DOES WORLD TRA E ORGANIZATION (WTO) MEMBERSHIP ACCOUNT FOR THE INCREASE IN FDI INFLOWS TO VIETNAM? WHAT ABOUT   ER FACTORS?

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Abstract

Despite many researches about the impact of WTO membership on FDI inflow to big developing countries like China, not many considers Vietnam even the country has become a member since 2007. Applying Random-effect technique for panel data from 1995 to 2011, ***the paper strongly supports the positive effect of WTO accession of Vietnam***. Besides, the paper does find out new stylized facts and also affirms previously mentioned ones in a deeper approach. Those stylized facts are *(i) The 1997 banking crisis leads to the rise in FDI into Vietnam, (ii) BIT between Vietnam and its partner does help the country attract more FDI, (iii) Infrastructure (proxied by Telephone or Internet user ratio) of Vietnam has a significantly positive impact on FDI, (iv) Tax rate reduction brings motivation for investors and (v) Investors do care much about Vietnam institution aspects of political stability and absence of violence, regulatory quality and control of corruption and the effect of these three institution determinants capture the WTO-accession impacts on FDI.*

Key words: *World Trade Organization, Foreign Direct Investment, Vietnam*

1. Introduction

Empirical studies regarding the role of World Trade Organization (WTO) membership have been heavily carried out from the perspective of trade since the controversial findings of Rose (2004). What Rose (2004) has found is that WTO accession has no significant contribution to countries' trade activities. Since then many scholars (Subramanian và Wei (2007), Tom et. al (2005)...) have done researches from different aspects and figured out various convincing empircial evidences about the effect of WTO accesions on the upward trade flows, economic growth and investment flows, especially Foreign Direct Investment (FDI).

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The impacts of WTO accesions on FDI have been concentrated strongly at country-level (rather than world-wide in the case of trade due to the data unavailability). Of all countries, especially developing countries, China attracts lots of interests from economists thanks to its large market size and high growth rate. Xiao (2000) in his empirical study examining how China's WTO accession changes inward FDI from 22 economies from 1984 to 1997 has pointed out the positive effect of WTO membership on China FDI inflows. He agreed with the point of view that WTO accession is a way for China to attract more FDI and showed that „tariff jumping" theory is not relevant in the case of China.[1] The explanation for the positive impact is that WTO membership helps China improve its investment environment and access foreign export markets easier. This encourages market-seeking and export-oriented investors to invest in China. Following Xiao (2000), Xu Yan (2002), Walmaley et. al. (2006) and Pham Thi Hong Hanh (2012) have also proved that FDI into China has boosted sharply after this country joined WTO.

In contrast to various researches about WTO accession impact on FDI inflows for such a big developing country as China, not so many researches for smaller developing countries like Vietnam have been done. Most researches focus on the change in economic growth and trade.[2] This is in constrast to the dramatic increase in FDI inflows to Vietnam since this country's entering WTO in 2007. According to Figure 1 from UNCTAD, FDI to Vietnam has risen drastically to more than 6000 million USD in 2007 from only around 3000 million in the previous years. In 2008, FDI reached the peak of nearly 10000 million USD. After 2008, FDI reduced but still more than 5000 million USD. That leads to the question whether WTO membership does influence FDI inflows to Vietnam?

In the author's knowledge, the research of Pham Thi Hong Hanh (2011) is the first empirical study about the general impact of Vietnam's WTO entry on FDI inflows. Applying gravity model for the data range of 1990-2008 and considering FDI from 17 partners into Vietnam (ballanced data), she confirms about the significantly positive effect of WTO membership on inward FDI to Vietnam. Her explanation is that the import-tarriff reduction originated from Vietnam's commitments helps investors save their costs from importing, motivating them to invest more. Depite being considered the first empirical research, the paper causes concerns about the ignorance of the WTO membership impact from the perspectives of new partners' FDI creation. This problem appears because

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[1] The "tariff jumping" theory explains about the negative impact of WTO membership on FDI inflows to China. The WTO entry leads to the increase in trade (due to the lowering tariff and other barriers), de-motivating "Tariff-jumping" FDI investors (who are interested in implementing FDI to avoid import tariff).

[2] Development Strategy Institute (2008) in the report "Evaluating the impact of WTO accession on Vietnamese economy by applying Computable General Equilibrium (CGE) method" points out that entering WTO has positively affected economic growth, export and investment. However, the evidence for investment flows (especially FDI) is still ambiguous. MUTRAP (2008) also published the report "Evaluating the comprehensive impact after VN becomes a WTO member on the change in export, import and institution" without much information for FDI. Also stressing on trade, Valin and Boumellasa (2008) applying a dynamic multi-region sector CGE indicates that Vietnam gains from WTO accession for goods commitments, but this benefit heavily depends on textile and apparel sectors.

Figure 1: Foreign Direct Investment into Vietnam for the period of 1995-2011

Unit: Million USD
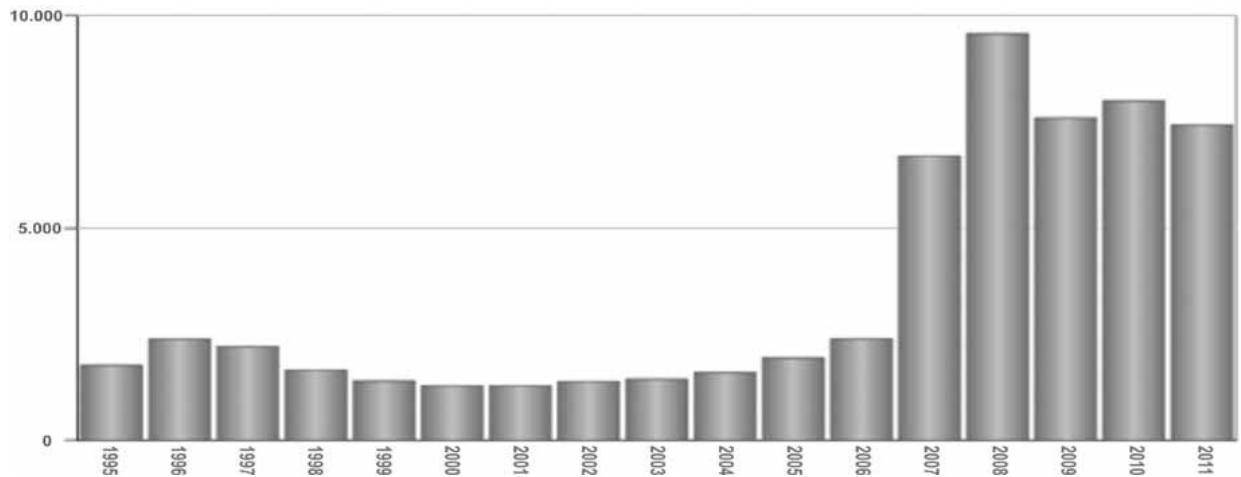
(* in current price and exchange rate)

Source: UNCTAD Online-Statistic Database

Pham Thi Hong Hanh just uses the data for 17 countries who have been Vietnam's partners for the whole research period. After Pham Thi Hong Hanh (2011), Nguyen Dinh Chien (2012) in his research just concludes about the increase in FDI inflows to North Central Region and South Central Coast, but not the overall country after Vietnam joined WTO in 2007. Besides these two studies, the most recent paper the author is aware of is of Hoang Chi Cuong (2013). Constructing a gravity model for the period from 1995 to 2011 of 18 Vietnam's major country partners, he discovered consistent results about the positive impact of WTO membership on FDI inflows to Vietnam. According to Hoang Chi Cuong (2013), there are two channels through which WTO membership affects FDI inflows. The first is that WTO accession is accompanied by the tariff reduction, which benefits imports of investors, gives them signals about the more liberal policies of host countries and reassures them about the future profits as well. The second is that WTO membership represents the commitments of host countries' government about policy stability, predictability and good governance. All of these motivates investors to put more money into Vietnam. Even the mechanisms are explained clearer, the results of Hoang Chi Cuong (2013) cause selection bias as most of 18 mentioned partners are developed countries. This also ignores the effect of smaller partners and "new" partners since Vietnam enters WTO. Besides these three papers, the author doesn't perceive any other empirical papers about this issue.

To narrow the gap, the paper does further research on the effect of WTO membership of Vietnam on FDI inflows for a larger samples covering all 64 partners for the period from 1995 to 2011 and affirms that *WTO membership of Vietnam does help the country to attract more FDI*. Besides, some new stylized facts have been found out and some have been confirmed. These include (i) The banking crisis in 1997 leads to the increase in FDI into Vietnam, (ii) BIT

between Vietnam and its partner (country i) does help attract FDI, (iii) Infrastructure (proxied by Telephone and Internet user ratio) of Vietnam has a significantly positive impact on FDI, (iv) Tax rate reduction brings motivation for investors and (v) Investors do care much about Vietnam institution aspects of Political Stability and Absence of Violence, Regulatory Quality and Control of Corruption and the effect of these three institution determinants capture the WTO-accession impacts on FDI.

The remainder of the paper is organized as follows. Section 2 presents the data. Next section is about the empirical strategies. Section 4 shows the main results and robustness checks. The final section is the conclusion.

2. Data

This section discusses briefly about the data to construct the sample with the range from 1995 to 2011.

FDI data: The author collects the data from country i to Vietnam at time t from different reputable sources such as Vietnam General Statistis Office (GSO) - Statistical Year Book, Ministry of Planning and Investment, ASEAN Statistical Year Book, Nguyen Thanh Xuan and Yuqing Xing (2006) and Pham Thi Hong Hanh (2011).[3]

WTO membership: This explanatory variable is constructed using the official information from WTO website. WTO_{it} and WTO_{vnt} are two dummies which are equal to one since the year of country i/Vietnam's becoming WTO member and zero otherwise.

Country characteristics: Yearly data for country i and Vietnam such as Gross Domestic Product (GDP), Infrastructure (measured by the telephone user ratio, Internet user ratio, number of airport departures), Labor quality (measured by number of secondary school graduation people), Inflation, Interest rate and Tax rate are provided by World Bank. The Real Exchange rate is taken from Bruegel Exchange rate data of Darvas (2012).

Time-invariant data: Variables such as Distance ($Dist_{ivn}$) and Common Border ($Contig_{ivn}$) are from the Institute for Research on International Economy (CEPII).

Crisis data: From the banking crisis of Laeven and Valencia (2012), the dummy $Crisis_{it}$ is constructed with the value of one from the year that country i is affected by the banking crisis until it is not affected anymore. The value is equal to zero otherwise.

Integration data (BIT_{ivnt} and $ASEAN_t$): Data for Bilateral Investment Treaties between Vietnam and its partners is supplied by United Nation Conference on Trade and Development (UNCTAD) statistics in 2012. Information about ASEAN members is taken directly from the website of ASEAN Secretariat. The Openness is from Penn World Table 7.1.

Institution data: Indexes for countries' institution such as Political Stability and Absence of Violence ($Prspv_{it}$ and $Prspv_{vnt}$), Regulatory Quality ($Prsrq_{it}$ and $Prsrq_{vnt}$), Control of Corruption ($Prscc_{it}$ and $Prscc_{vnt}$), Voice and Accountability ($Prsva_{it}$ and $Prsva_{vnt}$), Government Effectiveness ($Prsge_{it}$ and $Prsge_{vnt}$) and Rule of Law ($Prsrl_{it}$ and $Prsrl_{vnt}$) are from the PRS Group 2012.

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[3] As the overlapping in the data from different sources appears, the priority will follow the above listed order.

3. Empirical strategies

The gravity model is applied to consider the impact of WTO accession on FDI inflows to Vietnam. The main empirical specification for random effect model for panel data is as follows:

$$LogFDI_{ivnt} = \alpha_1 WTO_{it} + \alpha_2 WTO_{vnt} + \beta_1 Loggdp_{it}$$
$$+ \beta_2 Loggdp_{vnt} + \beta_3 Logdist_{ivn}$$
$$+ \beta_4 Contig_{ivn} + \beta_5 Logexchangerate_{it}$$
$$+ \beta_6 Logexchangerate_{vnt} + \beta_7 Crisis_{it}$$
$$+ \beta_8 Crisis_{vnt} + \beta_9 Lag1crisis_{vnt}$$
$$+ \beta_{10} Lag2crisis_{vnt} + \gamma_j W_{ivnt} + \varepsilon_{ivnt}$$

where i denotes country i, vn denotes Vietnam, t is year t.

LogFDI_{ivnt} is the FDI inflow from country i to Vietnam in year t;

Wto_{it}/WTO_{vnt} is a dummy variable which is equal to 1 if country i/Vietnam is a GATT/WTO member in year t and 0 otherwise;

LogGDP_{it}/LogGDP_{vnt} denotes the log gross domestic product of country i/Vietnam in year t;

LogDist_{ivn} is the log distance between country i and Vietnam;

Contig_{ivn} is a dummy variable with the value of 1 if country i and Vietnam have common border and 0 otherwise;

Logexchangerate_{it}/Logexchangerate_{vnt} is the natural logarithm of real exchange rate of the currency of country i/Vietnam against the US. Dollars in year t (2007 is the base year);

Crisis_{it}/Crisis_{vnt} is a dummy variable which is equal to one if country i/Vietnam is affected from a banking crisis in year t and zero otherwise.[4]

W_{ivnt} is a vector including the following variables:

BIT_{ivnt} is a dummy variable which is equal to one if a BIT between country i and Vietnam is enforced in year t and zero otherwise;

Asean_{i} is a dummy variable which is equal to one if country i is an ASEAN member;

Telephone_{it}/Telephone_{vnt} is the percentage of telephone users in country i/Vietnam in year t;

Internet_{it}/Internet_{vnt} is the percentage of internet users in country i/Vietnam in year t;

Logairportdepart_{it}/Logairportdepart_{vnt} is the log of the number of airport departures of country i/Vietnam in year t;

Logneducation2nd_{it}/Logneducation2nd_{vnt} is the number of secondary school graduates;

Taxrate_{it}/Taxrate_{vnt} is the tax rate (of profit) in country i/Vietnam in year t;

Inflation_{it}/Inflation_{vnt} is the inflation rate of county i/Vietnam in year t; ***Diffinflation_{ivnt}*** is the difference in inflation between country i and Vietnam;

Realinterestrate_{it}/Realinterestrate_{vnt} is the real exchange rate of country i/Vietnam in year t;

Open_{it}/Open_{vnt} denotes the openness of country i/Vietnam in year t;

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[4] Laeven and Valencia (2012) consider a country being affected by a banking crisis when two conditions are met. (i) There exist significantly negative changes in the banking system (such as loss, reduction in liability) and (ii) The government has important banking policy intervention in response to the above negative changes in the system. Based on these two conditions, Vietnam is only regarded by Laeven and Valencia (2012) to be affected by banking crisis in 1997, but not 2008.

***Tradeofgdp*$_{it}$/*Tradeofgdp*$_{vnt}$** is the ratio of trade and gross domestic product of county i/ Vietnam in year t;

***Prsva*$_{it}$/*Prsva*$_{vnt}$** is the index of Voice and Accountability of country i/Vietnam in year t;

***Prsge*$_{it}$/*Prsge*$_{vnt}$** is the index of Government Effectiveness of country i/Vietnam in year t;

***Prscc*$_{it}$/*Prscc*$_{vnt}$** is the index of Control of Corruption of country i/Vietnam in year t;

***Prsrq*$_{it}$/*Prsrq*$_{vnt}$** is the index of Regulatory Quality of country i/Vietnam in year t;

***Prspv*$_{it}$/*Prspv*$_{vnt}$** is the index of Political Stability and Absence of Violence of country i/Vietnam in year t;

***Prsrl*$_{it}$/*Prsrl*$_{vnt}$** is the index of Rule of Law of country i/Vietnam in year t.

The coefficient of interest in the previous equation is, which measures the effect of Vietnam's WTO membership on FDI inflows. If the WTO membership does help Vietnam attract more FDI, this coefficient will be positive.

Table 1 presents the summary statistics of the main variables (See Appendix for information of further variables.

Table 1: Summary Statistics of Main Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
year	499	2004.224	4.620728	1995	2011
logfdi_ivnt	499	16.72465	2.625942	10.12663	23.42926
wto_it	499	.8857715	.3184077	0	1
wto_vnt	499	.3807615	.4860614	0	1
loggdp_it	499	26.17731	2.195478	19.52563	30.34572
loggdp_vnt	499	24.6838	.5447553	23.75514	25.54355
logdist_ivn	499	8.429519	.9157869	6.170767	9.780935
contig_ivn	499	.1002004	.3005683	0	1
crisis_it	499	.1643287	.3709454	0	1
crisis_vnt	499	.0360721	.1866568	0	1
logexchange~it	499	4.592649	.1337701	3.934003	5.086705
logexchange~vnt	499	4.644807	.0710537	4.527139	4.769778
bit_ivnt	499	.5911824	.4921088	0	1
asean_i	499	.246493	.4314014	0	1
telephone_it	497	35.88435	21.78851	.0763526	74.68774
telephone_vnt	465	9.325773	6.130069	1.047183	20.05423
internet_it	489	38.11494	29.77888	.0049923	93.45476
internet_vnt	482	13.89518	12.43168	.0001384	35.45008
logairport~it	431	12.04573	1.641718	8.073092	16.11505
logairport~vnt	453	10.77448	.3934418	10.20729	11.54696
logneducat~it	317	12.48183	2.12869	5.552959	16.83199
logneducat~vnt	382	12.84649	.4818609	12.09091	13.45841

4. Results

The first results of the WTO membership effect on FDI inflows to Vietnam are shown on Table 2. In all estimations, the identifier *Id* in the bottom of the tables refers to the individual identifier i-vn-t, for home country i, host country Vietnam and year t. The sample covers all 497 observations. The estimators for for both Fixed effect (FE) and Random effect (RE) model are displayed. Both models show relatively consistent coefficents, but a difference in the significance level of Loggdp. However, I do follow RE results due to the RE acceptance from Hausman test.

4.1 Baseline results

Baseline estimation results for the database of 497 observations are presented in Section 4.1. The basic variables are WTO membership (WTOit và WTOvnt), Gross Domestic Products (Loggdpit và Loggdpvnt),

Table 2: Baseline results for FDI

	$LogFDI_{ivnt}$			
	(1)	**(2)**	**(3)**	**(4)**
Wto_{it}	0.412	0.398	0.144	0.248
	(0.750)	(0.749)	(0.693)	(0.697)
Wto_{vnt}	**0.622****	**0.637****	**0.566****	**0.629****
	(0.281)	(0.280)	(0.284)	(0.286)
$Loggdp_{it}$	0.00958	0.325	0.313**	0.244*
	(0.855)	(0.891)	(0.139)	(0.148)
$Loggdp_{vnt}$	1.116*	0.775	0.922***	0.819**
	(0.614)	(0.669)	(0.327)	(0.339)
$Logdist_{ivn}$			**-0.874****	**-0.762***
			(0.419)	(0.435)
$Contig_{ivn}$			-1.378	-1.378
			(1.560)	(1.509)
$Crisis_{it}$	0.133	0.249	0.192	0.244
	(0.267)	(0.264)	(0.283)	(0.276)
$Crisis_{vnt}$	0.440*	0.424*	0.470*	0.474*
	(0.256)	(0.243)	(0.258)	(0.247)
$Lag1crisis_{vnt}$	-0.327	-0.334	-0.263	-0.249
	(0.336)	(0.326)	(0.332)	(0.322)
$Lag2crisis_{vnt}$	**-0.777*****	**-0.815*****	**-0.736*****	**-0.759*****
	(0.276)	(0.281)	(0.278)	(0.284)
$Logexchangerate_{it}$	0.416	0.122	0.145	0.371
	(1.645)	(1.710)	(0.806)	(0.794)
$Logexchangerate_{vnt}$	-1.830	-1.642	-2.389	-2.409
	(1.799)	(1.804)	(1.526)	(1.516)
BIT_{ivnt}		**0.974****		**0.819****
		(0.448)		(0.372)
No of Obs.	497	497	497	497
R-square	0.721	0.724		
No. of Id	64	64	64	64
Type	FE	FE	RE	RE

(Dependent variable is Natural logarithm of FDI from country i to Vietnam at year t. The panel techniques of Fixed effect and Random effect are applied. Id denotes country i. ***/**/* present significant level of t-statistics at %/5%/10% level.)

Distance between Vietnam and its partner - country i (Logdistivn), Common Border dummies (Contigivn), Crisis (Crisisit and Crisisvnt, Lag1crisisvnt and Lag2crisisvnt) and Real Exchange Rate (Logexchangerateit and Logexchangeratevnt).

Table 2 shows the estimation results applying two panel data techniques of Fixed effect - FE and Random effect - RE for the basic variables (Column (1) and (3)) and for additional dummies of signing bilateral investment treaties between Vietnam and country i at time t (BIT_{ivnt}) (Column (2) and (4)). The sign, magnitude and significance of coefficients for WTO, Crisis and BIT are relatively consistent for both techniques. In contrast, the difference in the significance level of coefficients for other time-variant variables, especially Loggdp is quite clear. Both $Loggpd_{vnt}$ and $Loggdp_{it}$ are significant in RE-applying results while these in FE-applying ones are not. In addition, due to its own nature, RE-applying estimations show the coefficients of time-invariant variables such as Logdist and Contig. For the purpose of selecting better technique, I carry out Hausman test. The result of this test[5] supports RE technique. Hence, in the following sections of this paper, I will consider the RE-applying results for analysis.

The details for basic variables are as follows:

For **WTO membership** (WTO_{it} và WTO_{vnt}), the results from Table 2 indicate that Vietnam's WTO accession does have a positive impact on FDI inflows to the country (at 5% significant level). WTO membership leads to the rise of about 64%-82% ((Exp(0,5)-1) and (Exp(0.6)-1)) in FDI flows into Vietnam

(for the WTO coefficients of about 0.5-0.6). On the contrary, Vietnam partners' WTO accession has no significant effect on the country's FDI. This could be explained by the fact that most partners did enter WTO before the starting year of the research (1995). 52 out of 64 partners have become WTO members before 1995 while only 5 join WTO during the period of 1995-2011. That many countries in the sample are members relatively long before 1995 obviously has no big impact on FDI.

To make it clear about the effect of WTO accession, I do consider the control of pre-WTO variables (1 and 2 years before the year of entering WTO ($Wto_{i(t-1)}$, $Wto_{vn(t-1)}$, $Wto_{i(t-2)}$ và $Wto_{vn(t-2)}$). Despite the expectation about the posible effect of preparing for WTO accession, Table 3 shows that that preparation has no significant impact on FDI. However, WTO membership (Wto_{vnt}) positively affects FDI into Vietnam. This brings further evidence for the role of WTO accession to FDI attraction.

For $Loggdp_{it}$ and $Loggdp_{vnt}$ (presenting for **Market size**), results for Random effect in Table 2 illustrate that as GDP from Vietnam, as well as its partner increases by 1%, Vietnam's FDI rises. However, the effect from the change in Vietnam's GDP is stronger than that in its partner's. As Vietnam's GDP rises by 1%, FDI into Vietnam boosts by 0.8 to 0.9%. As country i's GDP rises by 1%, FDI just goes up by 0.25 to 0.35%. These positive impacts are consistent with what are expected from gravity model.[6] As the market size of host country (like Vietnam) gets larger, more opportunities for sales and profits for enterprises will appear.

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[5] Contact the author for Hausman test results

[6] The positive impact of market size - proxied by loggdp on FDI for panel data is strongly supported by Asiedu (2006), Mohammed and Sidiropoulos (2010), Vijayakumar et. al. (2010) and Botrić and Škuflić (2006).

Table 3: Baseline results for FDI controlling for 1 and 2 year - delay of entering WTO

	LogFDI$_{ivnt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
Wto_{it}	-0.00243	0.0681	-0.0393	0.0316	0.102	-0.00422
	(0.773)	(0.767)	(0.786)	(0.768)	(0.762)	(0.780)
Wto_{vnt}	**0.515***	**0.572****	**0.512***	**0.510***	**0.567***	**0.507***
	(0.286)	(0.290)	(0.286)	(0.287)	(0.290)	(0.287)
$Wto_{i(t-1)}$	0.209	0.263	0.203	0.247	0.304	0.243
	(0.567)	(0.564)	(0.569)	(0.633)	(0.634)	(0.631)
$Wto_{vn(t-1)}$	0.124	0.137	0.130	0.269	0.281	0.270
	(0.222)	(0.218)	(0.223)	(0.231)	(0.230)	(0.231)
$Wto_{i(t-2)}$				-0.101	-0.103	-0.102
				(0.362)	(0.364)	(0.360)
$Wto_{vn(t-2)}$				-0.232	-0.231	-0.224
				(0.214)	(0.212)	(0.212)
No of Obs.	497	497	497	497	497	497
No. of Id	64	64	64	64	64	64
BIT	No	Yes	No	No	Yes	No
ASEAN	No	No	Yes	No	No	Yes

(Dependent variable is Natural logarithm of FDI from country i to Vietnam at year t. The panel techniques of Fixed effect and Random effect are applied. Id denotes country i. ***/**/* present significant level of t-statistics at %/5%/10% level. Variables of Loggdpit, Loggdpvnt, Contigivn, Crisisit, Crisisvnt, Lag1crisisit, Lag2crisisvnt, Logexchangerateit, Logexchangeratevnt, are also controlled for.)

That will attract investors, especially market-seeking ones.

The sign, magnitude and significance level of **Distance** (Logdist$_{iv}$) indicate the negative effect of the change in distance between Vietnam and its partner on FDI inflows to Vietnam. If distance goes up by 1%, FDI reduces by 0.7-0.8%. This negative impact of distance is also consistent with gravity model. The increase in distance reflects the rise in transportation cost, discouraging investors in their investment activities. However, despite the above significant consistency of distance, the other variable representing for transportation cost such as common border (Contig) has no significant influence on FDI into Vietnam. This could be explained by the

fact that not many partners included in the sample share common borders with Vietnam.

For **Crisis** variables (Crisis$_{it}$ và Crisis$_{vnt}$), the impact on FDI on Table 2 is entirely different from expectation. *While crisises from country i has no considerable impact, the banking crisis in 1997 leads to the rise in FDI to Vietnam*. This effect still exists even after 1 year and 2 year - delays of Vietnamese crisis in 1997 are controlled (Lag1crisis$_{vnt}$ and Lag2crisis$_{vnt}$). However, the impact of Vietnamese crisis's 2-year delays is different from that of the crisis itself. While the crisis 1997 leads to the immediate rise in FDI inflows, its effect after 2 years has changed, making FDI fall.

The impact of 1997 banking crisis in

Table 4: Results controlling for crises

	LogFDI$_{ivnt}$					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Wto_{it}	0.469	0.412	0.437	0.182	0.144	0.141
	(0.779)	(0.750)	(0.760)	(0.705)	(0.693)	(0.699)
Wto_{vnt}	**0.685****	**0.622****	**0.597****	**0.617****	**0.566****	**0.556***
	(0.272)	(0.281)	(0.292)	(0.278)	(0.284)	(0.297)
$Loggdp_{it}$	-0.00859	0.00958	-0.113	0.313**	0.313**	0.311**
	(0.834)	(0.855)	(0.872)	(0.138)	(0.139)	(0.140)
$Loggdp_{vnt}$	**1.234****	**1.116***	**1.218***	**1.023*****	**0.922*****	**0.945*****
	(0.595)	(0.614)	(0.650)	(0.313)	(0.327)	(0.344)
$Logdist_{ivn}$				**-0.867****	**-0.874****	**-0.872****
				(0.418)	(0.419)	(0.421)
$Contig_{ivn}$				-1.369	-1.378	-1.371
				(1.555)	(1.560)	(1.569)
$Crisis_{it}$	0.0697	0.133	0.128	0.135	0.192	0.197
	(0.262)	(0.267)	(0.269)	(0.276)	(0.283)	(0.285)
$Crisis_{vnt}$	**0.632*****	**0.440***	**0.444**	**0.639*****	**0.470***	**0.464***
	(0.214)	(0.256)	(0.275)	(0.216)	(0.258)	(0.277)
$Lag1crisis_{vnt}$		-0.327	-0.323		-0.263	-0.270
		(0.336)	(0.370)		(0.332)	(0.365)
$Lag2crisis_{vnt}$		**-0.777*****	**-0.777****		**-0.736*****	**-0.742****
		(0.276)	(0.297)		(0.278)	(0.298)
$D2008_{vn}$			0.167			0.0595
			(0.416)			(0.413)
$Lag1d2008_{vn}$			-0.0366			-0.0109
			(0.439)			(0.429)
$Lag2d2008_{vn}$			-0.171			-0.166
			(0.315)			(0.294)
$Logexchangerate_{it}$	0.422	0.416	0.594	0.118	0.145	0.159
	(1.600)	(1.645)	(1.696)	(0.807)	(0.806)	(0.820)
$Logexchangerate_{vnt}$	-2.676*	-1.830	-1.888	-3.089**	-2.389	-2.339
	(1.562)	(1.799)	(2.193)	(1.319)	(1.526)	(1.936)
No of Obs.	499	497	497	499	497	497
R-square	0.718	0.721	0.721			
No. of Id	65	64	64	65	64	64
Type	FE	FE	FE	RE	RE	RE

 (Dependent variable is Natural logarithm of FDI from country i to Vietnam at year t. The panel techniques of Fixed effect and Random effect are applied. Id denotes country i. ***/**/* present significant level of t-statistics at %/5%/10% level)

Vietnam on FDI could be explained that the private capital flows heavily affected by the banking crisis is mainly short-term one such as Foreign Portfolio Investmetn (FPI), rather than such a long-term as FDI. During this time, Vietnam almost attracts and receives private flows under the category of FDI, hence, the negative impact on FDI to Vietnam doesn't significantly exist. In addition, due to being less negatively affected by the crisis, Vietnam even receives more FDI from investors who shift from other Asian heavily-affected countries. This is supported by the fact that FDI into Vietnam in 1997 is mainly from Asian countries (Thailand, Singapore, Indonesia...). However, after 2 years, the spread out of negative influence of the world financial crisis does make investors hesitate in investing into Asian market in general and Vietnam in particular.

Regarding the crisis in 2008, according to Laeven and Valencia (2012), Vietnam is not regarded to be affected by this crisis due to not meeting two conditions for important banking crisis. Therefore, the impact of 2008 crisis is only taken into consideration from the perspectives of Vietnam's partners, but not Vietnam itself. However, to make clearer the possible effect of this crisis, the author also control for the dummy variable of the crisis 2008 for Vietnam (D2008$_{vn}$) and its 1 and 2 year-delay (Lag1d2008$_{vn}$ và Lag2d2008$_{vn}$). The results in Table 4 show no impact of these variables on FDI into Vietnam and no much difference between two cases of not including and including these variables.

Regarding **Real Exchange Rate** (against the United States Dollars) of Vietnam (Logexchangerate$_{vnt}$) and its partner (Logexchangerate$_{it}$), the change in real exchange rate doesn't have significant impact on FDI into Vietnam.[7]

4.2 Other results

a. Openness and integration

Table 2 and Appendix illustrate the impact of further *integration* proxied by a Bilateral Investment Treaties (BIT) between Vietnam and country i or country i being ASEAN member on FDI into Vietnam. The openness is proxied by *Open* (Open$_{it}$ and Open$_{vnt}$) or *Trade of GDP* (Tradeofgdp$_{it}$ and Tradeofgdp$_{vnt}$). The effects of these two proxies are indicated in Columns (2) and (3).

Columns (2) and (4) in Table 2 present that *a BIT between Vietnam and its partner (BIT$_{ivnt}$) leads to the increase FDI by 122%-146%* (For the coefficients of BIT are of 0.8-0.9%) (at the significance level of 5%). This impact is bigger than that of Vietnam's WTO membership. The explanation is that while BIT with promotion and protection conditions directly covering investors' activities, WTO (despite its investment-related articles) focuses mainly on trade. Therefore, investors' behaviors will be affected more by a country's entering BIT than WTO. In contrast to BIT, ASEAN membership of Vietnam's partner (country i) has no significant effect on FDI. In both cases of controlling for BITs and ASEAN, WTO membership of Vietnam is still significantly positive. This further proves for the role of WTO in FDI increase.

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[7] In addition to Real Exchange Rate, other macroeconomic variables such as Inflation, Difference in Inflation and Real Interest Rate are also considered. However, their effects on FDI into Vietnam are unclear (shown in Appendix).

Table 5: Results controlling for infrastructure and labor

	$LogFDI_{ivnt}$			
	(1)	(2)	(3)	(4)
Wto_{it}	-0.261	0.277	0.150	0.402
	(0.677)	(0.775)	(0.562)	(0.870)
Wto_{vnt}	**0.642****	**0.526***	**0.543***	**0.544**
	(0.316)	(0.300)	(0.307)	(0.638)
$Logexchangerate_{it}$	0.409	-0.0485	1.378	-0.943
	(0.892)	(0.841)	(0.886)	(1.125)
$Logexchangerate_{vnt}$	-2.443	-1.473	-2.693*	0.171
	(1.559)	(1.550)	(1.566)	(3.552)
$Telephone_{it}$	**0.0323*****			
	(0.0118)			
$Telephone_{vnt}$	**0.0505***			
	(0.0271)			
$Internet_{it}$		**0.0216*****		
		(0.00766)		
$Internet_{vnt}$		**0.0977****		
		(0.0457)		
$Logairportdepart_{it}$			**1.118*****	
			(0.397)	
$Logairportdepart_{vnt}$			-0.942	
			(0.923)	
$Logneducation2nd_{it}$				**-0.455***
				(0.240)
$Logneducation2nd_{vnt}$				1.521
				(1.950)
No of Obs.	461	472	430	281
No. of Id	64	64	57	51

(Dependent variable is Natural logarithm of FDI from country i to Vietnam at year t. The panel techniques of Fixed effect and Random effect are applied. Id denotes country i. ***/**/* present significant level of t-statistics at %/5%/10% level. Variables of $Loggdp_{it}$, $Loggdp_{vnt}$, $Contig_{ivn}$, $Crisis_{it}$, $Crisis_{vnt}$, $Lag1crisis_{it}$, $Lag2crisis_{vnt}$, $Logexchangerate_{it}$, $Logexchangerate_{vnt}$, are also controlled for.)

For openness, that for country i helps to boost FDI into Vietnam. On the contrary, Vietnam's openness for both proxies has no significant effect on FDI.

(See Appendix for details of ASEAN and openness' impacts on FDI).

b. Infrastructure and labor

Infrastructure and labor are two determinants reflecting host countries' supports for investors to reduce their costs and increase the possibility of receiving information. I use three different proxies for

infrastructure, including Telephone User Ratio (Telephone$_{it}$, Telephone$_{vnt}$), Internet User Ratio (Internet$_{it}$, Internet$_{vnt}$) and Number of Airport Departures (Logairportdepart$_{it}$, Logairportdepart$_{vnt}$) to see the consistency of the impact of infrastructure on FDI; and the proxy of *labor* that is Number of Secondary School Graduation People (Logneducation2nd$_{it}$, Logneducation2nd$_{vnt}$).

Regarding infrastructure, two proxies of **Telephone User Ratio** and **Internet User Ratio** for both Vietnam and country i have a positive impact on FDI into Vietnam and that effect for Vietnam is higher than that of country i (see Columns (1) and (2) in Table 3). As telephone user ratio increases by 1% in country i/Vietnam, FDI will go up correspondingly by 0.0323%/0.0505%. For internet, the increase will be 0.0216%/0.0977%. These effects are consistent with what are expected.[8] They could be explained that the rise in telephone and internet user ratio make it easier for investors to do their transactions, reducing their transaction cost and encouraging them to invest more. Different from the above two proxies, only *Number of Airport Departures* of country i significantly and positively affects FDI. In Table 3, Column (3) as number of air departures of country i rises by 1% (reflecting the transportation convenience for investors from country i). As infrastructure proxies are controlled for, WTO membership coefficients are significantly positive with relatively high magnitude.

Regarding labor, Table 5 expresses that the rise in the number of secondary school graduation people in country i negatively affects FDI, while that in Vietnam has no significant effect.

c. Tax and Institution

Tax and Institution are also of investors' interest. For making clear the effect of these two determinants, I use *Taxrate* (Taxrate$_{it}$ and Taxrate$_{vnt}$) and different proxies for institution such as: *Political Stability and Absence of Violence* (Prspv$_{it}$, Prspv$_{vnt}$), *Regulatory Quality* (Prsrq$_{it}$, Prsrq$_{vnt}$), *Control of Corruption* (Prscc$_{it}$, Prscc$_{vnt}$), *Voice and Accountability* (Prsva$_{it}$, Prsva$_{vnt}$), *Government Effectiveness* (Prsge$_{it}$, Prsge$_{vnt}$) and *Rule of Law* (Prsrl$_{it}$, Prsrl$_{vnt}$).

Table 6, Column (1) presents the negative correlation between *tax rate* of country i and Vietnam on FDI. If country i/Vietnam' tax rate decreases by 1%, FDI into Vietnam will go up by 0.0496%/0.101%. This reflects the important role of tax rate reduction in FDI attraction. The negative impact of tax rate is also supported by Bellak and Leibrecht (2009) as they consider eight Central and East European host countries. The tax rate reduction will help investors to save costs, encouraging them to implement further their investment. Besides, as tax rate is controlled for, WTO membership on FDI go up considerably (the coefficient has the value of 0.854). This affirms further about the impact of WTO membership on FDI.

In Table 6, out of six proxies for institution, three of Vietnam, including *Political Stability and Absence of Violence, Regulatory Quality and Control of Corruption* has a

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8 The positive effect is consistent with the what has been found by Asiedu (2006), Biswas (2002), Mhlange et. al. (2010).

Table 6: Results controlling for Tax rate and Institution

	LogFDI$_{ivnt}$			
	(1)	(2)	(3)	(4)
Wto_{it}	-0.573	-0.0199	-0.00421	-0.0866
	(1.647)	(1.046)	(1.155)	(1.219)
Wto_{vnt}	**0.854***	-0.225	0.404	-0.442
	(0.302)	(0.379)	(0.349)	(0.426)
$Taxrate_{it}$	**-0.0496***			
	(0.0167)			
$Taxrate_{vnt}$	**-0.101***			
	(0.0540)			
$Prspv_{it}$		**3.796****		
		(1.751)		
$Prspv_{vnt}$		**27.38***		
		(8.270)		
$Prsrq_{it}$			0.507	
			(0.815)	
$Prsrq_{vnt}$			**5.075***	
			(1.475)	
$Prscc_{it}$				**1.870****
				(0.841)
$Prscc_{vnt}$				**3.174***
				(0.992)
No of Obs.	248	364	364	364
No. of Id	61	56	56	56
Type	RE	RE	RE	RE

(Dependent variable is Natural logarithm of FDI from country i to Vietnam at year t. The panel techniques of Fixed effect and Random effect are applied. Id denotes country i. ***/**/* present significant level of t-statistics at %/5%/10% level. Variables of $Loggdp_{it}$, $Loggdp_{vnt}$, $Contig_{ivn}$, $Crisis_{it}$, $Crisis_{vnt,}$ $Lag1crisis_{it}$, $Lag2crisis_{vnt,}$ $Logexchangerate_{it}$, $Logexchangerate_{vnt,}$ are also controlled for.)

considerable effect on FDI (The coefficients have corresponding values of 27.38; 5.075 và 3.174) (much higher than that of country i), especially **_Political Stability and Absence of Violence._[9]** It could be seen from Table 6, Columns (2)-(4) that _these institution effects do capture all the impacts of WTO membership of Vietnam_. The result supports the role of WTO in improving its members' institution. The influence of WTO accession on FDI via the

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[8] The important role of Political Stability in the result is consistent with what has been reported in PCI survey - FDI enterprises in 2011 from Vietnam Chamber of Commerce and Industry, in which Political Stability is ranked at 2nd among FDI determinants.

channel of institution reform is also supported by Pham Thi Hong Hanh (2011)[10].

For Vietnam, political stability, regulator quality and control of corruption are three institution determinants that investors care most and that improves by implementing WTO commitments. Other three aspects, including *Voice and Accountability, Government Effectiveness and Rule of Law*, only those of country i has a significant impact on FDI into Vietnam.

5. Conclusion

Taking advantage of a wide range of data from 1995 to 2011 and random effect technique of panel data, the positive effect of WTO membership on FDI inflows to Vietnam, which was in doubt, has been confirmed by the paper. The possible explanation for the impact is the institution improvement thanks to the process of implementing commitments.

Moreover, some new stylized facts have been found and some other previously mentioned facts have been also affirmed. Those are the positive impacts on FDI into Vietnam of The 1997 banking crisis, BIT between Vietnam and its partner, Infrastructure improvement, Tax rate reduction and the Institution factors such as Political Stability and Absence of Violence, Regulatory Quality and Control of Corruption.

From those above results, for further taking advantage of WTO accession to attract more FDI, I do suggest that Vietnam should maintain its stable business environment (especially related to politic environment), review its regulations for being suitable with what have been committed as it joined WTO, and make its administrative procedures transparent to reduce corruption. Besides, Vietnam could consider signing more BITs with new partners while reviewing and adjusting the previously signed BITs. Moreover, it should take consideration into improving further its infrastructure (especially telecommunication) and reducing tax rate (especially the ones imposed on investors' returns).❑

Reference

1. Anwar S., Lan Phi Nguyen, 2010, *Foreign direct investment and economic growth in Vietnam*, Asia Pacific Business Review Vol.16

2. Darvas, Z., 2012, Real Effective Exchange Rates for 178 Countries: A New Database, Bruegel working paper

3. Folfas P., 2011, *FDI between EU Member States: Gravity Model and Taxes*, Warsaw School of Economics

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[9] Pham Thi Hong Hanh (2011) shows that WTO accession induces Vietnam to undertake further domestic reforms that would result in the more predictable institutions and policies, as well as greater financial development (Greater financial development and a boom in banking activities made Vietnam's investment climate more attractive to foreign investors). That leads to the increase in FDI into Vietnam.

According to Gugler and Chaisse (2008), The WTO handles two major agreements that address investment directly: The General Agreement on Trade in Services (GATS) and the Agreement on Trade-Related Investment Measures (TRIMs). Besides these two agreements, other three including the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), the Government Procurement Agreement (GPA), and the Agreement on Subsidies and Countervailing Measures (ASCM) indirectly consider investment.

4. General Statistics Office, *Yearly Statistical Year Book 2000-2010* (except 2002)

5. Gugler and Chaisse (2008), Foreign Investment Issues and WTO Law: Dealing with Fragmentation while waiting for a Multilateral Framework

6. Hai-Quing L., 2001, *The Relationship between Trade and Foreign direct investment and the Implications for the WTO*, University of Toronto

7. Helga K., 2005, *Determinants of FDI in Iceland*, Centre for Applied Miroeconometrics

8. Hoang Thi Thu, N.A, *Determinants of Foreign Direct Investment in Vietnam*

9. Hoang Chi Cuong, 2013, *The Impact of the Worle Trade Organization (WTO) Regime on Foreign Direct Investment (FDI) Flows to Vietnam: A Gravity Model Approach*, Journal of Modern Acccounting and Auditing, Vol. 9, No. 7, 961-987.

10. Mauro F. D., 2000, *The Impact of Economic Integration on FDI and Exports: A Gravity Approach*, Centre for European Policy Studies, Working Document No.156

11. Nguyen Dinh Chien, 2012, *FDI and Economic Growth: Does WTO Accession and Law Matter Play Important Role in Attracting FDI?* The Case of Vietnam

12. Nguyen Dinh Chien, 2012, FDI of Vietnam: Two-way Linkages between FDI and GDP, Competition among Provinces and Effects of Laws, i-Business, 4, 157-163

13. Nguyen Ngoc Anh, Nguyen Thang, 2007, *Foreign direct investment in Vietnam: An overview and analysis the determinants of spatial distribution across provinces,* MPRA Paper No.1921

14. Pham Thi Hong Hanh, 2011, *Does the WTO accession matter for the Dynamics of Foreign Direct Investment and Trade? Vietnam's new evidence,* University of Rouen

15. Pham Thi Hong Hanh, 2012, *Determinants of FDI into China and Vietnam: A comparative study*, Working Paper, Université de Nantes

16. Sutana T., 2008, *The Determinants of FDI and FPI in Thailand: A Gravity Model Analysis*, Lincohn University

17. Talamo G.M., N.A, Institution, FDI and the Gravity Model

18. Tayebi S.K., Hortamani A., N.A, *The Impact of Trade Integration on FDI Flows: Evidence from EU and ASEAN+3*

19. Xiao Quian, 2000, *The Impact of WTO Accession on China's Inward Foreign Direct Investment,* Master of Philosophy, Hongkong University of Science and Technology.

20. Xuan N.T., Xing Y., 2008, *Foreign direct investment and exports The experiences of Vietnam,* Economics of Transition, Volume 16

21. UNTACD, 2012, *Total number of Bilateral Investment Agreements concluded*

22. WTO, 2011, *The Impact of Transparency on Foreign Direct Investment*, Staff Worrking Paper ERAD -99-02