



HAL
open science

Foreign Financial Flows and Terrorism In Developing Countries

Amar Iqbal Anwar, Mazhar Mughal

► **To cite this version:**

Amar Iqbal Anwar, Mazhar Mughal. Foreign Financial Flows and Terrorism In Developing Countries. 2013. hal-01885149

HAL Id: hal-01885149

<https://univ-pau.hal.science/hal-01885149>

Preprint submitted on 28 Sep 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



**Centre d'Analyse Théorique et de
Traitement des données économiques**

**CATT WP No. 1
September 2013**

**FOREIGN FINANCIAL FLOWS
AND TERRORISM
IN DEVELOPING COUNTRIES**

**Amar Iqbal ANWAR
Mazhar Yasin MUGHAL**

Foreign Financial Flows and Terrorism In Developing Countries

Anwar, A.I.[†] and Mughal, M.Y.^{††}

Abstract

This study examines the differential response of various international financial flows to post 9/11 episode of terrorism in developing countries. Using monthly data for the period from January 2003 to June 2013, we employ ARMAX technique to analyze the impact of terrorism in Pakistan on the inflows of foreign direct investments (FDI), portfolio investments, migrant remittances and exports receipts. We find that FDI falls substantially as a result of terrorist activity, whereas portfolio investments and exports show little change. In contrast, migrant remittances show a significant increase. These differences are also visible among financial flows coming from major source regions and countries. The results are robust to use of alternative definitions and indicators of terrorism as well as the inclusion of various macroeconomic variables. These findings indicate that foreign private capital flees an economy suffering from terrorism whereas domestic producers stay put. Migrant remittances, however, are the only financial flows that rise in the time of difficulty.

Keywords: Terrorism; 9/11; FDI; Portfolio investment; Remittances; Exports; Developing countries; Pakistan.

JEL codes: E0; F22; H56; O5.

Authors:

[†] **Amar Iqbal Anwar, PhD**

Department of Financial and Information Management
Shannon School of Business, Cape Breton University
Sydney, NS, Canada, B1P 6L2
Email: amar_anwar@cbu.ca

^{††} **Mazhar Yasin Mughal, PhD**

Centre d'Analyse Théorique et Traitement des Données Economiques, Université de Pau et des Pays de l'Adour, France
Email : mazhar.yasinmughal@alumni.univ-pau.fr

1. Introduction

In the aftermath of the 9/11 twin tower attacks, literature has increasingly focused on the economic cost of terrorism. Terrorist activity is reported to have hit economic growth in developing and developed countries and regions around the world (Abadie and Gardeazabal 2003; Eckstein and Tsiddon 2004; Crain and Crain 2006; Gaibullov and Sandler 2008). This fall in growth in output can occur through multiple channels: Domestic consumption is increasingly diverted to security and defence spending leading to a larger government footprint and greater budget deficits (Blomberg et al., 2004; Eckstein and Tsiddon, 2004; Gupta et al., 2004) investment in the economy drops due to higher production costs and growing interest rates; non defence-related production suffers, and the financial sector is crippled by rising transaction costs and scrutiny and documentation requirements (Eldor and Melnick, 2004; Johnston and Nedelescu, 2006).

Another channel through which terrorism can hurt an open economy is by decreasing international financial flows to the terrorism-afflicted country. Foreign financial flows, whether foreign direct investments (FDI), portfolio capital, migrant remittances or export and tourism receipts can all alter in the face of terrorism (Abadie and Gardeazabal, 2008; Enders and Sandler, 1996; Enders, Parise and Sandler, 1992). International investors shy away from the terrorism-affected economy as direct and indirect production costs rise leading to lower return on capital. The affected country loses its edge as a potential production center as the country's location-specific advantages are negated due to higher risk to physical assets and increased security costs. Multinational corporations may therefore prefer investing in safer economies. Higher costs also eat into the shares of local exporting firms and may lower exports receipts. Terrorism shocks may increase variance in stock prices which may drive away risk-averse portfolio investors from the vulnerable economy. In contrast, the behaviour of migrant remittances may depend on the motives for which migrants remit back home. If the money sent home is meant for investment in businesses, real estate or stocks, remittances may react to terrorism in ways similar to those of foreign investment inflows. However, if migrants remit back home mainly to assist household members that are staying behind, remittances may rise to cover the losses the households back home incur due to falling economic activity as a result of terrorism.

The above discussion suggests that the direction and magnitude of the reaction of different foreign financial flows to terrorism may vary and must therefore be empirically determined. The degree to which financial flows respond to terrorism-induced economic shocks may determine the

macroeconomic stability of a developing economy. This is of particular significance to capital-deficient developing countries that are heavily reliant on foreign financial flows, both for promoting growth and covering chronic current account deficits. During the 2000s, international financial flows to developing countries have grown substantially. At the same time, a new form of terrorist activity has come to the fore that is targeting mainly the United States and its allies. This study examines the differential response of various foreign financial inflows to post 9/11 terrorist activity in this context. The value added of this paper is three-fold: firstly, terrorism is a complex phenomenon resulting from the interaction of numerous social, economic and demographic factors which are area specific and thus cannot be adequately addressed in a cross-country setting. However, quantitative country studies are difficult to undertake given data availability issues. This study selects a developing country that is significant both for the amount of financial flows it receives, as well as the level of terrorist violence that has recently occurred in the country. In addition, comprehensive monthly data are employed for foreign financial flows and terrorism allowing a meaningful empirical investigation. Secondly, the media coverage, and resultantly the risk perception of terrorist events, may vary from country to country. Consequently, the impact of terrorism on the financial flows a country receives may depend upon their source countries and regions. Therefore, financial flows are examined with respect to their provenance. Thirdly, the impact of terrorism on the financial flows is studied in multiple dimensions. Along with the civilian and security forces casualty count (which is taken as the principal terrorism indicator), the study evaluates the role of number of significant terrorism incidents; bomb blasts and total death count in shaping the volume of financial inflows. The analysis is also carried out including various macroeconomic variables. The analysis helps to distinguish between the risk profile of foreign investors, remitters and exporters in the face of terrorism.

The study uses monthly data on aggregate and source country and region-wise inflow of FDI, portfolio investments, migrant remittances and exports receipts as well as the terrorist activity occurring in Pakistan between January 2003 and June 2013. Along with aggregate monthly volumes, financial flows are studied with respect to the country's principal source regions (both economic and geographical) as well as the top five source countries for each financial inflow.

The following hypotheses are tested in the study:

H1. FDI inflows fall as a result of terrorism.

This expectation is in line with Abadie and Gardeazabal (2008) capital flow theory as well as extant empirical evidence on the long-run impact of terrorism on FDI to developing countries (Alomar and El-sakka, 2011; Lutz and Lutz, 2006).

H2. The impact of terrorism on portfolio investments may be ambiguous.

In the 2000s, stock markets of various developing countries including Pakistan rose sharply and subsequently attracted fresh capital from mature economies. High yield from emerging market stock markets compensated for terrorism-related high variance. Nonetheless, sustained terrorist campaigns, especially if they hit the country's major production centers, can hurt the business environment and prevent investments through heightened risk perception. Net portfolio investments during the decade of 2000s may portray an ambiguous association with terrorism.

H3. Migrant remittances rise in response to terrorism.

Following Anwar and Mughal (2012) and Mughal and Anwar (2013), migrant remittances to Pakistan are expected to be predominantly altruistic in nature and as a result rise when the stay behind households face financial difficulty due to increased terrorist activity.

H4. Exports fall as a result of terrorism.

Several of Pakistan's major production centers (particularly the port city of Karachi) have been hit by ethnic and sectarian terrorism during the last ten years (Hussain 2010). The subsequent drop in industrial production should imply lower export receipts.

The remainder of the study is organized as follows: Next section briefly describes extant literature on the relationship between terrorism and various financial flows. Section 3 presents the important features of foreign financial flows to Pakistan and the evolution of terrorist activity in the country. Section 4 introduces data and empirical methodology. Key findings are presented in Section 5 followed by robustness checks in Section 6. Section 7 concludes.

2. Terrorism and Financial Flows to Developing Countries: Literature Overview

According to Abadie and Gardeazabal (2008), capital mobility determines the equilibrium output level of an open economy. This occurs in two ways: directly through the destruction of physical assets, and more importantly, indirectly through a decrease in the marginal productivity of capital as a result of the

terrorism shock. The latter leads potential foreign investors away to safer locations and thus hurts the economy's future output. This results in low future growth even though the short term impact may not be substantial. This clear theoretical derivation has found mixed support in the empirical literature.

For instance, Li (2006) finds no evidence that either anticipated or unanticipated terrorism has any direct effect on the location or volume of foreign direct investments. In their panel study on US FDI flows to a sample of 69 countries, Enders, Sachida and Sandler (2006) find that although transnational terrorist incidents have a statistically significant impact on US FDI in OECD countries, the relationship is not visible in non-OECD countries. Similarly, Blomberg and Mody (2005) report a qualified support for a negative impact of transnational terrorism on host country investments, finding that the relationship disappears if country fixed dummies are not employed. In a recent study, Power and Choi (2012) find that transnational terrorism that targets multinational investments in developing countries negatively affects FDI to those countries while non-business-related terrorism does not show a statistically significant impact.

Nonetheless, other empirical studies have found evidence for an unequivocally negative relationship between terrorism and FDI to the developing countries. Alomar and El-sakka (2011), for example report a negative impact of terrorism on FDI inflows to a sample of 136 developing countries. Likewise, Abadie and Gardeazabal (2008) examine the impact of terrorist violence on a cross-section of 186 countries and find a negative correlation between direct investments and terrorist violence. A one standard deviation increase in terrorist risk is reported to cause a five percent decrease in foreign investment flows as a share of the GDP of the terrorism-afflicted country. Similarly, Lutz and Lutz (2006) suggest a substantial fall in the ability of Latin American economies to attract inward FDI as a consequence of terrorism.

In contrast to the abovementioned mixed evidence for FDI inflows, the impact of terrorism on trade flows is generally shown to be negative. Nitsch

and Schumacher (2004) study bilateral trade flows between more than 200 countries over the period from 1960 to 1993 and find a strong evidence of fall in trade volumes due to terrorism. According to them, a doubling in the number of terrorist incidents is associated with a decrease in bilateral trade by about four percent. In the same vein, Fratianni and Kang (2006) analyze 97,803 pair-wise bilateral trade observations over the period 1980-1999 and find that terrorism reduces bilateral trade flows by raising trading costs and hardening borders. Bilateral trade increases as distance between terrorism affected trading countries increases. This suggests that terrorism redirects some trade from close to

more distant countries. They conclude that terrorism effects are likely to be much higher for small and open economies than for large and relatively closed economies. Other studies that find a negative impact of terrorism on international trade include Blomberg and Hess (2006) and Kurrild-Klitgaard, Justensen and Klemmensen (2006).

Unlike the effects on trade volumes, terrorism's impact on migrant remittances is ambiguous and crucially depends on the motives for which remittances are sent. Remittance motives range from purely altruistic to purely self-interested. If the migrant maintains strong kinship ties with the country of origin and feels emotionally involved in the well being of the relatives back home, he/she will tend to send them higher than scheduled financial assistance to help them cover the economic losses incurred due to terrorism. These altruistic remittances should therefore rise with terrorist violence. This positive remittance behaviour may also correspond to a co-insurance motive (Amuedo-Dorantes and Pozo, 2006) as remitter helps the stay-behind members of the household in the expectation of their support to the migrant in times of financial distress. On the other hand, a negative association between terrorism and remittance flows points to asset-accumulation and investment-related motives behind remitting (Lukas and Stark, 1985), as the migrant makes use of his/her knowledge of opportunities back home to invest in profitable ventures. This may particularly be the case if the migrant is permanently settled in the host country and considers the home country mainly as an investment destination. In one of the few studies of its kind, Mughal and Anwar (2013) examine the behaviour of migrant remittances in response to terrorist activity using monthly data for the period from January 2003 to October 2012. They find a significant positive relationship between remittance flows to Pakistan and the terrorist activity in the country. Their findings corroborate the assertion of Carling, Erdal and Horst (2012) that ongoing conflict in the country of origin exerts an upward pressure on remittance-sending on the migrants.

Terrorism can also affect migration and subsequently the remittances positively through size effect. Episodes of terrorist violence lead to outflows of migrants and refugees and create migrant communities abroad (Berdal, 2005; Kaldor, 2007; Omeje, 2007). Dreher, Krieger and Meierrieks (2011) assessed the influence of terrorism on skilled migration for 152 countries over the 1976–2000 period and find robust evidence that terrorism increases skilled emigration, suggesting that terrorism affects the cost-benefit considerations of highly educated individuals in ways that make emigration more attractive. The resulting larger overseas migrant communities eventually lead to higher remittance inflows to the terrorism-affected country.

In addition to the financial flows discussed above, receipts from tourism also show a strong negative relationship with terrorism (Drakos and Kutan, 2003; Ozsoy and Sahin, 2006; Llorca-Vivero 2008; Yaya 2009). Drakos and Kutan (2003) for example find that the intensity of terrorism and geographic location of terrorist incidents have a significant detrimental impact on tourism in three Mediterranean countries. The authors show that Turkey's tourism market share decreased by 5.21 % due to terrorism within Turkey from 1991 to 2001.

3. Terrorism and Foreign Financial Flows to Pakistan: A brief overview

The relatively modest flows of FDI and portfolio investments that the South Asian country receives have fluctuated significantly. For instance, FDI flows to Pakistan jumped nine-fold between 2003 and 2007 to cross US \$5 billion only to fall again below \$2 billion in 2011 (Figure 1). FDI inflows often coincide with the country's business cycle, rising during the boom periods and ebbing during low-growth phases. A substantial share of FDI has been in the form of privatization receipts for previously state-owned corporations in the telecommunication and banking sectors. The United States, Europe and United Arab Emirates have historically been the country's major sources of FDI.

Insert figure 1 about here

Insert figure 2 about here

Foreign portfolio investments (FPI) to Pakistan have generally stayed low compared to other developing countries, and net inflows have crossed \$1 billion only once (in 2007). Net FPI inflows have been remarkably unstable, for instance the flows were negative for five of the twelve years since 2001 (Figure 2).

In comparison, Pakistan received US \$13 billion of migrant remittances in 2012 (Figure 3), making it one of the top ten recipients of remittances in the world (State Bank of Pakistan, 2013; World Bank 2012). Remittances comprise six percent of the country's GDP surpassing the combined share of international capital inflows to Pakistan. The volume of formal remittances has risen sharply in the last decade, growing nine-fold between 2001 and 2012¹. The energy-rich states of Persian Gulf are the main source of remittance flows to Pakistan along with North America and Europe. Remittances to the

¹ For a recent account of the evolution and development impact of remittances to Pakistan, see for example Mughal (2013).

country are considered a relatively stable source of foreign exchange (Mughal and Makhlouf, 2011), and are shown to be contracyclical (Ahmed 2012).

Insert figures 3 & 4 about here

Nevertheless, Pakistan's most stable source of foreign exchange over the years has been its exports receipts. The 2012 exports of \$22 billion (Figure 4) mainly consisted of textiles and garments, rice, leather products and light machinery. Europe, North America and the Persian Gulf are the country's principal export destinations. The country's economy is moderately open, and exports and imports taken together have represented a third of the country's output during the last four decades.

Due to high import bill and external debt servicing requirements, the country has faced chronic current account deficits, and has consequently required occasional IMF bail-outs. Pakistan was subject to twelve IMF programs during the 1990-2007 period (IMF 2011), and has entered a fresh support program in summer 2013. The economy remains vulnerable to macroeconomic shocks arising within or outside the country's frontiers. Terrorism is one such shock that has hit the economy in the last decade. Although Pakistan has faced bouts of ethnic, separatist and sectarian violence in the past, anti-state militant activity surged spectacularly in the aftermath of 9/11 as the country joined the US-led campaign against Al-Qaida and the Taliban². The number of deaths in terrorist attacks rose from 164 in 2003 to 3739 in 2012 (Table 1). Most of the attacks have been carried out by the militant group Tehrik-e-Taliban Pakistan (TTP) followed by Baloch separatist groups and sectarian militants (Pakistan Security Report 2012). Target killings, bomb blasts, improvised explosive devices and rocket attacks have been the terrorists' main tactics.

Terrorism has exacted a heavy cost from the country, both in terms of lives and limbs as well as in material losses. According to Sultan (2013), terrorism has cumulatively cost Pakistan 33.02 percent of its real national income during the 1973-2010 period, implying around one percent of lost real GDP per capita growth every year.

Insert table 1 about here

² For a brief background on the origins of terrorism in Pakistan, see Sultan (2013).

4. Data and Methodology

4.1. Data Description

Monthly time series for FDI, portfolio investments and migrant remittances are taken from Pakistan's central bank, the State Bank of Pakistan (SBP). Data for export receipts are taken from the International Monetary Fund's IFS Database. All the series are in current US Dollars and are converted into constant US Dollars using US inflation rate taken from the International Monetary Fund's IFS Database.

FDI comprise investments by foreign corporations acquiring at least ten percent ownership of the local business. Investments involving less than ten percent foreign investor share are deemed portfolio investments. In addition to aggregate flows, both FDI and FPI are analyzed with respect to their source regions and countries. Regions considered include developed and developing countries³, Asia, North America, Western Europe and Africa. The list of countries for the constituent regions is given in Table A-5 in the appendix. The United States, United Arab Emirates, United Kingdom, Netherlands and Switzerland were Pakistan's top five FDI sources during the examined period, while the top five FPI senders were USA, UAE, UK, Singapore and Luxembourg.

Remittances comprise the sum of workers' remittances, compensation of employees, and migrants' transfers. In addition to aggregate inflows, remittances from three major remitting regions and top five remitting countries are also considered. The regions are Persian Gulf, North America and Europe^{4 5}. Pakistan's top five sending countries during the examined period that are included in the analysis are USA, Saudi Arabia, United Arab Emirates, United Kingdom and Kuwait. The five together account for the bulk of Pakistan's remittance inflows.

³ Based on World Bank country classification.

⁴ Unlike FDI and FPI, migrant remittances from Asia overwhelmingly originate in the Persian Gulf. Therefore, the latter can be taken as representing Asia. Similarly, FDI and FPI to Pakistan coming from Europe originate almost exclusively in Western Europe. Therefore, the region is comparable to the Europe region taken as the source of remittance inflows.

⁵ The variable for Persian Gulf comprises observations for the six states of Gulf Cooperation Council (GCC), namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates, while those for North America and Europe respectively consist of Canada and USA, and Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom.

In contrast to other financial inflows, export receipts are only analyzed in the aggregate due to lack of monthly data for Pakistan's trade partners. Moreover, data for tourism receipts are not available on a monthly basis; therefore the response of this relatively minor flow to terrorism cannot be examined.

Following Mughal and Anwar (2013), data on terrorism are taken from the South Asia Terrorism Portal (SATP). Studies on other countries and regions have often employed data from Global Terrorism Database (GTD) maintained by the University of Maryland National Consortium for The Study of Terrorism and Response to Terrorism Center. However, for South Asian countries including Pakistan, SATP provides more comprehensive data from 2003 onwards.

Terrorism in this study pertains to both domestic and transnational attacks, although given the country context; attacks are overwhelmingly against domestic targets. We take the number of civilian and security forces deaths in terrorist attacks as our main terrorism indicator. The reason for this choice is as follows: during the period examined, the number of terrorism incidents in the country has been very high (as many as 45 terrorism incidents took place in a month involving three or more deaths). In such a situation, it is the intensity of attacks reflected in the number of deaths that matters more rather than simply the incident count. As a robustness check, the analysis is carried out using an alternative definition of the variable, including insurgent deaths in the death count. We also carry out the analysis using the number of incidents involving three or more deaths as well as the number of bomb blasts carried out during a month.

Monthly data for Pakistan's Consumer Price Index (CPI), interest rate and nominal exchange rate used in the robustness check are taken from the SBP. The terrorism series begin from January 2003. As a result, the dataset contains a maximum of 126 observations for the period January 2003 – June 2013. Summary statistics of the dataset are given in Table 2. At an average, 176 persons lost their lives every month during the examined period (excluding terrorists), while there were an average of 11 incidents involving three or more deaths per month.

Insert table 2 here

4.2. Methodology

Given the characteristics of the dataset, the Autoregressive Integrated Moving Average (ARIMA) group of econometric techniques is considered suitable for the analysis. The ARMAX model is chosen

as the mainstay of the empirical study. ARMAX is an ARMA model that also includes exogenous variables. Our baseline ARMAX (p, q) model can be expressed as:

$$FF_{i,t} = \alpha + \beta_1 FF_{i,t-1} + \dots + \beta_p FF_{i,t-p} + \gamma_0 T_t + \gamma_1 T_{t-1} + \varepsilon_t - \theta_1 \varepsilon_{t-1} - \dots - \theta_q \varepsilon_{t-q}$$

Where 'FF' represents the financial flow for the month t, 'T' is the terrorism indicator for the corresponding month and ε is the disturbance term. To apply ARMAX, the variables must be stationary, i.e. with constant mean and variance as well as constant autocovariance over time. As a result, we begin our empirical analysis by determining the level of stationarity of our aggregate, regional and country-wise financial flow series. Graphic evidence suggests that all the series are non-stationary at levels, but turn stationary at first difference. The graphical evidence is confirmed by using Augmented Dickey Fuller (ADF) and Phillip Peron (PP) tests (shown in column 3 & 4 of Table A-1 in the Appendix). Appropriate lag structure is determined for the tests using the Akaike's Information Criterion (AIC) and the Schwarz Bayesian Information Criterion (SBIC). The results of the test along with their corresponding lags are given in column 2 of Table A-1 in the Appendix. The next step is to obtain the autocorrelation and partial autocorrelation functions in order to determine the adequate lags for the aggregate, regional and top five country ARMAX models. The corresponding lags for the autocorrelation (AR) and moving average (MA) specifications obtained for the baseline models are given in Tables A-2. AIC and SBIC criteria are used to select the appropriate ARMAX models among suggested competing lag specifications. Most of the specifications thus selected are ARMAX (1,1,1). All the estimations are carried out using robust standard errors in order to take care of potential heteroskedasticity in the models. Post-estimation tests are performed to check for autocorrelation in residuals (shown in Table A-3).

There is a possibility that foreign financial inflows enhance or promote terrorist activity. Terrorists can target investments made by foreign investors from particular countries. Similarly, migrant remittances can finance terrorism in the home country. To check for this possibility, Granger causality test is carried out for all financial flows (shown in Table A- 4 in the appendix). All the financial flows are found to have one directional association with terrorism, running from terrorism to financial inflow⁶. The only exception is export receipts which seem to have a bi-directional relationship. As a result, exports are analyzed by employing a Vector Auto-Regression (VAR) model.

⁶ Li and Schaub (2004) also find no significant impact of FDI, FPI or migrant remittances on terrorism

5. Findings

Tables 3 to 6 present results for aggregate, regional and country wise financial inflows. As shown in Tables 3 and 5, only FDI and migrant remittances appear to react to the terrorism indicator (number of civilian and security forces deaths) in a statistically significant manner, the two other flows being insignificant (Tables 4 and 6). The sign of association of FDI and remittances are opposite though, and suggest the fact that the motives facing foreign investors and overseas Pakistani remitters are not the same. The coefficient of FDI's negative association with terrorism is a strong 0.05, implying a marginal effect of -1.52; one additional terrorism-related death is associated with a \$1.52 million drop in FDI inflows. In comparison, remittances show a marginal rise of \$0.08 m per additional death.

Insert tables 3 & 4 here

These differential impacts are also evident in region-wise results. FDI inflows from all the major source regions show strong negative impact of terrorism regardless of whether the source region is a part of the developed or developing world. Similar to aggregate estimation, region-wise results for migrant remittances are all positive and significant. However, terrorism seems to have a small and marginally significant impact on remittances from North America, which possibly points to a different socioeconomic profile of the North American Pakistani diaspora as compared to those located in the Persian Gulf and Europe. Among the three major overseas communities, the North American Pakistani community is the wealthiest and the most qualified (Mughal, 2013; Oda, 2009), and being comprised mostly of permanent migrants, may have a more investment-oriented outlook with respect to the home country. The altruism-driven response to terrorism back home may thus be partially compensated by the community's investment-motivated reaction to organized violence.

Insert tables 5 & 6 here

The negative sign of aggregate portfolio investments' result is also present in most region-wise estimations, several of which are statistically significant at 10% level of significance (Table 4). This suggests to some extent the resemblance between the reactions of the two foreign capital inflows. However, the mostly weak significance of FPI's reaction may also suggest that being more footloose than FDI, portfolio investments seek high yields in spite of high security risks as it is always possible to

withdraw if the host economy faces a shock. This has become increasingly possible thanks to financial globalization and advances in information and telecommunications technology.

The behaviour of export receipts shown in Table 6 is intriguing: not only is their reaction to terrorism insignificant⁷, but they also appear to drive up terrorism. The lack of significant impact of terrorism may owe to the fact that terrorism in Pakistan has generally targeted non-business targets such as government and military installations, places of worship and other public places. These targets do not cause direct losses to producers and exporters and therefore do not show up in export figures. However, the uncertainty and high security risk lead to lower returns on capital and may cause loss of exporters' share in the international market in the long run.

Country-wise estimations for the financial flows (given in columns 8 to 12 of Tables 3 and 4 for FDI and FPI and columns 5 to 9 of Table 5 for remittances) strengthen the aggregate and region-wise findings shown above. FDI from all the top five investor countries appear to react negatively to terrorism, though investment inflows from only USA and UK seem significant. Likewise, portfolio investments from all the top five investors show a negative sign while only those from US show a significant decrease. In contrast, remittances from all the major sources of remittance inflows are significant with positive signs.

Insert tables 7 – 10 about here

A similar picture emerges when the reaction of financial inflows to incident count is analyzed (Tables 7 to 10). FDI from all source regions are significant and negative. FDI from the developing countries (particularly those from Asia) show a strong drop in response to terrorism. Here too, portfolio investments retain their lack of significance on aggregate, region and country level. Export receipts are likewise insignificant. However, the behaviour of migrant remittance inflows changes. Even though the positive sign remains, many of the aggregate, regional and top five country estimations are no more significant at the 10% level.

We check the relationship between foreign financial flows and terrorism using another terrorism proxy: Bomb blasts are a major tactic of terrorist attack in Pakistan, and their incident count can verify the

⁷ We estimate an alternate ARMAX model on export receipts and again find an insignificant impact of terrorism

results of the models with total incident count. Results shown in Table 11 corroborate these findings. Although portfolio investments show significantly negative reaction to the number of bomb blasts carried out during a month, migrant remittances and export receipts remain insignificant. The fact that excepting those of FDI, most terrorism incident estimations are statistically insignificant may put into question the pertinence of this measure of terrorism for studying the economic impacts of terrorism. This supports the argument that for a country suffering from a major wave of terrorism, the intensity of terrorism reflected in death count is a more adequate proxy of terrorism than the incident count.

Insert table 11 about here

6. Robustness checks

The estimated sets of ARMAX models need to be tested for the presence of white noise in the residuals. No autocorrelation of the estimated residuals is a prerequisite for good model fit. The models appear to be normally distributed. Augmented Dickey Fuller (ADF) and Phillip-Peron (PP) tests indicate no evidence of autocorrelation in residuals (Table A-3).

As a robustness check, we estimate the baseline aggregate models using an alternative definition of terrorism by including the reported number of terrorists in the death count. Results given in Table 12 confirm the findings of our baseline models with all results maintaining their respective significance.

Insert table 12 here

Financial inflows interact with macroeconomic factors. Investors can modify their investment plans in view of exchange rate variations. Similarly, if remittances are sent for investment in the local economy, depreciation may cause the remitter to modify his/her investment plans. A depreciating currency often signals deteriorating economic conditions. This may dissuade an investment-motivated migrant from remitting. However, if the migrant sends money to help the household maintain a certain standard of living, he will now need a lower amount of foreign currency to consume the same bundle of goods and services given the higher purchasing power of the foreign currency. Likewise, interest rate and inflation in the local economy can affect the flow of foreign finances. The relationship between foreign financial flows and terrorism can be affected as a result. To account for this possibility, we estimate the aggregate models adding three macroeconomic variables, nominal exchange rate, Consumer Price

Index (CPI) and interest rate. The results shown in Table 13 confirm our baseline results with all the models maintaining their signs, significance and respective coefficients.

Insert table 13 here

7. Concluding Remarks

In the aftermath of Sep 11 2001 terrorist attacks on the twin towers, terrorism has become an everyday issue for many developing countries. At the same time, foreign financial flows have boomed as increasing amounts of private capital and migrant remittances have found home in these countries. In this study, we sought to analyze the response of foreign financial flows to terrorism. Using monthly data for the period January 2003 - June 2013, we examined the relationship between terrorism and FDI, portfolio investments, migrant remittances and export receipts to Pakistan. We found a substantial difference between the behaviours of these inflows in the face of terrorism. Private capital flows, particularly FDI, demonstrate a sizeable drop due to terrorist activity, whereas migrant remittances show an increase. Region- and country-wise flows indicate no specificities signalling that investors and remitters from all the major source areas react in a similar fashion to bouts of terrorism.

Our findings corroborate the conclusions of a growing body of business literature that highlights the security risk-averse nature of foreign private capital. FDI usually denotes a long-term engagement with the host country and therefore requires trust in the prospects of the local economy. The higher security, insurance, transportation and production costs that result from terrorism-related uncertainty erode this trust and make the investors look for less risky avenues (Blomberg, Hess and Tan, 2011; Frey, Luechinger and Stutzer, 2007; Gaibulloev and Sandler, 2011). Our findings are in contrast with those of Sultan (2013) who fails to ascertain adverse effects of terrorism on FDI to Pakistan over the 1973-2010 period. In addition to different analytical tools employed, the two studies differ in the time scale and the period examined, suggesting that the long-run impact of terrorism on FDI may vary from its short-run effects.

In contrast to international private capital flows, migrant remittances correspond to both altruistic and self-interested motives. If the former motive to remit dominates, migrants send higher remittances to help their family members or compatriots in general cope up with terrorism-induced economic losses. This rise in remittances can also be due to increased migration of the more mobile sections of the population (especially of skilled workers and professionals).

Contrary to our expectations and empirical evidence from previous studies, we do not find evidence of a decrease in exports due to terrorism. The lower incentives that foreign investors face in the form of higher costs and added risks also apply to local producers to certain extent. However, domestic producers may have more faith in the long-run prospects of the local economy. Besides, it might be more difficult for them to pull out their investments given sunk costs and challenges of entering new markets.

The findings of this study lead to certain policy implications: Foreign investments abstain from countries facing sustained terrorism activity. Governments of such countries should not expect major FDI inflows while the security situation is not well under control. Instead of courting illusive foreign investors, a more productive strategy could be to provide better business environment to establish businesses letting them create new jobs and expand production. Even though the terrorists may not target the businesses directly, firms ultimately face the cost of insecurity. Improved performance of existing businesses that improves the local economic situation creates a disincentive for terrorists by raising the opportunity cost of terrorism. Another means of boosting the local economy can be to encourage migrant remittances by lowering remitting costs and facilitating more productive uses of remittances. Given their relatively stable and countercyclical nature, remittances can be relied upon in the short-run to keep afloat a developing economy suffering from terrorism.

References

- Abadie, A and Gardeazabal, J. (2008) "Terrorism and World Economy". *European Economic Review*, 52 (1) , pp. 1-27
- Abadie, A., and Gardeazabal, J. (2003), *The Economic Costs of Conflict: A Case Study of the Basque Country*, *American Economic Review* 93(1), 113-132.
- Ahmed, J (2012), "Cyclical Properties of Migrants Remittances to Pakistan: What the data tell us", *Economic Bulletin*, Vol.32 No.4 pp.3266-3278.
- Alomar, M. and El-Sakka, T. (2011). *The Impact of Terrorism on the FDI Inflows to Less Developed Countries: A Panel Study*, *European Journal of Economics, Finance and Administrative Sciences*, Issue 28.
- Amuedo-Dorantes, C., and Pozo, S. (2006). *Remittances as Insurance: Evidence from Mexican Immigrants*. *Journal Of Population Economics*, 19(2), 227-254.

- an empirical investigation" *European Journal of Political Economy* Vol. 20 (2004) 423–433
- Anwar, A.I. and Mughal, M.y. (2012) "Motives to remit: Some micro evidence from Pakistan", *Economic Bulletin*, Volume 32, No. 1, pp.574-585
- BERDAL, M. (2005), *Beyond Greed and Grievance and Not Too Soon*, *Review of International Studies*, vol. 31, no.4, pp. 687 - 698.
- Blomberg, B., Hess, G. and Orphanides, A. (2004), *The macroeconomic consequences of terrorism*, *Journal of Monetary Economics*, Volume 51(5), pp. 1007-1032.
- Blomberg, Brock & Ashoka Mody (2005) *How severely does violence deter international investment?* Typescript. Department of Economics, Claremont McKenna College, Claremont, CA, cited in Power M. and Choi S-W, (2012).
- Blomberg, Brock; Gregory Hess & Daniel Tan (2011) *Terrorism and the economics of trust*. *Journal of Peace Research* 48(3): 383–398.
- Blomberg, S.B., Hess, G.D. (2006). *How much does violence tax trade?* *The Review of Economics and Statistics* 88(4), 599-612.
- Carling, J., Erdal, M.B., and Horst, C. (2012) "How does Conflict in Migrants' Country of Origin Affect Remittance-Sending? Financial Priorities and Transnational Obligations Among Somalis and Pakistanis in Norway," *International Migration Review*, Wiley Blackwell, vol. 46(2), pages 283-309, 06.
- Crain, N.V, Crain, W.M. (2006), *Terrorized Economies*, *Public Choice* 128, 317-349.
- Drakos, K. and Kutan, A. (2003) *Regional effects of terrorism on tourism in three Mediterranean countries*. *Journal of Conflict Resolution* 47 621–641.
- Dreher, A., Krieger, T., and Meierrieks, D. (2011) "Hit and (they will) run: The impact of terrorism on migration", *Economics Letters* 113 (2011) 42–46.
- Eckstein, Z., and D. Tsiddon (2004), *Macroeconomic Consequences of Terror: Theory and the Case of Israel*, *Journal of Monetary Economics* 51, pp. 971-1002.
- Eldor, R. And Melnick R. (2004) *Financial Markets and Terrorism*, *European Journal of Political Economy* 20, pp. 367-386.
- Enders, W., Sachida, A., Sandler, T. (2006), *The Impact of Transnational Terrorism on U.S. Foreign Direct Investment*, *Political Research Quarterly* 59(4), 517-531.
- Enders, W., Sandler, T. (1996), *Terrorism and Foreign Direct Investment in Spain and Greece*, *Kyklos* 49(3), 331-352.
- Enders, W., Sandler, T., Parise, F. (1992). *An Econometric Analysis of the Impact of Terrorism on Tourism*, *Kyklos*. 45(4), pp. 531-554.

- Fратиани, M. and Kang, H. (2006). International Terrorism, International Trade, and Borders, Chapter 10 in Michele Fratianni (ed.) *Regional Economic Integration (Research in Global Strategic Management, Volume 12)*, Emerald Group Publishing Limited, pp.203-223. DOI: 10.1016/S1064-4857(06)12010-0.
- Frey, B. S., Luechinger, S., & Stutzer, A. (2007). Calculating tragedy: Assessing the costs of terrorism. *Journal of Economic Surveys*, 21(1), pp. 1-24.
- Gaibulloev, K. and Sandler, T., (2008). Growth consequences of terrorism in Western Europe. *Kyklos* 61, pp. 411–424.
- Gaibulloev, Khusrav & Todd Sandler (2011) The adverse effect of transnational and domestic terrorism on growth in Africa. *Journal of Peace Research* 48(3): 355–371.
- 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.
- Hussain, S. "Terrorism In Pakistan: Incident Patterns, Terrorists' Characteristics, And The Impact Of Terrorist Arrests On Terrorism" (2010). Publicly accessible Penn Dissertations. Paper 136. <http://repository.upenn.edu/edissertations/136>.
- IMF (2011), "Transactions with Fund", International Monetary Fund Website, http://www.imf.org/external/np/fin/tad/extrans1.aspx?memberKey1=760&endDate=2011-0426&finposition_flag=YES.
- Johnston, B. and O. Nedelescu (2006). ^The impact of terrorism on financial markets^, *Journal of Financial Crime* 13, pp. 7-25
- KALDOR, M. (2007), *New and Old Wars: Organized Violence in a Globalized Era*, 2nd Edition, Stanford University Press, Palo Alto CA.
- Kurrild-Klitgaard, P., Justensen, M.K., Klemmensen, R. (2006), The political economy of freedom, democracy and transnational terrorism, *Public Choice* 128, 289-315.
- Li, Quan & Drew Schaub (2004) Economic globalization and transnational terrorism. *Journal of Conflict Resolution* 48(2): 278–297.
- Li, Quan (2006) Political violence and foreign direct investment. In: Michele Fratianni (ed.) *Research in Global Security Management, Volume 12: Regional Economic Integration*. Oxford: Elsevier, 231–250.
- Llorca-Vivero, R. (2008) Terrorism and international tourism: new evidence. *Defence and Peace Economics* 19(2) 169–188.

- Lucas, Robert E.B. and Oded Stark. 1985. "Motivations to remit: Evidence from Botswana." *Journal of Political Economy*, Vol. 93, No. 5, pp. 901–918.
- Lutz, James & Brenda Lutz (2006) International terrorism in Latin America: Effects on foreign investment and tourism. *Journal of Social, Political, and Economic Studies* 31(3): 321–338.
- Mehmood, S. (2012). Terrorism and the macroeconomy: Evidence from Pakistan. *Defence and Peace Economics*, 1-26. doi: 10.1080/10242694.2013.793529
- Mughal M., 2013, "Remittances as development strategy: stepping stones or slippery slope?", *Journal of International Development*, 25:4, 583-595, May.
- Mughal, M.Y. and Anwar, A. (2013) "Do migrant remittances react to bouts of terrorism?" *Defence and Peace Economics*, forthcoming.
- Mughal, M.Y. and Makhlouf, F. (2011), "Volatility of remittances to Pakistan: What do the data tell?" *Economics Bulletin*, 31:1, pp. 605-612.
- Nitsch, V. and Schumacher, D. (2004) "Terrorism and international trade:
- Oda, H. (2009). Pakistani migration to the United States: An economic perspective. IDE Discussion Paper No. 196 March, Institute of Developing Economies, Japan Pakistan Institute of Peace Studies. Various annual reports available at:
- Omeje, K. (2007), The Diaspora and Domestic Insurgencies in Africa, *African Sociological Review*, vol. 11, no.2, pp. 94 - 107.
- Ozsoy, O. and Sahin, H. (2006) Direct and indirect effects of terrorism on the Turkish economy. *International Journal of Business, Management and Economics* 2(7) 59–74.
- Powers, M. and Choi, S-W (2012) "Does transnational terrorism reduce foreign direct investment? Business-related versus non-business-related terrorism," *Journal of Peace Research*, Peace Research Institute Oslo, vol. 49(3), pages 407-422, May.
- South Asia Terrorism Portal (2013). Data accessed on August 02, 2013 from: <http://www.satp.org/>
- State Bank of Pakistan. (2013). Country-Wise Workers' Remittances. <http://www.sbp.org.pk/ecodata/index2.asp>
- World Bank (2012). Migration and Remittances, Factbook 2012. World Bank Group.
- Yaya, E. (2009). Terrorism and tourism: the case of Turkey, *Defence and Peace Economics*, 20(6), pp. 477–497.

List of Tables

Table 1: Terrorism in Pakistan (2003 – 2013)

Year	Number of Deaths	Civilian Deaths	Security Forces Deaths	Terrorist' Deaths	Number of Major Incidents	Number of Bomb Blasts
2003	164	140	24	25	12	42
2004	619	435	184	244	23	137
2005	511	430	81	137	18	245
2006	933	608	325	538	42	300
2007	2119	1522	597	1479	157	677
2008	2809	2155	654	3906	243	598
2009	3315	2324	991	8389	364	499
2010	2265	1796	469	5170	348	463
2011	3503	2738	765	2800	166	635
2012	3739	3007	732	2472	-	648
2013	2250	1862	388	1182	-	339
Total	22227	17017	5210	26342	1373	4583

Table 2: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Total Net Foreign Direct Investment	144	161.48	167.91	-30.28	1010.68
Net Foreign Direct Investment from United States	144	34.66	34.50	0.29	291.64
Net Foreign Direct Investment from UAE	144	24.25	70.86	-87.09	548.15
Net Foreign Direct Investment from UK	144	21.21	37.43	-32.78	318.80
Net Foreign Direct Investment from Netherlands	144	7.34	37.47	-105.68	363.05
Net Foreign Direct Investment from Switzerland	144	9.67	20.66	-11.55	186.38
Net Foreign Direct Investment from Developed Countries	120	95.18	86.53	2.00	581.55
Net Foreign Direct Investment from Developing Countries	120	66.84	122.51	-43.20	786.38
Net Foreign Direct Investment from Asia	120	55.54	114.98	-51.25	733.72
Net Foreign Direct Investment from Western Europe	120	48.44	64.65	-13.30	495.06
Net Foreign Direct Investment from North America	120	39.02	36.41	1.13	291.79
Net Foreign Direct Investment from Africa	120	7.49	22.87	-9.44	202.74

Table 2 contd...

Variable	Obs	Mean	Std. Dev.	Min	Max
Total Net Foreign Portfolio Investment	144	16.69	77.85	-245.97	599.31
Net Foreign Portfolio Investment from USA	144	12.53	42.97	-106.10	221.40
Net Foreign Portfolio Investment from UK	144	3.63	47.76	-98.99	505.52
Net Foreign Portfolio Investment from UAE	144	1.37	5.09	-15.01	32.42
Net Foreign Portfolio Investment from Luxembourg	144	0.90	3.62	-13.90	15.83
Net Foreign Portfolio Investment from Singapore	144	0.49	10.46	-50.40	75.50
Net Foreign Portfolio Investment from the Developed	120	18.31	77.68	-145.44	578.16
Net Foreign Portfolio Investment from the Developing	120	1.34	19.62	-101.75	79.86
Net Foreign Portfolio Investment from the North America	120	13.99	46.62	-106.10	221.56
Net Foreign Portfolio Investment from the Western Europe	120	4.90	51.23	-105.91	489.47
Net Foreign Portfolio Investment from Asia	120	1.38	18.01	-71.87	78.09
Net Foreign Portfolio Investment from Africa	120	0.18	1.35	-4.26	8.29
Total Foreign Remittances	149	474.28	232.12	66.08	1033.34
Remittances from GCC	142	243.50	146.78	36.25	570.85
Remittances from Europe	142	57.91	37.61	5.92	171.33
Remittances from North America	142	111.81	37.07	9.60	218.36
Remittances from USA	142	106.02	34.02	9.23	203.73
Remittances from UK	142	42.74	29.77	4.28	141.04
Remittances from Saudi Arabia	142	95.47	69.07	18.78	285.61
Remittances from UAE	142	90.19	54.84	8.91	227.59
Remittances from Kuwait	142	22.54	10.02	3.09	41.55
Exports	150	1238.65	298.36	654.17	2063.42
Exchange Rate	150	70.75	13.86	57.33	100.10
Pakistan CPI	127	118.95	37.63	79.39	204.03
Death Count including terrorists	126	385.43	370.94	1.00	2024.00
Death Count	126	176.40	136.59	0.00	507.00
Civilian Death Count	126	135.06	112.43	0.00	432.00
Security Forces Death Count	126	41.35	36.11	0.00	157.00
Insurgents Death Count	126	209.06	277.07	0.00	1590.00
Number of Bomb Blasts	150	31.21	23.44	0.00	104.00
Major Incidents	127	11.05	12.28	0.00	45.00

Table 3- I: ARMAX models for NFDI at aggregate, regional and country level

VARIABLES	ARIMA (1,1,1)	AR(5) I(1) MA (1)	AR(3) I(1) MA (1)	ARIMA (1,1,1)	AR(5) I(1) MA (1)	ARIMA (1,1,1)
	1 Aggregate FDI	2 DevelopedFDI	3 DevelopingFDI	4 AsiaFDI	5 WesterneuropeFDI	6 NAFDI
Death_Count	-0.0567***	-0.0383***	-0.0353***	-0.0299***	-0.0209***	-0.0149***
L.ar	(0.0090) 0.1750	(0.0053)	(0.0078)	(0.0102) 0.1651	(0.0047)	(0.0034) 0.1855
L3.ar	(0.1289)		-0.1431*** (0.0464)	(0.1449)		(1.8715)
L5.ar		-0.1218 (0.0828)			-0.1589** (0.0624)	
L.ma	-1.0000***	-1.0001***	-1.0000***	-1.0000***	-1.0000***	-0.9364
sigma	(0.0001) 131.6621***	(0.0001) 66.8291***	(0.0000) 117.0991***	(0.0000) 112.4249***	(0.0000) 58.8818***	(1.9036) 29.0960***
Constant	(16.9890) 9.7950*** (1.8183)	(11.8387) 6.0215*** (0.9102)	(22.0893) 5.4741*** (1.3829)	(22.3433) 4.5064** (1.8238)	(12.8787) 3.1874*** (0.7964)	(9.1277) 2.2550 (3.6863)
Observations	126	102	102	102	102	102

Standard errors in
parentheses

*** p<0.01, ** p<0.05,
* p<0.1

Table 3 Contd. ...

Table 3-II : ARMAX models for NFDI at aggregate, regional and country level

VARIABLES	ARIMA	ARIMA	ARIMA	AR(3) I(1)	ARIMA	ARIMA (1,1,1)
	(1,1,1)	(1,1,1)	(1,1,1)	MA (1)	(1,1,1)	
	7	8	9	10	11	12
	AfricaFDI	USAFDI	UAEFDI	UKFDI	NLFDI	SwitzerlandFDI
Death_Count	-0.0046*	-0.0098***	-0.0093	-0.0045**	-0.0049	-0.0011
	(0.0024)	(0.0028)	(0.0062)	(0.0023)	(0.0039)	(0.0008)
L.ar	0.1985	0.1259	0.3761		0.3528**	-0.0673***
	(0.1220)	(0.1453)	(0.2775)		(0.1618)	(0.0224)
L3.ar				0.0960		
				(0.0896)		
L5.ar						
L.ma	-1.0000***	-0.8631***	-1.0000***	-1.0000***	-1.0000***	-1.0000***
	(0.0000)	(0.1103)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
sigma	22.9414***	27.0091***	66.8204***	37.4783***	36.1752***	21.5358***
	(7.5881)	(7.6061)	(14.9233)	(10.9639)	(13.1146)	(6.2304)
Constant	0.7515*	1.6912**	1.4307	0.9005**	0.8127	0.1958
	(0.4105)	(0.7530)	(1.2559)	(0.3884)	(0.7830)	(0.1641)
Observations	102	126	126	126	126	126

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4-I : ARMAX models for NPFI at aggregate, regional and country level

VARIABLES	ARIMA (1,1,1)	ARIMA (1,1,1)	ARIMA (1,1,1)	ARIMA (1,1,1)	ARIMA (1,1,1)	AR(4) I(1) MA (1)
	1 PFI	2 DevelopedPFI	3 DevelopingPFI	4 AsiaPFI	5 WesterneuropePFI	6 NAPFI
Death_Count	-0.0122 (0.0106)	-0.0194 (0.0165)	0.0012 (0.0040)	-0.0306* (0.0178)	-0.0207*** (0.0059)	-0.0074* (0.0042)
L.ar	-0.1382 (0.2007)	-0.1610 (0.2033)	0.0302 (0.1166)	-0.9419*** (0.1815)	0.1062 (0.1254)	
L2.ar						
L4.ar						0.3391** (0.1323)
L5.ar						
L.ma	-0.8499*** (0.1624)	-0.8140*** (0.1533)	-1.0000 (55.5891)	0.9056*** (0.2626)	-1.0000*** (0.0000)	-1.0000*** (0.0000)
sigma	81.7180*** (14.8708)	81.7876*** (15.6471)	20.9652 (583.0278)	18.8693*** (2.5703)	59.5068*** (13.4186)	45.7641*** (4.9842)
Constant	2.1524 (2.6053)	2.9482 (2.9729)	-0.2269 (0.4494)	5.9594** (2.9158)	3.1606*** (1.0161)	1.1659 (0.7443)
Observations	126	102	102	102	102	102

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4 Contd. ...

Table 4-II : ARMAX models for net portfolio foreign investment (NPFI) at aggregate, regional and country level

VARIABLES	ARIMA (1,1,1)	AR(4) I(1) MA (1)	ARIMA (1,1,1)	AR(5) I(1) MA (1)	AR(2) I(1) MA (1)	ARIMA (1,1,1)
	7 AfricaPFI	8 USAPFI	9 UAE PFI	10 UKPFI	11 SingaporePFI	12 LuxembourgPFI
Death_Count	-0.0002 (0.0001)	-0.0053* (0.0031)	-0.0002 (0.0002)	-0.0044 (0.0034)	-0.0005 (0.0007)	-0.0000 (0.0002)
L.ar	-0.0831* (0.0484)		-0.1498 (0.1347)			0.2821** (0.1311)
L2.ar					-0.1769 (0.2192)	
L4.ar		0.3348** (0.1320)				
L5.ar				-0.1308 (0.0906)		
L.ma	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)
sigma	1.4266*** (0.2660)	41.7046*** (4.5192)	5.2814*** (0.8664)	49.4385*** (18.8811)	10.8069*** (2.3601)	3.5776*** (0.4332)
Constant	0.0221 (0.0175)	0.9239 (0.6539)	0.0166 (0.0490)	0.7246 (0.6810)	0.0793 (0.1326)	0.0240 (0.0345)
Observations	102	126	126	126	126	126

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5 : ARMAX models for remittances at aggregate, regional and country level

	ARIMA (1,1,1) 1	ARIMA (1,1,1) 2	ARIMA (1,1,1) 3	ARIMA (1,1,1) 4	ARIMA (1,1,1) 5	AR(6) I(1) MA (1) 6	ARIMA (1,1,1) 7	ARIMA (1,1,1) 8	AR(8) I(1) MA (1) 9
VARIABLES	Remit	RemitGCC	RemitEurope	RemitNA	RemitUSA	RemitSaudiaArabia	RemitUAE	RemitUK	RemitUK
Death_Count	0.0200* (0.0120)	0.0233*** (0.0020)	0.0072*** (0.0018)	0.0024* (0.0012)	0.0024* (0.0012)	0.0105*** (0.0034)	0.0098*** (0.0013)	0.0065*** (0.0021)	0.0064** (0.0027)
L.ar	0.0817 (0.2363)	0.2785** (0.1358)	0.3172* (0.1894)	0.3511*** (0.1269)	0.3796*** (0.1251)		0.4540*** (0.1300)	0.2408 (0.1954)	
L6.ar						-0.4543*** (0.1148)			
L8.ar									-0.0521 (0.0947)
L.ma	-0.7811*** (0.2622)	-1.0000*** (0.0000)	-0.9203*** (0.0798)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-0.5474*** (0.1048)	-1.0000*** (0.0000)	0.8634*** (0.0542)	-0.7463*** (0.1999)
sigma	55.3775*** (5.0890)	25.4515*** (2.3593)	10.5339*** (1.3125)	14.2975*** (1.2902)	13.4710*** (1.2244)	11.8679*** (1.3468)	13.4588*** (1.2561)	8.6679*** (1.0839)	8.7945*** (1.0323)
Constant	1.0390 (1.7984)	-0.0246 (0.2848)	-0.2222 (0.2195)	0.2573 (0.1881)	0.1616 (0.1885)	0.1284 (0.3735)	-0.2098 (0.1941)	-0.2731 (0.2407)	-0.2412 (0.3066)
Observations	125	117	117	117	117	117	117	117	117

Standard errors in parentheses
 *** p<0.01,
 ** p<0.05, * p<0.1

Table 6 : VARMAX model for aggregate exports

VARIABLES	(1) exports	(2) Death-Count
L.exports	0.4604*** (0.0814)	0.1331** (0.0527)
L2.exports	0.4511*** (0.0854)	0.0320 (0.0553)
L.Death-Count	0.1326 (0.1375)	0.4925*** (0.0891)
L2.Death-Count	-0.1497 (0.1314)	0.1259 (0.0851)
Constant	126.9945* (70.2249)	-147.2250*** (45.4883)
Observations	124	124

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7- I - ARMAX models for NFDI at aggregate, regional and country level - terrorism as major incidents

VARIABLES	ARIMA (1,1,1)	ARIMA (1,1,1)	ARIMA (1,1,1)	ARIMA (1,1,1)	ARIMA (1,1,1)	ARIMA (1,1,1)
	1	2	3	4	5	6
	NFDI	DevelopedFDI	DevelopingFDI	AsiaFDI	WesterneuropeFDI	NAFDI
Major Incidents	-0.4879*** (0.0736)	-0.2497*** (0.0511)	-0.2230*** (0.0620)	-0.1922*** (0.0631)	-0.1387*** (0.0344)	-0.0945*** (0.0206)
L.ar	0.1761 (0.1327)	0.0190 (0.1182)	0.1464 (0.1320)	0.1845 (0.1394)	0.1399 (0.1185)	0.1209 (0.1366)
L.ma	-1.0000*** (0.0000)	-0.8969*** (0.0678)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-0.8752*** (0.1041)
sigma	132.1613*** (17.9224)	66.9415*** (12.5894)	110.8779*** (21.0350)	105.5772*** (20.9637)	56.4498*** (12.8777)	29.6382*** (7.7212)
Constant	6.5775*** (1.1181)	3.0602*** (1.1311)	2.9117*** (0.9378)	2.4027** (0.9539)	1.7874*** (0.4986)	1.0685** (0.4967)
Observations	120	119	119	119	119	119

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 7 Contd. ...

Table 7- II - ARMAX models for NFDI at aggregate, regional and country level - terrorism as major incidents

	ARIMA (1,1,1) 7	ARIMA (1,1,1) 8	ARIMA (1,1,1) 9	ARIMA (1,1,1) 10	ARIMA (1,1,1) 11	ARIMA (1,1,1) 12
VARIABLES	AfricaFDI	USAFDI	UAEFDI	UKFDI	NLFDI	SwitzerlandFDI
Major Incidents	-0.0277** (0.0139)	-0.0946*** (0.0196)	-0.0923 (0.0565)	-0.0460*** (0.0159)	-0.0421 (0.0313)	-0.0161** (0.0079)
L.ar	0.2149* (0.1152)	0.1189 (0.1335)	0.3714 (0.2758)	0.1008 (0.1051)	0.3762** (0.1636)	-0.0643*** (0.0244)
L.ma	-1.0000*** (0.0000)	-0.8800*** (0.0996)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)
sigma	21.3769*** (7.1732)	29.5795*** (7.7136)	68.7160*** (15.1482)	27.3641*** (8.0588)	35.6332** (14.0708)	21.9750*** (6.4430)
Constant	0.3920** (0.1966)	1.0642** (0.4835)	1.0915 (0.8205)	0.6130*** (0.2304)	0.5328 (0.4574)	0.2429** (0.1145)
Observations	119	120	120	120	120	120

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 8- I - ARMAX models for NPFI at aggregate, regional and country level - terrorism as major incidents

VARIABLES	ARIMA (1,1,1)	ARIMA (1,1,1)	AR(2) I(1) MA (1)	ARIMA (1,1,1)	AR(2) I(1) MA (1)	ARIMA (1,1,1)
	1 NPFI	2 DevelopedPFI	3 DevelopingPFI	4 AsiaPFI	5 WesterneuropeFPI	6 NAPFI
Major Incidents	-0.0422 (0.0667)	-0.0506 (0.0709)	0.0049 (0.0096)	-0.0774 (0.1260)	-0.1393*** (0.0306)	-0.0150 (0.0576)
L.ar	-0.1406 (0.1839)	-0.1551 (0.2001)		-0.9690*** (0.2001)		-0.2490 (0.2133)
L2.ar			0.0029 (0.1011)		0.0100 (0.0693)	
L.ma	-0.8374*** (0.1373)	-0.8070*** (0.1491)	-1.0000*** (0.0000)	0.9464*** (0.3006)	-1.0000*** (0.0000)	-0.7429*** (0.1322)
sigma	83.5383*** (15.6195)	76.6066*** (14.7913)	19.5752*** (3.0692)	17.8194*** (2.4655)	56.9400*** (12.7056)	45.2022*** (5.3357)
Constant	0.7137 (1.5663)	0.7887 (1.5901)	-0.0749 (0.1441)	2.2630 (2.0730)	1.7933*** (0.4416)	0.2830 (0.9505)
Observations	120	119	119	120	119	119

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 8 Contd. ...

Table 8- II - ARMAX models for NPFI at aggregate, regional and country level - terrorism as major incidents

	ARIMA (1,1,1)	AR(3) I(1) MA (1)	ARIMA (1,1,1)	ARIMA (1,1,1)	AR(2) I(1) MA (1)	ARIMA (1,1,1)
VARIABLES	7 AfricaPFI	8 USAPFI	9 UAEPFI	10 UKPFI	11 SingaporePFI	12 LuxembourgPFI
Major Incidents	-0.0012* (0.0007)	-0.0154 (0.0474)	-0.0035 (0.0021)	-0.0407 (0.0284)	-0.0060 (0.0052)	-0.0000 (0.0015)
L.ar	-0.0788 (0.0483)		-0.1451 (0.1348)	0.0035 (0.0668)		0.1607* (0.0954)
L2.ar					-0.1793 (0.2147)	
L3.ar		-0.3162* (0.1797)				
L.ma	-1.0000*** (0.0000)	-0.7540*** (0.0973)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)	-1.0000*** (0.0000)
sigma	1.3259*** (0.2504)	43.9032*** (4.6082)	5.4252*** (0.8797)	51.1830*** (19.3451)	11.1333*** (2.4100)	2.7541*** (0.5041)
Constant	0.0111 (0.0087)	0.3117 (0.8609)	0.0394 (0.0310)	0.4736 (0.4284)	0.0713 (0.0780)	0.0201 (0.0150)
Observations	119	120	120	120	120	120

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 9 - ARMAX models for NFDI at aggregate, regional and country level - terrorism as major incidents

	ARIMA (1,1,1) 1	AR(8) I(1) MA (1) 2	ARIMA (1,1,1) 3	ARIMA (1,1,1) 4	ARIMA (1,1,1) 5	AR(6) I(1) MA (1) 6	ARIMA (1,1,1) 7	ARIMA (1,1,1) 8	ARIMA (1,1,1) 9	AR(8) I(1) MA (1) 10
VARIABLES	Remit	RemitGCC	RemitEuro pe	RemitNA	RemitUSA	RemitSaudia Arabia	RemitUAE	RemitUK	RemitKuw ait	RemitUK
Major Incidents	0.1144 (0.1896)	0.1455* (0.0871)	0.0408*** (0.0143)	-0.0460 (0.0587)	-0.0477 (0.0561)	0.0851*** (0.0298)	0.0869*** (0.0119)	0.0355** (0.0143)	0.0024 (0.0026)	0.0214 (0.0361)
L.ar	0.1043 (0.2486)		0.5591*** (0.1594)	0.1372 (0.2689)	0.1632 (0.2743)		0.5588*** (0.0932)	0.5036*** (0.1319)	0.6252*** (0.1237)	
L6.ar						-0.4901*** (0.1323)				
L8.ar		-0.1427* (0.0843)								-0.0560 (0.1059)
L.ma	-0.5850** (0.2517)	-0.5020*** (0.1090)	-0.9335*** (0.1026)	-0.5718*** (0.2145)	-0.5701*** (0.2191)	-0.3933*** (0.0937)	-1.0000*** (0.0000)	-0.8954*** (0.0703)	-1.0000*** (0.0000)	-0.3989** (0.1852)
sigma		23.2566*** (2.1826)	7.5556*** (0.6221)	14.4510*** (1.0933)	13.7810*** (1.0716)	7.8943*** (0.6752)	13.9948*** (1.6932)	5.9554*** (0.5136)	3.2116*** (0.4810)	6.1761*** (0.5220)
Constant	4.7527** (2.3764)	1.9845* (1.1148)	0.3434** (0.1737)	1.7193* (0.9191)	1.6468* (0.9340)	0.5590* (0.3153)	0.2622** (0.1218)	0.2169 (0.1544)	0.1832*** (0.0316)	0.4093 (0.3699)
Observations	126	126	126	126	126	126	126	126	126	126
Standard errors in parentheses										
*** p<0.01, ** p<0.05, * p<0.1										

Table 10 - VAR model for aggregate exports - terrorism as major incidents

VARIABLES	(1) exports	(2) Major_Incidents
L.exportconstant	0.4414*** (0.0818)	0.0021 (0.0031)
L2.exportconstant	0.4767*** (0.0855)	0.0021 (0.0032)
L. Major_Incidents	1.3792 (2.3647)	0.7162*** (0.0883)
L2. Major_Incidents	-0.1721 (2.3514)	0.1690* (0.0878)
Constant	95.6781* (54.3659)	-3.5151* (2.0295)
Observations	125	125

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 11 - ARMAX models for NFDI, NPFI, Remittances at aggregate level (with number of bomb blasts)

VARIABLES	AR(2) I(1) MA (1)	AR(7) I(1) MA (1)	ARIMA(1,1,1)
	1	2	3
	Aggregate NFDI	Aggregate NPFI	Aggregate Remittances
Bomb_Blasts	-0.2131** (0.0905)	-0.0508*** (0.0191)	0.0725 (0.1197)
L.ar			-0.1393 (0.4343)
L2.ar	-0.1545 (0.0949)		
L7.ar		-0.0234 (0.1226)	
L.ma	-0.7940*** (0.0816)	-1.0000*** (0.0000)	-0.4892 (0.4892)
sigma	129.3034*** (16.9467)	75.3987*** (15.1815)	53.7439*** (4.7080)
Constant	7.0979** (3.4559)	1.7578** (0.7622)	3.1754 (3.5388)
Observations	143	143	148

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 12 - ARMAX models at aggregate level -Alternative (including terrorist death count)

VARIABLES	ARIMA (1,1,1)	ARIMA (1,1,1)	ARIMA (1,1,1)
	1 Aggregate NFDI	1 Aggregate NPII	1 Aggregate Remittances
Death Count including Terrorists	-0.0212*** (0.0031)	-0.0007 (0.0032)	0.0083** (0.0033)
L.ar	0.1130 (0.1375)	-0.1447 (0.1750)	0.1217 (0.2891)
L.ma	-1.0000*** (0.0000)	-0.8320*** (0.1254)	-0.8288** (0.3293)
sigma	128.0619*** (16.1294)	82.2366*** (15.1799)	55.1562*** (5.0740)
Constant	8.6730*** (1.5451)	0.2800 (2.0963)	1.4023 (1.1402)
Observations	126	126	125

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13 - ARMAX models at aggregate level including macroeconomic variables

VARIABLES	1	2	3	4
	Aggregate NFDI	Aggregate NPII	Aggregate Remittances	Aggregate Exports
Death Count	-0.0482** (0.0188)	-0.0166 (0.0488)	0.0376** (0.0172)	0.0363 (0.0611)
D.ExRate	-7.3583 (5.6523)	-0.0145 (9.3895)	-1.4939 (4.0430)	-23.8593* (12.2829)
D2.CPI	-5.5131 (10.4479)	-3.2744 (12.6144)	7.2907* (4.2868)	6.4835 (9.8693)
D.moneymarketrate	11.0669 (11.3799)	-1.0271 (6.1192)	-8.2428* (4.6025)	-1.9788 (10.7534)
L.ar	0.0821 (0.1363)	-0.1345 (0.3489)	0.1087 (0.3363)	-0.3284*** (0.1161)
L.ma	-1.0000*** (0.0000)	-0.8598** (0.3549)	-0.6751* (0.3560)	-0.4283*** (0.1108)
sigma	135.1290*** (18.6074)	89.1624*** (16.3898)	41.5046*** (3.1239)	112.9464*** (7.1118)
Constant	9.2590*** (2.6326)	2.7992 (4.6929)	0.4172 (2.4650)	9.5037 (8.4179)
Observations	103	103	103	103

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

List of Appendices

Table A-1: Augmented Dickey Fuller (ADF) and Phillip Peron (PP) tests for FDI , FPI, Remittances and Exports

Time Series	Number of lags as per AIC/SBIC criteria	ADF test statistics (τ)	PP test statistics (τ)	Critical Value (at 5 %)
Total Net Foreign Direct Investment (D1*)	3	-10.06	-21.479	-2.88
Net Foreign Direct Investment from Developed Countries (D1*)	2	-8.789	-21.164	-2.888
Net Foreign Direct Investment from Developing Countries (D1*)	4	-8.107	-22.638	-2.888
Net Foreign Direct Investment from Asia (D1*)	4	-7.536	-21.43	-2.888
Net Foreign Direct Investment from Western Europe (D1*)	2	-8.88	-19.451	-2.888
Net Foreign Direct Investment from North America (D1*)	2	-8.731	-20.388	-2.888
Net Foreign Direct Investment from Africa (D1*)	3	-8.32	-19.234	-2.888
Net Foreign Direct Investment from United States (D1*)	2	-9.785	-22.473	-2.888
Net Foreign Direct Investment from UAE (D1*)	4	-8.754	-17.422	-2.888
Net Foreign Direct Investment from UK (D1*)	3	-9.479	-25.333	-2.888
Net Foreign Direct Investment from Netherlands (D1*)	4	-8.419	-17.421	-2.888
Net Foreign Direct Investment from Switzerland (D1*)	4	-8.841	-30.086	-2.888
Total Net Foreign Portfolio Investment (D1*)	3	-8.552	-34.943	-2.888
Net Foreign Portfolio Investment from Developed Countries	3	-8.616	-31.364	-2.888
Net Foreign Portfolio Investment from Developing Countries	3	-8.616	-25.783	-2.888
Net Foreign Portfolio Investment from Asia (D1*)	3	-8.687	-27.027	-2.888
Net Foreign Portfolio Investment from Western Europe (D1*)	3	-8.201	-26.411	-2.888
Net Foreign Portfolio Investment from North America (D1*)	4	-6.793	-34.724	-2.888
Net Foreign Portfolio Investment from Africa (D1*)	3	-8.501	-25.593	-2.888
Net Foreign Portfolio Investment from United States (D1*)	4	-7.524	-37.995	-2.888
Net Foreign Portfolio Investment from UAE (D1*)	3	-9.717	-32.989	-2.888
Net Foreign Portfolio Investment from UK (D1*)	3	-9.041	-27.891	-2.888
Net Foreign Portfolio Investment from Singapore (D1*)	3	-9.145	-28.102	-2.888
Net Foreign Portfolio Investment from Luxembourg (D1*)	2	-9.465	-19.175	-2.888
Total Remittances (D1*)	2	-8.839	-22.469	-2.888
Remittances from the GCC region (D1*)	1	-10.938	-20.18	-2.888
Remittances from the Europe (D1*)	3	-7.955	-18.773	-2.888
Remittances from the North America (D1*)	2	-8.713	-18.339	-2.888
Remittances from USA (D1*)	2	-8.588	-17.955	-2.888
Remittances from Saudi Arabia (D1*)	1	-9.538	-18.191	-2.888
Remittances from UAE (D1*)	1	-10.563	-17.897	-2.888
Remittances from UK (D1*)	3	-8.008	-18.766	-2.888
Remittances from Kuwait (D1*)	1	-11.591	-19.261	-2.888
Total Exports (D1*)	4	-6.396	-21.526	-2.888

Table A-2: Lags Selection for FDI and FPI ARMAX Models

Time Series	Number of lags for autoregressive term ‘<i>p</i>’	Number of lags for moving average term ‘<i>q</i>’
Total Net Foreign Direct Investment (D1*)	1,2,4,5,8	1,6
Net Foreign Direct Investment from Developed Countries (D1*)	1,2,5	1,3,5,6
Net Foreign Direct Investment from Developing Countries (D1*)	1,2,3,4	1
Net Foreign Direct Investment from Asia (D1*)	1,2,3,4,8,9	1
Net Foreign Direct Investment from Western Europe (D1*)	1,2,5	1
Net Foreign Direct Investment from North America (D1*)	1,2	1,2,3
Net Foreign Direct Investment from Africa (D1*)	1,2,3	1
Net Foreign Direct Investment from United States (D1*)	1,2	1,2,3,6
Net Foreign Direct Investment from UAE (D1*)	1,2,4,5,7,8	1,2
Net Foreign Direct Investment from UK (D1*)	1,2,3,5	1
Net Foreign Direct Investment from Netherlands (D1*)	1,2,4	1,2
Net Foreign Direct Investment from Switzerland (D1*)	1,2,3,4,9,10	1
Total Net Foreign Portfolio Investment (D1*)	1,2,3,7	1,4,5
Net Foreign Portfolio Investment from Developed Countries (D1*)	1,2,3,7	1,4,5, 7
Net Foreign Portfolio Investment from Developing Countries (D1*)	1,2,3,6	1,4
Net Foreign Portfolio Investment from Asia (D1*)	1,2,3,6	1,4
Net Foreign Portfolio Investment from Western Europe (D1*)	1,2,3,5,7	1
Net Foreign Portfolio Investment from North America (D1*)	1,3,4,6	1,2,3,4
Net Foreign Portfolio Investment from Africa (D1*)	1,2,3,5,8	1
Net Foreign Portfolio Investment from United States (D1*)	1,3,4,6	1,2,3,4
Net Foreign Portfolio Investment from UAE (D1*)	1,2,3,6,8	1,9
Net Foreign Portfolio Investment from UK (D1*)	1,2,3,5,7	1,5
Net Foreign Portfolio Investment from Singapore (D1*)	1,2,3	1,2,4,5
Net Foreign Portfolio Investment from Luxembourg (D1*)	1,2,6,7	1
Total Remittances (D1*)	1	1, 12,13
Remittances from the GCC region (D1*)	1,8	1
Remittances from the Europe (D1*)	1,3	1
Remittances from the North America (D1*)	1,2,12	1, 12,13
Remittances from USA (D1*)	1,2,12	1, 12,13
Remittances from Saudi Arabia (D1*)	1,6,8,10	1,6,8
Remittances from UAE (D1*)	1,8	1
Remittances from UK (D1*)	1,3	1
Remittances from Kuwait (D1*)	1,8,9	1,8
Total Exports (D1*)	1,2,3,4,5	1,3,6

Table A – 3 : Augmented Dickey Fuller (ADF) and Phillip Peron (PP) tests for Remittances and Exports

Time Series	ADF test statistics (τ) on Residuals	PP test statistics (τ) on Residuals	Critical Value (at 5 %)
Total Net Foreign Direct Investment	-11.018	-11.017	-2.89
Net Foreign Direct Investment from United States	-11.026	-11.045	-2.89
Net Foreign Direct Investment from UAE	-10.473	-10.464	-2.89
Net Foreign Direct Investment from UK	-10.521	-10.523	-2.89
Net Foreign Direct Investment from Netherlands	-10.448	-10.435	-2.89
Net Foreign Direct Investment from Switzerland	-11.21	-11.257	-2.89
Net Foreign Direct Investment from Developed Countries	-9.433	-9.429	-2.89
Net Foreign Direct Investment from Developing Countries	-8.966	-8.929	-2.89
Net Foreign Direct Investment from Asia	-9.935	-9.949	-2.89
Net Foreign Direct Investment from Western Europe	-9.084	-9.061	-2.89
Net Foreign Direct Investment from European Union	-9.916	-9.916	-2.89
Net Foreign Direct Investment from North America	-9.962	-9.994	-2.89
Net Foreign Direct Investment from Africa	-9.96	-9.962	-2.89

Table A- 4: Granger causality Test on Aggregate models

Model	F-Statistics	Prob > F
Aggregate NFDI	F(4, 113) = 1.49	Prob > F = 0.2097
Aggregate Net Foreign Portfolio Investment	F(4, 113) = 2.35	Prob > F = 0.0887
Aggregate Remittances	F(4, 112) = 1.52	Prob > F = 0.2004
Aggregate Exports	F(4, 113) = 4.58	Prob > F = 0.0018

Table A- 5: List of countries in different regions for FDI and FPI

Developed countries : Luxembourg, Denmark, France, Germany, Netherlands, Sweden, U.K, Norway, Switzerland, Canada, U.S.A, Australia, Japan

Developing countries : Libya, Egypt, Mauritius, South Africa, Oman, Iran, Kuwait, Bahrain, Qatar, Saudi Arabia, Turkey, U.A.E, Bangladesh, China, Hong Kong, Malaysia, Singapore, India, Korea (South), Caribbean Islands, Cayman Island, Bahamas

Asia: Oman, Iran, Kuwait, Bahrain, Qatar, Saudi Arabia, Turkey, U.A.E, Bangladesh, China, Hong Kong, Malaysia, Singapore, India, Korea (South)

Western Europe: Luxembourg, Denmark, France, Germany, Netherlands, Sweden, U.K, Norway, Switzerland

North America: Canada, U.S.A

Africa : Libya, Egypt, Mauritius, South Africa

List of Figures

Figure1: Time series plot for total net foreign direct investment (US \$ million) in Pakistan during 2001 – 2013

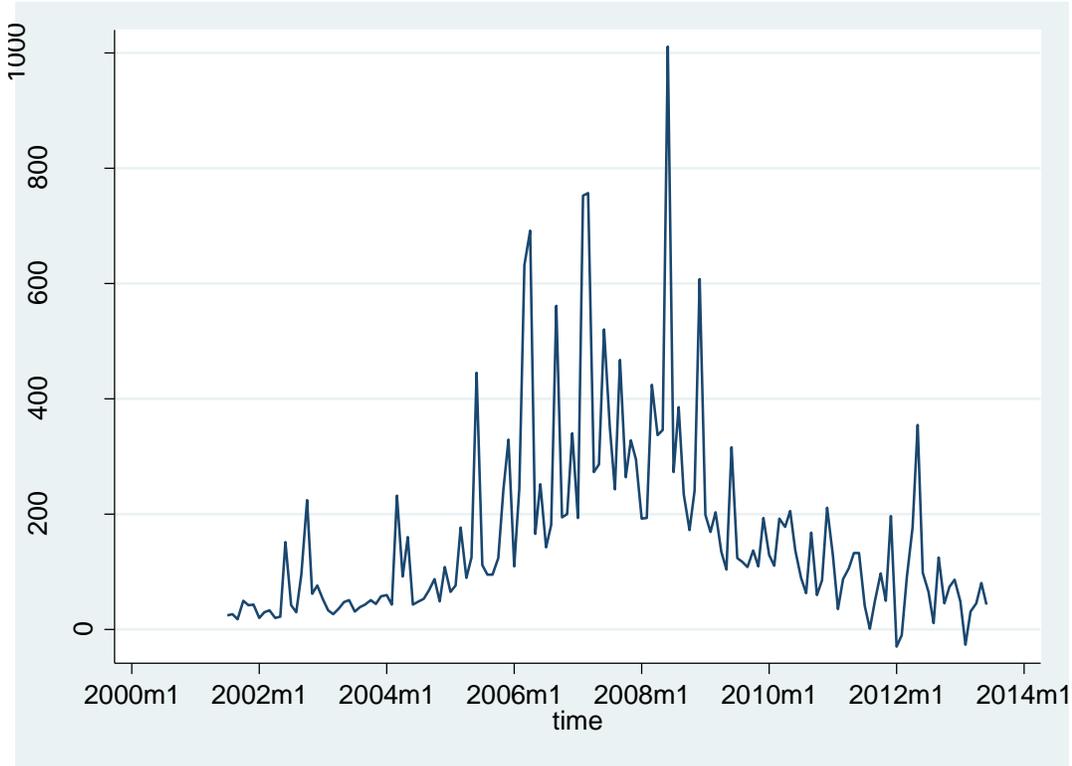


Figure2: Time series plot for total net foreign portfolio investment (US \$ million) in Pakistan during 2001 – 2013

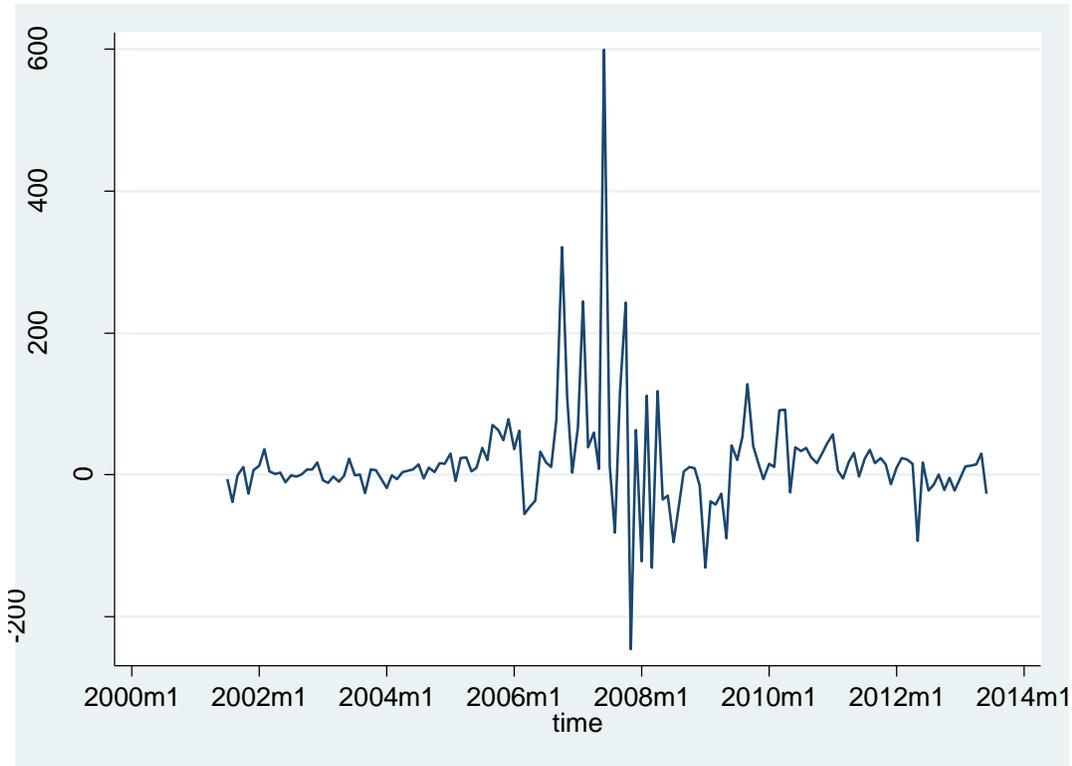


Figure 3: Time series plot for total remittances (US \$ million) in Pakistan during 2001 – 2013

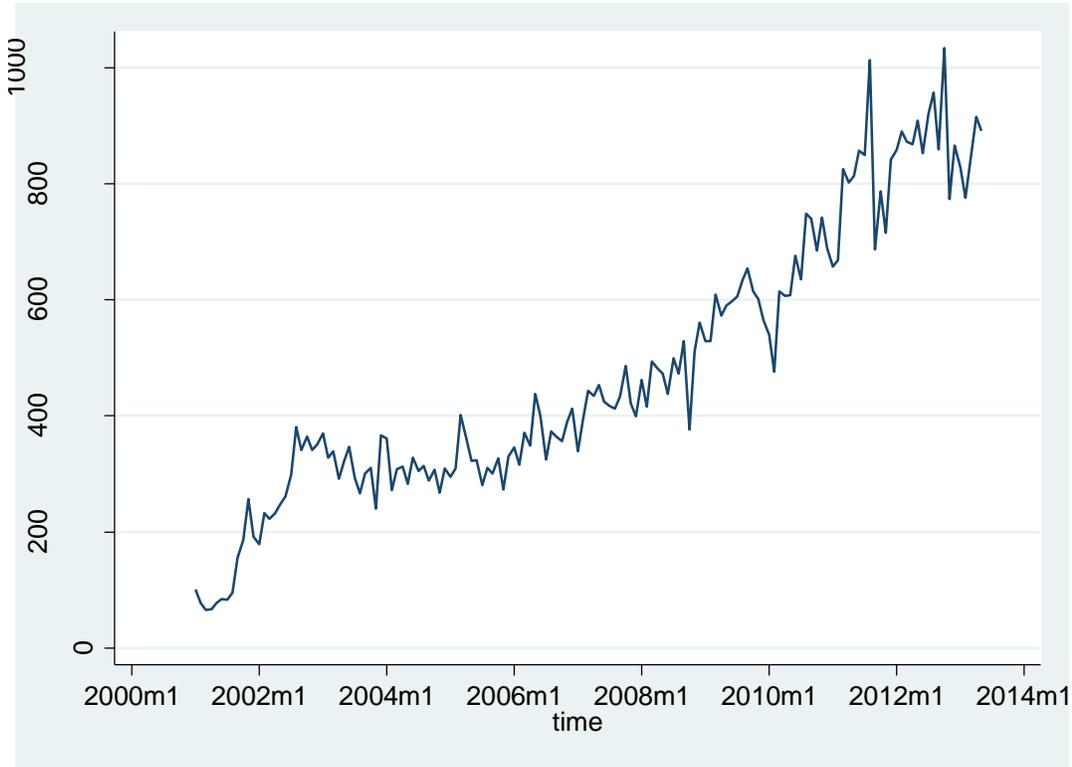


Figure 4: Time series plot for total exports (US \$ million) in Pakistan during 2001 – 2013

