

Determinants of Foreign Direct Investment in Pakistan

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Abstract

The objectives of the study were to analyze the patterns in FDI in Pakistan in recent years, to study the determinants of FDI in Pakistan and to analyze those determinants and develop a model. For analysis purpose secondary data were used and Multiple regression model was estimated through SPSS using past nine years' data from 2000-2008. From the coefficients it was concluded that foreign direct investment in Pakistan is affected by the Economic condition of Pakistan (GDP). Interest rate was inversely related to foreign direct investment. The exchange rate in a country is inversely related to foreign direct investment. Domestic investment is positively related to foreign direct investment. Foreign investors are more attracted to a certain country, if the level of domestic investment is high in that country. The Foreign direct investment is positively related to labor force that exists in Pakistan. Foreign direct investment is directly related to inflation rate in Pakistan. It is because, inflation in a country points to high supply of money. High inflation rate gives rise to high level of profits, which is why foreign investors are attracted. The infrastructure and foreign direct investment had negative relationship. This might be due to the extension of roads and infrastructure which does not contribute directly to the business activities. In short level of FDI has great impact on the overall economy of Pakistan. When there is huge amount of inflow of FDI, the level of the employment, production level and foreign revenues will increase. The production level of the country will increase. Hence exports and foreign exchange will increase.

Keywords: Foreign Direct Investment, Interest Rate, Exchange Rate, Labors Force.

INTRODUCTION

Foreign direct investment (FDI) in its classic definition is defined as a company from one country making a physical investment into building a factory in another country (Anjum, 2007). Its definition can be extended to include investments made to acquire lasting interest in enterprises operating outside of the economy of the investor. The FDI relationship consists of a parent enterprise and a foreign affiliate which together form a Multinational Corporation (MNC). In order to qualify as FDI the investment must afford the parent enterprise control over its foreign affiliate. The I.M.F defines control in this case as owning 10% or more of the ordinary shares or voting power of an incorporated firm or its equivalent for an unincorporated firm; lower ownership shares are known as portfolio investment

Foreign direct investment (FDI) plays an extraordinary and growing role in global business (Sebastian, 2004). It can provide a firm with new markets and marketing channels, cheaper production facilities, access to new technology, products, skills and financing. For a host country or the foreign firm which receives the investment, it can provide a source of new technologies, capital, processes, products, organizational technologies and management skills, and as such can provide a strong impetus to economic development.

The significance of foreign direct investment (FDI) flows is well documented in literature for both the developing and developed countries (Adela, 2001). Over the last decade foreign direct investment have grown at least twice as rapidly as trade as there is shortage of capital in the developing countries, which need capital for their development process, the marginal productivity of capital is higher in these countries. On the other hand, investors in the developed world seek high returns for their capital. Hence there is a mutual benefit in the international movement of capital. The ongoing process of integration of the world economy and liberalization of the economies in many developing countries has led to a fierce competition for inward FDI in these countries. The controls and restrictions over the entry and operations of foreign firms in these countries are now being replaced by selective policies aimed at FDI inflows, like incentives, both fiscal and in kind (Miller, 2003). The selective policies not only improve the fundamentals of the economy but they aim at attracting more foreign investments in the country.

It is apparent from the above discussion that FDI is a predominant factor in influencing the contents of contemporary process of global economic development (Amir, 1994). A country can reap the fruit of FDI with stable policies and with better incentives. It is often argued that the successful growth experience in the far eastern countries owes much to the generous flow of capital towards that region. Following this miracle growth model, many developing countries, including Pakistan are actively seeking the role of FDI in their growth economic and growth performance. The experiences of far eastern countries also show that FDI not only affects economic growth, it also depends on the host country's growth performance

Anjum (2005) empirically identified the determinants of growth in foreign direct investment (FDI) in

Pakistan over the period 1961 to 2003. The main interest was to study how different variables or indicators reflecting trade, fiscal and financial sector liberalization attract FDI in Pakistan. The study used the Co integration and error-correction techniques to identify the variables in explaining the FDI in Pakistan. He considered tariff rate, exchange rate, tax rate, credit to private sector and index of general share price variables if they explain the inflow of foreign direct investment. Also included wages and per capita GDP to test for relative demand for labor and market size hypotheses. All variables indicated correct signs and were statistically significant except for wage rate and share price index. The study clearly emphasized the role of these policy variables in attracting FDI and determining its growth in both short and long run in Pakistan. The study indicated a positive and significant impact of reforms on FDI in Pakistan.

This study attempt to analyze the important dimensions of foreign direct investment in Pakistan in the light of the various studies carried out by the different researchers.

LITERATURE REVIEW

Hussain *et al* (1990) concluded that like other developing countries, Pakistan inherited a pre-dominantly rural economy with little industrial activities on the eve of independence. As a result, recourse to inflow of foreign investment was inevitable. The industrial policies of 1948, 1959 and 1984 highlighted the role of foreign investment and the Government encouraged this inflow with various concessions and facilities. The objectives of industrial policies pursued from time to time were expansion in industrial production, export and employment, training of technical personnel and ultimately the improvement of standard of living of the people

Magnus (1992) pointed out that empirical evidence on the very different conclusions that can be drawn about productivity spillovers of foreign direct investment. It explains the concept of host country spillover benefits, describes the various forms these benefits can take, both within and between industries, and summarizes the evidence regarding the relative magnitudes of the various forms of spillovers. Moreover, the paper discusses host country policy measures which can accelerate both the BC affiliates' technology imports and the diffusion of their technology in the host economies

Allan and Tony (1993) stated that foreign investment supplements domestic saving, allowing an economy to accumulate real capital more quickly. Therefore, the question of the desirability of a current account deficit, which necessarily matches a net capital inflow, essentially depends on whether the extra real output made possible by the foreign funds exceeds their real servicing cost. This paper provides econometric estimates which suggest that in the case of Australia, a country which experienced comparatively large external imbalances over the 1980's, the use of foreign capital has raised national income by more than would have occurred in absence of the foreign inflow.

According to Ashfaq *et al* (1999) Foreign direct investment is now perceived in many developing countries as a key source of much needed capital, foreign advanced technology, and managerial skills. Realizing its central importance to economic development, these developing countries have taken wide-ranging steps to liberalize their inward FDI regime and have succeeded in attracting substantial amount of FDI. Within a span of seven years (1990-1997), the inflow of FDI rose from \$34 billion to \$150 billion, accounting for 37% of world FDI. Before the financial crisis, the Asian countries emerged as the largest FDI recipients with an estimated \$87 billion of inflows in 1997, with East and Southeast Asian countries accounting for more than 90 percent. South Asian countries, however, lagged behind considerably compared with their other fellow Asian countries. Pakistan stands nowhere close to many other Asian countries in attracting FDI.

OECD (2002) Developing countries, emerging economies and countries in transition have come increasingly to see FDI as a source of economic development and modernization, income growth and employment. All of these contribute to higher economic growth, which is the most potent tool for alleviating poverty in developing countries. Moreover, beyond the strictly economic benefits, FDI may help improve environmental and social conditions in the host country by, for example, transferring "cleaner" technologies and leading to more socially responsible corporate policies. The report does not focus solely on the positive effects of FDI for development. It also addresses concerns about potential drawbacks for host economies, economic as well as non-economic. While many of the drawbacks, referred to as "costs" in this report, arguably reflect shortcomings in the domestic policies of host countries, important challenges may nevertheless arise when these shortcomings cannot easily be addressed. Potential drawbacks include a deterioration of the balance of payments as profits are repatriated (albeit often offset by incoming FDI), a lack of positive linkages with local communities, the potentially harmful environmental impact of FDI, especially in the extractive and heavy industries, social disruptions of accelerated commercialization in less developed countries, and the effects on competition in national markets. Moreover, some host country authorities perceive an increasing dependence on internationally operating enterprises as representing a loss of political sovereignty. Even some expected benefits may prove elusive if, for example, the host economy, in its current state of economic development, is not able to take advantage of the technologies or know-how transferred through FDI.

P.P.A Wasantha (2003) pointed out that the integration of developing countries with the global

economy increased sharply in the 1990s with changing in their economic policies and lowering of barriers to trade and investment. Foreign Direct Investment (FDI) is assumed to benefit a poor country like Sri Lanka, not only by supplementing domestic investment, but also in terms of employment creation, transfer of technology, increased domestic competition and other positive externalities. Sri Lanka offers attractive investment opportunities for foreign companies and has adopted a number of policies to attract foreign direct investment into the country and the country seems to offer perhaps one of the most liberal FDI regimes in South Asia. As a result, during the last decade FDI inflows in Sri Lanka has increased considerably by 8.5 in 1990 to 15.0 in 2000 as a percentage of GDP while Indian experience was 0.5 to 4.1 in the same period. However, previous literature suggests that the FDI inflows have a positive impact on economic growth of host countries.

Feridun (2005) commented that Cyprus is one of the most attractive locations for foreign investment in the Mediterranean with its extensive network of double tax treaties and the mutual promotion and protection of investments. During the last decade, a number of financial incentives, as well as the Cypriot government's accession to the European Union (EU), have made the island a magnet for foreign investment. This study examines the relationship between economic growth as measured by GDP per capita and foreign direct investment for Cyprus using the method of Granger causality and vector auto regression (VAR). Evidence shows that there is a unidirectional Granger causation from foreign direct investment.

Khair-uz-zaman *et al* (2003) empirically investigated the economic determinants of Foreign Direct Investment (FDI) in Pakistan. In their study they used time series data for the period of 1970-71 to 2002-03. To check stationarity in the levels of data, they applied Augmented Dickey Fuller Test and then estimated the data by using an Error Correction Model (ECM). Unit Labor Cost and Inflation were statistically significant with negative and positive signs respectively. Both Market Size and Trade Balance were also found statistically significant with positive signs. Service Sector was insignificant with positive sign. Through these tests we proved that all variables were significant except Service Sector.

Flavia (2006) favored FDI that No country can develop without an active capital market, which has to be capable to meet the mobilization requests of the assets for financing the national economy. On the other hand, it has to be a profitable instrument for placing the available financing resources. The existence of a potential positive impact of the foreign investments on the competitiveness of the receiving country is well known. Starting from the above mentioned, in this paper, we intend to examine the way in which the foreign investment flow influences the performance of the economy and that of the Romanian capital market.

Alan *et al* (2006) said that a small fraction of foreign direct investments in the United States raises genuine concerns regarding national security, thus requiring CFIUS review. As noted earlier, in the past few years, CFIUS has reviewed only forty to sixty-five transactions per year. Nevertheless, congressional pressure to block the DPW transaction and alter Exon-Florio has created the impression abroad that the United States is radically retrenching on its traditionally open investment policy.

Mahr *et al* (2008) said that Foreign Direct Investment (FDI) in Pakistan is one of the major external sources of funding to meet obligations of resources gap and goal achievement. The results of the import model showed that FDI positively impacted real demand for imports in the short run and in the long run. In case of one percent increase in FDI; real demand for import would increase by 0.08 percent in the short-run and 0.52 in the long run. The results of export model showed that FDI has negative relation with real exports in the short-run and positive relation in the long run. The export model estimations indicated that with one percent increase in FDI, real export decreased by -0.08 percent in the short-run and increased by 1.62 percent in the long run .

RESEARCH METHODOLOGY

Mainly the data is of secondary nature. The data was collected from the following sources. Brochures/ Manuals of multinational companies, Journals, newspapers and books, Internet. For analysis purpose secondary data were used and Multiple regression model was estimated through SPSS using past nine years' data from 2000-2008. It is to admit that the study attempts only those aspects, which are closely relevant to the purpose of the study. Facts and figures, which otherwise might be equally important, but not having a direct bearing on the conclusions arrived at this study, have been ignored. The limitation from which the study suffers is the non-availability of information in a manner required for analysis. Another important limitation of the study is time and space constraint.

Specification of Model

The multiple regression model was used in this research to examine the relationship between FDI, GDP, DI, INFRS, Labors, Exchange rate inflation and interest rate. The model used GDP, DI, INFRS, Exchange rate, Inflation and interest rate as independent variables of the study and Foreign Direct Investment as the dependent variable to find out the relationship between these variables. The following is Econometric model .

$$Y=A+B_1X_1+B_2X_2+B_3X_3+B_4X_4+B_5X_5+B_6X_6..... BNXN$$

Where

Y= Foreign direct investment (FDI)
 X₁=Gross Domestic Product(GDP)
 X₂=Domestic Investment(DI)
 X₃=Infrastructure (length of roads) (INFRS)
 X₄=Human Capital (labor force) (LABOR)
 X₅=Exchange rate(EXCH)
 X₆=Interest rate(INT)
 X₇=Inflation (INF)
 So the model can be:
FDI=A+B₁GDP++B₂DI+B₃INFRS+B₄LABOR+B₅EXCH+B₆INT+B₇INF

ANALYSIS OF DATA

Model Estimation

Table 1: FDI and GDP Growth Rate

| Coefficients | | | | | | |
|--------------|-----------------|-----------------------------|------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 77869.223 | 187161.334 | | .416 | .690 |
| | GDP growth rate | 19053.290 | 31571.045 | .222 | 2.604 | .565 |

a. Dependent Variable: Foreign direct investment in million (Rs)

Table 2: Analysis of Variances for GDP

| ANOVA | | | | | | |
|-------|------------|----------------|----|-------------|--------|--------------------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 1.330E10 | 1 | 1.330E10 | 38.364 | .0000 ^a |
| | Residual | 2.556E11 | 7 | 3.651E10 | | |
| | Total | 2.689E11 | 8 | | | |

a. Predictors: (Constant), GDP growth rate
 b. Dependent Variable: Foreign direct investment in million (Rs)

The model shows that there is a positive relationship between FDI and Growth rate. To test the significance of the variable, $v=9-2=7$, $\alpha=10$, $t_{tab}=1.894$ $t_{calc}=2.604$ as $t_{calc} > t_{tab}$, therefore we accept our hypothesis and hence the variable is significant.

Table 3: FDI and DI

| ANOVA | | | | | | |
|-------|------------|----------------|----|-------------|--------|------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 2.495E11 | 1 | 2.495E11 | 90.436 | .000 |
| | Residual | 1.932E10 | 7 | 2.759E9 | | |
| | Total | 2.689E11 | 8 | | | |

a. Predictors: (Constant), Domestic Investment in million(RS)
 b. Dependent Variable: Foreign direct investment in million(RS)

| Coefficients | | | | | | |
|--------------|------------------------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -173258.054 | 41455.200 | | -4.179 | .004 |
| | Domestic Investment in million(RS) | .291 | .031 | .963 | 9.510 | .000 |

a. Dependent Variable: Foreign direct investment in million(Rs.)

The model shows that there is a positive relationship between FDI and domestic investment. To test the significance of the variable, $v=9-2=7$, $\alpha=10\%$

$t_{tab}=1.894$, $t_{calc}=9.510$, As $t_{calc} > t_{tab}$, therefore we accept our hypothesis and Hence the variable is significant.

Table 4: FDI and Exchange Rate

| ANOVA | | | | | | |
|---|------------|----------------|----|-------------|--------|------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 8.669E10 | 1 | 8.669E10 | 23.331 | .111 |
| | Residual | 1.822E11 | 7 | 2.602E10 | | |
| | Total | 2.689E11 | 8 | | | |
| a. Predictors: (Constant), Exchange rate (US\$) | | | | | | |
| b. Dependent Variable: Foreign direct investment in million(Rs) | | | | | | |

| Coefficients | | | | | | |
|---|---------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -738830.369 | 508507.479 | | -1.453 | .190 |
| | Exchange rate(US\$) | -14903.290 | -8165.405 | -.568 | 1.925 | .111 |
| a. Dependent Variable: Foreign direct investment in million(Rs) | | | | | | |

The model shows that there is negative relationship between FDI and Exchange rate
 To test the significance of the variable, $v=9-2=7$, $\alpha=10\%$

$$t_{tab}=1.894$$

$$t_{calc}=1.925$$

As $t_{calc} > t_{tab}$, therefore we accept our hypothesis and hence the variable is significant.

Table 5: FDI and Inflation Rate

| ANOVA | | | | | | |
|---|------------|----------------|----|-------------|--------|------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 1.788E11 | 1 | 1.788E11 | 13.901 | .007 |
| | Residual | 9.004E10 | 7 | 1.286E10 | | |
| | Total | 2.689E11 | 8 | | | |
| a. Predictors: (Constant), Inflation Rate in Percent | | | | | | |
| b. Dependent Variable: Foreign direct investment in million(Rs) | | | | | | |

| Coefficients | | | | | | |
|---|---------------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -112965.172 | 88186.143 | | -1.281 | .241 |
| | Inflation Rate in Percent | 47485.135 | 12736.093 | .816 | 1.728 | .007 |
| a. Dependent Variable: Foreign direct investment in million (Rs.) | | | | | | |

$$FDI = -112965 + .816 * INF$$

The model shows that there is a negative relationship between FDI and interest rate. To test the significance of the variable, $v=9-2=7$, $\alpha=10\%$

$$t_{tab}=1.894$$

$$t_{calc}=1.728$$

As t_{calc} is less than t_{tab} , therefore we reject our hypothesis and
 Hence the variable is insignificant.

Table 6: FDI and Interest Rate

| ANOVA | | | | | | |
|--|------------|----------------|----|-------------|------|------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 3.634E8 | 1 | 3.634E8 | .009 | .925 |
| | Residual | 2.685E11 | 7 | 3.836E10 | | |
| | Total | 2.689E11 | 8 | | | |
| a. Predictors: (Constant), Interest rate | | | | | | |

b. Dependent Variable: Foreign direct investment in million (Rs.)

| Coefficients | | | | | | |
|--------------|---------------|-----------------------------|------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 159930.490 | 256567.682 | | .623 | .553 |
| | Interest rate | 2353.570 | 24180.936 | .037 | 2.097 | .925 |

a. Dependent Variable: Foreign direct investment in million(Rs.)

FDI= 159930.054-0.037*INT
 The model shows that there is a negative relationship between FDI interest rate.To test the significance of the variable, $v=9-2=7$, $\alpha=10\%$

$$t_{tab}=1.894, t_{calc}=2.097$$

As, therefore we accept our hypothesis and hence the variable is significant.

Table 7: FDI and Labor

| ANOVA | | | | | | |
|-------|------------|----------------|----|-------------|--------|------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 2.251E11 | 1 | 2.251E11 | 36.016 | .001 |
| | Residual | 4.375E10 | 7 | 6.250E9 | | |
| | Total | 2.689E11 | 8 | | | |

a. Predictors: (Constant), Labor force (in millions)

b. Dependent Variable: Foreign direct investment in million(Rs.)

| Coefficients | | | | | | |
|--------------|---------------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -1.701E6 | 315157.615 | | -5.396 | .001 |
| | Labor force (in millions) | 40943.192 | 6822.315 | .915 | 6.001 | .001 |

a. Dependent Variable: Foreign direct investment in million (Rs.)

$$FDI= -1.701+.915*LAB$$

The model shows that there is a positive relationship between FDI and domestic investment.
 To test the significance of the variable, $v=9-2=7$, $\alpha=10\%$

$$t_{tab}=1.894$$

$$t_{calc}=6.001$$

As $t_{calc} > t_{tab}$, therefore we accept our hypothesis and hence the variable is significant.

Table 8: FDI and Infrastructure

| ANOVA | | | | | | |
|-------|------------|----------------|----|-------------|-------|------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 1.473E11 | 1 | 1.473E11 | 8.478 | .023 |
| | Residual | 1.216E11 | 7 | 1.737E10 | | |
| | Total | 2.689E11 | 8 | | | |

a. Predictors: (Constant), Roads (km)

b. Dependent Variable: Foreign direct investment in million (Rs.)

| Coefficients | | | | | | |
|--------------|------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -9.045E6 | 3.170E6 | | -2.853 | .025 |
| | Roads (km) | 36.045 | 12.379 | -.740 | 2.912 | .023 |

a. Dependent Variable: Foreign direct investment in million(Rs.)

Table 9: Regression Models overall results

| Coefficients | | | | | | | | |
|--------------|------------------------------------|-----------------------------|------------|---------------------------|--------|------|-------------------------|---------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 5.205E7 | 6.139E7 | | 2.848 | .552 | | |
| | Inflation Rate in Percent | 197592.070 | 242309.372 | 3.394 | 3.815 | .007 | .007 | 1.339E3 |
| | GDP growth rate | 401202.562 | 495260.989 | 4.683 | 4.810 | .567 | .000 | 2.583E3 |
| | Exchange rate(USD) | -77067.637 | 82686.989 | -2.936 | -2.932 | .522 | .001 | 767.378 |
| | Interest rate | -75826.160 | 122222.074 | -1.184 | 2.620 | .646 | .004 | 281.781 |
| | Roads (km) | -155.703 | 193.460 | -3.197 | -.805 | .569 | .001 | 1.220E3 |
| | Labor force (in millions) | 312586.206 | 346962.864 | 6.986 | 2.901 | .001 | .000 | 4.648E3 |
| | Domestic Investment in million(RS) | 2.371 | 2.161 | 7.848 | 1.097 | .000 | .000 | 3.956E3 |

a. Dependent Variable: Foreign direct investment in million (Rs.)

In the given table 9, the given coefficients we can be concluded that Foreign direct investment in Pakistan is affected by the Economic condition of Pakistan (GDP). The greater the GDP of the country, larger the amount of Foreign direct investment. The results given by this regression does fit with the economic theory. The economic theory shows that there is positive relation between the foreign direct investment and economic situation (GDP). Interest rate inversely related to foreign direct investment. That is the higher the rate of interest in the country, less number of foreign investors are attracted towards it and hence lower level of inflow of foreign direct investment. This fits the economic theory. In economic theory, it is assumed that interest rate and FDI are inversely related. The exchange rate in a country is inversely related to foreign direct investment. Domestic investment is positively related to foreign direct investment. Foreign investors are more attracted to a certain country, if the level of domestic investment is high in that country. The Foreign direct investment is positively related to labor force that exists in Pakistan. As the level of labor the greater the level of skilled labor force in a country, foreign investors are attracted more to that country. Foreign direct investment is directly related to inflation rate in Pakistan. This goes against the theoretic model, where it was stated that inflation is inversely related to foreign direct investment. This is because, inflation in a country points to high supply of money. This means that people have more money to spend, and hence foreign investors are attracted. Secondly, high inflation rate gives rise to high level of profits, this may be another reason that foreign investors are attracted. The infrastructure and foreign direct investment had negative relationship. This again goes against the predicted model. This might be due to the extension of roads and infrastructure which does not contribute directly to the business activities. I.e. Roads built in hilly areas and townships. Such type of infrastructure contributes to other activities, but does not attract foreign investment.

T-test

Conducting significance tests on the independent variables enables us to determine whether the variables are significant in the regression on the market returns or not. To execute this, T-ratio provided is used. This test involves using a term known as the degree of freedom (ν) which is calculated by subtracting the number of Variables, from the number of observations. Hence in this specific case, the degree of freedom $\nu = 9-7 = 2$. The test also involves using a (α) value which is the confidence interval chosen specifically. Through the use of (ν) and (α) a t-ratio tabular value, t_{tab} is obtained from the t-distribution table. This value is then used to determine whether the independent variable is significant or insignificant. Conventional methodology involves establishing two hypotheses, H_1 and H_0 . Hypothesis H_1 states that the coefficient in question is not equal to zero, that is $\beta \neq 0$ where as H_0 states that $\beta = 0$. If the absolute value of t_{calc} is compared with the t_{tab} value we can determine which hypotheses to accept or reject. If $t_{calc} > t_{tab}$ then we can say that $\beta \neq 0$ and accept H_1

Using $\alpha=5\%$ and $\nu = 9-7 = 2$, $t_{tab} = \pm 2.920$.

So with a 5% confidence interval the calculated value of t is;

Table 10: Variables and their T-Calculated Value

| Variable | T _{cal} |
|---------------------|------------------|
| Labor | 2.901 |
| Inflation | 3.815 |
| GDP | 4.810 |
| Domestic investment | 2.932 |
| Interest rate | 2.620 |
| Infrastructure | -0.805 |
| Domestic investment | 1.097 |
| Exchange rate | -2.932 |

From the results it can be analyzed that the calculated value of t is greater than the tabulated value of t for the variables GDP, labor, inflation and domestic investment. So according to the t statistics, the coefficients of these variables are significant. The coefficients of other than these variables are not significant as their calculated value of t is than the tabulated value of t.

F-test

Conducting F-test enables to determine whether overall model is significant. Again conventional methodology involves establishing two hypotheses, H_1 and H_0 . Hypothesis H_1 states that the R^2 is not equal to zero, that is $R^2 \neq 0$ where as H_0 states that $R^2 = 0$. If the absolute value of f_{calc} is compared with the f_{tab} value, we can determine which hypotheses to accept or reject. If $f_{calc} > f_{tab}$ then we can say that $R^2 \neq 0$ and accept H_1 .

Using $\alpha = 5\%$ and $\nu = 9-7 = 2$ and $k = 7-1 = 6$, $F_{tab} = 4.39$

And the calculated value of F is $F_{calc} = 10.902$

As, the calculated value of F is greater than the tabulated value of F, so we conclude that the overall model is significant.

R^2 is the coefficient of determination, and is defined as the proportion of the total variation in dependent variable. If R^2 was close to one this would mean perfect correlation, where as if it was close to 0, it would mean that the independent variables would not have any explanatory power on the dependant variable. The actual value determined for R^2 is 0.987 (98.7%), which suggests that the model is good in explaining Foreign direct investment.

Research Findings

A set of policy lessons can be deduced from the results reported in the preceding section,

The positive relationship (0.222) between GDP and FDI pointed out GDP growth rate is a key determinant to FDI inflow. As the growth rate of the country increases, this certainly will attract more FDI inflow.

From the model, the results showed that there is a positive relationship (0.816) between inflation and FDI. Although inflation has caused the FDI inflow to increase. But in long run, inflation devastating factor for an economy. In short run, it might be good for attracting FDI, but in longer run it has intense effects, such as purchasing power of the money is reduced. Inflation contributes to FDI inflow, but it should be kept at a reasonable level.

The results also showed that there is inverse relationship (-0.037) between interest rate and FDI inflow. This point out the key policy revival of the State Bank of Pakistan in context of interest rate. Interest rate is normally raised to control the supply of money, and hence to control the rate of inflation. But to attract FDI, interest rate plays a vital role. It should be kept in mind that in an era of global recession, attracting or maintaining FDI can be only made possible through attractive credit policies, which contains interest rate as an integral part. More over there is a strong need to review the policy of interest rate as controlling the inflation rate.

The direct relationship (0.291) between domestic investment and FDI is a vital point. In our results, we saw that greater amount of domestic investment will attract more foreign investors. Therefore, it is crucial to give reasonable attention to domestic investment.

Exchange rate as assumed, negatively affected (-0.568) FDI inflows to Pakistan. Higher exchange rate resulted in discouraging foreign investors. Higher exchange rate means that the purchasing power of the currency is low. This decreases the confidence of the foreign investors on the currency of the host country. Hence they are reluctant to obtain loans and invest in that country.

Infrastructure plays a vital role in attracting foreign investors. We assumed that infrastructure and FDI are directly related. But the model showed negative relationship (-0.740). This was due to the expenditure on infrastructure which has no relation with economic activities, such as construction of roads in far flung areas.

There was a direct relationship (0.915) between labor and FDI. This is because availability of labor encourages foreign investors to invest in Pakistan. Moreover, availability of labor at low cost further encourages foreign investors.

Conclusions

The objectives of the study were to analyze the patterns in FDI in Pakistan in recent years, the different steps taken by Pakistan for FDI, to study the determinants of FDI in Pakistan and to analyze those determinants and develop a model. Mainly the data is of secondary nature. Data was collected from official websites of Board of Investment of Pakistan, Statistics Division, Finance Ministry and Journals, newspapers and books. The model was estimated through SPSS using past nine years' data from 2000-2008. From the coefficients it was concluded that foreign direct investment in Pakistan is affected by the Economic condition (.222) of Pakistan (GDP). The greater the GDP of the country, the greater the number of foreign investors attach to it and hence larger the amount of Foreign direct investment. Interest rate (-.037) was inversely related to foreign direct investment. The exchange rate (-.568) in a country is inversely related to foreign direct investment. Domestic investment (.291) is positively related to foreign direct investment. Foreign investors are more attracted to a certain country, if the level of domestic investment is high in that country. The Foreign direct investment is positively related to labor force (.915) that exists in Pakistan. This is obvious. As the level of labor the greater the level of skilled labor force in a country, foreign investors are attracted more to that country. Foreign direct investment is directly related to inflation rate (.816) in Pakistan. It is because, inflation in a country points to high supply of money. High inflation rate gives rise to high level of profits, which is why foreign investors are attracted. The infrastructure (.740) and foreign direct investment had negative relationship. This might be due to the extension of roads and infrastructure which does not contribute directly to the business activities.

The level of FDI has great impact on the overall economy of Pakistan. When there is huge amount of inflow of FDI, the level of the employment, production level and foreign revenues will increase. The production level of the country will increase. Hence exports and foreign exchange will increase.

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