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## Military expenditure, terrorism and capital flight: Insights from Africa

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# A G D I Working Paper

WP/16/018

**Military expenditure, terrorism and capital flight: Insights from Africa**

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**AGDI Working Paper**

Research Department

**Military expenditure, terrorism and capital flight: Insights from Africa****Simplice A. Asongu & Joseph Amankwah-Amoah**

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**Abstract**

In spite of the growing consensus of the need to utilise military expenditure to help combat terrorism, our understanding of the threshold at which military expenditure reduces the effect of terrorism stemming from capital flight remains largely underexplored. We employed a panel data of 37 African countries from 1996-2010 and determined that the thresholds are apparent exclusively in Quantile Regressions with military expenditure thresholds ranging from: 4.224 to 5.612 for domestic terrorism, 5.734 to 7.363 for unclear terrorism and 4.710 to 6.617 for total terrorism. No thresholds are apparent in transnational terrorism related regressions. Depending on the terrorist target, the findings broadly show that a critical mass of between 4.224 and 7.363 of military expenditure as a percentage of GDP is needed to reverse the effects of terrorism stemming from capital flight. Implications for public policy are discussed.

*JEL Classification:* C50; D74; F23; N40; O55.

*Keywords:* Capital flight; military expenditure; terrorism; Africa

## 1. Introduction

Accompanying the growth of the offshore financial economy which emerged in the 1950s is capital flight to tax havens with some resources being diverted to fund terrorism (Christensen, 2011; Asongu, Tchamyu & Tchamyu, 2016). In the last three decades, the issue of capital flight to and from the developing world and the potential effects in fostering terrorism has increasingly garnered attention of policy-makers and academics (Asongu, et al., 2016; GTI, 2014). In the wake of increasing incidences of terrorism, many governments around the globe have directed considerably resources toward combating global terrorism by halting their sources of finance (Czinkota, Knight, Liesch & Steen, 2010). Some governments' counterterrorism efforts are directed towards the use of the military to tackle the problem (Koh, 2007; Czinkota et al., 2010). At the same time, a body of research has suggested that military spending does not necessarily reduce terrorism (Feridun & Shahbaz, 2010).

Notwithstanding the growing stream of research on capital flight (Asongu, 2014) and terrorism (Czinkota et al., 2010), the literature remains unclear about the thresholds at which military expenditure can reduce the effect of terrorism stemming from capital flight. Against this backdrop, our main purpose is to assess thresholds at which military expenditure reduces the effects of terrorism stemming from capital flight. In essence, we assess military spending thresholds at which capital flight for terrorism can be mitigated by military spending. The notion of threshold is in accordance with the critical mass theory or minimum requirement in a policy variable before positive or negative effects on an outcome variable can be established (Batuo, 2015). Hence, the notion of threshold is consistent with conditions for Kuznets and U shapes (Ashraf & Galor, 2013).

We focus on Africa to shed light on the subject. First of all, Africa is major the source of substantial capital flight which has escalated over the past few decades (Asongu, 2014). For instance, thirty-three countries in Sub-Saharan Africa (SSA) lost a total of 814 billion US Dollars (in constant of 2010 US Dollars) between 1970 and 2010 (Boyce & Ndikumana, 2012a). Indeed, the amount lost to capital flight is higher than foreign direct investment and official development assistance of respectively 306 and 659 billion US Dollars received by these countries in SSA during the same period. It has been suggested that a fundamental impediment to the development in Africa is the shortage of financing (see Boyce & Ndikumana, 2012a). Lack of finance has hindered public investment required to alleviate extreme poverty and enhance social service delivery. Indeed, a recent World Bank report on achievement of the Millennium Development Goals (MDGs) revealed that extreme poverty has been decreasing in all regions of the world with the exception of Africa (World Bank, 2015).

Second, whereas terrorism is not a particularly new phenomenon in Africa, the trend at which it is increasing represents a growing policy concern (see Alfa-Wali et al., 2015). For instance, a recent report on the Global Terrorism Index (GTI, 2014) has shown that compared to the Islamic State of Iraq and Levant (ISIL) which was responsible for 6, 073 deaths, the Boko Haram of Nigeria accounted for about 6,644 deaths. Other notable terrorist movements on the continent include: Ansar Al-Shariya in Tunisia; Ansar Dine, led by Iyad Ag Ghaly who was a former close ally of Gaddafi; Al-Qaeda in the Islamic Maghreb; Al-Shabaab of Somalia and the Al-Qaeda-affiliated Mulathameen Brigade that is headed by Mokhtar Belmokhtar. Notable recent examples of terrorism include: (i) the 2013 Westgate shopping mall and 2015 Garissa University attacks by the Somali Al-Shabaab in Kenya; (ii) the 2015 Bardo National Museum and Sousse attacks in Tunisia; (iii) November 2015 Sinai Russian plane crash and Radison Blu Hotel attacks respectively in Egypt and Mali and (iv) Boko Haram of Nigeria extending its sphere of terrorism to neighbouring countries like Chad, Cameroon and Niger (Efobi & Asongu, 2016).

Our study offers several contributions to research on capital flight and terrorism. First, the existing literature is conflicting on the effects of military spending in dampening terrorism. Indeed, there is no consensus in theoretical and empirical literature on whether military expenditure has a positive or negative effect on terrorism (see Feridum and Shahbaz, 2010). We integrate insights from the literatures on terrorism and capital flight to fill this gap in our understanding by determining the thresholds at which military expenditure reduces the effects of terrorism stemming from capital flight. Second, although a substantial body of empirical literature has focused on the relationship between violence and capital flight (see Nyatepe-Coo, 1994; Hermes & Lensink, 2001; Lensink et al., 2000; Fielding, 2004; Le & Zak, 2006), the dimension of terrorism has remain underexplored. While much focus in the literature is on the Middle East and pockets of terrorism incidents in Europe, the African continent is receiving less scholarly attention, despite growing Islamic fundamentalism and radicalisation (see Fazel, 2013; Clavarino, 2014).

The rest of the study is structured as follows. In Section 2, the theoretical underpinnings and related literature are examined. Section 3 examines the data and methodology. The results are presented and discussed in Section 4. Section 5 outlines implications and future research directions.

## **2. Intuition, theoretical underpinnings and related literature**

### **2.1 Linkage between terrorism and capital flight**

By terrorism, we are referring to “the premeditated, systematic threat or use of violence by subnational groups to attain a political, religious, or ideological objective through intimidation of a large audience” (Czinkota et al., 2010, p. 828). Terrorism is very likely to be connected to the flight of capital because it produces an uncertain economic outlook which discourages investors from investing within an economy. This intuition is consistent with the evidence that investors prefer investing in economic environments that are stable (see Le Roux & Kelsey, 2016; Kelsey & Le Roux, 2016). Accordingly, terrorism inflicts substantial economic damages that affect investors’ concerns about asset valuation as well as loss of confidence owing to poor economic outlook. Therefore, assets and money could quickly flow-out of a country in the face of terrorism. Indeed, some studies have indicated a link between terrorism and decline in international investment (Blomberg & Hess, 2006).

Political access theories (see Eyerman, 1998) argue that terrorism is connected with more political instability compared to political stability. Along this line of research, the link between capital flight and terrorism can be understood from how violence affects the movement of capital from a country. Therefore, the capital stock in countries is likely to reduce in situations of political instability because conflicts are highly linked with uncertainty in the future return of investments. Ultimately, domestic investors are obliged to divert their capital abroad in order to secure certain returns (Davies, 2010). It is important to note that the theoretical emphasis on political instability is linked to the definition of terrorism used in this study: the threatened use of force by sub-national actors with the aim of employing intimidation to secure political goals (see Enders & Sandler, 2006; Czinkota et al., 2010). The relationship between investments and terrorism is further apparent in the perspective that terrorism is distinct from other forms of violence because it targets for the most part, non-combatant individuals (see Bandyopadhyay et al., 2014), in order to increase pressure on targeted governments. The theoretical construct is also consistent with the definition of capital flight in this study: the outflow of economic resources from countries in order to maintain the economic value of such resources (see Asongu, 2014; Ndikumana et al., 2015).

The empirical literature on the determinants of capital flight has documented the following features as likely causes of the outward flow of capital from a country: risks and returns on investment (e.g. domestic tax rate, financial instability and currency depreciation); economic structural features (e.g. dependence on natural resources); governance and political characteristics. The political environment has been identified as an important factor in capital flight because it is connected with the damage or loss of assets as well as increase in

investment-related insurance premiums (Collier et al., 2004; Davies, 2008; Ndikumana et al., 2015). Such factors when combined with terrorism are very likely to prompt investors to transfer their capital to countries with lower investment risks.

## **2.2 Linkage between military expenditure and terrorism**

Two principal theoretical views have been documented on the links between military expenditure and terrorism (Feridun & Shahbaz, 2010). On the one hand, terrorism increases military expenditure because more funds are likely to be allocated for defense purposes in view of curbing present and potential terrorists' threats. Therefore, when military expenditure is the outcome indicator, a positive nexus is expected. On the other hand, a boost in military spending is expected to decrease terrorism. Hence, from a theoretical perspective, when terrorism is the dependent variable, its relationship with military spending is anticipated to be negative. This theoretical view fits the context of the present inquiry because we are using military expenditure as a policy variable in the fight against terrorism.

In essence, we are investigating the role of military spending in dampening the effects of capital flight for terrorism purposes. Nevertheless, the nexus between terrorism and military spending remains an open debate partly because some studies have established that military spending does not necessarily reduce terrorism (Feridun & Shahbaz, 2010, p.195). Accordingly, counterterrorism efforts may be counterproductive because instead of preventing terrorism, they could increase it (see Sandler, 2005). Furthermore, lack of common and comprehensive long-run policies on counterterrorism at the international level has increased the ineffectiveness of country-specific counterterrorism policies (Omand, 2005). This narrative is broadly consistent with the evidence that anti-terror policies by the United States have further fuelled terrorism (see Lum et al., 2006).

## **3. Data and Methodology**

### **3.1 Data**

We examine a panel data of 37 African countries for the period 1996-2010 from four sources: (i) African Development Indicators of the World Bank, (ii) the Global Terrorism Database; (iii) terrorism incidents from Enders et al. (2011) and Gailbulloev et al. (2012) and (iv) capital flight from Boyce and Ndikumana (2012a). The choice of this period is motivated partly by data availability constraints. For instance, it ends in 2010 because data on capital flight is only available up to this year. Both annual data and non-overlapping intervals are used to ensure that the behaviour of data is consistent with adopted empirical strategies. While annual data is used in Ordinary Least Squares (OLS), Fixed Effects and Quantile

Regressions, three year non-overlapping intervals are used in the Generalised Methods of Moment (GMM). In the GMM, data averages are needed to limit over-identification or instrument proliferation. Hence, given the sample period, we have five three-year non-overlapping intervals: 1996-1998; 1999-2001; 2002-2004; 2005-2007 and 2008-2010.

The capital flight dependent variable from Boyce and Ndikumana (2012a) represents unrecorded capital flows between one country and the rest of the world, whose measurement starts from inflows of foreign exchanges that are accounted for in a country's Balance of Payments, in which missing money (the difference between recorded inflows and recorded outflows) is presented as 'net errors and omissions'. This conception and definition is increasingly being employed in the capital flight literature (Weeks, 2015; Efobi & Asongu, 2016). The main drawback in the capital flight measurement is that it is not comparable with other variables since it is given in constant 2010 US Dollar terms. Consistent with Asongu (2014), we address the problem by first converting current GDP to constant 2010 terms; then dividing the corresponding value by 1 000 000 to obtain a 'GDP constant of 2010 USD (in millions) and finally dividing the capital flight data by the 'GDP constant of 2010 USD (in millions). Ultimately we have a transformed capital measurement that is comparable with other variables (see Appendix 1).

Four main indicators of terrorism are used, namely: domestic, transnational, unclear and total terrorism. Terrorism-specific definitions are from Efobi et al. (2015). Domestic terrorism "includes all incidences of terrorist activities that involves the nationals of the venue country: implying that the perpetrators, the victims, the targets and supporters are all from the venue country" (Efobi et al., 2015, p.6; see also Sönmez, 1998; Czinkota et al., 2010). Transnational terrorism is "terrorism including those acts of terrorism that concerns at least two countries. This implies that the perpetrator, supporters and incidence may be from/in one country, but the victim and target is from another" (Efobi et al., 2015, p.6). Unclear terrorism is that, "*which constitutes incidences of terrorism that can neither be defined as domestic nor transnational terrorism*" (Efobi et al., 2015,p.6). Total terrorism is the sum of domestic, transnational and unclear terrorisms.

The terrorism variables represent the registered number of yearly terrorism incidents in a country. In order to limit mathematical concerns associated with log-transforming zeros on the one hand and correct for the positive skew in the data on the other hand, the study takes natural logarithms of terrorism incidents by adding one to the base. This transformation approach has been recently used by Choi and Salehyan (2013) and Bandyopadhyay et al. (2014).



The military expenditure policy variable is consistent with Feridun and Shahbaz (2010) while the control variables include five non-dummy (lagged dependent variable, trade openness, GDP growth, inflation and foreign direct investment) and two-dummy variables (non-oil exporting and politically-stable countries). These control variables have been substantially documented in the literature on capital flight (Boyce & Ndikumana, 1998, 2001, 2003, 2008, 2011, 2012ab; Weeks, 2012; Asongu, 2013, 2015). First, because of the capital flight trap, lagged values of capital flight are expected to increase future capital flight. Second, economic growth could either decrease or increase capital flight contingent on whether the underlying growth is broad-based or concentrated in selected sectors of the economy (e.g. heavy resource industries). On the one hand, when a few extractive industries drive growth, such growth is very likely to be linked with capital flight. On the other hand, broad-based economic growth could reduce capital flight because it translates into a positive outlook for investment.

Third, chaotic inflation induces capital flight for the most part because it is connected with uncertainty in the return to investment and a negative economic outlook. This intuition is consistent with documented evidence that investors are more comfortable with strategies of investment that are less ambiguous (Le Roux & Kelsey, 2016; Kelsey & Le Roux, 2016). Fourth, the expected signs from trade and foreign direct investment cannot be established a priori because they depend on whether they are broad-based or limited to a few sectors of the economy. This narrative underlying this perspective is consistent the discourse on economic growth. Accordingly, trade and financial globalisation may be associated with capital flight because they provide opportunities of accounting practices like transfer mispricing (Ndikumana & Boyce 2011ab; Asongu, 2015).

Politically unstable countries should naturally be associated with more capital flight whereas non-oil exporting countries should be associated with less capital flight. The intuition for this narrative that builds on Ndikumana and Boyce (2012a) and Weeks (2012) is consistent with the narratives on non-dummy variables above. Detailed criteria for oil-exporting and politically-stable countries are found in Asongu (2014). Oil-exporting countries are those for which exports are oil-dominated for at least half of the sampled periodicity, whereas political instability is based on civil wars, conflicts and substantial political strife during a considerable portion of the periodicity. The definitions and sources of the variables and corresponding summary statistics are provided in Appendix 1 whereas the correlation matrix is disclosed in Appendix 2.

## 3.2 Methodology

Four main estimation approaches are adopted in order to control for various factors. We begin with baseline contemporary and non-contemporary OLS, contemporary and non-contemporary Fixed effects (FE) regressions to account for the unobserved heterogeneity, the Generalised Method of Moments (GMM) to account for the capital flight trap and Quantile Regressions (QR) to account for initial levels of capital flight. The OLS specifications are Heteroscedasticity and Autocorrelation Consistent (HAC) in terms of standard errors, a Hausman test is employed to justify the FE regressions whereas the GMM approach is justified by persistence in capital flight as well as the need to also control for time-invariant omitted variables. The use of non-contemporary regressions in order to have some bite on endogeneity is consistent with Mlachila et al. (2014, p.21).

### 3.2.1 Ordinary Least Squares and Fixed Effects regressions

The panel FE model is presented as follows:

$$Cap_{i,t} = \partial_0 + \partial_1 T_{i,t} + \partial_2 M_{i,t} + \partial_3 MT_{i,t} + \sum_{h=1}^4 \omega_h W_{h,i,t} + \eta_i + \varepsilon_{i,t} \quad (1)$$

Where:  $Cap_{i,t}$  is the capital flight indicator of country  $i$  at period  $t$ ;  $\partial$  is a constant;  $T$ , terrorism (domestic, transnational, unclear and total terrorism);  $M$ , military expenditure;  $MT$ , interaction between military expenditure (M) and terrorism (T);  $W$  is the vector of control variables (Trade, GDP growth, Inflation and Foreign Investment,);  $\eta_i$  is the country-specific effects (which include politically-stable and Non-Oil exporting countries) and  $\varepsilon_{i,t}$  the error term. The corresponding OLS specification is without country-specific effects.

Given that the objective of the study is to assess military expenditure thresholds at which the negative effect of capital flight for terrorism can be mitigated, it is important to briefly engage some pitfalls that are linked with interactive regressions. As documented by Brambor et al. (2006), all constitutive terms should enter into the regressions and the estimates corresponding to the interactive terms are considered as conditional or marginal effects. In addition, for the computed thresholds to make economic sense, they should be within the range (from minimum to maximum) provided by summary statistics. Batuo (2015) has recently employed interactive regressions within the framework of the critical mass or threshold theory.

### 3.2.2 Generalised Method of Moments: specification, identification and exclusion restriction

At least five reasons motivate the choice this estimation technique, the first-two are requirements for the technique whereas the last-three are associated advantages. First, the technique enables control for the capital flight trap since the criterion for the persistence of capital flight met. Accordingly, the correlation between capital flight and its first lag is 0.867 which is above the 0.800 criterion used to ascertain persistence in dependent variables. Second, the N (or 37)>T(or 5) criterion for the employment of the GMM technique is also met because the number of cross sections is higher than the number of time series in each cross section. Third, the technique accounts for endogeneity in all regressors by using instrumental values of regressors and controlling for time invariant omitted variables. Fourth, the system GMM estimator controls for small biases in the difference GMM estimator. Fifth, cross-country variations are considered in the specifications.

While the *system* GMM estimator by Blundell and Bond (1998) and Arellano and Bond (1995) has been documented (see Bond et al., 2001, pp. 3-4) to have better properties than the *difference* estimator (Arellano & Bond, 1991), this study adopts an approach that uses forward orthogonal deviations. This is a Roodman (2009ab) extension of Arellano and Bover (1995) that employs forward orthogonal deviations instead of differences that has been documented to restrict over-identification and limit instrument proliferation (see Baltagi, 2008; Love & Zicchino, 2006). A *two-step* specification is adopted instead of a *one-step* approach because it control for heteroscedasticity.

The following equations in levels (2) and first difference (3) summarize the standard system GMM estimation procedure.

$$Cap_{i,t} = \sigma_0 + \sigma_1 Cap_{i,t-\tau} + \sigma_2 T_{i,t} + \sigma_3 M_{i,t} + \sigma_4 MT_{i,t} + \sum_{h=1}^4 \delta_h W_{h,i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \quad (2)$$

$$Cap_{i,t} - Cap_{i,t-\tau} = \sigma_0 + \sigma_1 (Cap_{i,t-\tau} - Cap_{i,t-2\tau}) + \sigma_2 (T_{i,t} - T_{i,t-\tau}) + \sigma_3 (M_{i,t} - M_{i,t-\tau}) + \sigma_4 (MT_{i,t} - MT_{i,t-\tau}) + \sum_{h=1}^4 \delta_h (W_{h,i,t-\tau} - W_{h,i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + \varepsilon_{i,t-\tau} \quad (3)$$

Where:  $\tau$  represents the coefficient of autoregression and  $\xi_t$  is the time-specific constant.

We devote space to discussing identification and exclusion restrictions. In accordance with recent literature, all independent variables are considered as predetermined or suspected endogenous whereas only years are considered as strictly exogenous (Dewan & Ramaprasad, 2014; Asongu & Nwachukwu, 2016a), essentially because it is not apparent for *years* to become endogenous in first-difference (see Roodman, 2009b). Therefore the technique for

treating *ivstyle* (years) is ‘iv(years, eq(diff))’ whereas the *gmmstyle* is adopted for predetermined variables.

In the light of the above, strictly exogenous instruments or years affect capital flight exclusively through the predetermined or endogenous explaining variables. Furthermore, the statistical relevance of the exclusion restriction is examined with the Difference in Hansen Test (DHT) for instrument exogeneity. Accordingly, the null hypothesis of this test should not be rejected in order for the instruments to elucidate capital flight exclusively via the endogenous indicators. In essence, whereas in the standard instrumental variable (IV) approach, a rejection of the null hypothesis of the Sargan Overidentifying Restrictions (OIR) test is an indication that the instruments explain the dependent variable beyond the predetermined variables (see Beck et al., 2003; Asongu & Nwachukwu, 2016b), in the GMM approach that employs forward orthogonal deviations, the information criterion used to examine whether years exhibit strict exogeneity is the DHT. Hence, in the results that would be reported, the exclusion restriction is confirmed if the alternative hypothesis of the DHT corresponding to IV (year, eq(diff)) is rejected.

### 3.2.3 Quantile Regressions (QR)

In order to control for the initial levels of capital flight, the study employs QR which has been documented in the literature on conditional determinants to assess effects on the outcome variable throughout the conditional distributions of the dependent variable (Koenker & Bassett, 1978; Keonker & Hallock, 2001; Billger & Goel, 2009; Okada & Samreth, 2012). Accordingly, the QR approach consists of assessing the investigated relationships with particular emphasis on countries with low, intermediate and high levels of capital flight.

Whereas mean effects provided by OLS, FE and GMM regressions are relevant, this approach complements the first-three approaches by emphasising existing levels of capital flight. Furthermore, whereas OLS is based on the hypothesis of normally distributed errors terms, QR is not based on such an assumption of error terms that are normally distributed.

The  $\theta^{\text{th}}$  quintile estimator of capital flight is obtained by solving for the following optimization problem, which is presented without subscripts for simplicity in Eq. (4)

$$\min_{\beta \in R^k} \left[ \sum_{i \in \{i: y_i \geq x_i' \beta\}} \theta |y_i - x_i' \beta| + \sum_{i \in \{i: y_i < x_i' \beta\}} (1 - \theta) |y_i - x_i' \beta| \right] \quad (4)$$

Where  $\theta \in (0,1)$ . As opposed to OLS which is fundamentally based on minimizing the sum of squared residuals, with QR, the weighted sum of absolute deviations are minimised. For example, the 25<sup>th</sup> or 75<sup>th</sup> quintiles (with  $\theta=0.25$  or  $0.75$  respectively) are assessed by

approximately weighing the residuals. The conditional quintile of capital flight or  $y_i$  given  $x_i$  is:

$$Q_y(\theta / x_i) = x_i' \beta_\theta \quad (5)$$

Where unique slope parameters are modelled for each  $\theta^{\text{th}}$  specific quintile. This formulation is analogous to  $E(y / x) = x_i' \beta$  in the OLS slope where parameters are investigated only at the mean of the conditional distribution of capital flight. For the model in Eq. (4), the dependent variable  $y_i$  is a capital flight indicator whereas  $x_i$  contains a constant term, *Trade*, *GDP growth*, *Inflation*, *Foreign Investment*, *Politically-stable* and *Non-Oil exporting* countries.

## 4. Empirical results

### 4.1 Baseline regressions and accounting for the unobserved heterogeneity

Table 1 presents OLS and FE results. Whereas Panel A discloses OLS findings, Panel B reveals findings on FE. For either panel, the left-hand-side (right-hand-side) provides contemporary (non-contemporary) regressions. The FE specifications are justified by the overwhelming rejection of the null hypotheses of the Hausman test. First, the following findings can be established from Panel A. All terrorism variables unconditionally and consistently increase capital flight while the corresponding conditional or marginal effects from interactive coefficients are not consistently significant. Second, in Panel B, the unconditional effects of terrorism are not consistently significant whereas the conditional impacts are consistently positive for the interactions of military expenditure with transnational and total terrorism. Third, for either panel, thresholds cannot be computed because either unconditional effects, conditional impacts or both are not significant in every specification. Fourth, most of the control variables are significant with expected signs.

**Table 1: Contemporary and Non-contemporary OLS and Fixed-effects**

Dependent variable: Capital Flight

Panel A: Baseline Contemporary and Non-contemporary effects (HAC SE OLS)

	Contemporary effects					Non-Contemporary effects			
Constant	<b>10.235***</b> (0.000)	<b>10.366***</b> (0.000)	<b>10.386***</b> (0.000)	<b>10.187***</b> (0.000)	Constant	<b>10.215***</b> (0.000)	<b>10.347***</b> (0.000)	<b>10.341***</b> (0.000)	<b>10.164***</b> (0.000)
Domestic Terrorism (D.T)	<b>0.288***</b> (0.007)	---	---	---	Domestic Terrorism (D.T)(-1)	<b>0.284**</b> (0.012)	---	---	---
Transnational Terrorism (Tr.T)	---	<b>0.176**</b> (0.037)	---	---	Transnational Terrorism (Tr.T)(-1)	---	<b>0.169**</b> (0.048)	---	---
Unclear Terrorism (U.T)	---	---	<b>0.261*</b> (0.077)	---	Unclear Terrorism (U.T)(-1)	---	---	<b>0.286*</b> (0.051)	---
Total Terrorism (T. T)	---	---	---	<b>0.212**</b> (0.012)	Total Terrorism (T. T)(-1)	---	---	---	<b>0.210**</b> (0.015)
Military Expenditure(M.E)	0.030 (0.343)	-0.026 (0.416)	-0.008 (0.758)	0.007 (0.833)	Military Expenditure (M.E)(-1)	0.026 (0.403)	-0.025 (0.429)	-0.006 (0.806)	0.005 (0.883)
D.T*ME	-0.056 (0.117)	---	---	---	D.T*ME(-1)	-0.053 (0.150)	---	---	---
Tr.T*ME	---	0.017 (0.517)	---	---	Tr.T*ME(-1)	---	0.018 (0.499)	---	---
U.T*ME	---	---	-0.009 (0.845)	---	U.T*ME(-1)	---	---	-0.012 (0.777)	---
T.T*ME	---	---	---	-0.024 (0.414)	T.T*ME(-1)	---	---	---	-0.023 (0.443)
Trade	<b>-0.002***</b> (0.004)	<b>-0.002***</b> (0.002)	<b>-0.002***</b> (0.003)	<b>-0.002**</b> (0.011)	Trade(-1)	<b>-0.002***</b> (0.008)	<b>-0.002***</b> (0.004)	<b>-0.002***</b> (0.005)	<b>-0.002**</b> (0.019)
GDP growth	0.006 (0.359)	0.008 (0.273)	0.009 (0.199)	0.008 (0.260)	GDP growth(-1)	0.006 (0.376)	0.009 (0.305)	0.008 (0.232)	0.008 (0.280)
Inflation	<b>0.0007***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	Inflation(-1)	<b>0.0007***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)
Foreign Investment	-0.006 (0.349)	<b>-0.009*</b> (0.082)	-0.008 (0.156)	-0.006 (0.296)	Foreign Investment(-1)	-0.005 (0.419)	-0.008 (0.131)	-0.006 (0.266)	-0.005 (0.376)
Nonconflicts	<b>0.162*</b> (0.073)	<b>0.178*</b> (0.055)	0.128 (0.152)	<b>0.182**</b> (0.046)	Nonconflicts	<b>0.156*</b> (0.094)	<b>0.177*</b> (0.063)	0.132 (0.150)	<b>0.179*</b> (0.156)
NonOil	<b>-0.316***</b> (0.001)	<b>-0.325***</b> (0.000)	<b>-0.331***</b> (0.001)	<b>-0.292***</b> (0.002)	NonOil	<b>-0.316***</b> (0.001)	<b>-0.330***</b> (0.001)	<b>-0.324***</b> (0.001)	<b>-0.292***</b> (0.003)
Net Effect of M.E	n.a	n.a	n.a	n.a	Net Effect of M.E	n.a	n.a	n.a	n.a
Adjusted R <sup>2</sup>	0.156	0.144	0.140	0.160	Adjusted R <sup>2</sup>	0.153	0.142	0.142	0.158
Fisher	<b>9.27***</b>	<b>10.04***</b>	<b>10.09***</b>	<b>10.19***</b>	Fisher	<b>8.48***</b>	<b>9.17***</b>	<b>9.64***</b>	<b>9.45***</b>
Observations	405	405	405	405	Observations	385	385	385	385

Panel B: Contemporary and Non-contemporary effects (HAC SE Panel Fixed-Effects)

	Contemporary effects					Non-Contemporary effects			
Constant	<b>9.800***</b>	<b>9.962***</b>	<b>9.827***</b>	<b>9.903***</b>	Constant	<b>9.738***</b>	<b>9.897***</b>	<b>9.749***</b>	<b>9.833***</b>

Domestic Terrorism (D.T)	<b>(0.000)</b> 0.014 (0.777)	<b>(0.000)</b> ---	<b>(0.000)</b> ---	<b>(0.000)</b> ---	Domestic Terrorism (D.T)(-1)	<b>(0.000)</b> 0.014 (0.788)	<b>(0.000)</b> ---	<b>(0.000)</b> ---	<b>(0.000)</b> ---
Transnational Terrorism (Tr.T)	---	-0.022 (0.702)	---	---	Transnational Terrorism (Tr.T)(-1)	---	-0.019 (0.753)	---	---
Unclear Terrorism (U.T)	---	---	0.014 (0.853)	---	Unclear Terrorism (U.T) (-1)	---	---	0.043 (0.583)	---
Total Terrorism (T. T)	---	---	---	-0.028 (0.518)	Total Terrorism (T. T)(-1)	---	---	---	-0.022 (0.628)
Military Expenditure (M.E)	<b>-0.056**</b> <b>(0.025)</b>	<b>-0.119***</b> <b>(0.000)</b>	<b>-0.081***</b> <b>(0.000)</b>	<b>-0.106***</b> <b>(0.000)</b>	Military Expenditure (M.E)(-1)	<b>-0.053**</b> <b>(0.042)</b>	<b>-0.112***</b> <b>(0.000)</b>	<b>-0.074***</b> <b>(0.002)</b>	<b>-0.100***</b> <b>(0.00)</b>
D.T*ME	-0.0001 (0.994)	---	---	---	D.T*ME(-1)	0.0006 (0.968)	---	---	---
Tr.T*ME	---	<b>0.045***</b> <b>(0.008)</b>	---	---	Tr.T*ME(-1)	---	<b>0.042**</b> <b>(0.016)</b>	---	---
U.T*ME	---	---	0.030 (0.130)	---	U.T*ME(-1)	---	---	0.024 (0.231)	---
T.T*ME	---	---	---	<b>0.026**</b> <b>(0.043)</b>	T.T*ME(-1)	---	---	---	<b>0.025*</b> <b>(0.066)</b>
Trade	<b>0.004***</b> <b>(0.003)</b>	<b>0.003**</b> <b>(0.010)</b>	<b>0.004***</b> <b>(0.002)</b>	<b>0.004***</b> <b>(0.005)</b>	Trade(-1)	<b>0.005***</b> <b>(0.001)</b>	<b>0.004***</b> <b>(0.005)</b>	<b>0.005***</b> <b>(0.001)</b>	<b>0.004***</b> <b>(0.002)</b>
GDP growth	0.001 (0.707)	0.002 (0.641)	0.002 (0.595)	0.002 (0.610)	GDP growth(-1)	0.001 (0.782)	0.001 (0.722)	0.002 (0.650)	0.002 (0.673)
Inflation	<b>0.0004***</b> <b>(0.000)</b>	<b>0.0003***</b> <b>(0.000)</b>	<b>0.0003***</b> <b>(0.000)</b>	<b>0.0004***</b> <b>(0.000)</b>	Inflation (-1)	<b>0.0004***</b> <b>(0.000)</b>	<b>0.0004***</b> <b>(0.000)</b>	<b>0.0003***</b> <b>(0.000)</b>	<b>0.0004***</b> <b>(0.000)</b>
Foreign Investment	<b>0.007*</b> <b>(0.059)</b>	0.006 (0.109)	0.006 (0.110)	0.006 (0.138)	Foreign Investment(-1)	<b>0.007*</b> <b>(0.083)</b>	0.006 (0.146)	0.006 (0.127)	0.005 (0.171)
Net Effect of M.E	n.a	n.a	n.a	n.a	Net Effect of M.E	n.a	n.a	n.a	n.a
Hausman	<b>34.24***</b>	<b>24.83***</b>	<b>34.85***</b>	<b>31.79***</b>	Hausman	<b>33.78***</b>	<b>24.42***</b>	<b>34.10***</b>	<b>31.52***</b>
Within R <sup>2</sup>	0.117	0.146	0.138	0.132	Within R <sup>2</sup>	0.120	0.146	0.142	0.135
Fisher	<b>6.93***</b>	<b>8.95***</b>	<b>8.32***</b>	<b>7.95***</b>	Fisher	<b>6.75***</b>	<b>8.45***</b>	<b>8.17***</b>	<b>7.69***</b>
Countries	34	34	34	34	Countries	34	34	34	34
Observations	405	405	405	405	Observations	385	385	385	385

\*\*\*, \*\*, \*: significance levels at 1%, 5% and 10% respectively. HAC SE: Heteroscedasticity & Autocorrelation Consistent Standard Errors. OLS: Ordinary Least Squares. n.a: not applicable because at least one estimated coefficient required for the computation of the military expenditure threshold is not significant. Nonconflicts: Politically stable countries. Nonoil: Non-oil exporting countries.

## 4.2 Generalised Method of Moments and accounting for the capital flight trap

Table 2 provides GMM findings in order to control for the capital flight trap. Four principal information criteria are employed to assess the validity of the GMM model with forward orthogonal deviations<sup>1</sup>. The following findings can be established. First, with the exception of unclear terrorism related regressions that respectively display negative and positive unconditional and conditional effects, and some scanty evidence of positive conditional impacts associated with transnational terrorism and total terrorism, military expenditure thresholds cannot be established for the most part. Second, evidence of a capital flight trap is confirmed because the estimated value of the lagged capital flight is between zero and one. This implies that: (i) past values of capital flight increase present capital flights and (ii) countries with lower levels of capital flight are catching-up their counterparts with higher levels of capital flight.

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<sup>1</sup> 'First, the null hypothesis of the second-order Arellano and Bond autocorrelation test (AR(2)) in difference for the absence of autocorrelation in the residuals should not be rejected. Second the Sargan and Hansen overidentification restrictions (OIR) tests should not be significant because their null hypotheses are the positions that instruments are valid or not correlated with the error terms. In essence, while the Sargan OIR test is not robust but not weakened by instruments, the Hansen OIR is robust but weakened by instruments. In order to restrict identification or limit the proliferation of instruments, we have ensured that instruments are lower than the number of cross-sections in most specifications. Third, the Difference in Hansen Test (DHT) for exogeneity of instruments is also employed to assess the validity of results from the Hansen OIR test. Fourth, a Fischer test for the joint validity of estimated coefficients is also provided' (Asongu & De Moor, 2016, p.9)



**Table 2: Dynamic GMM specifications (Based on 3 Year Non-Overlapping Intervals)**

	Dependent Variable : Capital Flight							
	Domestic Terrorism		Transnational Terrorism		Unclear Terrorism		Total Terrorism	
Capital Flight (-1)	<b>0.739***</b> (0.000)	<b>0.774***</b> (0.000)	<b>0.596***</b> (0.000)	<b>0.607***</b> (0.000)	<b>0.777***</b> (0.000)	<b>0.851***</b> (0.000)	<b>0.719***</b> (0.000)	<b>0.690***</b> (0.000)
Constant	<b>2.691***</b> (0.000)	<b>2.300***</b> (0.000)	<b>4.228***</b> (0.000)	<b>4.017***</b> (0.000)	<b>2.724***</b> (0.000)	<b>1.792***</b> (0.001)	<b>3.154***</b> (0.000)	<b>3.233***</b> (0.000)
Domestic Terrorism (D.T)	-0.042 (0.613)	-0.005 (0.930)	---	---	---	---	---	---
Transnational Terrorism (Tr.T)	---	---	-0.056 (0.207)	-0.037 (0.780)	---	---	---	---
Unclear Terrorism (U.T)	---	---	---	---	<b>-0.384***</b> (0.000)	<b>-0.441*</b> (0.062)	---	---
Total Terrorism (T. T)	---	---	---	---	---	---	-0.038 (0.447)	-0.104 (0.113)
Military Expenditure (M.E)	<b>-0.098***</b> (0.009)	-0.001 (0.977)	<b>-0.093***</b> (0.000)	-0.045 (0.260)	<b>-0.176***</b> (0.000)	<b>-0.106***</b> (0.004)	<b>-0.069*</b> (0.053)	0.036 (0.341)
D.T*ME	0.017 (0.346)	-0.021 (0.175)	---	---	---	---	---	---
Tr.T*ME	---	---	<b>0.082***</b> (0.000)	---	---	---	---	---
U.T*ME	---	---	---	0.027 (0.532)	<b>0.301***</b> (0.000)	<b>0.191***</b> (0.004)	---	---
T.T*ME	---	---	---	---	---	---	<b>0.021**</b> (0.024)	0.013 (0.404)
Trade	0.0004 (0.689)	-0.002 (0.133)	-0.001 (0.443)	-0.001 (0.100)	<b>-0.003***</b> (0.006)	<b>-0.003***</b> (0.005)	0.0003 (0.754)	<b>-0.004***</b> (0.003)
GDP growth	-0.007 (0.126)	-0.008 (0.361)	-0.001 (0.655)	-0.0001 (0.987)	<b>-0.013***</b> (0.004)	0.0007 (0.912)	-0.004 (0.210)	-0.007 (0.230)
Inflation	---	<b>0.003***</b> (0.000)	---	<b>0.003***</b> (0.000)	---	<b>0.003***</b> (0.000)	---	<b>0.003***</b> (0.000)
Foreign Investment	---	<b>-0.008*</b> (0.071)	---	<b>-0.011***</b> (0.001)	---	<b>-0.013***</b> (0.000)	---	<b>-0.019***</b> (0.001)
M.E Thresholds	n.a	n.a	n.a	n.a	n.s.a	n.s.a	n.a	n.a
AR(1)	(0.098)	(0.024)	<b>(0.118)</b>	(0.027)	<b>(0.130)</b>	(0.043)	<b>(0.118)</b>	(0.035)
AR(2)	<b>(0.507)</b>	<b>(0.717)</b>	<b>(0.456)</b>	<b>(0.582)</b>	<b>(0.878)</b>	<b>(0.756)</b>	<b>(0.371)</b>	<b>(0.843)</b>
Sargan OIR	<b>(0.355)</b>	(0.001)	(0.087)	(0.001)	<b>(0.127)</b>	(0.000)	<b>(0.381)</b>	(0.003)
Hansen OIR	<b>(0.256)</b>	<b>(0.625)</b>	<b>(0.838)</b>	<b>(0.719)</b>	<b>(0.266)</b>	<b>(0.783)</b>	<b>(0.453)</b>	<b>(0.890)</b>

DHT for instruments								
(a) Instruments in levels								
H excluding group	<b>(0.510)</b>	<b>(0.118)</b>	<b>(0.306)</b>	(0.093)	<b>(0.901)</b>	<b>(0.260)</b>	<b>(0.414)</b>	<b>(0.383)</b>
Dif(null, H=exogenous)	<b>(0.184)</b>	<b>(0.930)</b>	<b>(0.952)</b>	<b>(0.986)</b>	<b>(0.095)</b>	<b>(0.934)</b>	<b>(0.445)</b>	<b>(0.962)</b>
(b) IV (years, eq (diff))								
H excluding group	<b>(0.393)</b>	<b>(0.379)</b>	<b>(0.736)</b>	<b>(0.886)</b>	<b>(0.222)</b>	<b>(0.702)</b>	<b>(.0562)</b>	<b>(0.684)</b>
Dif(null, H=exogenous)	<b>(0.137)</b>	<b>(1.000)</b>	<b>(0.789)</b>	<b>(0.122)</b>	<b>(0.471)</b>	<b>(0.725)</b>	<b>(0.220)</b>	<b>(1.000)</b>
Fisher	<b>736.55***</b>	<b>643.53***</b>	<b>279.75***</b>	<b>16179***</b>	<b>648.03***</b>	<b>5200.47***</b>	<b>969.42***</b>	<b>379.00***</b>
Instruments	26	34	26	34	26	34	26	34
Countries	29	28	29	28	29	28	29	28
Observations	93	90	93	90	93	90	93	90
£								

\*\*\*, \*\*, \*: significance levels at 1%, 5% and 10% respectively. DHT: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. OIR: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) & AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. n.a: not applicable because at least one estimated coefficient required for the computation of the military expenditure threshold is not significant. n.s.a: not specifically applicable because the military expenditure threshold is contrary to the intuition of the study.

### **4.3 Quantile Regressions and accounting for initial levels of capital flight**

Table 3 and Table 4 respectively show findings corresponding to ‘domestic and transnational terrorism’ and ‘unclear and total terrorism’. Panel A(B) of Table 3 reveals findings on domestic (transnational) terrorism while Panel A(B) of Table 4 shows findings on unclear (total) terrorism. In Table 3, the following findings are apparent. First, while for the most part, conditional and unconditional impacts are consistently significant in regressions pertaining to domestic regressions, this is not the case of regressions related to transnational terrorism for which the conditional and unconditional effects are not significant. Second, military expenditure thresholds for fighting the effect of capital flight for domestic terrorism ranges between 4.224 and 5.612 in contemporary regressions and between 4.308 and 5.600 in non-contemporary regressions. For instance, the threshold in the 0.10<sup>th</sup> quintile of contemporary regressions in Panel A of Table 3 is 5.612 (0.550/0.098). Hence, a critical mass of 5.612 of military expenditure as a percentage of GDP is needed to reverse the effects of domestic terrorism stemming from capital flight. The threshold makes economic sense because it is within the range of military expenditure (0.220 to 17.334) provided in the summary statistics. Third, most of the control variables have expected signs.

**Table 3: QR for Domestic and Transnational terrorism**

Dependent variable: Capital Flight												
Panel A: Domestic Terrorism (Domestic T)												
	Contemporary						Non-Contemporary					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	<b>10.235***</b> (0.000)	<b>9.293***</b> (0.000)	<b>9.979***</b> (0.000)	<b>10.375***</b> (0.000)	<b>10.592***</b> (0.000)	<b>10.961***</b> (0.000)	<b>10.215***</b> (0.000)	<b>9.267***</b> (0.000)	<b>9.947***</b> (0.000)	<b>10.393***</b> (0.000)	<b>10.536***</b> (0.000)	<b>10.735***</b> (0.000)
Domestic T. (D.T)	<b>0.288***</b> (0.007)	<b>0.550***</b> (0.000)	<b>0.425***</b> (0.000)	<b>0.365***</b> (0.000)	<b>0.294***</b> (0.003)	<b>0.286***</b> (0.006)	<b>0.284**</b> (0.012)	<b>0.560***</b> (0.000)	<b>0.413***</b> (0.000)	<b>0.349***</b> (0.000)	<b>0.325***</b> (0.000)	<b>0.325***</b> (0.004)
MilitaryExp.(M.E)	0.030 (0.343)	-0.042 (0.475)	0.009 (0.830)	0.002 (0.951)	<b>0.075**</b> (0.020)	<b>0.111***</b> (0.003)	0.026 (0.403)	-0.041 (0.527)	-0.022 (0.645)	-0.009 (0.792)	<b>0.078***</b> (0.008)	<b>0.132***</b> (0.001)
D.T*ME	-0.056 (0.117)	<b>-0.098***</b> (0.004)	<b>-0.096***</b> (0.001)	<b>-0.086***</b> (0.004)	<b>-0.058**</b> (0.055)	<b>-0.058*</b> (0.065)	-0.053 (0.150)	<b>-0.100***</b> (0.006)	<b>-0.084***</b> (0.009)	<b>-0.081***</b> (0.004)	<b>-0.067**</b> (0.017)	<b>-0.069**</b> (0.039)
Trade	<b>-0.002***</b> (0.004)	-0.0008 (0.615)	<b>-0.002*</b> (0.076)	<b>-0.003**</b> (0.022)	<b>-0.002***</b> (0.005)	<b>-0.004***</b> (0.000)	<b>-0.002***</b> (0.008)	-0.0005 (0.742)	-0.002 (0.148)	<b>-0.002**</b> (0.027)	<b>-0.002**</b> (0.011)	<b>-0.002**</b> (0.011)
GDP growth	0.006 (0.359)	0.016 (0.204)	0.002 (0.845)	0.012 (0.196)	0.005 (0.467)	-0.001 (0.892)	0.006 (0.376)	0.013 (0.365)	0.003 (0.766)	0.012 (0.185)	0.005 (0.473)	-0.0005 (0.951)
Inflation	<b>0.0007***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0005***</b> (0.000)	<b>0.001***</b> (0.000)	<b>0.0007***</b> (0.000)	<b>0.0007***</b> (0.000)	<b>0.0007***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0005***</b> (0.000)	<b>0.001***</b> (0.000)	<b>0.001***</b> (0.000)
Foreign Inv.	-0.006 (0.349)	-0.010 (0.147)	-0.008 (0.378)	-0.012 (0.140)	<b>-0.015**</b> (0.024)	0.002 (0.661)	-0.005 (0.419)	-0.010 (0.204)	-0.008 (0.448)	-0.011 (0.150)	<b>-0.015***</b> (0.008)	-0.004 (0.551)
Nonconflicts	<b>0.162*</b> (0.073)	0.187 (0.207)	<b>0.283**</b> (0.032)	0.173 (0.135)	0.111 (0.271)	0.035 (0.774)	<b>0.156*</b> (0.094)	0.154 (0.305)	<b>0.267*</b> (0.061)	0.169 (0.121)	0.122 (0.197)	0.057 (0.644)
NonOil	<b>-0.316***</b> (0.001)	-0.222 (0.178)	<b>-0.521***</b> (0.000)	<b>-0.375***</b> (0.001)	<b>-0.331***</b> (0.001)	-0.084 (0.463)	<b>-0.316***</b> (0.001)	-0.198 (0.266)	<b>-0.498***</b> (0.001)	<b>-0.438***</b> (0.000)	<b>-0.318***</b> (0.000)	-0.069 (0.558)
M.E Thresholds	n.a	5.612	4.427	4.244	5.068	4.931	n.a	5.600	4.916	4.308	4.850	4.710
R <sup>2</sup> /Pseudo R <sup>2</sup>	0.156	0.095	0.115	0.122	0.133	0.116	0.153	0.092	0.107	0.117	0.134	0.118
Fisher	<b>9.27***</b>						<b>8.48***</b>					
Observations	405	405	405	405	405	405	385	385	385	385	385	385

  

Panel B: Transnational Terrorism (Transactional Tr)												
	Contemporary						Non-Contemporary					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	<b>10.366***</b>	<b>9.384***</b>	<b>10.013***</b>	<b>10.275***</b>	<b>11.022***</b>	<b>11.197***</b>	<b>10.347***</b>	<b>9.389***</b>	<b>10.058***</b>	<b>10.242***</b>	<b>11.020***</b>	<b>10.979***</b>

	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>
Transnational T. (T.Tr)	<b>0.176**</b>	-0.016	<b>0.311***</b>	<b>0.298***</b>	<b>0.170**</b>	0.222	<b>0.169**</b>	-0.029	<b>0.305***</b>	<b>0.330***</b>	0.096	<b>0.242*</b>
	<b>(0.037)</b>	(0.923)	<b>(0.001)</b>	<b>(0.000)</b>	<b>(0.027)</b>	(0.121)	<b>(0.048)</b>	(0.847)	<b>(0.001)</b>	<b>(0.003)</b>	(0.311)	<b>(0.066)</b>
MilitaryExp.(M.E)	-0.026	-0.063	<b>-0.066*</b>	-0.033	0.011	<b>0.095*</b>	-0.025	-0.068	<b>-0.067*</b>	-0.021	0.004	<b>0.097*</b>
	(0.416)	(0.451)	<b>(0.079)</b>	(0.214)	(0.648)	<b>(0.091)</b>	(0.429)	(0.367)	<b>(0.087)</b>	(0.552)	(0.896)	<b>(0.056)</b>
T.Tr*ME	0.017	<b>0.081*</b>	0.012	-0.013	0.013	-0.040	0.018	<b>0.085**</b>	0.014	-0.029	0.019	-0.045
	(0.517)	<b>(0.072)</b>	(0.620)	(0.572)	(0.444)	(0.264)	(0.499)	<b>(0.035)</b>	(0.591)	(0.352)	(0.352)	(0.170)
Trade	<b>-0.002***</b>	-0.001	<b>-0.002*</b>	<b>-0.003***</b>	<b>-0.004***</b>	<b>-0.005***</b>	<b>-0.002***</b>	-0.001	<b>-0.002*</b>	<b>-0.003**</b>	<b>-0.004***</b>	<b>-0.004***</b>
	<b>(0.002)</b>	(0.652)	<b>(0.071)</b>	<b>(0.001)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.004)</b>	(0.614)	<b>(0.052)</b>	<b>(0.014)</b>	<b>(0.000)</b>	<b>(0.001)</b>
GDP growth	0.008	0.012	-0.005	<b>0.021***</b>	0.006	0.002	0.008	0.016	-0.006	<b>0.021**</b>	0.006	0.003
	(0.273)	(0.480)	(0.522)	<b>(0.004)</b>	(0.418)	(0.923)	(0.305)	(0.361)	(0.492)	<b>(0.032)</b>	(0.500)	(0.860)
Inflation	<b>0.0006***</b>	<b>0.0007***</b>	<b>0.0006***</b>	<b>0.0005***</b>	<b>-0.015***</b>	<b>0.0007***</b>	<b>0.0006***</b>	<b>0.0007***</b>	<b>0.0006***</b>	<b>0.0005***</b>	<b>0.001***</b>	<b>0.001***</b>
	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.014)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>
Foreign Invt.	<b>-0.009*</b>	-0.005	-0.008	<b>-0.010*</b>	-0.006	0.0003	-0.008	-0.005	-0.008	-0.010	-0.014**	-0.001
	<b>(0.082)</b>	(0.607)	(0.364)	<b>(0.083)</b>	(0.941)	(0.972)	(0.131)	(0.589)	(0.365)	(0.210)	(0.018)	(0.881)
Nonconflicts	<b>0.178*</b>	0.195	<b>0.313***</b>	<b>0.284***</b>	-0.006	0.040	<b>0.177*</b>	0.195	<b>0.321***</b>	<b>0.328***</b>	-0.002	0.142
	<b>(0.055)</b>	(0.358)	<b>(0.006)</b>	<b>(0.001)</b>	(0.941)	(0.808)	<b>(0.063)</b>	(0.303)	<b>(0.007)</b>	<b>(0.004)</b>	(0.985)	(0.396)
NonOil	<b>-0.325***</b>	-0.261	<b>-0.432***</b>	<b>-0.371***</b>	<b>-0.412***</b>	-0.220	<b>-0.330***</b>	-0.290	<b>-0.466***</b>	<b>-0.409***</b>	<b>-0.427***</b>	-0.214
	<b>(0.000)</b>	(0.256)	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	(0.112)	<b>(0.001)</b>	(0.198)	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>	(0.103)
M.E Thresholds	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
R <sup>2</sup> /Pseudo R <sup>2</sup>	0.144	0.066	0.115	0.112	0.122	0.090	0.142	0.066	0.097	0.109	0.122	0.089
Fisher	<b>10.04***</b>						<b>9.17***</b>					
Observations	405	405	405	405	405	405	385	385	385	385	385	385

\*\*\*, \*\*, \*: significance levels of 1%, 5% and 10% respectively. OLS: Ordinary Least Squares. R<sup>2</sup> (Pseudo R<sup>2</sup>) for OLS (Quantile Regressions). Lower quantiles (e.g., Q 0.1) signify nations where Capital Least is least. n.a: not applicable because at least one estimated coefficient required for the computation of the military expenditure threshold is not significant. Nonconflicts: Politically stable countries. Nonoil: Non-oil exporting countries.

**Table 4: QR for Unclear and Total terrorism**

Dependent variable: Capital Flight

Panel A: Unclear Terrorism (Unclear T)

	Contemporary						Non-Contemporary					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	<b>10.386***</b> (0.000)	<b>9.331***</b> (0.000)	<b>10.067***</b> (0.000)	<b>10.433***</b> (0.000)	<b>11.141***</b> (0.000)	<b>11.247***</b> (0.000)	<b>10.341***</b> (0.000)	<b>9.335***</b> (0.000)	<b>10.056***</b> (0.000)	<b>10.416***</b> (0.000)	<b>11.093***</b> (0.000)	<b>11.141***</b> (0.000)
Unclear T. (U.T)	<b>0.261*</b> (0.077)	<b>0.406**</b> (0.068)	<b>0.414**</b> (0.012)	<b>0.453***</b> (0.000)	0.110 (0.415)	0.235 (0.409)	<b>0.286*</b> (0.051)	<b>0.403*</b> (0.078)	<b>0.486***</b> (0.003)	<b>0.482***</b> (0.002)	0.151 (0.310)	0.290 (0.250)
Military Exp.(M.E)	-0.008 (0.753)	-0.045 (0.448)	-0.041 (0.310)	-0.032 (0.141)	0.036 (0.144)	0.094 (0.110)	-0.006 (0.806)	-0.046 (0.464)	-0.043 (0.296)	-0.030 (0.328)	0.035 (0.188)	<b>0.100**</b> (0.048)
U.T*ME	-0.009 (0.845)	-0.017 (0.707)	-0.054 (0.153)	<b>-0.079***</b> (0.005)	0.008 (0.770)	-0.056 (0.369)	-0.012 (0.777)	-0.016 (0.731)	<b>-0.066*</b> (0.081)	<b>-0.081**</b> (0.035)	0.005 (0.862)	-0.064 (0.245)
Trade	<b>-0.002***</b> (0.003)	-0.0005 (0.751)	<b>-0.002*</b> (0.090)	<b>-0.002***</b> (0.001)	<b>-0.004***</b> (0.000)	<b>-0.005***</b> (0.000)	<b>-0.002***</b> (0.005)	-0.0005 (0.762)	<b>-0.002*</b> (0.089)	<b>-0.002***</b> (0.022)	<b>-0.004***</b> (0.000)	<b>-0.005***</b> (0.000)
GDP growth	0.009 (0.199)	0.015 (0.341)	0.001 (0.888)	<b>0.024***</b> (0.000)	0.005 (0.407)	0.002 (0.933)	0.009 (0.232)	0.015 (0.342)	0.002 (0.857)	<b>0.024**</b> (0.017)	0.001 (0.835)	0.003 (0.881)
Inflation	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0005***</b> (0.000)	<b>0.0004***</b> (0.000)	<b>0.001***</b> (0.000)	<b>0.0007***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0005***</b> (0.000)	<b>0.0004***</b> (0.000)	<b>0.001***</b> (0.000)	<b>0.0008***</b> (0.000)
Foreign Invnt.	-0.008 (0.156)	-0.006 (0.462)	-0.008 (0.435)	<b>-0.011**</b> (0.047)	<b>-0.013**</b> (0.023)	0.0002 (0.984)	-0.006 (0.266)	-0.006 (0.473)	-0.007 (0.509)	-0.011 (0.152)	<b>-0.012**</b> (0.047)	0.001 (0.887)
Nonconflicts	0.128 (0.152)	0.163 (0.323)	<b>0.277**</b> (0.040)	0.111 (0.152)	<b>-0.140*</b> (0.098)	0.040 (0.828)	0.132 (0.150)	0.158 (0.362)	<b>0.257*</b> (0.058)	0.125 (0.256)	-0.128 (0.173)	0.075 (0.673)
NonOil	<b>-0.331***</b> (0.001)	-0.248 (0.184)	<b>-0.488***</b> (0.001)	<b>-0.361***</b> (0.000)	<b>-0.394***</b> (0.000)	-0.267 (0.124)	<b>-0.324***</b> (0.001)	<b>-0.252***</b> (0.000)	<b>-0.462***</b> (0.001)	<b>-0.384***</b> (0.001)	<b>-0.373***</b> (0.000)	-0.226 (0.150)
M.E Thresholds	n.a	n.a	n.a	5.734	n.a	n.a	n.a	n.a	7.363	5.950	n.a	n.a
R <sup>2</sup> /Pseudo R <sup>2</sup>	0.140	0.079	0.096	0.102	0.117	0.091	0.142	0.081	0.093	0.102	0.117	0.096
Fisher	<b>10.09***</b>						<b>9.64***</b>					
Observations	405	405	405	405	405	405	385	385	385	385	385	385

Panel B: Total Terrorism (Total T)

	Contemporary						Non-Contemporary					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	<b>10.187***</b> (0.000)	<b>9.205***</b> (0.000)	<b>9.918***</b> (0.000)	<b>10.220***</b> (0.000)	<b>10.485***</b> (0.000)	<b>10.739***</b> (0.000)	<b>10.164***</b> (0.000)	<b>9.260***</b> (0.000)	<b>9.785***</b> (0.000)	<b>10.186***</b> (0.000)	<b>10.478***</b> (0.000)	<b>10.658***</b> (0.000)
Total T. (T.T)	<b>0.212**</b> (0.012)	<b>0.385***</b> (0.002)	<b>0.311***</b> (0.000)	<b>0.391***</b> (0.000)	<b>0.248***</b> (0.009)	<b>0.225***</b> (0.004)	<b>0.210**</b> (0.015)	<b>0.362***</b> (0.001)	<b>0.349***</b> (0.000)	<b>0.351***</b> (0.000)	<b>0.202**</b> (0.022)	<b>0.246***</b> (0.002)
Military Exp.(M.E)	0.007 (0.833)	-0.035 (0.703)	-0.038 (0.441)	0.026 (0.506)	0.059 (0.175)	<b>0.113***</b> (0.004)	0.005 (0.883)	-0.007 (0.928)	-0.030 (0.585)	0.020 (0.646)	0.33 (0.390)	<b>0.115***</b> (0.006)
T.T*ME	-0.024 (0.414)	-0.053 (0.184)	<b>-0.047*</b> (0.050)	<b>-0.083***</b> (0.000)	-0.033 (0.272)	<b>-0.042**</b> (0.039)	-0.023 (0.443)	-0.053 (0.130)	<b>-0.059**</b> (0.029)	<b>-0.072***</b> (0.004)	-0.009 (0.733)	<b>-0.044**</b> (0.026)
Trade	<b>-0.002**</b> (0.011)	0.0001 (0.961)	-0.002 (0.118)	<b>-0.003***</b> (0.008)	<b>-0.001*</b> (0.095)	<b>-0.002***</b> (0.008)	<b>-0.002**</b> (0.019)	-0.001 (0.472)	-0.002 (0.210)	<b>-0.002**</b> (0.047)	<b>-0.001*</b> (0.068)	<b>-0.002**</b> (0.010)
GDP growth	0.008 (0.260)	0.023 (0.174)	0.003 (0.746)	0.008 (0.409)	0.008 (0.363)	<b>0.002***</b> (0.008)	0.008 (0.280)	0.020 (0.176)	0.004 (0.726)	0.008 (0.425)	0.009 (0.253)	0.003 (0.691)
Inflation	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0005***</b> (0.000)	<b>0.001***</b> (0.000)	<b>0.001***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0006***</b> (0.000)	<b>0.0005***</b> (0.000)	<b>0.001***</b> (0.000)	<b>0.001***</b> (0.000)
Foreign Invnt.	-0.006	-0.011	-0.005	-0.012	<b>-0.013*</b>	-0.001	-0.005	-0.008	-0.008	-0.013	-0.010	-0.0008

Nonconflicts	(0.296) <b>0.182**</b> <b>(0.046)</b>	(0.241) 0.125 (0.542)	(0.583) <b>0.304**</b> <b>(0.025)</b>	(0.109) <b>0.299***</b> <b>(0.006)</b>	<b>(0.071)</b> 0.096 (0.405)	(0.855) 0.122 (0.342)	(0.376) <b>0.179*</b> <b>(0.156)</b>	(0.346) 0.184 (0.336)	(0.460) <b>0.331**</b> <b>(0.026)</b>	(0.146) <b>0.320**</b> <b>(0.010)</b>	(0.120) 0.061 (0.555)	(0.900) 0.130 (0.313)
NonOil	<b>-0.292***</b> <b>(0.002)</b>	<b>-0.243</b> <b>(0.255)</b>	<b>-0.465***</b> <b>(0.001)</b>	<b>-0.350***</b> <b>(0.001)</b>	<b>-0.282**</b> <b>(0.010)</b>	-0.088 (0.437)	<b>-0.292***</b> <b>(0.003)</b>	<b>-0.349*</b> <b>(0.082)</b>	<b>-0.404**</b> <b>(0.010)</b>	<b>-0.382***</b> <b>(0.002)</b>	<b>-0.247**</b> <b>(0.014)</b>	-0.053 (0.641)
M.E Thresholds	n.a	n.a	6.617	4.710	n.a	5.357	n.a	n.a	5.915	4.875	n.a	5.590
R <sup>2</sup> /Pseudo R <sup>2</sup>	0.160	0.084	0.119	0.131	0.131	0.115	0.158	0.082	0.113	0.126	0.133	0.117
Fisher	<b>10.19***</b>						<b>9.45***</b>					
Observations	405	405	405	405	405	405	385	385	385	385	385	385

\*\*\*, \*\*, \*: significance levels of 1%, 5% and 10% respectively. OLS: Ordinary Least Squares. R<sup>2</sup> (Pseudo R<sup>2</sup>) for OLS (Quantile Regressions). Lower quantiles (e.g., Q 0.1) signify nations where Capital Least is least. n.a: not applicable because at least one estimated coefficient required for the computation of the military expenditure threshold is not significant. Nonconflicts: Politically stable countries. Nonoil: Non-oil exporting countries.

The following findings are apparent in Table 4. First, in Panel A, the unconditional and conditional effects are significant in the 0.50<sup>th</sup> (0.25<sup>th</sup> and 0.50<sup>th</sup>) quintile(s) in contemporary (non-contemporary) regressions. Corresponding military expenditure thresholds range between 5.734 and 7.363. Second, in Panel B the unconditional and conditional impacts are consistently significant in the 0.25<sup>th</sup>, 0.50<sup>th</sup> and 0.90<sup>th</sup> quintiles with corresponding thresholds ranging between 4.710 and 6.617. Third, most significant control variables display expected signs.

## **5. Concluding implications and future research directions**

Although past studies that have examined the nexus between terrorism and military expenditure have concluded that latter the fuels the former (see Sandler, 2005; Lum et al., 2006), others have postulated that there is no consensus in the literature that military expenditure devoted to curbing terrorism instead fuels terrorism (Feridun & Shahbaz, 2010). The purpose of this study was to assess thresholds at which military expenditure reduces the effects of capital flight for terrorism. Using panel data on 37 African countries from 1996-2010, we examine the issue. The empirical evidence was based on: (i) baseline contemporary and non-contemporary OLS, (ii) contemporary and non-contemporary fixed effects regressions to account for the unobserved heterogeneity, (iii) the Generalised Method of Moments to account for the capital flight trap and (iv) Quantile Regressions (QR) to account for initial levels of capital flight. The thresholds are apparent exclusively in QR with thresholds ranging from: 4.224 to 5.612 for domestic terrorism, 5.734 to 7.363 for unclear terrorism and 4.710 to 6.617 for total terrorism. No thresholds are apparent in transnational terrorism related regressions. Depending to the terrorism target, the findings broadly show that a critical mass of between 4.224 and 7.363 of military expenditure as a percentage of GDP is needed to reverse the effect of capital flight for terrorism. Our study demonstrated the mere establishment of whether military expenditure increases or decreases terrorism is not sufficient to influence more relevant policy. Conversely, establishing thresholds at which such military expenditure can dampen terrorism for other macroeconomic outcomes is more worthwhile.

### **5.1 Contributions to theory and practice**

Regarding further theoretical contributions, the African literature on fighting terrorism has been oriented essentially towards investigating the effect of poverty and freedoms on terrorism (Barros et al., 2008), examining the role of competition between military companies on the rate at which conflicts are brought to a swift end (Akcinaroglu & Radziszewski, 2013), exploring the role of institutions such as the African Union (Ewi & Aning, 2006) and assessing the influence of geopolitical fluctuations (Straus, 2012). On the other hand, much of contemporary literature



on African capital flight has focused on *inter alia*, lessons from case studies on the causes and effects of capital flight (Ndikumana, 2016) notably: the nexus between fiscal policy and capital flight in Kenya (Muchai & Muchai, 2016), determinants of capital flight in Madagascar (Ramiandrisoa & Rakotomanana, 2016) and Ethiopia (Geda & Yimer, 2016), capital flight and trade misinvoicing in Zimbabwe (Kwaramba et al., 2016) and capital flight in Cameroon; connections between tax revenue and capital flight in Burkina Faso (Ndiaye & Siri, 2016) and the effect of capital flight on public social spending in Congo-Brazzaville (Moulemvo, 2016). Our study adds to the growing body of literature on African by explicating the thresholds at which such military expenditure can dampen terrorism. In this direction, the study also adds to theoretical knowledge regarding the nexus between terrorism and military expenditure (Sandler, 2005).

From a policy standpoint, the question of whether the military thresholds established in this study are achievable, two points are worth elucidating. On the one hand, there is need to increase military spending on average terms because the median and mean military expenditures as percentages of GDP are respectively 1.582 and 2.156. On the other hand, increasing military expenditure would require diverting public spending from other sectors to the military. The risk of such diversion is that such incremental spending may be captured by corrupt elite. If this is likely to be the case, then increasing military spending would have unexpected effects and lead to a reduction in general welfare because of *inter alia*: (i) siphoned funds that would be deposited in tax havens abroad is a further indication of capital flight; (ii) terrorism could continue to destroy economic infrastructures and hence increase a negative economic outlook that could further fuel capital flight and (iii) the forgone expenditure in welfare projects that is devoted to military expenditure may contribute to deteriorating socio-economic conditions needed for economic growth and capital inflows.

To put this another way, it is alleged that more than 50% of Nigeria's currency reserves or 15 billion USD was lost in fraudulent security spending by the government of Goodluck Jonathan (Kay, 2016). Within this context, a former Nigerian officer is accused of stealing about 2 billion USD from funds allocated for the fight against the Boko Haram (Vice News, 2015). As in the case of Kenya with the fight against the Al Shabaab, reliance on foreign military aid could be a necessary but not a sufficient condition for alleviating the issues highlighted above. Hence, good and credible institutions remain essential. Concerning future research, our study indicates that future studies can improve extant literature by engaging other policy variables such as inclusive development. This is essentially because exclusive development has been documented to motivate the Boko Haram insurgency as well as Western-born and educated youths joining the ranks of ISIL partly because of feelings of socio-economic exclusion and discrimination

(Asongu et al., 2016). Furthermore, replicating this inquiry within country-oriented frameworks would provide more targeted policy implications on country-specific military expenditure thresholds.

## References

Akcinaroglu, S., & Radziszewski, E., (2013), "Private Military Companies, Opportunities, and Termination of Civil Wars in Africa", *Journal of Conflict Resolution*, 57(5), pp. 5795-5821.

Alfa-Wali, M., Sritharan, K., Mehes, M., Abdullah, F., & Rasheed, S., (2015). "Terrorism-related trauma in Africa, an increasing problem", *Journal of Epidemiology and Global Health*, 5(2), pp. 201-203.

Arellano, M., & Bond, S., (1991). "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations". *The Review of Economic Studies*, 58(2), pp. 277-297.

Arellano, M., & Bover, O., (1995). "Another look at the instrumental variable estimation of error-components models", *Journal of Econometrics*, 68(1), pp. 29-52.

Ashraf, Q., & Galor, O., (2013). "The Out of Africa Hypothesis, Human Genetic Diversity, and Comparative Economic Development". *American Economic Review*, 103(1), pp. 1-46.

Asongu, S. A., & Nwachukwu, J. C., (2016a). "The Mobile Phone in the Diffusion of Knowledge for Institutional Quality in Sub Saharan Africa", *World Development*, DOI:10.1016/j.worlddev.2016.05.012

Asongu, S. A., & Nwachukwu, J. C., (2016b). "Foreign aid and governance in Africa", *International Review of Applied Economics*, 30(1), pp. 69-88.

Asongu, S. A., & De Moor, L., (2016). "Financial globalisation dynamic thresholds for financial development: evidence from Africa", *The European Journal of Development Research*, DOI:10.1057/ejdr.2016.10.

Asongu, S. A., (2013, October), Fighting African capital flight: timelines for the adoption of common policies', *The Empirical Economics Letters*, <http://www.eel.my100megs.com/volume-12-number-10.htm> (Accessed: 09/08/2015).

Asongu, S. A., (2015). "Rational Asymmetric Development, Piketty and the Spirit of Poverty in Africa". African Governance and Development Institute *Working Paper* No. 15/006, Yaoundé.

Asongu, S. A., Tchamy, V. S., & Tchamy, N. P., (2016). "Fighting terrorism in Africa: benchmarking policy harmonization". African Governance and Development Institute *Working Paper*, Yaoundé

- Asongu, S., (2014). “Fighting African Capital Flight: Empirics on Benchmarking Policy Harmonization”, *The European Journal of Comparative Economics*, 11 (1), pp. 93-122.
- Baltagi, B. H., (2008). “Forecasting with panel data”, *Journal of Forecasting*, 27(2), pp. 153-173.
- Bandyopadhyay, S., Sandler, T., & Younas, J., (2014). “Foreign direct investment, aid, and terrorism”, *Oxford Economic Papers*, 66(1), pp. 25-50.
- Barros, C. P., Faira, J. R., & Gil-Alana, L. A., (2008). “Terrorism against American citizens in Africa: Related to poverty?”, *Journal of Policy Modeling*, 30(1), pp. 55-69.
- Batuo, M. E., (2015). “The Role of Telecommunications Infrastructure In The Regional Economic Growth of Africa”, *The Journal of Development Areas*, 49(1), pp. 313-330.
- Beck, T., Demirgüç-Kunt, A., & Levine, R., (2003), “Law and finance: why does legal origin matter?”, *Journal of Comparative Economics*, 31(4), pp. 653-675.
- Billger, S. M., & Goel, R. K., (2009), “Do existing corruption levels matter in controlling corruption? Cross-country quantile regression estimates”, *Journal of Development Economics*, 90(2), pp. 299-305.
- Blomberg, S., & Hess, G. (2006). “How much does violence tax trade? ”, *The Review of Economics and Statistics*, 88(4): 599–612.
- Blundell, R., & Bond, S., (1998). “Initial conditions and moment restrictions in dynamic panel data models”, *Journal of Econometrics*, 87(1), pp. 115-143.
- Bond, S., Hoeffler, A., & Temple, J., (2001). “GMM Estimation of Empirical Growth Models”, University of Oxford.
- Boyce, J. K., & Ndikumana L. (2011). “Capital flight from sub-Saharan Africa: linkages with external borrowing and policy options”, *International Review of Applied Economics*, 25(2), pp. 149-170.
- Boyce, J. K., & Ndikumana, L. (2001). “Is Africa a Net Creditor? New Estimate of Capital Flight from Severely Indebted Sub-Saharan African Countries, 1970-1996”, *Journal of Development*, 38(2), pp. 27-56.
- Boyce, J. K., & Ndikumana L. (2012a). “Capital Flight from Sub-Saharan African Countries: Updated Estimate, 1970-2010”, *Political Economy Research Institute*, University of Massachusetts.  
[http://www.peri.umass.edu/fileadmin/pdf/ADP/SSAfrica\\_capitalflight\\_Oct23\\_2012.pdf](http://www.peri.umass.edu/fileadmin/pdf/ADP/SSAfrica_capitalflight_Oct23_2012.pdf)  
 (Accessed: 09/08/2015).
- Boyce, J. K., & Ndikumana L. (2012b). “Rich Presidents of Poor Nations: Capital Flight from Resource-Rich Countries in Africa”, *Political Economy Research Institute* University of Massachusetts. <http://concernedafricascholars.org/wp-content/uploads/2012/11/caploss01-ndiku-14th.pdf> (Accessed: 09/08/2015).
- Boyce, J. K., & Ndikumana L., (2003). “Public Debt and Private Assets: Explaining Capital Flight from Sub-Saharan African Countries”, *World Development*, 31(1), pp. 107-130.

- Boyce, J. K., & Ndikumana, L. (1998). "Congo's odious debt: External borrowing and capital flight in Zaire", *Development and Change*, 29(2), pp. 195-217.
- Brambor, T., Clark, W. M., and Golder, M., (2006). "Understanding Interaction Models: Improving Empirical Analyses", *Political Analysis*, 14 (1), pp. 63-82.
- Christensen, J. (2011). "The looting continues: Tax havens and corruption. Critical Perspectives on International Business, 7, 177–196.
- Clavarino, T., (2014). "Africa, the new outpost of terrorism", *RT op-edge*. <https://www.rt.com/op-edge/180996-africa-outpost-islamic-terrorism/> (Accessed: 20/01/2016).
- Collier, P., Hoeffler, A. & Pattillo, C., (2004). "Africa's Exodus: Capital Flight and the Brain Drain as Portfolio Decisions". *Journal of African Economies*, 13 (2), pp. 15-54.
- Czinkota, M. R., Knight, G., Liesch, P. W., & Steen, J. (2010). "Terrorism and international business: A research agenda", *Journal of International Business Studies*, 41(5), 826-843.
- Davies, V. (2008), "Post-war Capital Flight and Inflation". *Journal of Peace Research*, 45(4), pp. 519-537.
- Davies, V. A. B., (2010), "Capital Flight and Violent Conflict: A Review of the Literature", World Development Report 2011 *Background Note*.
- Dewan, S., & Ramaprasad, J., (2014). "Social media, traditional media and music sales", *MIS Quarterly*, 38(1), pp. 101-128.
- Efobi, U., & Asongu, S. A., (2016). "Terrorism and Capital Flight from Africa", *International Economics*; Forthcoming.
- Efobi, U., Asongu, S., & Beecroft, I., (2015). "Foreign Direct Investment, Aid and Terrorism: Empirical Insight Conditioned on Corruption Control", *African Governance and Development Institute Working Paper No. 15/007*, Yaoundé.
- Enders W, Sandler T & Gaibulloev K., (2011). "Domestic versus transnational terrorism: Data, decomposition, and dynamics". *Journal of Peace Research*, 48(3), pp. 319-337.
- Enders, W., & Sandler, T., (2006). *The Political Economy of Terrorism*. New York: Cambridge University Press.
- Epstein, G. A. (Ed.). (2005). *Capital flight and capital controls in developing countries*. Northampton: Edward Elgar Publishing.
- Ewi, M., & Aning, E., (2006). "Assessing the role of the African Union in preventing and combating terrorism in Africa", *African Security Review*, 15(3), pp. 32-46.
- Eyerman, J., (1998). "Terrorism and Democratic States: Soft Targets or Accessible Systems." *International Interactions*, 24(2), pp.151-170.

- Fazel, A., (2013). "The growing terrorism threat in Africa", *Mail & Guardian*, <http://mg.co.za/article/2013-12-17-the-growing-terrorism-threat-in-africa> (Accessed: 20/01/2016).
- Feridun, M., & Shahbaz, M., (2010). "Fighting Terrorism: Are Military Measures Effective? Empirical Evidence from Turkey", *Defence & Peace Economics*, 21(2), pp. 193-205.
- Fielding, D., (2004). "How does violent conflict affect investment location decisions? Evidence from Israel during the intifada". *Journal of Peace Research*, 41(4), pp. 465-484.
- Gailbulloev, K., Sandler, T., & Santifort, C., (2012). "Assessing the Evolving Threat of Terrorism", *Global Policy*, 3(2), pp. 135-144.
- Gankou, J-M., Bendoma, M., & Sow, M. N., (2016). "The Institutional Environment and the Link between Capital Flows and Capital Flight in Cameroon", *African Development Review*, 28(S1), pp. 65-87.
- Geda, A., & Yimer, A., (2016). "Capital Flight and its Determinants: The Case of Ethiopia" *African Development Review*, 28(S1), pp. 39-49.
- GTI (2014). "Global Terrorism Index: Measuring and Understanding the Impact of Terrorism", *Institute for Economics and Peace*, pp. 2-90. [http://www.visionofhumanity.org/sites/default/files/Global%20Terrorism%20Index%20Report%202014\\_0.pdf](http://www.visionofhumanity.org/sites/default/files/Global%20Terrorism%20Index%20Report%202014_0.pdf) (Accessed: 28/04/2015).
- Hermes, N., & Lensink. R., (2001). "Capital flight and the uncertainty of government Policies". *Economics Letters*, 71(3), pp. 377-381.
- Kay, M. (2016). "Nigeria says \$15 billion stolen in security scams by Jonathan govt, three times more than earlier estimates", *Mail & Guardian Africa*, <http://mgafrica.com/article/2016-05-03-nigeria-says-15-billion-stolen-in-security-scams-by-jonathan-govt-three-times-more-than-earlier-estimates/> (Accessed: 15/06/2016).
- Kelsey D & le Roux, S., (2016), "Dragon Slaying with Ambiguity: Theory and Experiments", *Journal of Public Economic Theory*. doi: 10.1111/jpet.12185.
- Koenker, R., & Bassett, Jr. G., (1978), "Regression quantiles", *Econometrica*, 46(1), pp.33-50.
- Koenker, R., & Hallock, F.K., (2001), "Quantile regression", *Journal of Economic Perspectives*, 15(4), pp.143-156.
- Koh, W.T., (2007). "Terrorism and its impact on economic growth and technological innovation", *Technological Forecasting and Social Change*, 74(2), pp.129-138.
- Kwaramba, M., Mahonye, N., & Mandishara, L., (2016). "Capital Flight and Trade Misinvoicing in Zimbabwe", *African Development Review*, 28(S1), pp. 50-64.
- Le Roux, S., & Kelsey, D., (2016). "Strategic Ambiguity and Decision-making An Experimental Study", Department of Economics, Oxford Brookes University.
- Le, Q. V., & Zak. P. J., (2006). "Political risk and capital flight". *Journal of International Money and Finance*, 25(2), pp. 308-329.

- Lensink, R., Hermes, N., & Murinde, V., (2000). 'Capital flight and political risk'. *Journal of International Money and Finance*, 19(1), pp. 73-92.
- Love, I., & Zicchino, L., (2006). "Financial Development and Dynamic Investment Behaviour: Evidence from Panel VAR". *The Quarterly Review of Economics and Finance*, 46(2), pp. 190-210.
- Lum, C., Kennedy, L.W., & Sherley, A. J. (2006). "The effectiveness of counter-terrorism strategies. A Campbell Systematic Review", *Crime and Justice*, 2(2), pp.1-49.
- Mlachila, M., Tapsoba, R., & Tapsoba, S. J. A., (2014). "A Quality of Growth Index for Developing Countries: A Proposal", *IMF Working Paper* No. 14/172, Washington.
- Moulemvo, A., (2016). "Impact of Capital Flight on Public Social Expenditure in Congo-Brazzaville", *African Development Review*, 28(S1), pp. 113-123.
- Mpenya, A. H. T., Metseyem, C., & Epo, B. N., (2016). "Natural Resources and Capital Flight in Cameroon", *African Development Review*, 28(S1), pp. 88-99.
- Muchai, D. N., & Muchai, J., (2016). "Fiscal Policy and Capital Flight in Kenya", *African Development Review*, 28(S1), pp. 8-21.
- Ndiaye, A. S., & Siri, A., (2016). "Capital Flight from Burkina Faso: Drivers and Impact on Tax Revenue", *African Development Review*, 28(S1), pp. 100-112.
- Ndikumana, L., & Boyce, J. K., (2011b). "New estimates of capital flight from sub-Saharan African countries: Linkages with external borrowing and policy options". *International Review of Applied Economics*, 25(2), pp. 149-170.
- Ndikumana, L., & Boyce, J. K., (2011a), *Africa's odious debts: How foreign loans and capital flight bled a continent*. London: Zed Books.
- Ndikumana, L., (2016). "Causes and Effects of Capital Flight from Africa: Lessons from Case Studies", *African Development Review*, 28(S1), pp. 2-7.
- Ndikumana, L., Boyce, J. & Ndiaye, A.S. (2015). "Capital Flight: Measurement and Drivers", in Ajayi, S. I. and L. Ndikumana (Eds), *Capital Flight from Africa: Causes, Effects, and Policy Issues*, Oxford: Oxford University Press, 15-54.
- Nyatepe-Coo, A.A., (1994). "Capital flight in low-income sub-Saharan Africa: The effects of political climate and macroeconomic policies". *Scandinavian Journal of Development Alternatives*, 13(4), pp. 59-69.
- Okada, K., & Samreth, S.,(2012), "The effect of foreign aid on corruption: A quantile regression approach", *Economic Letters*, 115(2), pp. 240-243.
- Omand, D., (2005). "Countering international terrorism: the use of strategy". *Survival*, 47(4), pp. 107-116.
- Ramiandrisoa, O. T., & Rakotomanana, J. M., (2016). "Why Is There Capital Flight from Developing Countries? The Case of Madagascar", *African Development Review*, 28(S1), pp. 22-38.

- Roodman, D., (2009a). "A Note on the Theme of Too Many Instruments", *Oxford Bulletin of Economics and Statistics*, 71(1), pp. 135-158.
- Roodman, D., (2009b). "How to do xtabond2: An introduction to difference and system GMM in Stata", *Stata Journal*, 9(1), pp. 86-136.
- Sandler, T. (2005). "Collective versus unilateral responses to terrorism". *In Policy Challenges and Political Responses*, Springer USA, pp. 75-93. DOI: 10.1007/0-387-28038-3\_5.
- Sandler, T., & Enders, W. (2008). Economic consequences of terrorism in developed and developing countries: an overview, in P. Keefer and N. Loayza (Eds.) *Terrorism, Economic Development and Political Openness*, Cambridge University Press, New York.
- Sönmez, S. F. (1998). "Tourism, terrorism, and political instability", *Annals of Tourism Research*, 25(2), 416-456.
- Straus, S., (2012). "Wars do end. Changing Patterns of Political Violence in Sub-Saharan Africa", *African Affairs*, 111(443), pp. 179-201.
- Vice News (2015). "Former Nigerian Official Accused of Stealing \$2 Billion from Anti-Boko Haram Funds", Vice News, <https://news.vice.com/article/former-nigerian-official-accused-of-stealing-2-billion-from-anti-boko-haram-funds> (Accessed: 15/06/2016).
- Weeks, J., (2012). "Macroeconomic impact of capital flows in Sub-Saharan African countries, 1980-2008", *Association of Concerned Africa Scholar Bulletin*, 87, pp. 1-7.
- Weeks, J., (2015). Macroeconomic impact of capital flows in Sub-Saharan Africa, in Ajayi, S.I., and Ndikumana, L., (Eds.), *Capital Flight from Africa: Causes, Effects and Policy Issues*. Oxford: Oxford University Press.
- World Bank (2015). "World Development Indicators", World Bank Publications <http://www.gopa.de/fr/news/world-bank-release-world-development-indicators-2015> (Accessed: 25/04/2015).

## Appendices

### Appendix 1: Definition of variables, sources and Summary statistics

	Definitions/ Sources	Mean	S.D	Min	Max	Obs
Capital Flight	Ln of Capital Flight (constant of 2010), Ndikumana & Boyce (2012a).	9.993	0.806	6.816	12.333	464
Domestic Terrorism	Number of Domestic terrorism incidents (in Ln), Enders et al. (2011).	0.453	0.870	0.000	4.488	555
Transnational Terrorism	Number of Transnational terrorism incidents (in Ln), Enders et al. (2011).	0.242	0.536	0.000	3.332	555
Unclear Terrorism	Number of Unclear terrorism incidents (in Ln), Enders et al. (2011).	0.112	0.425	0.000	4.488	555
Total Terrorism	Number of Total terrorism incidents (in Ln), Enders et al. (2011).	0.605	1.000	0.000	4.844	555
Military Expenditure	Military Expenditure (% of GDP), WDI	2.156	1.565	0.220	17.334	489
Trade	Trade of Goods and Services (% of GDP), WDI	75.890	39.816	17.858	255.015	525
GDP growth	Gross Domestic Product (GDP) growth rates (annual %), WDI	4.435	4.661	-17.254	33.629	540
Inflation	Consumer Price Index (annual %), WDI	74.917	1099.53	-100.00	24411.03	508
Foreign Investment	Foreign direct investment net inflows (% of GDP), WDI	3.994	5.935	-8.629	40.157	405
Non-Conflicts	Politically Stable countries	0.729	0.444	0.000	1.000	555
Non-Oil	Non-Petroleum Exporting countries	0.783	0.412	0.000	1.000	555

S.D: Standard Deviation. Min: Minimum. Max: Maximum. Obs: Observations. Ln: logarithm.  
GDP: Gross Domestic Product. WDI: World Bank Development Indicators.



**Appendix 2: Correlation matrix (1996-2010) (Uniform sample size: 405)**

Terrorism				Non-dummy control variables				Dummy control variables		Military Expenditure	Capital Flight	
Domestic	Transnational	Unclear	Total	Trade	GDP growth	Inflation	Foreign Investment	Non-Conflicts	Non-Oil			
1.000	0.528	0.451	0.914	-0.185	-0.007	0.024	-0.031	-0.174	-0.245	0.251	0.225	Domestic
	1.000	0.490	0.751	-0.118	0.007	0.075	-0.021	-0.294	-0.279	0.204	0.233	Transnational
		1.000	0.631	-0.129	-0.058	0.123	-0.043	-0.112	-0.187	0.188	0.221	Unclear
			1.000	-0.197	-0.030	0.074	-0.047	-0.259	-0.299	0.288	0.263	Total
				1.000	0.020	0.115	0.362	0.058	-0.070	0.075	-0.146	Trade
					1.000	0.038	0.113	0.006	-0.100	-0.042	0.068	GDP growth
						1.000	0.013	-0.154	-0.104	-0.041	0.203	Inflation
							1.000	-0.066	-0.125	0.152	-0.102	Foreign Investment
								1.000	0.404	-0.176	-0.049	Non-Conflicts
									1.000	-0.159	-0.198	Non-Oil
										1.000	0.004	Military Expenditure
											1.000	Capital Flight

Non-Conflicts: Politically Stable Countries. Non-Oil: Non-Petroleum Countries.  
 Correlation matrix based on a 5% critical value (two-tailed) = 0.0975

