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Impact of public debt on foreign direct investment in Pakistan: a quantitative approach

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ABSTRACT

Foreign direct investment (FDI) considered vital for economic development of capital scarce countries, as it provides not only financial assistance but also capital, technology, new jobs, management skill and expertise. Contemporary, FDI is considered a most important source of private external inflows of capital for less developed countries almost in all over the world. Total FDI inflows into Pakistan recorded US$ 3205.4 million during 2008-09 as compared to US$ 3719.1 million in the last year which shows a decline of 13.8%. Likewise Pakistan's total public debt estimated US$ 39593 million during 2007-08 and such as during 2006-07 per capita debt in Pakistan was US$ 247 million. For empirical analysis secondary data have been used ranging from 1981 to 2007. For estimating the impact of public debt on FDI, simple log linear regression model and the method of Least Squares has been used. The empirical results found statistically significant and indicates that public debt discourages FDI inflows into Pakistan. Thus, it has been concluded, that public debt be managed, through active and proper debt management policy, in order to utilize the maximum benefits of FDI in Pakistan.

Introduction

Foreign direct investment (FDI) considered very important for the economic development, specifically for developing countries, as it brings to the recipient country not only financial assistance but also capital, technology, new jobs, skill management and expertise. Obviously, by increasing investment in developmental projects more employment opportunities would generate. FDI is considered a major source of private external inflows for less developed countries almost in all over the world. The developing countries like Pakistan intended to bridge savings-investment gap through this important tool. FDI has solved the over accumulated debt problem of developing countries and help to finance their development needs and also to boost up per capita income of the country as well.

The amount of reinvested earnings has been increasing during the span of previous four years in Pakistan as indicated in the report of the State Bank of Pakistan that foreign investors find Pakistan more profitable for investment. Though currently a decline occurred in the inflows of FDI when compared with previous three to four years amount due to some undesired events like macroeconomic imbalances, political unrest, high inflation, judicial crisis, terrorism and energy crises. An addition, shortage of skilled labor, unsatisfactory physical infrastructure and poor law and order situation are the additional obstacles to FDI inflows in Pakistan. According to Business Recorder, (2008), investment in various sectors like telecommunication, power, petroleum and financial business declined whereas inflows of FDI increased in the sectors like cement, oil & gas exploration and trade respectively. According to the World Bank statement Pakistan provides somewhat sound protection to foreign investors and regarding protection Pakistan ranking 19th globally. Pakistan Economic Survey (2008-09) shows total FDI inflows into Pakistan recorded US$ 3205.4 million during 2008-09 as compared to US$ 3719.1 million in the same period last year which is showing a decline of almost 13.8%. The major inflows were from the USA followed by UAE, UK and Norway etc.

Generally, public debts have bad effects on economic development in one hand but on the other hand public debt is an imperative source of financing government budget deficit. Better utilization of public debt can promote economic growth and facilitate to improve social welfare of the citizen. But it has also been observed that public debt works like a double-edged sword. Too much dependence on public debt enlarges macroeconomic risks, obstructs economic growth, and hinders economic development (Azam and Asmatullah, 2008). Khan (2007), stated in their studies of external debt management of Pakistan, that the economic status of Pakistan is very unsafe with unsustainable external debt

Pakistan's total public debt estimated US$ 37461 million during 2006-07, which was US$ 35679 million in 2005-06, and reached to US$ 39593 million during 2007-08. The government has borrowed from multilateral and bilateral lenders which almost accounts for 80 % of outstanding debt and even it is in the form of medium and long term debt, while short-term debt share was 1.3 %. During 2007, per capita debt in Pakistan was US$ 247 million (World Fact Book, 2008).

A large number of literatures are available showing negative relationship between public debts and FDI. Nunnenkamp (1991), explained that higher debt burden creates constraints not only in terms of new private lending but also in terms of FDI inflows. Some of the studies found the relationship between debt and FDI inflow statistically significant with negative sign but a few did not find any significance relationship. Shamsuddin (1994) found

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the coefficient of the per capita debt statistically significant with expected sign, as Flexner (2000), Banga (2003), and Eli A. Udo *et al*. (2006) found statistically significant negative relationship. Khattak, Ijaz and Azam (2005), found significant negative relationship between FDI and external debt over the period 1970-2000. While on the other hand Nnadozie (2000) found debt burden variable the most significant with unexpected sign. Yasmin, *et al*., (2003) also used external debt as a determinant of FDI but found no meaningful relationship between external debt and FDI inflows into developing countries. Recently a qualitative study conducted by Azam and Asmatullah (2008) that suggests a few crucial measures to solve debt problem in Pakistan and these measure are; simplicity and austerity in all walks of life which needs to be adopted from top level to bottom, and luxurious consumption oriented imports needs to be curtailed to bridge the gap between saving and investment. Though expenditure on defence is inevitable but it should be appropriated and foreign direct investment inflows should be encouraged. In this study attempt has been made to show that whether increase in public debt discouraging FDI inflows into Pakistan.

Objectives of the Study

The following objectives have been set;

i) To examine empirically the impact of public debt on FDI in Pakistan.

ii) To suggest policy measures in the light of the finding of the study regarding debt management in the country.

Materials and Methods

The present study is based on the annual secondary data ranging from 1981 to 2007 and taken from Economic Survey of Pakistan (various issues). Simple log linear regression model would be used and Ordinary Least Squares (OLS) techniques would be applied as an analytical tool to examine the impact of public debt on FDI in Pakistan. Due to non-linearity, the data have been transformed into natural log form. E.View statistical package is used for computation analysis.

The following simple linear regression model was used;

$$FDI = f(PDEBT) \quad (1)$$

In logarithmic form the model can be written as;

$$\ln FDI = \beta_0 + \beta_1 \ln PDEBT + \varepsilon \quad (2)$$

Where as

FDI= Foreign Direct Investment

PDEBT= Public Debt of Pakistan

ε= error term and shows effect of the other factors

ln=Natural log

The explanatory variables and error term (ε) followed the least square assumptions.

Equation (2) assume, that public debt has negative impact on FDI inflows in Pakistan as on the basis of literature public debt is deterrent to FDI. Thus, hypothesizes a negative relationship between public debt and FDI in this study.

Results and Discussion

The finding of Table I show that both FDI and public debt are non-stationary around the trend and intercept. Table I further indicates that both the variables become stationary by taking first difference. Johansen Likelihood Ratio (LR) test is used to ascertain the cointegration in the regression used for analysis. The results are given in Table II. Both the variables are non-stationary (Table I), there is possibility that their regression are spurious. But when performed Johansen's cointegration test, long run relation were found even though both the variables were non-stationary (Table II).

Equation lnFDI = β_0 + $\beta_1$ln DEBT (Variables included in the cointegrating vector: FDI and DEBT)

The results of regression model are given in Table III. The estimated equation;

$$FDI = -12.10157 - 1.584876 PDEBT \quad (3)$$

Table III shows that almost the results are statistically significant and satisfactory. The R- squared value near to 1 i.e., 0.89 shows close correlation. The results revealed that the impact of public debt on FDI found statistically significant with 1% level of significance and with expected negative sign as hypothesized in this study. Smasuddin (1994), Flexner (2000), Banga (2003), and Eli A. Udo et al. (2006) also found significant and negative relationship between FDI and public debt.

Therefore, it has been proved in this study that public debt discouraging FDI inflows in Pakistan.

Calculations of the method of ordinary least squares (OLS)

$$\hat{\beta}_1 = \frac{\sum(PDEBT - \overline{PDEBT})(FDI - \overline{FDI})}{\sum(PDEBT - \overline{PDEBT})^2} = -1.585$$

$$\hat{\beta}_0 = \overline{FDI} - \hat{\beta}_1 \overline{PDEBT} = -12.102$$

$$t = \frac{\hat{\beta}_0 - \beta_0}{se(\hat{\beta}_0)} = -8.31$$

$$t = \frac{\hat{\beta}_1 - \beta_1}{se(\hat{\beta}_1)} = -14.60$$

$$0 \le R^2 \le 1 \qquad R^2 = \frac{RSS}{TSS} = 0.894$$

$$\overline{R^2} = 1 - (1 - R^2)\frac{n-1}{n-k} = 0.890$$

Conclusion and Recommendations

The outcomes of this study are meaningful as the importance of FDI is well recognized in the process of economic development of a country like Pakistan. The analysis shows that FDI plays a pivotal role in capital accumulation, bridging the gap between saving and investment, technological advancement, employment opportunities, per capita income boosting and enhancement of skills and expertise. Further, it has been observed that currently a decline occurred in the inflows of FDI into Pakistan due to some undesirable events. Also the study shows that the debt burden badly affects the investment climate of a country. The empirical results found indicating that public debt obstruct FDI inflows into Pakistan.

The result implies that FDI is negatively affected by the country's bad debt condition. Moreover, even debt burden signifies the poor financial condition of a country and that clearly indicates a relatively unfavorable environment for foreign investment. It has further been concluded that on the basis of the importance of foreign investment, the government not only needs to pursue such policies to attract foreign private investment, but also external debt should be resolved and administered through dynamic and proper debt management policy because growing public debt discourages FDI inflows into Pakistan.

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Table I ADF test included intercept and trend

Variables	Includes intercept but no Trend						Includes intercept and Trend					
	Test statistics	Critical Value	Test statistics	Critical Value	Test statistics	Critical Value	Test statistics	Critical Value	Test statistics	Critical Value	Test statistics	Critical Value
FDI	-1.8765	-4.1728	-5.1948	-4.1781			.0079	-3.5814	-5.2760	-3.5850		
PDEBT	-4.0627	-4.1728	-9.4101	-4.1781			-0.6369	-3.5814	-9.8811	-3.5850		

Table II Johansen cointegration test result with intercept (no trend) in CE and no intercept in VAR

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.5513	39.54	19.96	24.60	None**
0.0925	4.27	9.24	12.97	At most 1

*(**) rejection of the Hypothesis at 5% (1%) significance level

L.R. test indicates 1 cointegrating equation(s) at 5% significance level

Table III. Ordinary Least Square Estimates

Dependent Variable: LnFDI	
Independent Variables	Coefficients (t-statistics)
PDEBT	-1.584876 (-14.59585)*
Constant	-12.10157 (-8.310943)
R^2	0.894975
Adjusted R^2	0.890774
S.E. of regression	0.575658
F-statistic	213.0389
D-W	0.637167
N	27

Note: (i) The asterisks *, shows that estimates are significant at 1% level of significance.

(ii) The figures in parenthesis are t-statistics