The Effect of Exchange Rate and Inflation on Foreign Direct Investment in INDIA

WATCHWORDS-

Foreign Direct Investment, Inflation, Exchange Rate, Hypothesis, Regression

ABSTRACT-

The financial market of an economy plays a significant role in attracting the foreign direct investment inflows into the economy. Thus, this study aims at studying the effect of inflation and exchange rate on the foreign direct investment inflows in the economy. A data of 41 years for the time period 1980-2020 has been studied. A linear regression hypothesis was for formed for the 41-year data with foreign direct investment as the dependent variable and inflation and exchange rate as the dependent variable.

Introduction-

In developed as well as developing countries like India, foreign direct investment has emerged as a very important factor affecting the economic growth of a country. It has been the most striking development in the past 2 decades. After the liberalization in 1991 foreign direct investment and international trade became a vital source of economic growth and thus leading to reduction in poverty. However, foreign direct investment has not remained same over the years. High fluctuations have been seen in its value. Thus , implying that it is is affected by various factors . The exchange rate , volatility of exchange rate, wages rates , tax rates and inflation rate in an open economy are some of these factors. The volatility of exchange rate makes the market for the foreign exchange highly uncertain and thus, affecting the prices and the quantity of the inputs and output for the MNCs which are a very important source of foreign inflow as the transactions of international firms operate in different currencies which leads to competitiveness in the global market place.

When a currency of any country depreciates it means its value declines relative to another country's currency, this movement within the rate of exchange has two potential implications for FDI. Firstly, the country's wages and production costs reduce relative to those of its foreign counterparts thus, acting as a honeypot for the foreign countries and attracting foreign investment into the country. This is majorly due to the location advantage for receiving productive capital investments.

The inflation leads to high level of prices in the country which in turn leads to a rise in the production costs. Thus, an increase in the input prices, cost of raw material, wages of labour, land prices and cost of capital. Such high prices of products affect the domestic as well as foreign demand for commodities adversely. All these factors taken together ultimately lead to the reduction in business profits thus discouraging foreign investment in the countries having a high inflation rate. As the inflation rate decreases the profits increases. Also, a stable economy with a stable inflation rate encourages the foreign direct investment. However, this is not a definite relationship as a positive relationship between inflation and FDI was seen in many developing countries.

Literature review-

Considerable numbers of studies have examined the effect of exchange rate and inflation on foreign direct investment (FDI) flows across the globe. Though, Despite the continuous studies investigating the effect of these variables the-FDI nexus based on country-specific or cross-country studies, they have generally provided mixed evidence due to different econometric techniques, choice of time, measures of exchange rate volatility, model misspecification and countries considered among others. The relationship has been observed to be different in countries on the bases of level of development as well.

Huybens and Smith (1999) and Boyd, Levine and Smith (2001) commented on nature of the relationship between inflation and economic growth through foreign direct investment (FDI) as a channel through which the effect of inflation is indirectly transmitted in economic growth for the betterment of countries. In this context, Andinuur (2013) also conducted a research and attempted to examine the relationships between inflation, FDI, and economic growth in Ghana and stated that low rate of inflation is taken as a sign of internal economic stability in the host country and this in turn increase the return on foreign direct investment. The researcher further elaborated that low rate of inflation in a country encourages FDI, nominal interest rate declines and as a result cost of capital is low. Furthermore, the availability of capital at cheap lending rate would enable foreign investors not only to locate better partners in the host countries with sufficient domestic investment to supplement but would also maximize the return on their investment.

Nyarko, Nketiah-Amponsah, and Barnor (2011) investigated the effect of the exchange rate regime on FDI inflows in Ghana for the period 1970-2008 using Ordinary Least Square (OLS) and Error Correction Model (ECM) techniques. They found that real exchange rate has no significant effect on FDI flow and thus suggest that a country's quest to attract FDI should go hand in hand with the sustainability of the democratic regime within the country.

Amuedo-Dorantes and Pozo (2001) conducted a study to find the response of FDI inflows for both the level of the exchange rate and its volatility for the period 1976–1998 in the USA.Though the researcher could not find any statistically significant relationship between the two in a short run, however, the results indicated that when foreign exchange rate uncertainty increases, the FDI inflows decrease.

Agarwal (2000) a Pakistani researcher in his study found that the rise of FDI in South Asian countries was in association with the exponential investment by local investors, providing evidence to belief that the connection between FDI and GDP and therefore the influence of FDI on GDP was negative till the year 1980. In the following years, early 80s, the link was mildly positive and strengthened over the years within the late eighties into the nineties.

Yapraklý (2006) indicated that the exchange rate variable, has an effect on FDI from income and cost perspectives. He found that the depreciation of a currency in the foreign exchange markets positively affects FDI. However, the use of imported inputs in the production by an export-oriented investor and a high degree of dependence on imported inputs can cause the investor's exports and profits to decrease. This is known as the cost effect, and in such cases, a depreciation of the domestic currency in the foreign exchange markets negatively affects FDI. The net effect of foreign exchange rates on FDI changes with respect to the magnitude

of income and cost effects. If the income effect is greater than the cost effect, an increase in the exchange rate positively affects FDI, and negatively in opposite conditions, i.e., the cost effect is greater than the income effect (Green and Clegg, 1999: 600; Chakrabarti, 2003: 156).

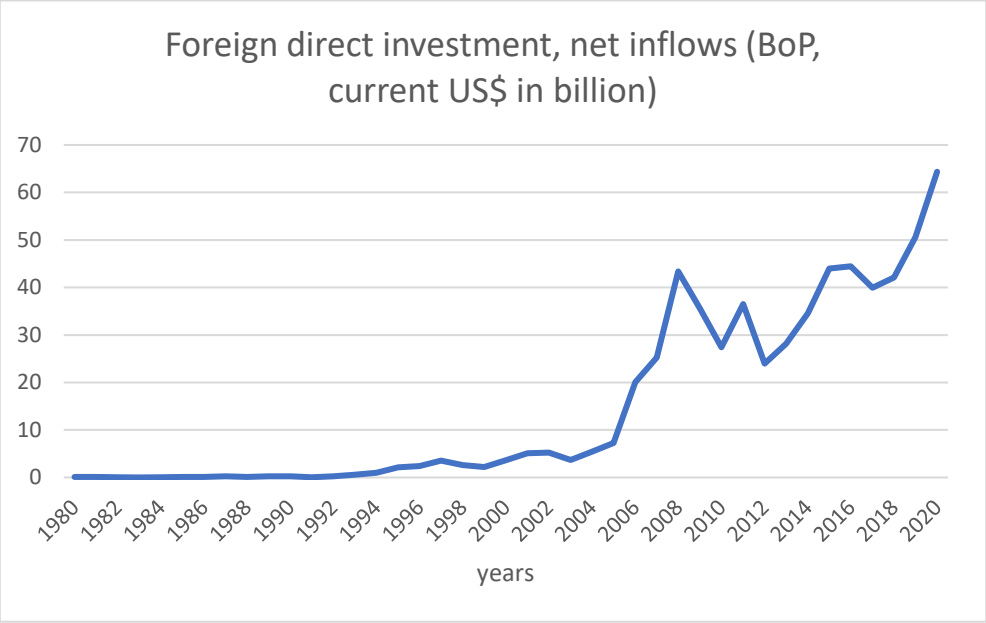
OBJECTIVES

This study has the following objectives:

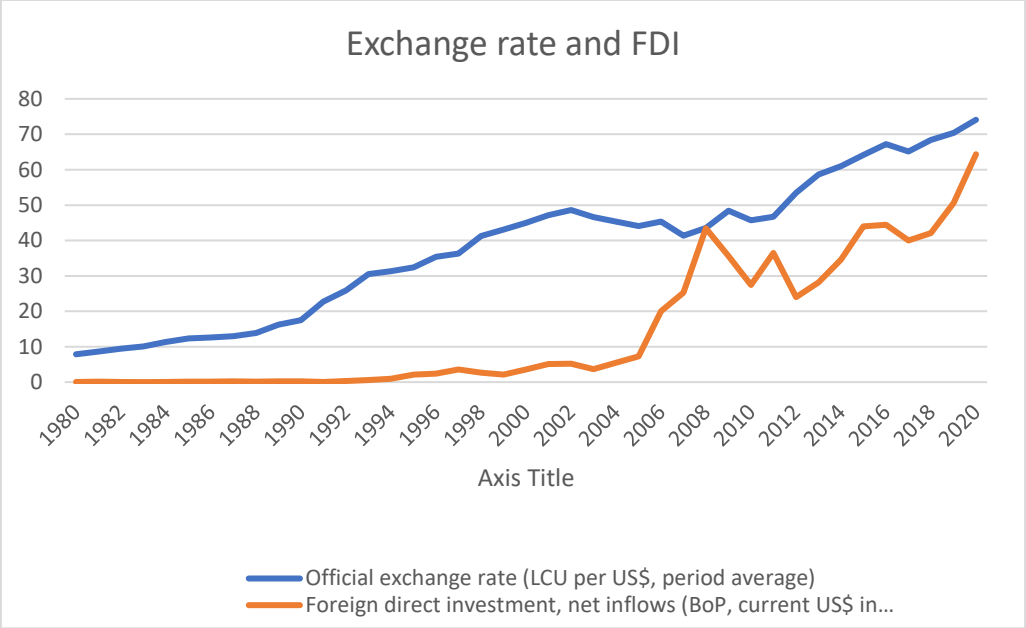
1. To study the trends and patterns of flow of FDI in India
2. To assess the determinants affecting FDI -
    - inflation rate and
    - exchange rate
    -

FDI inflow in India

The economic reform of India date back to 1991 when the policies of liberalisation, privatisation and globalisation were undertaken. Since then, the foreign investors have been highly interested in investing in India , that is India has become a favourite spot for the foreign investors. It is due to the relief from various trade barriers , new policies , creating of new SEZs etc. This trend is clearly seen in the graph 1 where the trend of Foreign direct investment, net inflows (Bop, current US$ in millions) for time period 1980-2020 is shown. A significant increase in the foreign direct inflows is observed after 1991. The FDI inflows have increased manyfold since the 1991 reforms.



This graph(2)shows the exchange rate and Foreign direct investment, net inflows over the time period 1980-2020.This graph shows the positive relation between them.



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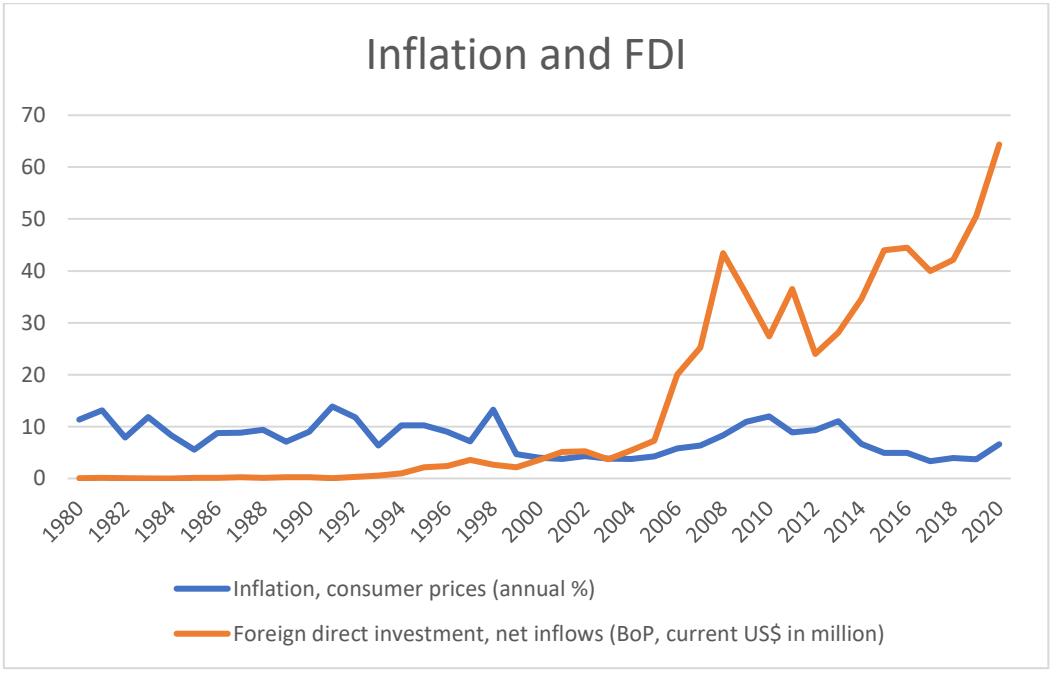

Research methodology-

This study is based on the secondary data recorded through the world bank data set. Time series data for the time period 2001-2020 has been used. An econometrics model (linear regression model) was developed to examine the relationship that FDI has with the exchange rate and inflation rate. FDI has been used as a dependent variable and exchange rate and inflation rate as the independent variables.

Model specification-

FDI = f (INFL., ER.) ….....(1)

Where:

FDI = Foreign Direct Investment net inflows

INFL. = Inflation, consumer prices (annual %)

ER. = Exchange rate

ASSUMPTION-

FDI is a function of inflation and exchange rate only and all other factors affecting the FDI are not accounted for in this model.

The statistical form of the model is:

FDI = βo + βI EXR. + β2 INFL. + u ……. (2)

Where:

FDI = dependent variable

βo = the intercept of equation (1)

β I = the parameter estimates of ER.

β 2 = the parameter estimates of INFL.

u = the random variable or error term.

Estimation procedure

The ordinary least squares regression method is used to estimate the coefficients of linear and multilinear regression equations and describe the relationship between one or more independent qualitative variables and dependent variable. Thus, this method of estimation has been used in this research. This method of estimation is used as it gives less specification errors in comparison to many other estimation techniques like the simultaneous equation method. Also, the predictions made by ordinary lease squares technique are favourable and rightly estimated in comparison to other methods. It is considered have the simplest computation procedure in conjunction with the optimal properties of the estimates obtained. The properties include linearity, unbiasedness and efficiency among all the unbiased estimators

SUMMARY OUTPUT

FDI .	= βo	+ βI EXR	+β2 INFL	. + u
	Intercept	Official exchange rate (LCU per US$, period average)	Inflation, consumer prices (annual %)	
Coefficients	-25.9463	0.856975	1.042861	
Standard Error	7.805974	0.10016	0.63797	
t Stat	-3.3239	8.55609	1.634654	
P-value	0.001973	2.16E-10	0.11038	

Regression Statistics	
Multiple R	0.827842
R Square	0.685323
Adjusted R Square	0.668761
Standard Error	10.78298
Observations	41
F	41.37933

CORELATION TABLE	Official exchange rate	Inflation, consumer prices
Official exchange rate (LCU per US$, period average)	1	
Inflation, consumer prices (annual %)	-0.28125	1

Data and result analysis

From the regressions result, the R-squared (R^2) value of 0.685323 shows that at 68.53% the explanatory variables explain changes in the dependent variable. This means that at 68.53% the independent variables explain changes on the Foreign Direct Investment net inflows (FDI) . This simply means that the explanatory variables exchange rate and inflation explain the behaviour of the Foreign Direct Investment net inflows. The adjusted R square is 0.668761 that shows 66.87% of variance in the Foreign Direct Investment net inflows (FDI) is explained by the inputs.

The calculated F value is 41.37933 that is greater than the F tabulated at 5% significance level therefore it can be said that there is predictive capacity in the model. Standard Error of 10.78298 shows that the average distance between the observed values and the regression line.

The coefficient of exchange rate is positive which implies that if the exchange rate increases by one unit the foreign direct investment inflows increase by 0.856975 units. This is in accordance to the economic theories. When the exchange rate of a country increases then the value of the domestic currency depreciates in relation to the foreign currency. Thus , making the domestic goods , inputs required for production , costs of domestic labour , capital etc. cheaper to the foreigners and hence , their production cost decreases. This provides an incentive to the foreigners to invest in our domestic country .

The coefficient of inflation is positive which implies that if the inflation increases by one unit the foreign direct investment inflows increase by 1.0428 units. This is not in accordance to the economic theories and empirical researches show that inflation is hypothesized to distort the tax system which would in turn discourage the investors for the long run due to money illusion (Omankhanlen, 2011). Also , it is argued that the high inflation can mean that the costs increase and the profits gets lowered . Thus , inflation is said to be related to the stabilization in an economy and it attracts the foreign capital. However, the positive relation in the given regression equation can be explained by the research of two Nigerian economist stating that the effect of inflation on foreign direct investment depends upon the nature of the host economy and also on the current level of inflation. The relation between inflation and foreign direct investment inflows also depends upon whether the economy is developing , developed industrialised economy.

The corelation between inflation and exchange rate is -0.28125 that is the exchange rate and inflation have an inverse relation however the relation isn't strong.

Test of hypotheses:

This section of study is used to
test the significance of the numerical values of the parameter estimates of the OLS regressio n. Here, the t-statistics and values are required.

Testing of Significance of Exchange rate (EXR.)

Hypothesis 1

Ho: $\beta 1 = 0$: There is no significant effect of exchange rate on FDI.

Ha: $\beta 1 \neq 0$: There is significant effect of exchange rate on FDI.

Decision: Accept Ho if $t_{38\ ,\ 0.025} > t_{Statistics}$

Reject Ho and accept Ha if $t_{38\ ,\ 0.025} < t_{Statistics}$

$t_{38\ ,\ 0.025} = 2.024$

$t_{Statistics} = 8.55609$

As $t_{38,\ 0.025} < t_{Statistics}$ it means we reject the null hypothesis and therefore it is concluded that exchange rate has significant effect on FDI.

Testing of Significance of Inflation (INFL.)

Hypothesis 2

Ho: $\beta 2 = 0$: There is no significant effect of inflation on FDI.

Ha: $\beta 2 \neq 0$: There is significant effect of inflation on FDI.

Decision: Accept Ho if $t_{38,\ 0.025} > t_{Statistics}$

Reject : Ho and accept Ha if $t_{38,\ 0.025} < t_{Statistics}$

$t_{38,\ 0.025} = 2.024$

$t_{Statistics} = 1.634654$

As $t_{38,\ 0.025} > t_{Statistics}$ it means we do not reject the null hypothesis and therefore it is concluded that inflation does not have significant effect on FDI.

CONCLUSIONS-

The above hypothesis , trends and patterns show that-

- FDI inflows have gained momentum and have increased manyfold in the past 3 decades in India. It has outpaced various other economic indicators of the world.
- FDI inflows are a function of inflation and exchange rate.
- FDI has a direct relation with exchange rate . It is a significant relationship as when the exchange rate rises it leads to the weakening of the domestic currency with respect to the foreign currency . Thus, providing an incentive to the foreign investors to invest in Inda as the cost of production , inputs for production all become relatively cheaper.
- FDI has direct relation with inflation rate in the given time period of the study. However, this relation is insignificant. This positive relationship between the FDI and exchange rate implies that in the given time period of this study the inflation acted as a catalyst in increasing the FDI inflows. Regularly, small rates of inflation are required as low inflation rates signify optimistic growth of economic and contrariwise. Balasubramanyam (2002) argued that a lower rate of inflation signifies the economy's strength and solidity as one of the utmost important factors in drawing FDI. Organizations engaging in global trade incline to demonstrate more technologically and advanced productive than organizations functional only in a local market.

This study had various limitations. This study was done at an undergraduate level therefore, there were various constraints involved like the lack of time and money. The data for data before 1980 isn't available on the sites Thus , the long-term effect of exchange rate and inflation on foreign direct investment could not be analysed.

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