

The Effect of Regulatory Quality on Foreign Direct Investment (FDI) Inflows in Asia Using Dynamic Panel Data Method: The Initial Stage Policy Response to Covid-19

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Abstract--- *The shocking worldwide transmission of COVID-19 has encouraged many governments to interfere to avoid the spread of the infection. In Asia, governments' bodies that govern medical devices have taken steps to ease import restrictions and expedite registration processes for needed goods, seeking to ensure that regulations do not block the development or supply of devices that could save lives. A good regulatory quality reflects perceptions of the capability of the regulatory to frame and implement sound policies and regulations that permit and help all sector development. Following the spread of COVID-19 and increased financial volatility, the growth of FDI and trade outlook for the region in 2020 has been sharply downgraded. This research used Dynamic Panel Data also known as longitudinal study, observed data over starting from January, 2020 to March, 2020 in 5 selected Asia Country that involving with COVID-19. This study found Dynamic Panel Data System GMM Estimation model is fitting to interpret the outcome, indicate regulatory quality of Covid-19 (p -value=0.036), inflation rate and unemployment rate have significant relationship in panel analysis amounts to 1% significant, 2% significant and 5% significant. In term of limitation, this study just focusses on three month of data from selected Asia country involved with Covid-19. Panel causality results suggest bidirectional linkages between inward FDI and regulatory quality. Empirical findings suggest that economic policy reforms are required to channelize regulatory quality of COVID-19 to a more foreign capital inflows. The governments of Asian countries should pull out policies on FDI inflows and the environment in order to achieve sustainable economic growth and development.*

Keywords--- *COVID-19, FDI, Trade, Inflation Rate, Interest Rate, Unemployment Rate, Asia.*

I. INTRODUCTION

The outcome of this study will explain on significance value of relationship between regulatory quality and foreign direct investment (FDI) inflows in Asia during COVID-19 outbreak. Thus, the objective of this study is to investigate if there is a significance relationship between regulatory quality and foreign direct investment (FDI) inflows in Asia during Coronavirus (Covid-19) outbreak. The country that have been selected is based in the Asia region such as Indonesia, Philippines, China, Malaysia and Singapore that closely related with Covid-19. Regulatory

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Quality, political stability, good governance and control of corruption of a country are essential for fascinating FDI inflow to host country and weak regulatory quality is a problem to increase FDI (Aziz, 2017). There are many previous studies shows that there is a link between regulatory quality with FDI inflows (Ahmad and Ahmed, 2014; Asif and Majid, 2017; Aziz, 2017). According to UNCTAD (2020) in figure 1, the outbreak spread of Covid-19 will negatively affect global FDI inflows. With scenarios of the spread of the epidemic ranging from short-term stabilization to continuation throughout the year, the downward stress on FDI will be -5% to -15% compared to previous forecasting marginal growth in the FDI trend for 2020-2021. The impact on FDI will be focused in those countries that are most harshly hit by the epidemic, although negative demand shocks and the economic impact of supply chain interruptions will affect investment predictions in other countries. According to the data provided by Trading Economics on March 2020, FDI in Italy had already decreased by -3438 EUR Million in December of 2019. Foreign direct investment into India has decreased marginally by 1,4% to USD 10.67 billion during October-December period of 2019-20, according to their government data. At the same time certain industry face what is probably their most challenging scenario in years, if not decades, certain FDI industries instead are predicted to be able to grow and “benefit” from the COVID-19 crisis. The spread of information and the learning from others countries experiences, however, seems vital at the moment to allow governments to prepare and plan for measures that will be able to mitigate the damage that, at this point, is a certainty for the world economy.

Region/economy	Number of companies with earnings revision	Average earnings revision by March 23rd (%)	(March 4 th)	Share of reinvested earnings in FDI, 2018 (%)
Developed	2'663	-35	(-6)	61
Developing economies	1'249	-20	(-16)	40
Africa	54	-11	(-1)	27
Developing Asia	1'031	-21	(-18)	41
Singapore	20	-30	(-30)	..
Thailand	36	-28	(-15)	72
Republic of Korea	149	-29	(-20)	22
Malaysia	35	-26	(-20)	..
China	416	-21	(-26)	..
Latin America and Caribbean	124	-14	(-6)	43
Transition economies	40	-18	(-10)	93
Total	3'912	-30	(-9)	52

Figure 1: sample of the top 5,000 listed companies showed earnings forecasts for fiscal year 2020 have been revised down by an average of 9%

Sources: UNCTAD calculations based on IMF, WEO, (April,2020).

II. METHODOLOGY

All the selected Asia nations observed from January, 2020 to March, 2020 3 months time period which is from China, Singapore, Indonesia, Malaysia and Philippine. The data are taken from the World Bank, Trending Economic Website and UCNTAD database had included in this research and all the data used in this study are using secondary data. Then, the 3 months data being transferred to Stata 12 software in order to do the test. All test that was used is Panel Root Test (Levin-Lin-Chu test and Im-Pesaran-Shin test) and diagnostic test (Wald test, Sargan test and

Arrelano-Bond test 1 & 2). While result of these tests is defined after went through Dynamic Panel Data System GMM estimation Result for All Panel.

III. RESULTS

In panel data analysis, the panel unit root test is being the first step before the result could be reach. This test is taken in order to identify the stationery properties of the relevant variables. There are several number of methods for panel unit root tests. Notwithstanding, this research is using only two test which is Levin, Lin &Chu (LLC) test and IPS test. Both tests is used due to no significant evidence of error cross-section dependence is found in the data. Plus, according to (Gezahegne, 2011), LLC and IPS are the most prominent test that is used and both test are based on the Augmented Dickey-Fuller (ADF) principle. The LLC test predict the heterogeneity of various sections. However, the test has low power in small samples due to the serial correlation, which is it cannot be completely eliminated. While for IPS, the heterogeneity is allowed and it make this test is more general in the dynamics. Hence, it is likely that the heterogeneity is allowed in choosing the lag length in ADF tests in the case where imposing uniform lag length is not appropriate. As can be seen in table below, it shows the results of the panel unit root tests for every variables.

Table 1 : Panel Unit Root Test(Levin, Lin &Chu (LLC))

Variable	Levin-Lin-Chu Test (LLC)	
	Constant & trend	Constant, but no trend
Net inflows US\$ of FDI (USD)	148.15**	182.02***
Regulatory Quality of COIVD 19	261.73***	254.11 ***
Inflation Rate	5.11***	7.21***
Interest Rate	-5.41 ***	-6.11***
Unemployment Rate	44.11***	30.00***

*Notes: All panel unit root tests were performed with restricted intercept and trend for all variables. In addition, *, **, and *** indicate significance at the 1%, 5%, and 10% levels of p-value respectively.*

In table 1, the result shown is about two root test among dependent variable, constant variables and independent variable. Generally, the LLC test shows that dependent variable of net inflow of FDI in USD stated that significant at 5% level in constant and regulatory quality while in constant but no trend is significant at 10% level. The significant level of 10% is also same goes for all result tested among three constant variable which is inflation rate, interest rate and unemployment rate whether in constant and trend, and in constant but no trend. As the Table 1, it can be concluded that most of the variables giving significance impact towards the dependent variables in panel unit root test. Next, the significance result of initial independent variable which is regulatory quality is significance towards dependent variable shows in Table 2. This result seems to be similar to the study by (Binuyo, 2014), that is found that there is positive relationship which is he found happened between FDI and regulatory quality and governance. While next constant variable that also giving positive relationship is the inflation rate. As refer to the study by (Noveria, 2014) the result also showing significance result after the researcher studying the relationship between FDI and inflation rate where the result is below than 1% level. Same goes to unemployment rate where the significance effect only on the inflows in USD. Lastly, all the GMM result is tested with the causal relationship, validity of the instruments and autocorrelation using three diagnostic tests.

Table 2: System GMM Estimation Result for Both Panel

	Panel FDI
Regulatory Quality of COVID 19	0.036* (0.004)
Inflation Rate	0.036* (0.004)
Interest Rate	24.644 (4.332)
Unemployment Rate	0.095* (0.001)

Note: *, ** and *** show significance at 1%, 5% and 10% significance levels, respectively.

Based on the table above, Table 2 involve of net inflows in USD as the dependent variable. The p-value is considered affecting the dependent variable with significance level of 1%, 5% and 10%. Overall, the result shows that, most of constant variable is significance. Same goes to the independent variable that is having significance result as well, the result shows that regulatory quality during Covid 19 as the independent variable is increase 1% based on p-value, and this will give impact towards dependent variable as much as 5%. Next, the increasing of 1% level of inflation rate will affect net inflows in USD about 0.5%. Moreover, for unemployment rate, the increasing level is about 1% and it gives impact as much as 0.2% towards net inflows in USD. Howbeit, one of constant variable which is interest rate is showing that it is insignificance with p-value of 5.55. After GMM estimation result was conducted, the next test in order to confirm the results by using Wald test, Sargan test and Arellano test 1 and 2. Wald test was used to find the causal relationship exist between two variables. While for Sargan test, the propose of this test is regarding on the issue that GMM method shows that there also occur certain weakness that have initial relation to the goodness of the instruments and accuracy of the primary assumption of no serial correlation in the errors as referred by (Gezahegne, 2011). That is why Sargan test is used in this research in order to test the validity of the instruments used. The Arellano-Bonr test 1 and 2 is to test whether is there any existence of the autocorrelation in first differences.

Table 3: Wald Test, Sargan Test, AR(1) & AR(2) Test

	Panel FDI
Wald test	35807.01 (0.0000)*
Sargan test	17.100 (-0.5560)
Arellano-Bond test for AR (1)	0.3700 (-0.6761)
Arellano-Bond test for AR (2)	0.5322 (0.0047)*

Note: Hansen J-test(sargan test) refers to the over identification test for the restrictions in GMM estimation. The AR2 test is the Arellano–Bond test for the existence of the second-order autocorrelation in first differences. ***, ** and * show significance at 1%,5% and 10% respectively

Based on diagnostic test in the above table, the result of the Wald test shows that the null of all independent variable and constant variables is giving impact at 1% level towards net inflows in USD. For the Sargan test, the test showing that there are no autocorrelation. As can be seen, the autocorrelation test in table 3 reject the null hypothesis

of no autocorrelation. This result is determined through the presence of autocorrelation at 1%, 5% and 10% respectively. Therefore, the Arellano-Bond test is rejected the null hypothesis for Panel FDI in the first test of autocorrelation. However, the autocorrelation test is misleading due to the time rejects the null hypothesis and this will make the test is not dependable. As mentioned by (Roodman, 2007), in order to only depend on first autocorrelation is not certain as it interprets the presence of autocorrelation. Moreover, to get more precise, there is a need to test the autocorrelation for the second time. As the Arellano-Bond test 2 have been made, the result shows that this Panel have no problem in term of serial correlation.

IV. REGULATORY COVID 19 POLICY ON FDI

The corona pandemic or Covid 19 will also leave its mark on law governing foreign direct investments. Throughout of this research, the significant of dependent variable which is FDI in any country cannot be denied as the basic assets to keep the country to always develop and put the nation in the world ranking. FDI also have become the cornerstone for government and corporations in every countries in the world. Throughout FDI, a country could improve economic growth by encouraged foreign direct investment to enter and create job opportunities for their citizen. It is crucial for the success of future transactions to recognize and take into account of such developments at an early stage. The role of economic policy is hence not to stimulate aggregate demand, at least not right away. These domestic policies need to be supported by maintaining international trade and cooperation, which are essential to defeating the pandemic and maximizing the chances of a quick recovery. Unlike the global financial crisis in 2008, and the Asian financial crisis in 1997, COVID-19 crisis is a public health crisis first, and an economic crisis second. Following this, economists generally agree that economic policy should focus mainly on bolstering public health efforts in handling the pandemic whilst ensuring the welfare of the poorest and businesses. However, regulatory on FDI during Covid 19 is lacking and need further attentions from the governments. Lastly, the regulator on Foreign Investment in the need focused on national security, a concept encompassing critical infrastructure. Given the increasing awareness of vulnerabilities in the medical supply chain, foreign investments in this sector could attract more scrutiny in the future.

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