Investor Confidence and Asymmetric Effects of Terrorism - A case of Pakistan

Rukhsana Kalim* • Iqra Faiz** • Noman Arshed***

Abstract Foreign Direct Investment plugs the investment saving gap and a source for transfer of technology and productivity. The major reason for the flow of investment across borders is the difference in the rate of return. But the catch is that foreign investors are more risk averse as compared to the local investors. Investor confidence is sensitive to economic conditions especially like terrorist events which cause capital flight. This study tests the asymmetry in effects of terrorism on FDI, showing that in short run terrorism leads to increase in FDI, later on, it decreases the FDI and it is the time period where asymmetry between the effects of increasing and decreasing FDI occurs. While in long run, the effect of an increase and decrease in terrorism tend to become almost equal and opposite. This indicates that Pakistan needs to be patient as it will take more time to regain investor confidence.

Keywords: Asymmetric effects ARDL; Investor Confidence; risk premium; political instability

JEL Classification: F21; E22; C22; G18

1. Introduction

Foreign Direct Investment (FDI) is the best sort of investment in an economy which enables the diffusion of technology. The transfer of technology through inflow of FDI leads to initiation of new processes in the businesses which become basis of productivity and efficiency. For every unit inflow of resources leads to expansion in the employment capacity of businesses, managerial skills and competitiveness. Increase in FDI can also help the economies to avoid resorting to the loans (Atique, et al., 2004). FDI is crucial as it fills the gap between domestic investment requirement

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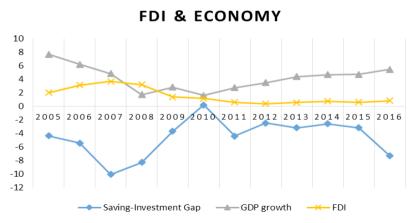
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and the country's ability to generate capital resources in the form of saving, for which country might have to resort to domestic or foreign debt (Shahbaz, Nasreen & Afza, 2014; Hunjra, Raza & Asif, 2013).

Developing countries experience a rapid rise in the FDI between 1985 and 2000 where the share of developing country's foreign inflow increased from 16% in 1986 to 45% in 1997 (Perkins et al., 2001). Furthermore, developing countries received 36% of total FDI inflows in 1997 (Asiedu, 2002). Though, FDI of Pakistan hovers around less than 5% of GDP on average, the indirect benefits that it may bring make it a subject of interest for the researchers. It is a consensus among the researchers that the relative conditions of the host country as compared to the world determine how much benefits from FDI can be extracted. These conditions include education and health, tax structure, competitiveness, terrorism and political instability (Krutishi-Kastrati, 2013). Secondly Two – Gap model and Solow growth model predict that to sustain a 6% of GDP growth developing countries must focus on attaining 18% to 20% of foreign capital inflow (Mohey ud Din, 2004).

For the case of Pakistan, the widening of the gap between the domestic saving and investment leads to a slowing of economic growth, while very low levels of FDI is not enough to compensate for the gap. Increasing FDI can tap to the higher returns for the investors, as Pakistan has initiated game changer agreements of worth \$45 billion under CPEC with the help of China. Currently, the major inflow of FDI are from China, US, UAE, UK, Switzerland, Italy, Austria, Norway, Luxembourg, Saudi Arabia and Japan.

Figure 1. FDI and other indicators of Pakistan



According to Farooq and Khan (2014), literature exists for the significant negative and insufficient effects of terrorism on FDI. But the majority of the studies are of the view that terrorism does have negative effect of FDI. For example, a study by Gassebner et al. (2005) highlights that it is the behavior of people which is firstly affected by the terrorist events. The few have the notion that there is no effect of terrorism on FDI as firms invest because of profit rather than terror. The analysis of effects of terrorism on FDI in Spain shows a permanent decrease in Spain's output during with resources shifted from the

terrorism prone region to a secure region (Almfraji et al., 2014; Khakan & Rabia, 2016). It is for sure that terrorism affects developing country more severely as compared to developed countries, this is because developed countries are big enough to absorb the shock while investors move out of the developing economies when they are affected by terrorism (Hyder et al., 2015).

FDI & Terrorism 3500 4 3.5 3000 3 2500 NO OF DEATHS 2.5 2000 2 급 1500 1.5 1000 1 500 0.5 0 0 1987 6861 985 1991 001 2003 1997 – terrorism

Figure 2. Empirical patterns of FDI and Terrorism events in Pakistan

While analyzing the Global Terrorism Database (GTD) which reports event wise data of terrorist activities, Pakistan has witnessed the highest number of victims because of terrorism during last decade. This death toll outnumbers Europe and North America combined. This places emphasis on the need to study the causes and consequences of terrorism in Pakistan. (Global Terrorism Database). Figure 2 also depicts that with the increase in number of terrorism evens from 2005-06, FDI witnessed a sharp decline.

Building to the relationship between terrorism events and FDI, Mendel Fleming model indicates that economic conditions work as indicator for risk premium which foreign investors look for while deciding for investment (Obstfeld, Rogoff & Wren-Lewis, 1996). But the effects are not symmetric as all other indicators of FDI; this study proposes that the effect of increased terrorism is not equal and opposite to the effect of decreasing terrorism. Such that, it will take more time and effort for the government to restore the investor confidence which was distorted because of increasing terrorism events. This study is designed to find the asymmetric effects of terrorism incidence on FDI by applying nonlinear ARDL cointegrating approach controlling for interests rate and political stability. The estimates of asymmetric effects / non-linear ARDL will help to explore the differences in the convergence speed between increasing and decreasing terrorism.

2. Literature Review

Awan, Khan and Zaman (2011) identified FDI as an essential component of efficient international economy which contributes to economic growth and development. However, it takes time for the benefits from FDI to arrive as they depend on the economic conditions

and policies. Firstly, foreign investment mobilizes the capital from surplus capital countries, to scarce capital countries, where investor enjoys higher returns while receiver enjoys higher capital. Secondly, FDI allows the investor to maintain the managerial and ownership control over the investment. It has been iterated in literature several times as Pakistan has an attractive climate for foreign investment, especially in agriculture, IT and telecommunication, power and services sectors and most importantly Pakistan is initiated projected under CPEC on a large scale to create profitable avenues for FDI.

Bandyopadhyay and Younas (2014) report the association between FDI and terrorism events, for 78 underdeveloped economies between 1984 - 2008. While Alam, Akram and Iqbal (2017) worked on Pakistan. Their major findings were that there is a significant negative association between terrorism events and foreign investments for the case of underdeveloped countries.

Hyder et al. (2015) has empirically tested the impact of terrorism using 177 countries along the time period of 1968-2000. The main finding shows that increase in terrorism events results in shifting of resources from investment spending to government spending. And it is found that the terrorism is negatively related with FDI and economic growth.

Khakan and Rabia (2016) tested negative terrorism impact on the FDI and stock exchange of Pakistan with the help of GARCH model on data taken from 1998 to 2004. He suggested that there is a need for suitable anti-terrorism strategies to increase the investment level.

Bandyopadhyay, Sandler and Younas (2011) have examined the economic consequences of terrorism. It is observable that terrorism has adverse effects like reluctant behavior by foreign investors, costs incurred in the provision of security, losses in trade agreements, imbalance of payments, increased insurance premiums, travel delays creating problems for local as well as foreign passengers and a fall in tourist arrivals. Following this, terrorism also depreciates the infrastructure and capital and discourages domestic investment too (Anwar, Arshed & Anwar, 2017). Based on these issues this study focusing on the relationship between terrorism and foreign direct investment for the case of Pakistan. Mirza and Verdier (2007) described in their study that terrorism incidence directly creates risk and anxiety enforcing individuals to become conscious about their expected returns. This makes expected return on investment higher than that actual interest rate, and it is denoted as a risk premium. This terrorism based increased in ambiguity distorts the demand patterns and shifts the investments to low risk premium markets. Lastly, the efforts of the government to reduce terrorism increase the cost and disturb the planned budgetary expenditures of the country (Rasheed & Tahir, 2012).

The objective of the study by Khalid, Ullah and Shah (2012) was to determine the main factors, i.e. terrorism, political instability, energy crisis and declining GDP which are responsible for the recent decline in the Foreign Direct Investment inflows in Pakistan. The sharp decrease in the last 3 years is an alarming signal for the economy. The benefits are not always perceivable as there can be many ways FDI can transform the economy. Recently, Pakistan has designed its investment policy to attract the foreign investor; this includes opening up the economy and marketing the potential lucrative avenues for investment.

Several studies like Singhania and Gupta (2011), Chingarande et al. (2012) advocated that interest rate leads to increase in FDI for the case of Pakistan while studies like Iabal, Azim and Irshaad (2013) and Mehmood and Hassan (2015) tried to find factors affecting FDI inflows in Pakistan. Using Autoregressive and Distributed Lag (ARDL) model, these studies concluded that interest rate in the economy and political instability discourage the FDI in long run.

Similar to terrorism, political instability also creates a risky situation for the investors. Political instability changes the behavior of the buyers and sellers and fears spread all over. This slows down the economic process of a country and investors face risk to invest in this situation. The whole of the economy is in a risk situation which can appear in times of wars, economic turmoil, unplanned elections, or other events that can derail the planned growth process. These periods are characterized by non-convenience situation and hurt the economic stability in the country as discussed by some researchers (Olwan, 2011; Khalid et al., 2012; Ullah et al., 2016).

On the note of prolonged efforts by the Pakistani government and military leadership, Pakistan is still struggling to regain the heights of FDI which were lost because of uprising of terrorism events. Exploration of empirical studies failed to find any study which has investigated the asymmetric effects of terrorism on FDI for the case of Pakistan.

3. Methodology and Results

3.1 Variables

Table 1 below shows the names and symbols of the variables used in this study with its units, transformation and sources. The sample is ranging from 1981 to 2016. Before estimation, the terrorism variable will be split into two portions where TERR_POS shows the increasing portion of terrorism events while TERR_NEG shows the decreasing portion of the terrorist events.

Table 1. Variables and sources

Variable (Symbol)	Units (Transformation)	Source
Foreign Direct Investment (FDI)	% of GDP (Natural Log)	WDI
Terrorism victims (TERR)	Number of people (Natural Log)	GTD
Interest Rate (IRT)	% per annum	IFS
Political Instability (POL)	% change in Index	Polity 4

3.2 Descriptive Statistics

While comparing the FDI with increasing and decreasing portion of terrorism, table 3 provides the correlations and covariance. It can be seen that the correlation of FDI with both directions of terrorism is not exactly equal and opposite. The association of FDI is stronger with the increasing portion of terrorism. From covariance table, it is observable that the change in the variance of FDI is more responsive to decreasing in the terrorism

which is not equal and opposite to covariance of increasing terrorism.

Table 3. Association with FDI

	Correlation	Covariance
TERR_POS	0.49 (0.00)	0.95 (0.00)
TERR_NEG	-0.45 (0.00)	-1.51 (0.00)

3.3 Unit root tests

Below Table 4 shows the results of unit root tests, each variable is checked for stationarity at level and 1st difference using Augmented Dickey-Fuller (Dickey & Fuller, 1979, 1981), Philips Perron (Phillips & Perron, 1988) tests. It can be seen here that other than political instability (POL) and decreasing component of Terrorism, all variable are non-stationary at level. Since there is mixed order of integration, this study will proceed to the utilization of ARDL cointegration approach.

Table 4. Unit Root Tests

	ADF Test		PP Test	
Variable	Level	1st Diff.	Level	1st Diff.
FDI	-0.270 (0.08)	-3.79 (0.00)*	-1.70 (0.42)	-3.75 (0.00)*
TERR_NEG	-2.58 (0.11)	-5.36 (0.00)*	-4.00 (0.00)*	-5.35 (0.00)*
TERR_POS	-0.46 (0.88)	-3.51 (0.01)*	-0.37 (0.90)	-3.51 (0.01)*
INT	-2.48 (0.13)	-4.75 (0.00)*	-2.53 (0.12)	-5.67 (0.00)*
POL	-5.35 (0.00)*	-9.40 (0.00)*	-5.35 (0.00)*	-26.0 (0.00)*

^{*} significant at 5%

3.4 Cointegration test

Asymmetric effects / non-linear ARDL model is a variant of ARDL cointegrating bounds model (Pesaran, Shin & Smith, 2001) where the assumption of linearity in the coefficient is questionable. In this case the effect of increasing and decreasing of the independent variable is expected to be not equal and opposite (Shin, Yu & Greenwood-Nimmo, 2014).

The optimal lag order selected by the ARDL cointegration model. Based on minimum AIC value, the optimal lag order is (1, 3, 2, 3, 1). Bound cointegration test shown in table 5 on this lag order came out to be 8.10 which is greater than I1 bound critical values, confirming that these mixed order variables are cointegrated in long run.

Table 5. ARDL Cointegration Test

Cointegration Test		
Null Hypothesis: No Long Run Relationships exist		
F Statistic	8.10	

After the confirmation of the presence of long run results in the cointegration test, there is a need to ensure that these results are reliable and valid. Regression diagnostics are done in table 6 to ensure this, using insignificant probability values, they indicate that there is no hint of non-normality, serial correlation, heteroskedasticity, mis-specification and instability in the estimates.

Table 6. Post regression diagnostics

Jarque Bera Normality Test	1.90 (0.38)
B-G Serial Correlation LM Test	2.17 (0.15)
B-P-G Heteroskedasticity Test	0.74 (0.71)
RESET Test	1.88 (0.19)
CUSUM	Stable
CUSUM sq	Stable

3.5 Short run and Long run estimates

In the short run table 7, changes in increasing portion of terrorism in present value, 1st and 2nd lag lead to a positive change in the FDI while changes in the decreasing portion of terrorism in present value and 1st lag leads to negative changes in the FDI. While changes in the interest rate two time periods ago leads to positive change in the FDI and there is no effect of changes in political instability on changes in FDI.

The negative coefficient of ECM-1 is between -1 and 0 indicates that there is convergence in the model making it suitable for policy makers for possible intervention for FDI (Banerjee, Dolado & Mestre, 1998). While R squared shows that the proposed independent variables are explaining 91% of the variation in the dependent variable and significant value of F statistic shows that the unrestricted ECM is fit.

Table 7. Short run estimates of ECM model

Short Run Coefficients (Dep. Var. ΔFDI)			
Lag order: (1, 3, 2, 3, 1)			
	Observations 31		
Variable	Coefficient	Prob.	
ΔTERR_POS	0.82	0.00	
$\Delta TERR_{POS_{-1}}$	1.23	0.00	
$\Delta TERR_POS_{-2}$	0.71	0.05	
ΔTERR_NEG	-0.50	0.02	
ΔTERR_NEG ₋₁	-0.28	0.05	
ΔΙΝΤ	0.03	0.51	
ΔINT_{-1}	0.01	0.82	

Short Run Coefficients (Dep. Var. ΔFDI)			
Lag order: (1, 3, 2, 3, 1)			
Observations 31			
Variable	Coef	Coefficient Pr	
ΔINT ₋₂	0.20		0.00
ΔΡΟL	0.01		0.64
ECM ₋₁	-0.56		0.00
R squared	0.91	Adjusted R sq.	0.82
F Stat	11.09	Prob.	0.00

Table 8 provides the estimates of restricted / cointegrated ECM model after the confirmation of presence of cointegration and convergence. Here increase in the interest rate by 1% leads to decrease in the FDI by 0.75%. This unexpected sign is because existing multinational firms which are already in Pakistan do not find fit for debt financing at high market lending rate. These results are similar to (Iqbal et al., 2013; Mehmood & Hassan, 2015). Here the convergence speed of interest rate shows that if government of Pakistan decreases 1% interest rate to attract 0.75% higher FDI, it will take 2.4 years to achieve this target, such high convergence speed indicates that interest rate it solely the important determinant of FDI.

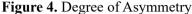
The coefficient of political instability is insignificant showing that based on this specification, in the long run there is no effect of political instability on FDI of Pakistan. Because of being insignificant its convergence speed is about 50 years which is very high.

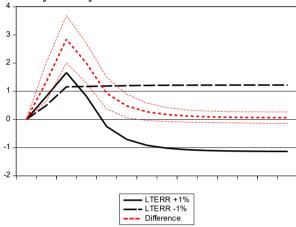
Table 8. Long run estimates from Cointegrated ECM model

Long Run Coefficients (Dep. var. FDI)			
Variable	Coefficient	Prob.	Convergence Speed
TERR_POS	-1.11	0.01	1.6 Years
TERR_NEG	-1.17	0.00	1.5 Years
INT	-0.75	0.00	2.4 Years
POL	-0.03	0.67	50 years
Constant	1.68	0.13	

While studying the asymmetry of terrorism, it can be seen that a 1% increase in terrorism will lead to 1.11% decrease in FDI while a 1% decrease in terrorism will lead to 1.17% increase in FDI on average. Comparing the convergence speeds, we can see that it takes 1.6 years to experience the negative shock of increasing terrorist activities while it takes 1.5 years to experience the positive shock of decreasing terrorism activities.

So though there was asymmetry in the short run, but figure 4 indicates that in the long run positive effects from the efforts of reducing terrorism in Pakistan can be higher than before. In Figure 4 the narrow dotted dashes also confirm that in short run there is a difference between the increasing terrorism and decreasing terrorism while in the long run, this line hovers just above the zero line indicating that benefits of decreasing terrorism will be slightly higher than the costs of increasing terrorism in Pakistan.





4. Conclusion and Discussions

It is no doubt that even at low levels of FDI, it is still beneficial for the economy. FDI does not only bring capital, but it also brings managerial skills, technology and innovation to the economy whose intangible returns are far reaching. FDI yields higher employment, research and development and competition among local businesses. Pakistan is in dire need of FDI as it has to plug the gap between the domestic saving and domestic investment. Without FDI, Pakistan might have to resort to domestic or foreign debt.

Unfortunately setting aside the benefits of FDI, it has one demerit too that it is highly risk averse and prone to capital flight whenever it sees uncertain conditions. Pakistan was on the verge of permanently boosting FDI to a higher level in late 2010s when a sudden increase in the terrorism events postponed the takeoff stage. Pakistan is still struggling to attract and regain the confidence of the foreign investors.

Several empirical studies have indicated the harmful effects of increasing terrorism as investors reallocate their financing to less risky avenues. This study intended to explore for the case of Pakistan whether there is difference in time taken by the capital flight because of increase in terrorism and capital inflow because of national efforts to reduce terrorism.

Hence this phenomenon can be explored by testing the degree of asymmetry between increasing terrorist activities and decreasing terrorism activities under a framework

which can handle I(0) and I(1) variables, non-linear ARDL is known to be used under certain conditions.

The results of non-linear ARDL shows that in short run there is an asymmetry between increasing and decreasing terrorism effects on FDI, but as we move into long run the asymmetry dissipates to a situation where the benefit of decreasing terrorism is slightly higher than the costs of increasing terrorism. This is very hopeful situation for Pakistan that it can recover the lost investor confidence and build on it in future if it pushes its efforts to counter terrorism. This study also motivates the policymakers to keep activating the National Action Plan with the collaboration with Pakistan Armed Forces to root out all the remains of terrorism from Pakistan.

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