the accession to the WTO as an example that on account of the basic principle of non-discrimination under WTO; National Assembly of Vietnam replaced all related old laws, regulations and policies on domestic and foreign investment for the entry ticket in to WTO (Nguyen & Nguyen, 2007).

Despite the obvious improvement of investment environment and rapid development of economy, there are still some hidden troubles behind the well-performing appearance. Such as the high rate of corruption in Vietnam was ranked at the end part of 158 countries surveyed, which expects more focus on the efforts to fight against corruption (Nguyen & Nguyen, 2007).

4.2 Result and Discussion

First, for the insufficient data about natural resource endowment, the missing values dominates more than half, I have to delete it from analysis. In Table 4, correlation matrix is shown and indicates that there are no general problems with the data, since most correlations between each pair of independent variables are less than 0.80 (Hair et al, 2006), except the one in EXP-IMP, for a little bit higher result, 0.805, I decide to keep them separately for the simplicity of research. Table 5 is to test the multicollinearity by variance

inflation factor (VIF) and tolerance. The rules of thumb to estimate the degree of multicollinearity for both indicators are subject to more than 10 and less than 0.1. For no VIF>10 and no tolerance <0.1 (http://statisticssolutions.blogspot.com/2009/01/linear-regression-analysis-and-logistic.html) the results indicate no serious multicollinearity in this analysis.

	LnGDP	LnGDPG	LnGNI	LnINF	LnEXR	LnEXP	LnIMP	LnPRI	LnOFDI	LnID
LnGDP	1.000									
LnGDPG	0.774	1.000								
LnGNI	0.129	0.583	1.000							
LnINF	0.285	0.344	-0.198	1.000						
LnEXR	-0.261	0.182	-0.274	-0.098	1.000					
LnEXP	0.657	0.395	-0.128	-0.397	0.041	1.000				
LnIMP	0.540	-0.086	-0.142	-0.321	-0.129	0.805	1.000			
LnPRI	-0.178	0.295	0.131	-0.049	0.256	-0.204	0.022	1.000		
LnOFDI	-0.263	-0.192	0.339	-0.186	0.007	0.125	-0.006	0.192	1.000	
LnID	0.087	-0.033	0.095	0.007	0.137	-0.128	0.290	-0.041	-0.298	1.000

Table 4: Correlation Matrix

Variable	VIF	Tolerance
LnGDP	7.32	0.137
LnGDPG	6.81	0.147
LnGNI	3.56	0.281
LnINF	1.42	0.704
LnEXR	3.37	0.297
LnEXP	6.61	0.151
LnIMP	7.94	0.126
LnPRI	1.05	0.949
LnOFDI	2.12	0.472
LnID	2.04	0.490

Table 5: Multicollinearity indicators

4.2.1 Result of population estimation

The result of the regression reported in Column 1 (See Table 6) shows that, market size (GDP),

market growth (GDPG), exchange rate (EXR), exports (EXP) and imports (IMP) are all

Variable	Coefficients	Coefficients 1986-1994	Coefficients 1995-2009	Coefficients OECD	Coefficient Non-OECD
LnGDP	1.230 (3.684)**	1.568 (4.099)**	1.095 (3.878)**	1.231 (3.748)**	0.893 (2.331)*
LnGDPG	0.772 (0.925)**	0.873 (1.336)**	0.703 (0.834)**	0.832 (1.321)*	0.534 (0.747)*
LnGNI	1.469 (1.025)**	-0.508 (0.532)*	1.680 (1.307)**	1.508 (1.383)	-0.289 (0.375)
LnINF	0.947 (0.487)	0.748 (0.587)	0.992 (0.405)	0.798 (0.306)	0.988 (0.545)
LnEXR	0.256 (0.507)*	0.345 (0.491)*	0.218 (0.894)*	0.220 (0.339)	0.404 (0.683)*
LnEXP	1.09 (1.302)***	1.425 (1.441)***	0.883 (0.544)**	0.933 (0.743)**	1.237 (1.505)**
LnIMP	0.722 (0.544)**	0.568 (0.485)**	0.877 (1.433)*	0.875 (1.033)**	0.555 (0.342)*
LnPRI	-0.171 (1.504)	-0.200 (1.856)	-0.104 (0.943)	-0.092 (0.345)	-0.228 (1.833)
LnOFDI	-0.831 (1.036)*	0.550 (0.700)	-1.081 (1.455)*	-0.942 (1.334)	0.244 (0.456)
LnID	0.219 (1.281)	0.013 (0.147)	0.630 (1.403)*	0.274 (1.430)	0.200 (0.834)
Adjusted R^2	0.561	0.528	0.625	0.504	0.583

Table 6: *Results for the determinants of FDI in Vietnam.*

Note: 1. Standard errors are in parentheses. 2. *, **, *** indicate significance at the 10%, 5%, 1% level

significant and correctly signed. Conversely, the expected sign of labor costs (GNI) and openness to FDI (OFDI) are not supported but both of them are found to be significant. The hypotheses of inflation rate (INF), political risk (PRI) and infrastructure development (ID) are not supported for insignificance. More findings are going to illustrate in the following part.

Both market size and market growth of Vietnam present a positive and significant influence on FDI inflow. The data indicates that 1% increase of each of them will lead to FDI inflow increasing by 1.23% and 0.77% respectively. The result reveals the strong motivation of foreign investors to seek more market in Vietnam, which is an undiscovered and emerging economy with a large potential for consumption. The exchange rate of Vietnam Dong against US dollar is also found to have a significant and positive effect on FDI inflow in Vietnam. This result is consistent with my expectation that a depreciation of exchange rate strengthens host market's competitiveness due to lower cost of manufacturing assets and natural source, and therefore more FDI are injected into Vietnam market. It is also supported by Vietnam's frequent going-down exchange rate regulation in practice, annual depreciation rate of 426%, from 166.73 to 17065.1 VND against 1 USD during the last 25 years (UNCTAD database). From the results of exports and imports, we can see the important role of international trade to attract foreign investment. A 1% increase in bilateral trade will lead to 1.09% and 0.72% FDI inflow increasing in terms of exports and imports. As expected in hypothesis, export positively affects FDI inflow, the contribution of FDI related export to the total export has increased from 2.5% in 1991 to 24.2% in 1999 (Schanmburg, 2003), at the same time, the FDI inflow has increased by 3 fold (calculated by UNCTAD database). Import is also a significant determinant of FDI inflow with a positive effect when the bilateral-trade relationship is getting closer and deeper.

Labor costs and openness to FDI are both significant but with opposite impacts on FDI inflow against my estimation. Cheap labor inputs are obviously attracting foreign investment; however, it is not always the first requisite in knowledge-intensive industry, higher wage rate reflects the importance of high-skilled employees the foreign investors stressed (Wei & Balasubramanyam, 2004). For the industries mainly seek employees with less skill who

directly participate in the manufacturing activities, the result could be generated by a more complex condition. In 1992, the largest strike in recent Vietnamese history happened, demanding a 40%-48% wage increase, and then FDI enterprises were asked to increase the minimum wage by the Ministry of Labor (http://www.greenleft.org.au/node/34670). It is taken granted that in an ever-developing country, the low level of salary for employees will be maintained in a long period of time when the socio-economic issue about income and expenditure imbalance is getting intensified, especially in a country with keep-growing inflation rate, strike becomes more frequently. For the legal reason, foreign investor were forced to increase their budget for labor cost, but it does not mean a recession of FDI inflow as long as the labor cost needed by a specific industry is still lower than it rival country, the positive influence on FDI inflow will not change. Out of my expectation, openness to FDI is negatively associated with FDI inflow, which requires further discussion. Maybe we can find some clues in the research about Africa operated by Kandiero and Chitiga (2003), revealing a mixed relationship between trade openness and FDI inflow. Trade openness is negatively associated with FDI inflow in primary sector, which is defined mainly as oil and minerals extraction business, the share percentage decreased from27.2% in 1988 to 7.78% in 2005 in the context of Vietnam, meanwhile, trade openness has a positive impact on FDI inflow in service sector, such as telecommunication, tourism, banking and finance serve, etc, the share percentage increased from 26.4% to 35.6% at the same period of time (Calculated by MPI database). For the similar results of experiment with Africa and Vietnam, perhaps the findings of former one is valuable for us to understand the latter research. Kandiero et al said that for more gains in service sector with the increasing degree of trade openness, capital injections going to primary sector reduced, in the meantime, the state-owned capital returned and dominated the primary sector. Finally, the aggregated result shows a negative association in total. Unfortunately, the inter-sector influence within FDI inflow cannot be explained for being out of my research.

No evidence showing inflation rate, political risk and infrastructure development significant which suggests that these three characteristics of host market have little influence on FDI inflow under this research arrangement.

4.2.2 Result of Heterogeneity Research 1: Changes over time

To investigate whether the determinants of FDI inflow in Vietnam changed after participating in ASEAN, the whole period is divided into two parts around 1995. The paired results are displayed in Column 2 and 3 of Table 6. From the comparison, more determinants involved to explain the variation of FDI inflow after 1995. Market size and market growth still play important roles driving FDI inflow increasing, which implies market-seeking motivation of foreign investors. The result of export and import are similar to the ones mentioned above. Hypotheses of inflation rate and political risk are not supported in the both time periods.

The difference in locational determinants formation can be found in labor cost, trade openness and infrastructure development. GNI is shown significantly stimulating FDI inflow before and after becoming an ASEAN nation, but being signed oppositely. The change reflects two things: first, Vietnam is working at industry transition from labor-intensive industry to skill-intensive industry on the purpose of profit maximization. Second, foreign investors are not only motivated by cost reduction, but also seeking high-quality employees, which is worthy to spend limited cost more on labor for bigger potential profit. Openness' role on FDI inflow changes from a non-significantly positive characteristic to a significant negative determinant. It is not an isolated finding, which is supported by another case study of Malaysia (Baharom et al, 2008). They concluded that trade openness is positively in short time, but negatively long time, which is opposite to the expectation, since improperly high degree of trade openness may cause some radical changes in inflation rate, exchange rate and so forth, and finally aggravates the investment environment (Andriamananjara & Nosh, 1997). From the openness to FDI changes over time, we can find a general tendency that keeps a low OFDI ratio until 1994 (<0.3), draw benefit from it or required by ASEAN, accelerate the opening speed up to 0.75 in 2003, and then slow it down to 0.53 in 2008, which can be understood as the dynamic process to find the proper degree of trade openness specific to Vietnam market. Infrastructure development is measured by rail lines in kilometer, the sharp contract just indicates the government's attitude to improve transportation system, which not only facilitates people's outgoing domestically, but also intensifies connection with other ASEAN nations around Vietnam geographically.

4.2.3 Result of Heterogeneity Research 2: Home Country Level of Economic Development

To indentify the distinctive patterns of inward FDI by home country, I divide all the countries investing in Vietnam in 1986-2009 into two sub-divisions, OECD and NON-OECD (See Table 7 for specific data), which somewhat implies the level of economic development of the nations. Comparing the data, the contribution from OECD countries finally surpassed the Non-OECD countries, and drove the period cumulative FDI inflow increasing dramatically, which may related with changed determinants. Looking at Column 4 and 5 of Table 6, the measures of host market size and growth rate, and bilateral trade (export and import) are still significant determinants as what have shown in earlier findings. There are more hypotheses cannot be supported for non-significant impact on FDI inflow, including labor costs, inflation rate, political risk, openness to FDI, and infrastructure development. The results highlight the determinate position of market-seeking motivation and international trade oriented purpose on capital movement in diversified arrangement of research. The difference in significance of exchange rate on FDI inflow needs further discussion. Developed countries had move ability to against the exchange-rate volatility than the countries with lower level of economic development, since they tend to specialize and decrease the sensitivity to such change (Frankel & Wei, 1993). However, exchange-rate volatility might discourage more programs and continuous capital injection from developing countries for the primary industry, like the clothing and toy manufacturing (Kiyota & Urata, 2004), the gains is not too much and significantly influenced by exchange rate.

	1988-1995	1996-2000	2001-2005	2006-2009
Cumulative FDI Inflow	5692	8863	7581	21689
Percentage by Home Economy (OECD vs. Non-OECD)	(37.2%, 62.8%)	(26.4%, 73.6%)	(45%, 55%)	(63.7%, 36.3%)
OECD countries	2117.4	2339.8	3411.5	13815.9
Non-OECD countries	3574.6	6523.2	4169.5	7873.1

Table 7: *FDI Inflow in Vietnam, by the development of Economy, 1988-2009*

Source: Calculated by the data from UNCTAD FDI database, MPI website (for sub-period) and GSO website for the whole period.

5. Conclusions and Limitations

To analyze the determinants of FDI in Vietnam during 1986-2009, since the year of 'open policy' implementation, a model is constructed that draws on a body of theories to test the influence of each characteristic on FDI inflow at the national level. Besides the results conforming to the hypotheses, there are still some results out of our expectations.

Market size and market growth stimulating FDI inflow in Vietnam is consistent with the previous studies, the attempts of foreign investors to gain market access. The expected results for bilateral trade, export and import, are also found, Vietnam's government has been working at conducting Bilateral Trade Agreement (BTA) yearly with each member countries of WTO. In view of the promotion effort of BTA on the inflow of FDI into Vietnam (Nguyen & Haughton, 2002; Parker et al, 2005), we can infer the benefit Vietnam obtained from export and import, and the willingness to boost them. Exchange rate is also significant determinant adjusting gradually to changing market conditions, which is keeping devalued for more export (http://en.wikipedia.org/wiki/Economy_of_Vietnam). Infrastructure development is only found to be important in period 1995-2009, partly account for the subject investigated, rail line. There is no change in the length of rail line in Vietnam until 2000, so only the data falling into the later period indicates a significant influence on FDI inflow. In fact, rail line is not the best indicator observing the development of infrastructure in this study for the limited territory to add in more miles of rails. The number of telephone per 10,000 residents is the indicator used in Hoang's (2006) and Nguyen and Nguyen's (2007) researches which is changing rapidly and necessary to all kinds of business. Unfortunately, the unavailability of data in early period of time prevents conducting this method, so I turn to rail line which has sufficient information, otherwise there will be one more independent variable failing to be investigated. Finally, considering the result of other research (Nguyen, 2006); there is a strong likelihood that infrastructure development influences FDI inflow in the general and sub-division significantly, if the observation period lasts longer or other kinds of measurement are available to be tested.

There are some paradoxes challenging our understanding on the results. Being contrary to what I expect that capital always flows toward the location with lower labor cost, the FDI inflow going up accompanies by employee's payment increasing. Besides the explanation provided in section 4.2.1, I think maybe it make sense that we consider this matter in another perspective. Efficiency-seeking (cost reduction) investors are more motivated by the ratio of input/output rather than the absolute cost of investment, companies are willing to encourage their employees in materiality for a promised higher return. As to the absence of significance in the second heterogeneity research, OECD versus Non-OECD, the results are generated somewhat for the disunited levels of economic development among the member states within OECD. Besides the most developed countries in the global rank, some developing countries are also absorbed like Turkey, which is less developed than Hong Kong, Singapore such Non-OECD economies. This is the most possible answer to lead to inability of labor cost explaining the variance on FDI inflow. Unfortunately, all the official data are present according to OECD nations or not, so this problem can be solved when we get access to data being categorized by other indicators reflecting economic development more accurately.

The sign of Openness to FDI is also contrast to our estimation. In fact, this result can be interpreted and does not contradict to our general knowledge that the more open a market is, the more foreign capital will move in. The 1997 financial crisis reduced the investment incentives of foreign investors and led to a prolonged effect that a sharp drop of inward FDI to Vietnam (Huang et al, 2004). Consequently, the ratio of inward FDI stock/host GDP decreased as a result. However, a positive association can be expected in a long run for the general increasing tendency of openness from 0.3 to 0.53 (See Section 4.2.2) with the diminishing impact brought by financial crisis.

Finally, there is basic concept challenging my research method that the relationship between FDI inflow and the characteristics of host country might not be described by OLS for non-linear association among them. For example, the data in Table 7 reflect an increasing (pre-2000)—slightly decreasing (2001-2005)—sharply increasing (2006-2006) tendency of

total FDI inflow. At the same time, the data of infrastructure development keep still and increase almost linearly after 1999, which cannot explain the reason of FDI inflow rise and fall. Therefore, some other kinds of method could be tried out for the future research.

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Appendix 1: Determinants of FDI – Empirical Evidence

FDI determinants factors	Proxy	Empirical finding	Authors
A. Economic Factors			
1. Host Market	GDP	+	Agarwal (1980), Tsai (1994), Wheeler & Mody (1992), Grosse & Trevino (1996), Wang & Swain (1997), Wei (1997, 2000), Billington (1999), Globerman & Shapiro (1999), Taylor (2000), Fung et al (2000), Farrell et al (2000), Bevan & Estrin (2000), Chakrabarti (2001), Ito & Rose (2002), Smarzynska & Wei (2002), Campos & Kinoshita (2003)
	GDP Growth Rate	+	
2. Natural Resource Endowment	Mineral Export	+	Mirza & Giroud (2004), Birhan (1999)
3. Labor Sector	Wages	+	Smith & Florida (1994), Noorbakhsk et al (2001), Strobl & Thomton (2001), Te Velde & Morrissey (2001, 2002), Matsuoka (2002)
		-	Urata & Hawai (1999), Blonigen & Slaughter (2001)
		Insignificant	Looree & Guisinger (1994), Wang & Swain (1997), Billington (1999), Globerman & Shapiro (1999), Noorbakhsk et al (2001)
	Human Capital	+	Woodward (1993), Broadman & Spatz (1997), Bende-Nabende et al (2000), Nachum (2000), Fung et al (2000), Nooebakhsk (2001)
		-	Root & Ahmed (1979), Schneider & Frey (1985), Hanson (1996), Narula (1996)
		mixed	Buckley et al (2002)
4. International Trade	Import	+	Billington (1999), Farel et al (2000)
		-	Grosse & Trevino (1996), Wang & Swain (1997)
	Export	+	Lipsey & Weiss (1981, 1984), Grosse & Trevino (1996), Goldberg & Klein (1999), Bajo-Rubio & Montero-Munoz (1999), Mankovska (2000), Blonigen (2001)
		-	Teo & Wang (2001)
	Degree of Openness	+	Woodward & Rolfe (1993), Taylor (2000), Asiedu (2002), Chakrabarti (2001), Kyrkilis et al (2003), Cieślik & Tarsalewska (2009)
		-	Billington (1999), Deabek & Payne (2001), Smarzynska & Wei (2002)

	Exchange Rate	+	Goldberg & Klein (1997), Wang & Swain (1997), Blonigen (1997), Cushman (1985)
		-	Campa (1993), Froot & Stein (1991), Blonigen (1995), Blonigen & Feenstra (1996), Gastanaga (2000)
		insignificant	Dewenter (1995), Kishinota (1998), Globerman & Shapiro (1999), Drabek & Payne (2001)
5. Government Policies	Inflation Rate	-	Woodward & Rolfe (1993), Taylor (2000), Chakrabarti (2001),Buckley et al (2007)
		insignificant	Asiedu (2001), Drabek & Payne (2001)
B. Non-economic Factors			
6. Infrastructure Development	Transportation network	+	Coughlin et al(1991), Broadman & Sun (1997), Chen (1997), Kumar (2001), Banga (2003)
7. Political Risk	Political Risk Index	-	Lucas (1990), Schneider & Frey (1985), Looree & Guisinger (1996), Bevan & Estrin (2000), Habib & Zurawicki (2002), Singh & Jun (1995), Buckley & Casson (1981,1999)
		insignificant	Bennet & Green (1972), Asiedu (2001), Morisset (2000), Grosse & Trevino (1996)
		mixed	Levis (1979), Nigh (1985).