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The Individual Research Report on the Impact of the COVID-19 Crisison Firms in Vietnam: A Statistical Analysis

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Abstract:

The COVID-19 situation has brought an absolutely negative effect on the world inevery aspect. As a neighboring country of China where the virus came from, Vietnamalso suffers from the outbreak as well, especially among local businesses. Thisreport investigates and analyzes the impact of the COVID-19 crisis on Vietnambusinesses overall during 2020 and 2021.

According to the data sources collectedfrom General Statistics Office Vietnam and World Bank regarding the investmentamounts, the analysis illustrates the effect of the crisis on investments' total inflows,including foreign direct investment (FDI) and domestic investments. Some of theaspects to be mentioned include the awareness of investors, how COVID-19 ishandled in Vietnam, and the uptrend in specific industries as well as theiropportunities. The result of this report can be a valuable asset for the Vietnam
government and organizations to understand the investment trends and insightscritically. Therefore, effective decisions will be made.

Keywords **—COVID-19; investment; finance; behavior**

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I. INTRODUCTION

Covid-19 has brought many negative effects on the worldwide economy. However,according to the Vietnam General Statistics Office, some of the key metricsregarding socio-economy illustrate an upward trend. To be more specific, the grossdomestic product (GDP) has an increase of 4.48% and a rise of 6.3% in investmentamount in the first quarter of 2021(Thuy Duong, 2021).

This positive situation in Vietnam is caused by the effort of controlling thecoronavirus situation which has been a risk reduction to corporations and investors.Therefore, investor confidence in Vietnam is relatively stable. Also, the KPMG report
describes Vietnam's economy as one of the fastest-growing economies in the area(Investing in Vietnam, n.d.). Regarding the investment scenario in Vietnam, there are many reports and researchconducted. Nevertheless, they are made before the Covid-19 situation or are toobrief. The concern on the effect of the COVID-19 on Vietnam businesses is stillunder question. As a result, this report uses FDI as an independent variable tounderstand the economy in Vietnam better.This report contains five major parts including research methodology, a literaturereview, a critical analysis of the relatable set of data, empirical results, and aconclusive reflection. In addition, the last part of the report is the suggestion on howto leverage the findings of the analysis.

II. LITERATURE REVIEW

A. *Previous academic research*

1) ***F.D.I before the COVID-19 crisis:***Foreign direct investment (F.D.I) is defined as a form of investment conducted in theopen market by organizations or individuals in a foreign country in order to fulfillbusiness-related matters such as

trading, acquisition, and expansion (Sinha andGhosh, 2021).

FDI is divided into three categories horizontal, vertical, and conglomerate. In detail,the "horizontal" type is wheninvestors expand a similar business operation in aforeign country as the base one. On the other hand, a vertical investment refers to arelatable branch of the base country operations. Lastly, a "conglomerate" type is aninvestment that is completely different from the existing business in the homecountry (OECD, n.d.).

There are several research papers regarding the FDI situation in Vietnam such asHanh, et. al. (2017) and Anh & Nguyen (2007). The authors agree that the F.D.Itrend in Vietnam has been rising significantly since the "Doi Moi" policy in 1986. Tobe more specific, the policy was set to turn Vietnam from a Third-world country into amiddle-class one on the world map, especially by creating stock exchange activitiesfor enterprises (UNDP in VietNam, 2012).

By attracting the FDI inflows into the country, Vietnam has witnessed a valuablecontribution to the overall economy.This research would analyze the effect of COVID-19 on the FDI investment trendand its specific insights. The variables that this paper discusses are the source ofcountries investing in Vietnam, the category of industries, and the factors affecting the investment decision.

2) ***Economic Growth and FDI inflows in Vietnam:***Vietnam's economic statistics from 1990 to 2014 are illustrated by the "Figure 1"graph below with the growth and inflation metrics. The graph shows a peak inpercentage change of 68% in 1990, then followed by a fluctuation of 10%approximately change in the 1990s. Hence, Vietnam's economy is at a downwardrate from 2010 to 2014(General Statistic Office, n.d).

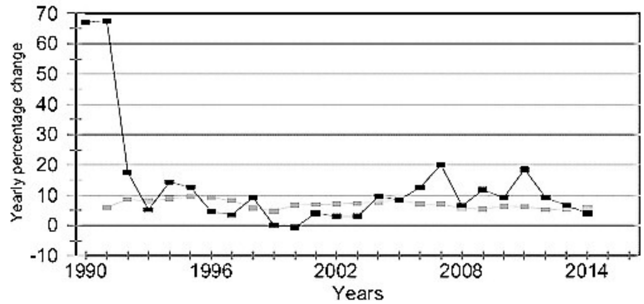

Figure 1

In general, Vietnam got the "middle-income status" classification from 2007 until2021 which is the peak of the COVID-19 pandemic(Fforde, A., 2016).

After being hit by the strike of the pandemic, Vietnam witnessed a rise in the servicesindustry which contributed 41.13% to the total GDP according to Thanh (2021) in thefirst two quarters of 2021. There is a 38.1% incline in the phone accessoriescategory meaning businesses have gone online with the ease of accessing and the digitalization trend.

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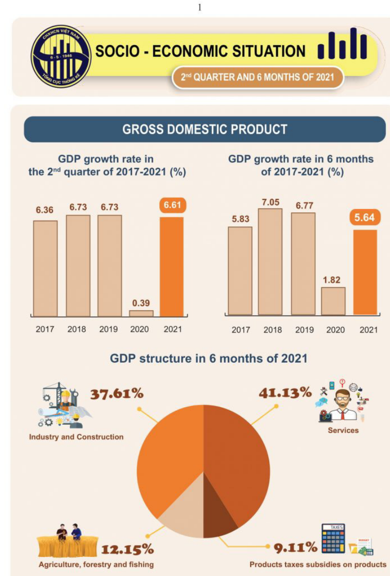

Figure 2

According to Figure 2, Vietnam managed to overcome the challenge of the pandemic which first hit in 2020, and focus on the growth of the industry and construction as well as theservices categories.

This has been proven by a growth rate of 6.61% in 2021, while in 2020, the number is only 0.39%.

However, even though the COVID-19 situation is relatively managed in Vietnam, the world is still suffering from it resulting in difficulties in the global supply chain, tourism, and transportation. As a result, Vietnam is working to come up with policies on FDI inflows in order to have the appropriate adjustments in some conditions. Hence, the government is able to monitor and forecast the FDI trends so that the country can attract beneficial FDI inflows(Thuy Duong, 2021).

As of the 2nd quarter of 2021, Vietnam receives a total amount of 95.1 trillion Viet Nam Dong (VND) which is a 6.5% decrease. However, the realized capital in Vietnam is recorded as 507.6 trillion VND increasing by 6.3% compared to the same period in 2020 (Thanh, 2021).

B. Research gap

After reviewing the referenced research papers and the press release regarding the FDI inflows in Vietnam, they show a certain limitation of the COVID-19 factor in the FDI in Vietnam monitors. Therefore, this report focuses on the influence of the pandemic on the foreign direct investment in Vietnam as well as its 6.5% incline using COVID-19 as the moderator variable.

C. Research model

According to various empirical analysis models, it is necessary to identify the factors affecting the attraction of FDI. Factors that influence the investment decision can be named such as the country's macroeconomic policies, resources, and business efficiency. (Ford, Sen, and Wei, 2010) To be more specific, there are several models and approaches to determine the factors including the product life cycle theory, eclectic paradigms, and the neoclassical trade theory. Each approach allows investors to adapt and examine the benefits in deciding the country to invest. (Asongu, S., et. al., 2018)

The neoclassical trade theory is chosen due to its closeness to the advantages of Vietnam's economy. In detail, investors leverage the local resources which are the cheap labour cost, natural resources, and impressive transportation abilities. (Mayer, 2005)

Hence, the research model is established based on the adjustment of policies, local resources, and productivity, along with the effect of COVID-19 on these factors below.

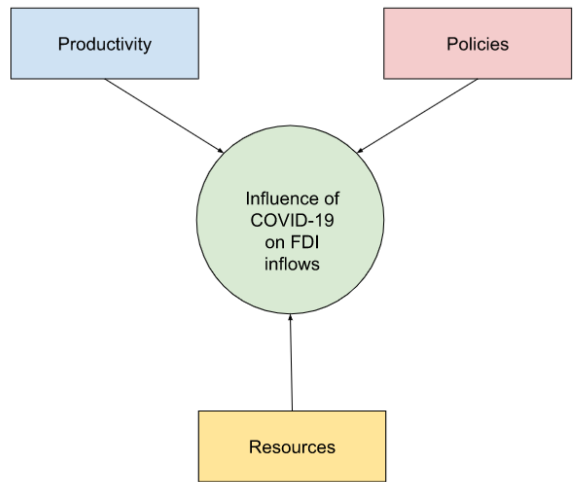

Figure 3

III. METHODOLOGY

A. Techniques

According to the neoclassical theory as well as the global economic growth by Ford, Sen, and Wei (2010); FDI is one of the major factors. Hence, the equation for the research model is specified as below:

GDP = f (KAP, EM, HK, FDI, TTECH, SAV, libdummy, gtran)

Whereas:

KAP: domestic capital
EM: annual average employment
HK: human capital
FDI: FDI investment amount
TTECH: imported technology
SAV: real saving
libdummy: dummy variable
gtran: infrastructural expenditure

However, this report would only use the FDI variable to test the influence on the total GDP of Vietnam by utilizing correlation, linear regression, and coefficient methods.

B. Collection of Data

This report is based on the collection of the metadata on the time series monitoring by the General Statistics Office in Vietnam and the World Bank datasets. According to Chao (2014), metadata is utilized due to its accessibility and meaningful interpretations.

IV. ANALYSIS

The research leverages the total GDP of Vietnam and the FDI net inflows from 2010 to 2020 metrics in order to understand the influence of FDI on the total amount of GDP.

A. Empirical results

1) *Descriptive statistics*

	GDP	FDI
Valid	10	10
Missing	0	0
Mean	4.099e +15	1.120e +10
Std. Deviation	1.218e +15	3.252e +9
Minimum	2.160e +15	7.430e +9
Maximum	6.040e +15	1.612e +10

Figure 4

The graph above illustrates the summarized view of the dataset by giving the overall information regarding the amount of GDP and FDI performance through metrics such as mean, mode, and standard deviation. However, descriptive statistics cannot provide any conclusion or proof(Glewwe and Levin, n.d.).

2) *Pearson's Correlations*

Variable		GDP	FDI
1. GDP	Pearson's r	—	
	p-value	—	
2. FDI	Pearson's r	0.956	—
	p-value	< .001	—

Figure 5

The correlations between GDP and FDI are shown in figure 5. According to Mukama (2012), correlations are a statistical method used to understand the relationships among variables. In this circumstance, the R-value of the FDI variable is 0.956 which indicates a positive correlation. Also, the p-value is different from 0. Hence, it can be concluded that FDI has a strong influence on the total GDP, and tends to increase along with it.

3) *Linear regression*

Model Summary - FDI

Model	R	R^2	Adjusted R^2	RMSE
H_0	0.000	0.000	0.000	3.252e +9
H_1	0.956	0.914	0.904	1.009e +9

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
H_1	Regression	8.704e +19	1	8.704e +19	85.412	< .001
	Residual	8.152e +18	8	1.019e +18		
	Total	9.519e +19	9			

Note. The intercept model is omitted, as no meaningful information can be shown.

Coefficients

Model		Unstandardized	Standard Error	Standardized	t	p
H_0	(Intercept)	1.120e +10	1.028e +9		10.892	< .001
H_1	(Intercept)	7.387e +8	1.176e +9		0.628	0.548
	GDP	2.553e −6	2.762e −7	0.956	9.242	< .001

Figure 6

The linear regression model is an advanced model of correlation by adds a linear formula to monitor the dataset. In specific, the linear regression line has the equation of $Y = a + bX$ whereas Y is the dependent variable, X is the explanatory one, b is the slope, and a is the intercept. The common application of this model is forecasting (Yale.edu, 2021).

Regarding this case, FDI is the outcome and GDP is the covariates. The result shows the adjusted R square number of 0.904 which is considered high and positive.

The p-value is 0.548 which is higher than 0.05 suggesting weak evidence. Hence, the null hypothesis is rejected.

The coefficients graph provides useful pieces of information to forecast the amount of FDI. Therefore, the regression formula is presented as

FDI = 1.120e+10 + 2.553e-6*GDP

4) *FDI net inflows in the percentage of GDP*

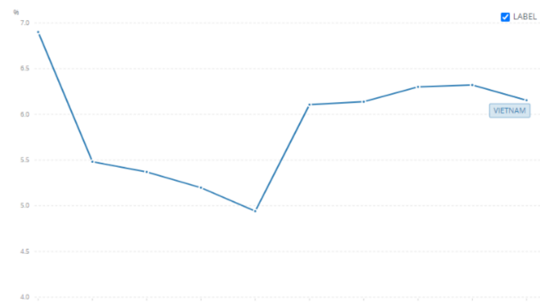

Figure 7

(Source: International Monetary Fund, International Financial Statistics and Balance of Payments databases, World Bank, International Debt Statistics, and World Bank and OECD GDP estimates.)

The line chart illustrates the impact of FDI on the total GDP of Vietnam throughout the years. There is a downward trend in the contribution of FDI even though GDP continuously increases. This shows the growth in domestic investment and its large contribution to Vietnam's economy.

V. REFLECTIVE STATEMENT

The research analyses the dataset extracted from the General Statistics Office of Vietnam and World Bank's metadata. Even though there are several factors affecting firms and the overall economy, FDI is chosen to be the representation. Hence, the proof of research is limited and relatively narrow. This is caused by a certain limitation on statistical data which is recorded up to 2019. The statistics for 2020 and 2021 are not released publicly at the time of preparing this report. Nevertheless, the previous academic research on FDI provides insightful and undated information to refer to.

Other methods for the collection of data processes would be considered such as the non-probability sampling method to collect ideas from the group of enterprises, angel investors, and the government agency to have a better understanding of the factors. The form of conducting is through prepared questionnaire surveys(Hanh et al., 2017). This method could suggest a broader and more practical perspective than solely relying on recorded metadata. Though, diagnostic tests and factor analysis are the two models that I would like to include so that the results would be critically analyzed. The reason for this is all the mentioned factors are constantly changing especially throughout the 4 phases of COVID-19 in Vietnam.

Also, since family-owned business operations are not recorded, they have been affected heavily by COVID-19. Obtaining the data and its insight into this category could have been a valid way to monitor the impacts.

However, by using linear regression, the impactof FDI is measured, visualized, and forecasted. The result shows the downward slope in FDI contribution to GDP which suggests the internal economic recovery.

VI. CONCLUSION

Even though COVID-19 caused the FDI performance decline, the recovery of Vietnam's economy is relatively stable and promising. Nonetheless, FDI is still a viable source to leverage on especially after the Free Trade Agreement between Vietnam and European Union in 2019(Trade - European Commission, 2019).

Hence, this report suggests the Vietnam government making adjustments to the investment policies as well as evaluating the investment trends. In summary, this research paper can be expanded by analyzing component factors on FDI attraction.

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