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Role of Stock Market Performance and Exchange Rate Volatility in the Inflow of Foreign Direct Investment: An Evidence from Pakistan

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ABSTRACT

The purpose of this study was to evaluate the role of macroeconomic variables i.e., stock market performance and exchange rate fluctuations on Foreign Direct Investment (FDI) for Pakistan. The required data was collected for the period of 1996 to 2020 from the World Bank and State Bank of Pakistan. In data analysis, the unit-root tests were performed to decide whether a time-series is stationary or not. An ARDL is constructed to achieve the results of this study. The results of this study provided the evidences that stock market performance and trade openness have positively and significantly linked with FDI. Whereas real GDP growth rate and exchange rates have negative effects on FDI. It is recommended that the trade policies should be devised in such a manner that these policies should promote exports. Furthermore, policies that ensure stable stock market performance could be an important factor for bringing FDI to Pakistan. However, FDI seems to be ineffective from the changes in the rate of inflation.

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1. Introduction

Foreign Direct Investment (FDI) as an accelerator of growth has gained much attention in the developed world in general and less developed countries in particular in recent decades (Susic, Stojanovic-Trivanovic, & Susic, 2017). The nexus between FDI and economic growth has been an inquisitive topic for economists. A closed economy has to rely completely on its domestic savings whereas an economy with a rapid pace of FDI means growth of investment beyond domestically achievable resources.

When a foreign investor seeks the opportunity to invest in the host country then this very act not only brings a flow of cash but also brings scarce expertise in the receiving economy. Furthermore, reduction in the unemployment rate and enhancing economic development are also the natural consequences of FDI (Irpan, Saad, Nor, & Ibrahim, 2016). Hence, FDI improves the skills of the domestic labor force which in turn enhances future possibilities of growth (Ohanu et al., 2016).

In recent decades, the speedy inflows of FDI in developing economies have proved to be a greater catalyst of growth in these economies. The availability of cheap labor and raw material makes it possible for foreign investors to earn more profits. Major areas of FDI in developing economies are the energy sector, communication sector, and infrastructure.

FDI expands production possibilities and also boosts per capita income which could have a multiplier effect through enhancement of domestic consumption.

Pakistan has always welcomed FDI through the induction of the right incentives in its trade policy during the 1980s for foreign investors. Even in the early 1980s, many measures such as reductions in trade taxes, downward movements in trade tariffs, and availability of easy credits for foreign investors can be deemed as important magnets to catch FDI. The continuation of incentives was further enhanced by more protection in the 1990s.

The frequently changing political conditions and resulting economic uncertainties have always been great hurdles for bringing consistent inflows of FDI (A. Khan & Kim, 1999). Since FDI moves where investors foresee political and economic stability therefore there is a strong connection between political stability and FDI (Fatehi-Sedeh & Safizadeh, 1989).

Figure 1 shows FDI inflows for the economy of Pakistan from 1970 to 2019. It is very easy to see that these inflows seem to be much more volatile from the mid-1990s onward as compared to previous years. Therefore, the interest of this study lies in evaluating the role of political stability/ economic stability on FDI inflows from the mid-1990s onwards. ARDL modeling technique is used to get short-run along with long-run responsiveness of FDI to variables of interest. The appeal of this technique is due to a mixture of variables with different orders. Furthermore, the ARDL technique produces efficient results in the presence of lesser data as in this instance.

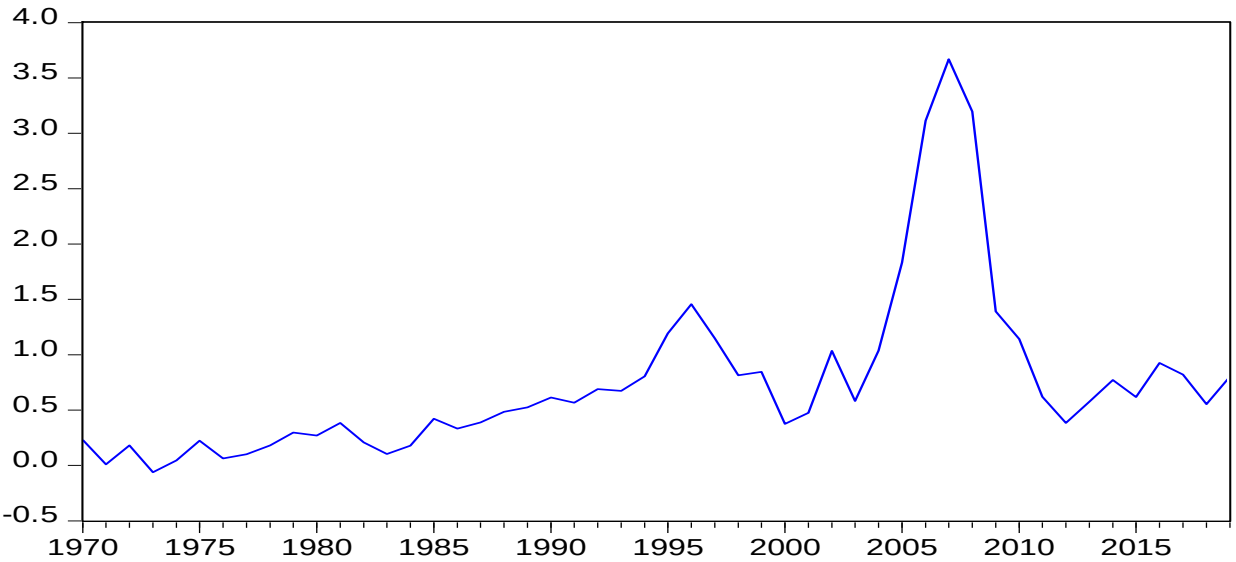

Figure 1: Trends of FDI Inflows in Pakistan (US Dollars)

Ismail, Ismail, and Practice (2021) conducted a study in Indonesia and found that stability of macroeconomic variables are important instruments in attracting more FDI inflow in developing countries for their economic growth. FDI can prove as a gift, but also as a curse. The abundance of FDI means greater possibilities for investment and growth. However, a fast outflow of FDI could demolish the growth prospects of an economy. It is tried to gauge the impression of political fragility on FDI for the Pakistan economy. To achieve this end, foreign exchange and stock market performance are used as measures of political stability for the economy of Pakistan as these measures are highly sensitive to political changes. Variables such as GDP growth, trade openness, and domestic inflation are used as control variables.

1.1. OBJECTIVES OF THE STUDY

- To examine the influence of stock market performances on FDI
- To analyze the impact of exchange rates on FDI

2. Literature Review

Azam and Lukman (2010) explored the factors of FDI in India, Indonesia, and Pakistan. They collected the data from 1971 to 2005 from UNCTAD and World Bank websites. They found that infrastructure, international trade, market size, investment returns, and domestic investment had a strong and positive connection with inflows of FDI.

R. E. A. Khan and Nawaz (2010) studied the economic determinants of foreign direct investment in Pakistan. FDI was regressed on the annual growth rate of GDP (as a measure of market size), annual average exchange rate, wholesale price index, custom duty on imports, and export of goods used as independent variables. They concluded GDP and exports had positive effect on inflows of FDI in Pakistan. However, the impact of the exchange rate had a negative influence on FDI inflows for this economy.

Mohiudin and Salam (2011) examined the determinants of FDI for Pakistan. They collected the data from 1973 to 2008. Error correction modeling was done. They found that there is a positive relationship of real GDP, trade openness, and exchange rate on FDI, but a negative impact of inflation was recorded for this variable.

Samimi, Moghaddasi, Azizi, and Sciences (2011) studied the factors of FDI revenues in the Organization of Islamic countries (OIC). To accomplish so, they worked on a group of 16 nations for which the essential data was available between 2002 and 2009. A panel data regression analysis was applied. Their empirical findings show that in OIC nations, population, openness, and GDP had a positive effect on FDI; however Political Stability had a negative impact on FDI.

Akbar, Ahsan, and Economics (2015) explored in influence of different factors on FDI for Pakistan economy. Multiple regression analysis was used to obtain results of this study. Political instability was found to be negatively associated with FDI of this economy. Rashid et al. (2016) examined the impact of political stability along with other commonly studied factors of FDI. They used Panel ARDL, fixed effects and GMM-system models. Political stability was found to be favorably related with FDI.

Rauf, Mehmood, Rauf, Mehmood, and Finance (2016) inspected the integrated model to measure the impact of terrorism and political Stability on FDI Inflows in an empirical study for Pakistan. Impacts of terrorism, political stability, trade openness, and GDP were evaluated for the economy of Pakistan. They concluded that GDP, Trade Openness, and Political Stability had a positive relationship with FDI inflows, whereas terrorism attacks had negative impacts on FDI inflows in Pakistan.

Groznykh, Mariev, Plotnikov, Fominykh, and Business (2020) examined the role of political stability on foreign direct investment. They collected the data of 66 FDI-recipient countries, 98 FDI-investor countries, 33 developed economies, and 33 developing countries as the importers of FDI from 2001 to 2018 from the World Bank database. They used the gravity model and Pseudo Poisson Maximum Likelihood (PPML) regression to estimate the results. The dependent variable was FDI whereas independent variables were GDP of FDI-recipient country, the gross domestic product of country-investor, the distance between capitals of country pairs, trade, Inflation, exchange rate, political stability. They concluded that political stability is directly proportional to FDI.

Literature review clearly shows that the important variable of stock market performance has been ignored in previous studies for the economy of Pakistan. Furthermore, this study has selected the sample span in which FDI is more volatile and its determinacy on stock market performance is also important. Moreover, the presence of exchange rate along with stock market performance as representatives of political and economic stabilities are also hallmarks of this study.

3. Research Methodology

The development of proper approach and procedure was regarded as the most important aspect of any research investigation. The impact research would have been a waste of time if the technique and analysis had been chosen incorrectly. As a result, the adoption of a systematic and proper approach is a crucial aspect of performing any analytical investigation. The research technique was regarded as crucial in evaluating any research topic since it fully detailed the entire approach used in the relevant research project.

It assists the researcher in allocating his limited resources by allowing him to choose particular options from a variety of alternatives (Sekaran & Bougie, 2016). As a result, the main goal of this chapter was to describe the numerous instruments and techniques used in the research study, as well as the sample selection, data collecting, analysis, and interpretation relevant to the research topic under examination. The study used time series data from 1996 to 2020. The Source of data is the World Bank, State Bank of Pakistan, and World Development Indicators.

In this study, we have used the ARDL model. (Paseran & Smith, 2001) created the ARDL limits testing strategy to evaluate the presence of a long-run relationship between the variables of interest. The dependent variable is FDI inflows. GDP growth, inflation, trade openness, exchange rates, and market capitalization are independent variables. Before estimating an ARDL model, we need to test whether a variable is stationary or not. The Augmented Dickey–Fuller test is conducted to evaluate the stationarity of each variable.

To find the relation between dependent and independent, the following model was constructed as:

$$FDI_t = \alpha_0 + \alpha_1 RGDP_t + \alpha_2 EX_t + \alpha_3 SMP_t + \alpha_4 OPN_t + \alpha_5 ROI_t + \varepsilon_t \quad (1)$$

Whereas the:

FDI= Foreign direct investment
RGDP= Real GDP
EX= Exchange rate
SMP=Stock market performance
OPN=Trade openness
ROI=Rate of inflation
ε represents the error term
α=Intercept, β1 to β_5 Estimated coefficients of the independent variables

The ARDL depiction of the above linear model can be shown as

$$\Delta FDI_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1i} \Delta FDI_{t-i} + \sum_{i=1}^{n} \alpha_{2i} \Delta RGDP_{t-i} + \sum_{i=1}^{n} \alpha_{3i} EX_{t-i} + \sum_{i=1}^{n} \alpha_{4i} SMP_{t-i} + \sum_{i=1}^{n} \alpha_{5i} OPN_{t-i} + \sum_{i=1}^{n} \alpha_{6i} ROI_{t-i} + \beta_1 FDI_{t-i} + \beta_2 RGDP_{t-i} + \beta_3 EX_{t-i} + \beta_4 SMP_{t-i} + \beta_5 OPN_{t-i} + \beta_6 ROI_{t-i} + e_t \quad (2)$$

Where Δ = the first difference operator.
α_0 = the drift component.
e_t= white noise residuals

4. Results and Analysis

This section is devoted to results that are obtained from the estimation of the ARDL model. Moreover, this section starts with the results of the Augmented Dickey Fuller test are presented.

4.2. Results of Unit Root Test

Table 1 shows results of ADF unit-root tests for variables of interest. Results of unit root tests show that all variables except market capitalization and real GDP growth are integrated of order one I(1). However, market capitalization and real GDP growth are integrated of order zero I(0). However, RGDP is I(0) at 11% level of significance. Therefore, we have a mixture of I(0) and I(1) variables. Hence, the ARDL approach to cointegration seems to be appropriate.

Table 1
Results of ADF Unit-Root Tests

Variable	Variable Form	ADF Test Statistics	Critical Values	
			5%	10%
FDI	Level	-2.618181	-3.622033	-3.248592
	First Difference	-3.057735	-2.998064	-2.638752
RGDP Growth	Level	-1.583968	-1.955681	-1.608793
EX	Level	-1.616999	-3.622033	-3.248592
	First Difference	-3.467039	-3.004861	-2.642242
SMP	Level	-4.063883	-3.644963	-3.261452
OPN	Level	-2.303840	-3.612199	-3.243079
	First Difference	-4.415861	-2.998064	-2.638752
ROI	Level	-2.298485	-3.612199	-3.243079
	First Difference	-5.661615	-2.638752	-2.638752

Source: Authors' data analysis results, 2022

Table 2 shows the results of the error correction model. It can be shown that the stock market performance and trade openness have positive and statistically significant impacts on foreign direct investment for the economy of Pakistan. However, the effects of real GDP and exchange rate have negative influences on FDI. Moreover, the rate of inflation has a statistically insignificant influence on the FDI of Pakistan.

Table 2
Results of Error Correction Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.761183	0.650657	-5.780595	0.0001
RGDP Growth	-0.157534	0.047832	-3.293507	0.0072
EXR	-0.038554	0.012064	-3.195808	0.0085
SMP	0.343558	0.171742	2.000435	0.0708
OPN	0.182825	0.029784	6.138334	0.0001
ROI	-0.030128	0.020706	-1.455054	0.1736
CointEq(-1)*	-0.172615	0.028005	-6.163644	0.0001
R-squared	0.805672	Durbin-Watson stat		1.895704
Adjusted R-squared	0.732800	F-statistic		11.05587
S.E. of regression	0.301998	Prob(F-statistic)		0.000063

Source: Authors' data analysis results, 2022

The negative impact of real GDP growth shows that expanding domestic productions makes foreign direct investment less attractive. One plausible reason might be the presence of positive growth of GDP signifies that domestic investor are availing maximum investing opportunities and lesser are available for foreign investment. Similarly, the appreciation of the dollar makes revenues earned in domestic currency less valuable.However, positive stock market performance has a positive effect on FDI as this positive effect seems to emerge from the perception of stable economic conditions as well as the presence of a stable political regime in the economy of Pakistan. Trade openness has also a positive effect on the real GDP of Pakistan as it shows more possibilities for exporting produced goods in Pakistan.

Figure 2 shows the graph from the Cumulative Sum of Recursive Residuals (CUSUM) test. It is evident from this graph that the estimated ARDL model remains stable throughout

the estimation sample. Therefore, it can be deduced that the estimated model is stable and the results are reliable.

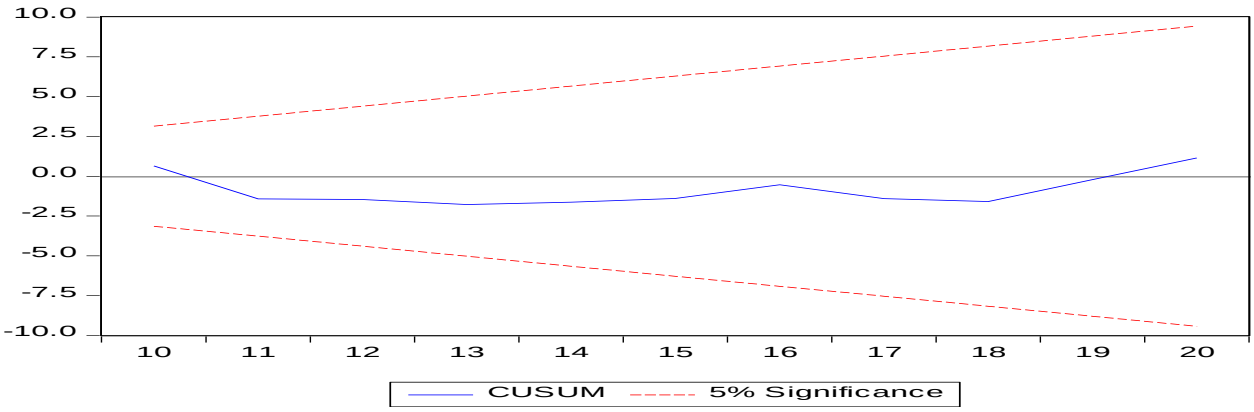

Figure 2: Graph of CUSUM Test

5. Conclusion and Policy Recommendations

This study is done to evaluate the impacts of stock market performance and exchange rate on FDI. These important macroeconomics variables are significant as these variables respond relatively more quickly to the economic instability that is caused by political instability. The result of the study shows that the exchange rate has a negative impact on the FDI of Pakistan. However, stock market performance has a positive effect on FDI. The impact of real GDP on FDI is negative, but the positive influence of trade openness on r this variable.

It is recommended that the trade policies should be devised in such a manner that these policies should promote exports. Furthermore, policies that ensure stable stock market performance could be an important factor for bringing FDI to Pakistan. Maintaining a stable exchange rate is also an important factor for a stable inflow of FDI. However, FDI seems to be ineffective from the changes in the rate of domestic inflation.

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