EXTENDING THE DUNNING'S INVESTMENT DEVELOPMENT PATH MODEL TO EVALUATE THE DETERMINANTS OF VIETNAM'S OUTWARD FOREIGN DIRECT INVESTMENT

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Abstract

In the context of integration, in addition to increasing foreign capital inflows, Vietnamese enterprises are becoming more and more interested in outward foreign direct investment activities. This research expands the Investment Development Path model to assess the influence of some macroeconomic factors (GNI per capita, the proportion of expenditure on science and technology, FDI flows, USD to VND exchange rate, total import-export turnover) on Vietnamese enterprises' outward foreign direct investment (OFDI) flows. Using the 32-year dataset (1989-2020), the regression results depict that the proportion of expenditure on science and technology, the amount of FDI, GNI per capita had a positive impact on the capital OFDI of Vietnam. However, the growth rate of total import-export turnover harmed OFDI flows in the same period. Meanwhile, the difference variable of exchange rate USD to VND in the multiple regression model didn't have statistical significance. Based on regression model results combined with qualitative studies, the authors propose some policy implications to promote OFDI flows of Vietnam in the near future.

Keywords: *Investment Development Path, OFDI.*

1. Introduction

Vietnamese enterprises have started carrying out OFDI projects since the late 1980s. However, Vietnam's OFDI flows over the past 30 years have experienced many fluctuations in both registered capital and number of projects. Accumulated to the end of 2020, Vietnamese enterprises have invested abroad 1401 projects with registered capital was 21.46 billion USD. However, from 2015 to present, the OFDI capital flows of Vietnamese enterprises slowed down notably. In 2020, the registered capital was almost 819.7 million USD, which was 55% more than that of 2019 but still nearly equal to 24.3% compared to 2010. This is a new phenomenon that requires updated studies on determinants affecting

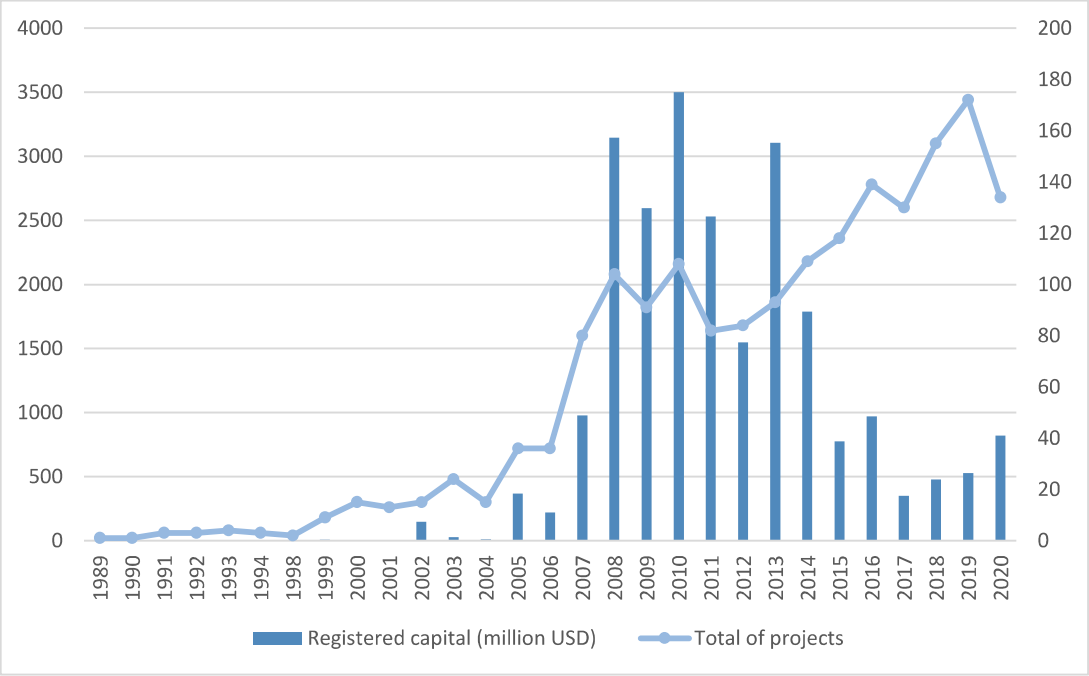
OFDI flows of Vietnamese enterprises. This research combines qualitative studies and the Investment Development Path model (IDP) to assess the influence of some macroeconomic factors on the OFDI of Vietnamese enterprises and propose policy implications.

Overview of Vietnam's outward direct investment

Accumulated to the end of 2020, Vietnamese enterprises have invested abroad in 1401 projects with the total investment of 21.46 billion USD, the average capital per project was 15.32 million USD.Outward foreign direct investment activities of Vietnamese enterprises can be divided into four stages:

Figure 1: Vietnam's outward direct investment in the period 1989 - 2020

(Accumulation of projects having effect as of 31.12.2020)



Source: Foreign Investment Agency, Ministry of Planning and Investment

Vietnamese enterprises have started carrying out OFDI projects since the late 1980s. However, in the period 1989-1998, the projects were spontaneous and experimental with a small scale of investment capital. There were only 17 registered projects with a registered capital of 13.6 million USD, the average capital per project was only 0.8 million USD. In this period, most of these projects were conducted by SoEs, focus on Laos and Cambodia in building health and educational infrastructure under agreements between the governments.

In the period 1999-2005, OFDI flows of Vietnamese enterprises experienced a significant growth not only in the number of projects but also in the scale of capital. Specifically, in this period, there were 127 new registered projects with the registered capital of 567.7 million USD, which were more than 7.47 times in total projects and 41.74 times in

total investment capital in the previous period; the average capital was 4.47 million USD/project. This achievement was based on the Government's promulgation of Decree No.22/1999/ND-CP and other related legal documents, laying the "foundation" of the legal basis for outward investment activities. The large projects were mainly focused on processing and manufacturing; mining; agriculture, forestry and aquaculture.

The period 2006–2010 could be considered as the "booming" period of Vietnam's OFDI flows. Specifically, in only five years, Vietnamese enterprises have registered to invest in 419 projects, the registered capital was 10.477 billion USD, the average capital per project was 24.93 million USD. It was a remarkable growth in both scale and the number of projects. In which, there were 11 projects with the registered capital of over 100 million USD, such as a telecommunications network cooperation investment project in the Republic of Mozambique the registered capital of 493.79 million USD; Sekaman 1 with the registered capital of 441.6 million USD, the hydroelectric project Sekaman 3 with the registered capital of 273.1 million USD. Especially, the Long Thanh-Vientiane economic zone project with the registered capital up to 1 billion USD, was the largest OFDI project of Vietnam in this period. To have that outstanding development, it is necessary to mention the role of the project "Promoting Vietnam's investment abroad" approved by the Prime Minister in February 2009. In particular, Decree 78/2006/ND-CP guiding the implementation of the 2005 Investment Law brought new thinking: Investors and enterprises of all economic sectors have the right to invest abroad, have the right to autonomy, self-responsibility in business activities, minimizing unreasonable, unnecessary "approval" regulations that are contrary to the principle of freedom of business... This thinking has created favorable conditions for Vietnamese enterprises to invest abroad, enhancing international integration.

In the period 2011-2020, OFDI of Vietnamese enterprises fluctuated dramatically and tended to decline. The investment capital reached the peak of 3.1 billion USD in 2013, then dropped sharply to 350.1 million USD in 2017, equal to 11.3% that of 2013 before a slight recovery from 2018 to 2020. Since 2018, Circular 03/2018/TT-BKHDT guiding and promulgating a sample document for implementing outward investment procedures of the Ministry of Planning and Investment has had a positive impact on OFDI activities, the registered capital tend to increase but still slow. Notably, in this period, 241 projects had to stop operating before the deadlines with the capital of 2.42 billion USD(accumulated from 2011 to 2020). Thus, after the period 2006 - 2010 witnessed the "boom" of OFDI activities with the feature of "placeholder investment", the period 2011-2020 can be considered as a "restructuring" period, slowly but surely.

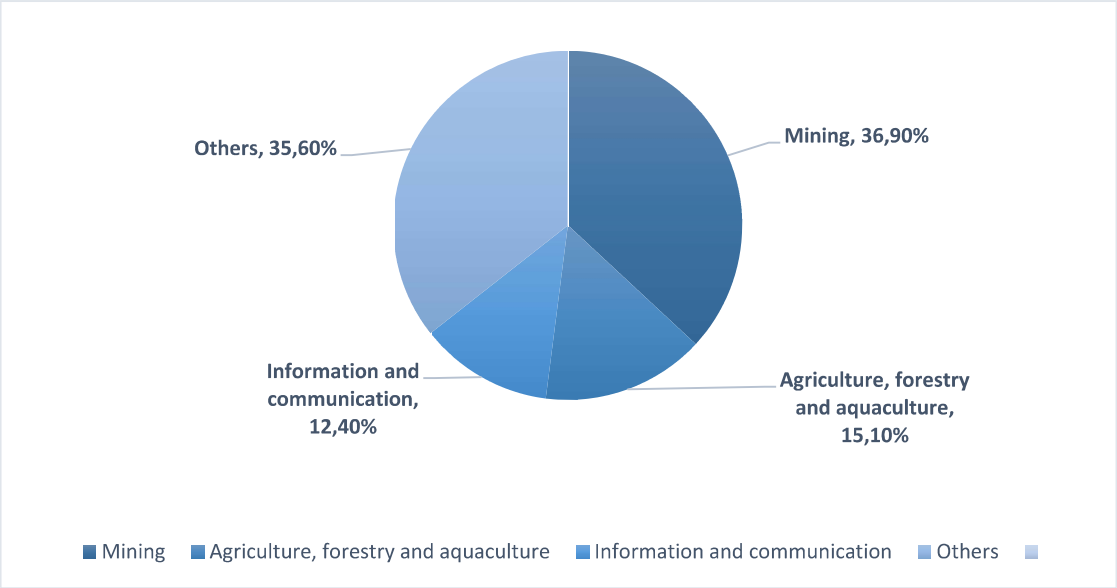
Regarding to OFDI by fields, the industry is the key sector which accounted for the highest proportion of investment from Vietnam to other countries with the investment capital of 10.94 billion USD, comprised up to 51% of the investment capital of Vietnamese enterprises. In which, mining accounted for 7.9 billion USD registered with 58 projects,

represented 72.2% of the total OFDI capital in the industrial field and 36.9% of the total OFDI capital of Vietnam. Some notable large projects: PVEP's Bir Seba - Algeria mine project joint venture; PVEP's joint venture investment project to develop and exploit block Junin 2 in Venezuela; with the registered capital of 12.4 billion USD and capital contribution of 1.8 billion USD from the Vietnamese side. Hydroelectric projects also attracted investment capital of up to 1.5 billion USD, which was recorded as 6.98% of the total registered capital of all fields. By the end of 2020, there were nine investment projects in this field, mainly in the two markets of Laos and Cambodia. Lower Sesan 2 Hydropower (Cambodia) by EVN International Joint Stock Company was the most prominent, with the registered capital of 806.4 million USD, accounting for 50.6% of the total OFDI capital of the electric field. Notably, despite accounting for the largest proportion of accumulated investment capital, OFDI flows into the industrial sector are experiencing a sharp decline in recent years, when capital flows have shifted to the service and agricultural sectors. In 2020, Vietnam only had 27 new registered projects in the industrial sector, of which there was only one project in the mining field of Long Thanh Golf Business and Investment Joint Stock Company, deployed in Laos with the total investment capital of 6 million USD.

Regarding the agricultural sector, accumulated by the end of 2020, the registered capital reached 3.25 billion USD, accounted for 15.1% of the total registered OFDI capital. Investment projects in the agricultural sector were mainly in the two traditional markets of Laos and Cambodia with projects on planting and processing rubber, coffee, sugarcane, corn, etc. Notably, in recent years, OFDI flows in the agricultural sector are gradually shifting to large-scale projects, applying high-tech agriculture. Large corporations such as Vinamilk, Hoa Phat, or TH are investing to develop high-tech agriculture abroad. In 2018, TH Group inaugurated the first high-yield dairy farm within the framework of the complex project of dairy farming, high-tech milk processing , and some food projects with the total investment of 2.7 billion USD. In 2020, Vinamilk also increased capital for a high-tech cow farm investment project in Laos. Specifically, in August 2020, Vinamilk poured an additional 41 million USD into Lao-Jagro Development Xiengkhouang Co., Ltd, increased Vinamilk’s investment capital at Lao-Jagro from 25.4 million USD to 66.4 million USD. This combination is also known as the “resort” of organic dairy cows in Laos, which is part of Vinamilk’s long-term strategy to develop fresh milk material areas at home and abroad with a total expected investment is 500 million USD.

Figure 2: OFDI of Vietnamese enterprises by field

(Accumulation of projects having effect as of 31.12.2014)



Source: Foreign Investment Agency, Ministry of Planning and Investment

Service was the field that represented the highest percentage of projects, with 978 projects, accounting for 69.8% of the total number of OFDI projects (accumulated to the end of 2020). In particular, the information and communication segment was a bright spot in the general picture of OFDI in Vietnam. The most prominent is the success in the international market of Viettel Military Telecommunications Group - Top 15 largest telecommunications enterprises in the world in terms of users, Top 30 largest telecommunications enterprises in the world in terms of infrastructure. Currently, Viettel has invested in 10 countries(3 continents), focusing on mobile telecommunications services, especially several new services such as 4G, 5G, e-wallets, large information technology projects to serve corporate and government customers. Viettel's strategy is transforming from providing telecommunications infrastructure and services to provide digital infrastructure and services. In 2020, 10 overseas markets of Viettel grown significantly in both revenue and profit, sending home nearly 333 million USD.

2. Expanding the Investment Development Path model to assess macroeconomic factors affecting OFDI flows of Vietnam

Vietnam's foreign direct investment has had many fluctuations, developing rapidly in the stage 2006-2010 but quiet in the last six years. To analysis how Vietnam's macroeconomic factors affect OFDI of Vietnamese enterprises, this article uses the IDP (Investment Development Path) model, which was fomulated by Dunning (Dunning, 1988). The IDP model is widely used in research, assessing the impact of the development level in

a capital-exporting country on its OFDI. According to the IDP model, OFDI and FDI of a country both positively depend on the level of development of that country (usually calculated as GNI per capita); based on that basis, the governments will choose their own Investment Development Path. Since each country's development path is unique (Bellak, 2001), GNI per capita is not a perfect measure of economic development. Therefore, some other variables are used, such as volume of FDI flows (Chen Jen Eem, 2019 and Bellak, 2001), trade volume (Sheng Ma, 2020 and Dunning, 2001), national institutions (Jiyong Chen, 2020 and Bevan, 2004), the level of science and technology (Saleh Shahriar, 2019 and Stoian, 2013)… In this study, macroeconomic variables are used to evaluate the factors affecting the OFDI flows of Vietnam (OFDI) are: GNICAP (gross national income per capita), RDSB (the state budget expenditure on science and technology), IFDI (FDI inflow into Vietnam), ER (exchange rate) and IE (import-export turnover/GDP). Some hypothesises are made as follow:

Hypothesis H1: OFDI has a positive relationship with the development of the economy, being measured by the growth rate of nominal GDP per capita.

The IDP model also indicates the positive relationship between the development of science, technology and OFDI. Science and technology will help private companies as well as state owned companies increase labor productivity, creating a competitive advantage and scale; thereby, which leads to the increase in the amount of OFDI. Therefore, a further hypothesis is given:

Hypothesis H2: OFDI has a positive relationship with the development of science and technology, being measured by the proportion of the state budget investing in science and technology (RDSB) (%)

The IDP model also concludes that the amount of inflow capital (IFDI) will enhance OFDI. This can be explained by the spillover effect of FDI, when FDI flows into one country, the domestic companies will have to raise the level of management and operational efficiency, which leads to relative advantages with other countries. Hence, this promotes OFDI activities, exploits new markets to increase profit. Therefore, author propose the third hypothesis:

Hypothesis H3: OFDI has a positive relationship with the IFDI capital.

Besides the basic IDP model with the above three factors, many scholars also propose to research the influence of some other macro factors such as the exchange rate, the openness of the economy on OFDI. Countries with stronger currencies often have more financial advantages than countries with weak currencies (Paulo ReisMourao, 2018). Therefore, Kyrkillis and Pantelidis (2003) argued that the revaluation of the domestic currency will increase the desire to invest abroad of domestic companies. Thus, the authors propose the hypothesis:

Hypothesis H4: OFDI has a positive relationship with the revaluation of the domestic currency (measured by exchange rate USD/VND)

Besides the exchange rate, the high openness of the economy will also contribute to the promotion of OFDI activities. The high openness of the economy will facilitate import and export companies to expose to and learn more from foreign markets as well as to know the relevant regulations and standards, to overcome the differences in language, culture and law, organizing overseas activities and marketing products in the international markets (Paulo ReisMourao, 2018). All of which play an important role in encouraging OFDI, especially it can become a more feasible strategy than export. Therefore, the authors propose the hypothesis:

Hypothesis H5: The openness of the economy has a positive effect on OFDI. capital flows

Table 1: Description of variables in the model

Variables		**Description**	**Data sources**	**Citation sources**
Dependent variable: OFDI (USD)		Annual registered OFDI	Ministry of Planning and Development	
Independent variables:				
Variables according to IDP basic model	The development of economy (GNICAP) (USD per capita)	GNI per capita	General Statistics Office	Saleh Shahriar et al (2019),
	The proportion of expenditure on science and technology over state expenditure (RDSB) (%)	% expenditure on science and technology	General Statistics Office, Annual figures of the Ministry of Finance	Saleh Shahriar et al (2019), Stoain (2013) Jiyong Chen, (2020)
	FDI flows into Vietnam (IFDI) (mln USD)	Annual registered FDI	Ministry of Planning and Development	Paulo ReisMourao (2018),
Extended variables	Economic openness	import-export turnover/GDP (IE (%))	World Bank	Sheng Ma (2020) Rosfadzimi (2013)

	Exchange rate (ER) (USD/VND)	World Bank	Chen Jen Eem (2019) Andreff et al (2014)

Source: collected by authors

3. Result

The data of the variables in the model is taken annually from 1989 to 2020. The data is in the form of time series so that it must be tested to determine the stationarity for the variables, then use the univariate regression to find the variables that affect OFDI. Then, put the statistically significant variables in the univariate regression model into the multiple regression model. The selected variables included in the multiple regression model are RDSBt-2, IFDIt, GNICAPt, D(ER)t, and D(IE)t.

Table 2: Correlation coefficients between independent variables

	RDSB	IFDI	GNICAP	D(IE)	D(ER)
RDSB	1,0000	-	-	-	-
IFDI	0,3362	1,0000	-	-	-
GNICAP	-0,3448	0,4855	1,0000	-	-
D(IE)	-0,1657	0,0335	0,0687	1,0000	-
D(ER)	-0,0396	-0,1849	-0,1685	0,0024	1,0000

Source: calculated in Eviews by the authors

Refer to Table 2, the correlation coefficients between the independent variables are all less than 0.7. This illustrates that the variables in the model do not have multicollinearity.

Table 3: Testing of model defects

	WHITE	BG	RAMSEY
F-statistic	4,212983	1,498556	0,035541
Prob	0,189594	0,198365	0,896582

Source: calculated in Eviews by the authors

According to Table 3, the White, BG, and Ramsey test show that the model is suitable, without defects such as variable variance, autocorrelation, or lack of variables; the functional form of the model is also appropriate.

Table 4: Result of regression model

Variable	Coefficient	Prob
C	-3528,1943	0,0008
$RDSB_{t-2}$	2120,1820	0,0015
$GNICAP_t$	0,6285	0,0122
$IFDI_t$	0,0384	0,0010
$D(IE)_t$	-8,3748	0,0785
$D(ER)_t$	0,1289	0,3119
Obs	30	
R^2	0,5352	
F-statistic	12,8849	
Prob(F-statistic)	0,000018	

Source: calculated in Eviews by the authors

The regression result in Table 4 shows that the ratio of state budget spending on science and technology with a 2-year lag, FDI inflows into Vietnam and gross national income per capita have a positive impact on OFDI; in contrast, the change in total import-export turnover/GDP hurts OFDI capital flows. The difference variables of the exchange rate in the multiple regression model is not statistically significant. With the regression model, it is easy to see the influence of investment in science and technology on the growth of OFDI. With a two-year lag, a 1% increase in budget spending on science and technology will increase the amount of OFDI capital by 2120.18 million USD. In fact, the leading enterprises in OFDI activities are also the leading enterprises in investment in modern science and technology such as Viettel, FPT, Hoang Anh Gia Lai, Vinamilk. In the meantime, the spillover effects of IFDI are still limited. With the increase of 1 million USD registered FDI into Vietnam, there was only 0.0384 million USD increase in OFDI respectively. It can be explained the technology spillover and the participation of Vietnamese enterprises in the value chain of FDI enterprises are still low. In fact, during the period 1989-2020, the amount of FDI into Vietnam mainly focused on manufacturing and processing, real estate. Meanwhile, OFDI capital is mainly invested in mining, hydropower, and agriculture. The difference in investment structure also limits the spillover effect of FDI on OFDI capital flows. About the economic growth factor, the GNICAP variable in the multiple

regression model has a positive impact on OFDI capital. This indicates that the domestic economic growth, especially in the non-state sector in recent years has contributed to the promotion of OFDI capital flows. However, the result of the regression figure out a negative impact of the growth rate of total import and export turnover on OFDI capital flows. The reason is that, in the research period (1989-2020), Vietnam was still basically a trade deficit country. Hence, a large amount of foreign currency flowed abroad to serve the import of goods. Because the demand for foreign currency for imports is often high, the supply of foreign currency for OFDI activities is limited, which led to a negative effect on OFDI activities. Besides, the results in Table 4 show that the difference variable of the exchange rate in the multiple regression model is not statistically significant. This result shows that OFDI activities of Vietnamese enterprises are not directly affected by the fluctuation of the USD/VND exchange rate. This can be explained by the fact that Vietnam's USD/VND exchange rate from 1989 to 2020 was still strictly regulated by the government in the direction of "stable" and allowed fluctuations within a narrow range. The government's control of the exchange rate has led to relative independence between the exchange rate and the growth of Vietnam's OFDI capital inflows.

4. Conclusions

Despite a wide range of fluctuations,Vietnam's OFDI had a significant growth since the Decree 78 of the Government in 2006 regulating OFDI. In addition, Vietnam's economic development has also had a positive impact on Vietnam's OFDI. The increase in the government expenditure on science and technology and the IFDI of Vietnam, creating a technology spillover effect had a direct impact, promoting OFDI capital flows in Vietnam; meanwhile, the growth rate of total import-export turnover had a negative impact on OFDI capital flows. This leads to investment policies to promote science and technology in Vietnam, especially in key industries investing in other countries. . Promoting scientific research and the transfer of science and technology in key sectors such as information technology, telecommunications and high-tech agriculture,etc. will create competitiveness to help Vietnamese enterprises have enough scientific factors, management qualifications to carry out OFDI activities. The State needs to create more favorable conditions to help the enterprises in these fields have good competitiveness, and dominate target markets. Other recommendations for the Government of Vietnam are having more policies to promote FDI inflows into Vietnam, especially in manufacturing and processing industries; opening more international relationships; boosting the technical transfer of FDI enterprises in Vietnam.

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