FDI and Terrorism in the developing Asian countries: A panel data analysis

Kechagia, Polyxeni and Metaxas, Theodore

University of Thessaly, Department of Economics, Greece

June 2017

FDI and Terrorism in the developing Asian countries: A panel data analysis

Polyxeni Kechagia
PhD Researcher, University of Thessaly,
Department of Economics,
Volos-Greece, kehagia@uth.gr

Theodore Metaxas
Assistant. Professor. of Economic Development,
University of Thessaly, Department of Economics,
Volos-Greece, metaxas@econ.uth.gr

Abstract

Foreign Direct Investment (FDI) inflows are distributed among the geographical regions and play a crucial role on the social, political and financial condition of the recipient country. Certain areas manage to attract more FDI and therefore underdeveloped, developing and transition economies make efforts so as to absorb increased FDI inflows and to improve the political and socioeconomic conditions, focusing on the political stability, the external conflicts and the terrorist attacks. The purpose of the present paper is to empirically investigate and discuss the correlation between FDI inflows and terrorism in the developing Asian countries during the period 1996 – 2015. We aim at evaluating the impact of terrorism on the FDI inflows in the Asian developing economies, taking into consideration that they ranked first among the top FDI recipient countries in 2015, focusing on the cases of 5 countries of the region. We conduct a literature review on previous empirical studies and we present an empirical model to investigate the interaction between terrorist attacks and FDI inflows, using a panel data analysis. We argue that terrorism has a negative impact on the FDI inflows of the studied countries. The contribution of the essay refers to the fact that it includes both fatalities and injuries occurring from international terrorist attacks and it is not limited solely on the case of a single country.

Keywords: Foreign Direct Investment, International Conflicts, Terrorism, developing countries, Asia

JEL Classification: F21, F51, R11, O53

1. Introduction

The global capital distribution is determined by social, financial and political factors. Thus, multinational companies take into consideration the political stability and the governmental framework of the host economy when investing abroad. The socioeconomic and political conditions of the host country define the amount of foreign capitals absorbed. Therefore, the host countries make significant efforts to ensure the political stability and to become more attractive to multinational companies and foreign investors. Moreover, because of the remarkable increase in total terrorist attacks over the past decades, the host economies aim at improving the political and socioeconomic conditions through reducing the external conflicts and the terrorist attacks.

The purpose of the study is to empirically investigate and discuss the interaction between external conflicts, focusing on terrorism, and foreign capital inflows, focusing on FDI inflows, in 5 developing Asian economies during the period 1996-2015. In addition, we focus on two factors that affect the host economy's political stability and therefore we study the external conflicts and the terrorist attacks. Moreover, we focus on a specific type of foreign capital flows and therefore we study FDI inflows. We aim at investigating the impact of terrorism on the FDI inflows in the Asian developing countries because during 2015 the region ranked first among the FDI recipient areas worldwide.

Therefore, we conduct a literature review on empirical studies regarding the relation between FDI and terrorism in developing economies and mostly in the Asian developing countries. We applied a Fixed Effects model in order to investigate the impact of terrorism on FDI inflows. We argue that terrorism has a negative impact on the FDI inflows of the studied countries, which renders these economies less attractive to foreign investors.

The main contribution of the study refers to the fact that several social, economic and political events, including the fall of the Berlin Wall, the Enlargement of the European Union and the recent financial crisis, are taken into consideration. Moreover, we limit the study to a specific geographical region based on recent evidence, as presented by the World Bank and UNCTAD, and therefore we study the case of the Asian developing economies that managed to attract the majority of the FDI inflows during the year 2015. Among the countries of the region, we study the cases of Pakistan, India, Afghanistan, Philippines and Thailand, which present the highest percentage of terrorist attacks compared to the rest Asian developing countries. Finally, we include both fatalities and injuries occurring from international terrorist attacks, as well as both Greenfield FDI and Mergers and Acquisitions (M&A).

2. FDI and terrorism in developing countries

There are several theoretical and empirical researches in the existing literature that focused on the interaction between FDI and terrorism in the developing countries. These studies concluded that numerous factor that influence FDI inflows in the developing countries. For example, when regarding to the impact of international terrorism on FDI inflows, Powers and Choi (2012) on a sample of 123 countries and for the period 1980-2008 observed a negative impact of terrorism on FDI inflows. This result is on accordance with the findings of Omay (2013), who investigated the case of Turkey for the period 1992-2003, the findings of Bezić et al. (2016), who studied 29 European countries for the period 2000-2013. Similarly, Enders and Sandler (1996) also concluded that there is a negative relation between terrorist attacks and FDI inflows in the cases of Greece and Spain for the period 1975-1990. Moreover, it is observed that violence, internal and external conflicts are also associated negatively with FDI. According to the findings of Blomberg and Mody (2005) in a sample of 43 countries during 1981-1998, Ezeoha and Ugwu (2015) in a sample of 41 African countries during 1997-2012 and Gupta et al. (2004) in a sample of 20 low and middle income countries during 1985-1999.

In addition, it is argued that other factors influencing the FDI inflows in a host country are the regulatory quality and the political risk. When regarding to the regulatory quality Ali and Fiess (2010) in a sample 69 countries for the period 1985-2007 and Younas (2009) in a sample of 63 countries for the period 1982-2002 argued that FDI inflows are determined by the regulatory quality of the host economy. Similarly, Daude and Stein (2007) in 152 countries for the period 1982-2002, as well as Buchanan et al. (2012) in 164 countries for the period 1996-2006 also concluded that regulatory quality is a determinant factor of FDI. Moreover, the political risk is considered a deterrent factor for the FDI inflows according to the findings of Qian and Baek (2011) in a sample of 166 countries during 1984-2008, Khan and Akbar (2013) in a sample of 94 countries during 1986-2009 and Hayakawa et al. (2011;2013) for the period 1985-2007 in samples of 93 and 89 countries respectively.

2.1 FDI and terrorism in developing Asian countries

In the present section, we present the results of the empirical papers that studied the interaction between FDI and terrorism, focusing on the Asian developing economies. The specific region has been chosen over Africa, Latin America and the Caribbean, as well as over other groups of transition and developing countries because it attracted the majority of the FDI inflows in 2015. Therefore, we limited our study on the specific region because it is the largest FDI recipient area worldwide. In addition, the region presents interest because of its high heterogeneity considering that it includes countries characterized by different level of development, varying from highly developed to least developed (UNCTAD, 2016).

Through the literature review, we reached to empirical studies that investigated the interaction between FDI and terrorism. Nazik et al. (2014) have studied the impact of terrorist attacks on the FDI inflows in the region for the period 2000-2013, Anwar and Mughal (2016) for the period 2003-2014 and Rasheed and Tahir (2012) for the period 2003-2011, who argued that there is a negative impact of terrorism on FDI inflows in the case of Pakistan. Ullah and Rahman (2014) reached to similar results for Pakistan during the period 1995-2013, while Ullah and Inaba (2014) argued that consider conflict when investing in a sample of 9 Asian developing countries for the period 2001-2010; nevertheless, conflicts are not the most determinant factor of the foreign investors' decision. Shah and Faiz (2015) have also investigated the negative relation between terrorism and FDI in groups of Asian developing countries for the SAARC countries during 1980-2012, Mehmood, and Mehmood (2016) in a sample of seven countries of the region during 1991-2013.

Finally, it has also been investigated the relation between the political risk and terrorism in the region. Thus Rauf et al. (2016) for the period 1970-2013, Najaf and Ashraf (2016) for the period 1981-2011, as well as Anwar and Afza (2014) and Afza and Anwar (2013) both for the period 1980-2010, argued that increased political risk has a negative impact on FDI inflows in Pakistan for the studied period.

3. Data and Econometric Methodology

It is observed from the above presented empirical studies that in the field of FDI data could be limited or unavailable across time. In order to proceed to the econometric analysis it is vital to choose the dependent and independent variables as dictated by previous studies, taking into consideration the data availability. Therefore, in the present study we conduct a regression analysis based on the factors that affect the FDI inflows in the developing Asian countries. Thus, we study as control variables the GDP, the terrorist attacks, the political stability and the regulatory quality, while we also study FDI inflows as dependent variable. The model to be estimated is:

$$FDI_{it} = \beta + \beta_{1i,t}GDP + \beta_{2i,t}TERROR + \beta_{3i,t}POLSTAT + \beta_{4i,t}REG + \varepsilon_{it}$$

Where FDI: net Foreign Direct Investment inflows as % of GDP
β: Intercept term
GDP: Gross Domestic Product per capita growth
TERROR: Number of Terrorist Attacks
POLSTAT: Political Stability Index
REG: Regulatory Quality Index
ε_{it}: Error Term

3.1 Data

The data for the dependent and independent variables collected by international databases to be reliable. Thus, data for the FDI inflows, which represent the dependent variable, collected from the United Nations Conference on Trade and Development (UNCTAD) (2016) and from the World Development Indicators (WDI) (2016). FDI inflows refer to the net FDI inflows as percentage of the host country's GDP. The GDP chosen as a control variable so that the results flawed. Data for the host countries GDP are collected from WDI (2016) and represent data in current US$. The political stability and the regulatory quality are also used as control variables. In particular, the International Country Risk (ICRG) (2016) and the World Governance Indicators (WGI) (2016) collect political stability and regulatory quality data. Finally, terrorist attacks are the main independent variable and represent the number of terrorist attacks observed in the studied countries, including both fatalities and injuries. Data for the terrorist attacks are collected by the Global Terrorism Database (GTD) (2016) and the International Terrorism: Attribute of Terrorist Events database (ITERATE) (2016). It should noted that data for the year 2016 were not available yet when conducting the present research.

Table 1: Data description

Variable	Symbol	Source
Foreign Direct Investment (%GDP)	FDI	WDI, UNCTAD
Gross Domestic Product (Current US $)	GDP	WDI
Terrorist attacks	TERROR	GTD, ITERATE
Political Stability	POL	ICRG, WGI
Regulatory Quality	INST	ICRG, WGI

Among the studied countries, it observed that India is the top recipient country of the region for the year 2015, along with China that is not included though in the sample of the present study. According to IMF (2016), and it should be highlighted the fact that Thailand presented the highest increase in FDI inflows in 2015 compared to the rest Asian developing economies. The paper mostly focuses on the impact of terrorism on FDI inflows and thus Table

2 presents the secondary data these variables from 1996 to 2015. The paper is limited to the countries of the region that presented the highest rates of total terrorist incidents during the studied period. Therefore, we studied the cases of Pakistan, India, Afghanistan, Philippines and Thailand using a panel data analysis. The studied period chosen based on the data availability.

Table 2: Terrorist attacks and FDI inflows per year

Country	Year	Terrorist attacks	FDI inflows
Pakistan	1996	180	1,456055582
	1997	206	1,147229318
	1998	37	0,813610046
	1999	39	0,844795025
	2000	49	0,416484258
	2001	53	0,522751161
	2002	46	1,1423542
	2003	29	0,641481502
	2004	67	1,141075209
	2005	78	2,010007068
	2006	163	3,112977982
	2007	260	3,668322816
	2008	564	3,197360002
	2009	667	1,390402267
	2010	700	1,13975303
	2011	993	0,6208231
	2012	1.652	0,382826517
	2013	2.213	0,576510795
	2014	2.147	0,764033888
	2015	1.235	0,361188124
India	1996	211	0,606836996
	1997	193	0,845383138
	1998	61	0,614509357
	1999	112	0,464498958
	2000	175	0,752024446
	2001	233	1,038171953
	2002	180	0,994137679
	2003	196	0,595446941
	2004	108	0,752406502
	2005	145	0,871407232
	2006	165	2,110290315
	2007	149	2,100435421
	2008	515	3,657071896
	2009	673	2,68762514
	2010	657	1,653839835
	2011	635	2,002131908
	2012	611	1,311967091

	2013	694	1,510997488
	2014	860	1,69290983
	2015	882	2,100292393
Afghanistan	1996	4	..
	1997	1	..
	1998	1	..
	1999	9	..
	2000	14	..
	2001	14	0,027623569
	2002	37	1,210999541
	2003	100	1,261005368
	2004	88	3,536112258
	2005	155	4,318674465
	2006	280	3,372251952
	2007	388	1,91683279
	2008	414	0,451730583
	2009	500	1,581753993
	2010	541	0,340096813
	2011	416	0,321361264
	2012	1.469	0,299592102
	2013	1.441	0,197860045
	2014	1.820	0,243169793
	2015	1.926	0,874678514
Philippines	1996	61	1,83106101
	1997	57	1,484013569
	1998	18	3,167281844
	1999	31	1,502497488
	2000	131	1,835206658
	2001	48	0,996563534
	2002	48	2,17435118
	2003	107	0,586355043
	2004	32	0,647906279
	2005	25	1,614411957
	2006	58	2,215366224
	2007	65	1,954155332
	2008	275	0,769268076
	2009	230	1,226498108
	2010	204	0,536290789
	2011	147	0,89547743
	2012	247	1,285692446
	2013	651	1,374862063
	2014	597	2,015057896
	2015	717	1,995291998
Thailand	1996	19	1,27616877

	1997	20	2,593386672
	1998	4	6,434800522
	1999	4	4,817817256
	2000	4	2,663126912
	2001	15	4,212225638
	2002	12	2,488154004
	2003	6	3,435938984
	2004	44	3,38947905
	2005	155	4,339584984
	2006	199	4,021253246
	2007	292	3,28356903
	2008	200	2,938248058
	2009	297	2,277000425
	2010	253	4,325506995
	2011	180	0,667465965
	2012	279	3,246750212
	2013	471	3,795282744
	2014	423	1,2305736
	2015	277	2,278402023

It is noted that we estimate the net inflows of FDI (%GDP). We choose to apply a panel data analysis since we study a range of different countries over a time period. We applied various econometric methodologies in order to present the estimation results using EViews 9. In addition, we added the control variables sequentially so to avoid spurious results.

4. Empirical Analysis

In order to determine the significance we applied tests at 0.5, 0.01 and 0.0001 level of significance. The results of the fixed effects presented in Table 3. Several other empirical studies applied fixed effects, including the studies of Ullah and Inaba (2014), Mehmood and Mehmood (2016) et. al. The dependent variable of the model is FDI, while GDP, terrorist attacks, political stability and regulatory stability are the independent ones and we included 81 observations. It is observed that R^2 adjusted is 0,14. Therefore, it is positive but low. In addition, p-value is lower than 0,05, which reflects the significance of the model.

Table 3.
Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.882853	(4,72)	0.0065
Cross-section Chi-square	15.821862	4	0.0033

Cross-section fixed effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 07/20/17 Time: 00:24
Sample: 1996 2015
Periods included: 17
Cross-sections included: 5
Total panel (unbalanced) observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.643731	0.346520	7.629378	0.0000
GDP	-0.029939	0.037845	-0.791092	0.4314
TERROR	-0.000530	0.000303	-1.752166	0.0838
POLITICAL_STABILITY	0.278273	0.273761	1.016482	0.3126
REGULATORY_QUALITY	0.264859	0.342214	0.773957	0.4414

R-squared	0.183911	Mean dependent var	1.799760
Adjusted R-squared	0.140959	S.D. dependent var	1.261602
S.E. of regression	1.169309	Akaike info criterion	3.210444
Sum squared resid	103.9135	Schwarz criterion	3.358249
Log likelihood	-125.0230	Hannan-Quinn criter.	3.269745
F-statistic	4.281788	Durbin-Watson stat	0.934323
Prob(F-statistic)	0.003536		

5. Conclusion

The inflow of FDI in the developing countries is crucial because it enables the improvement of the socioeconomic, political and regulatory framework and eventually it promotes the economy's economic growth. The purpose of the present study is the empirical investigation of the interaction between terrorist attacks and FDI in 5 Asian developing countries during the period 1996-2015. We studied Pakistan, India, Afghanistan, Philippines and Thailand under the criterion that these countries presented the highest rates of terrorism among the Asian developing countries. In addition, through studying these 5 countries we avoid the heterogeneity of the sample when regarding to terrorist incidents.

In addition, we argue that special attention should paid on the cases of two countries. Firstly, it observed that Pakistan has been investigated as a case study by the majority of the empirical studies compared to the rest countries of the region. Pakistan is a neighbouring country to Afghanistan, which faces severe political problems because of the conflicts with the USA. Moreover, it is observed that the number of terrorist deaths in Pakistan surpass the deaths because of terrorist attacks in both European and North American countries (Mehmood, 2014). Secondly, the case of China presents several points of high interest. China is the largest FDI recipient economy among the countries of the region. Furthermore, it observed that the rest developing and developed economies could imitate the case of China, regarding the applied policies and frameworks, via an imitation channel (Metaxas & Kechagia, 2013).

From the present research, several policy implications are evident. Firstly, it is suggested that the governments of the Asian developing economies apply solid so as to avert conflicts, violence and terrorist attacks and therefore to improve the country's security framework. Secondly, the local and regional authorities should improve the democratic regulatory and the countries' political institutions to render the host economies more attractive to foreign investors. The study is subject though to certain limitations considering that we have only studied the FDI inflows and therefore the FDI have not investigated. Moreover, we limited the investigation on a specific geographical region and the results have not compared to other regions, such as Africa, which could be a subject for a future study. Finally, future studies could focus on certain productive sectors, such as agriculture and constructions. Nevertheless, these limitations do not influence our empirical findings.

References

Afza, T., & Anwar, Z. (2013). Foreign Direct Investment (FDI) in Pakistan: Measuring Impact of Cost of War Against Terrorism, Political Instability and Electricity Generation. *Caspian Journal of Applied Sciences Research*, 2(3), 117-127

Ali, F., & Fiess, N. (2010). Do Institutions Matter for Foreign Direct Investment?. *Open Economies Review*, 21(2), 201-219, doi: 10.1007/s11079-010-9170-4

Anwar, A., & Mughal, M. (2016). Foreign financial flows and terrorism – A case study of Pakistan. *Copenhagen Business School,* paper No. 56

Anwar, Z., & Afza, T. (2014). Impact of terrorism, gas shortage and political instability on FDI inflows in Pakistan. *Science International*, 26(1), 507-511

Bezić. H., Galović. T., & Mišević. P. (2016). The impact of terrorism on the FDI of the EU and EEA Countries. *Proceedings of Rijeka School of Economics*, 34(2), 333-362, doi: 10.18045/zbefri.2016.2.333

Blomberg, S.B., & Mody, A. (2005). How severely does violence deter international investment?. *Claremont Colleges Economics Department*, No. 2005-01

Buchanan, B., Le, Q., & Rishi, M. (2012). Foreign direct investment and institutional quality: Some empirical evidence. *International Review of Financial Analysis*, 21, 81-89, doi: :10.1016/j.irfa.2011.10.001

Daude, C., & Stein, E. (2007). The quality of institutions and foreign direct investment. *Economics & Politics*, 19(3), 317-344, doi: 10.1111/j.1468-0343.2007.00318.x

Enders, W., Sachsida, A., & Sandler, T. (1996). Terrorism and foreign direct investment in Spain and Greece. *Kyklos*, 49(3), 331-352

Ezeoha, A. E., & Ugwu, O. J. (2015). Interactive Impact of Armed Conflicts on Foreign Direct Investments in Africa. *African Development Review*, 27(4), 456-468

GTD (2016). Global Terrorism Database, Retrieved from https://www.start.umd.edu/gtd/ (23/3/2017)

Gupta, S., Clements, B., Bhattacharya R., &Chakravarti, S. (2004). Fiscal consequences of armed conflict and terrorism in low – and middle – income countries. *European Journal of Political Economy*, 20(2), 403-421, doi: 10.1016/j.ejpoleco.2003.12.001

Hayakawa, K., Kimjura, F., & Lee, H. H. (2013). How does country risk matter for foreign direct investment?. *The Developing Economies*, 51(1), 60-78, doi: 10.1111/deve.12002

Hayakawa, K., Kimura, F., & Lee, H.H. (2011). How does country risk matter for foreign direct investment. *Institute of Developing Economics*, Discussion Paper No. 281

ICRG (2016). International Country Risk Guide, Retreived from https://www.prsgroup.com/ (15/3/2017)

IMF (2015). Annual Report. Finding Solutions Together, Retreived from http://www.imf.org/external (20/3/2017)

Khan, M., & Akban, M. (2013). The Impact of Political Risk on Foreign Direct Investment. *International Journal of Economics and Finance*, 5(8), doi: 10.5539/ijef.v5n8p147

Mehmood, S. (2014). Terrorism and the macroeconomy: Evidence from Pakistan. *Defense and Peace Economics Journal,* 25(5), doi: 10.1080/10242694.2013.793529

Mehmood, S., & Mehmood, B. (2016). Hampering effect of terrorism on investment: The South Asian perspective. *Science International*, 28(2), 1475-1479

Metaxas, T., & Kechagia, P. (2013). FDI through the imitation procedure: The case of China. *Applied Econometrics and International Development,* 13(1), 145-160

Najaf, K., & Ashraf, S. (2016). Impact of terrorism, gas shortage and political instability on FDI inflows in Pakistan. *Scientific Journal of Pure and Applied Sciences*, 5(3), 390-397, doi: 10.14196/sjpas.v5i3.2162

Nazik, H., Muhammad, S., Rashid, K.S., & Shaban, K. (2014). Relationship between Terrorism and Foreign Direct Investment (FDI) in Pakistan. *Research Journal of Finance and Accounting,* 5(17)

Omay, T., Araz – Takay, B., Eruygur, A., & Ilalan, D. (2013). The Effects of Terrorist Activities on Foreign Direct Investment: Nonlinear Evidence from Turkey. *Review of Economics,* 64(2), 139-158

Powers, M., & Choi, S.W. (2012). Does Transnational Terrorism Reduce Foreign Direct Investment? Business – Related Versus non – Business – Related Terrorism. *Journal of Peace Research,* 49(3), 407-422, doi: 10.1177/0022343312436768

Qian,, X., & Baek, K. (2011). An analysis on political risks and the flow of foreign direct investment in developing and industrialized economies. *Economics, management, and financial markets*, 6(4), 60-91

Rasheed, H., & Tahir, M. (2012). FDI and Terrorism: Co-integration & Granger Causality. *International Affairs and Global Strategy*, 4,1-5

Rauf, S., Mehmood, R., Rauf, A., & Mehmood, S. (2016). Integrated Model to Measure the Impact of Terrorism and Political Stability on FDI Inflows: Empirical Study of Pakistan. *International Journal of Economics and Finance*, 8(4), doi:10.5539/ijef.v8n4p1

Shah, M.H., & Faiz, M. (2015). Terrorism and foreign direct investment: an empirical analysis of SAARC countries. *City University Research Journal,* 5(2), article number 03

Ullah, I., & Rahman, M. (2014). Terrorism and Foreign Direct Investments in Pakistan: A Cointegration Analysis. *Journal of Economics and Sustainable Development*, 5(5), 233-242

Ullah, M. S., & Inaba, K. (2014). Liberalization and FDI Performance: Evidence from ASEAN and SAFTA Member Countries. *Journal of Economic Structures,* 3(6), doi: 10.1186/s40008-014-0006-z

UNCTAD (2016). World Investment Report, Retreived from http://unctad.org/en/pages/ (23/4/2017)

WDI (2016). Wolrd Development Indicators, World Bank, Retreived from http://data.worldbank.org/data-catalog/world-development-indicators (20/3/2017)

World Governance Indicators (2016). World Governace Indicators, Retreived from http://data.worldbank.org/data-catalog/worldwide-governance-indicators (22/4/2017)

Younas, J. (2009). Does institutional quality affect capital mobility? Evidence from developing countries. *Journal of Institutional Economics*, 5(2), 207-223, doi: 0.1093/oep/gpu040