Fighting African Capital Flight: Empirics on Benchmarking Policy Harmonization

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Abstract

With earthshaking and heartbreaking trends in African capital flight provided by a new database, this paper complements existing literature by answering some key policy questions on the feasibility of and timeframe for policy harmonization in the battle against the economic scourge. The goal of the paper is to study beta-convergence of capital flight across a set of 37 African countries in the period 1980-2010 and to discuss the policy implications. Three main findings are established. (1) African countries with low capital flight rates are catching-up their counterparts with higher rates, implying the feasibility of policy harmonization towards fighting capital flight. (2) Petroleum-exporting and conflict-affected countries significantly play out in absolute and conditional convergences respectively. (3) Regardless of fundamental characteristics, a genuine timeframe for harmonizing policies is within a horizon of 6 to 13 years. In other words, full (100%) convergence within the specified horizon is an indication that policies and regulations can be enforced without distinction of nationality or locality.

JEL Classification: C50; E62; F34; O19; O55
Keywords: Econometric modeling; Big push; Capital flight; Debt relief; Africa

1. Introduction

A key constraint to African growth and development is the shortage of financing (Boyce & Ndikumana, 2012a). The continent is facing substantial and growing financing gaps, hindering public investment and, poor social service delivery. Paradoxically, it is the source of large-scale capital flight[1] which has escalated during the last decade. According to the recent report by Boyce & Ndikumana, 33 sub-Saharan African (SSA) countries lost a total of 814 billion (constant 2010 US$) from 1970 to 2010. This far surpasses the amount of official development aid ($659 billion) and foreign direct investment ($306 billion) received by these countries. Consistent with Boyce & Ndikumana, assuming that the capital flight has earned (or could have earned) the modest interest rate measured by the short-term United States Treasury Bill rate, the corresponding accumulated stock of capital flight from the 33 countries would have stood at $ 1.06 trillion in 2010. This far exceeds the external liabilities of the group of countries of $189 billion (in 2010), giving the sub-region a paradoxical status of a "net creditor" to the rest of the world. This recent evidence has debunked the stereotyped perspective that SSA countries are severely indebted and heavily aid-dependent.

In light of the above, the present study contributes to existing literature by providing a feasible timeframe for policy harmonization in the battle against capital flight. The motivation for this scope and positioning is fourfold: current disturbing trends in African capital flight, missing link in the literature, availability of a new dataset and, recent methodological adaptations to policy harmonization. Firstly, current issues on African capital flight are earthshaking and heartbreaking[2]. Accordingly, a common denominator from concerned African scholars based on

[1] Capital flight according to Boyce & Ndikumana is the total capital inflows and recorded foreign exchange outflows.

[2] "*Equatorial Guinea, Gabon, and the Republic of Congo are among the richest countries in Africa with per capita incomes of $8,649 (second), $4,176 (5th), and $1,253 (15th), respectively. They have massive oil reserves, ranking*

a recent bulk of 'African flight focused' theoretical and empirical studies, is the need for urgent policy action (ACAS, 2012). Hence, in response, this paper is geared towards providing benchmarks for policy harmonization, with particular emphasis on the feasibility of and ideal timeframe for the harmonization process. Secondly, as far as we have searched, the absence of studies that have addressed the concern of policy harmonization represents an important missing link in the literature. This paper is an attempt to bridge this scholarly gap. Thirdly, the publication of a new database in October 2012 by Boyce & Ndikumana (2012a) provides a unique opportunity of assessing the phenomenon of capital flight that has not received the much needed scholarly attention owing to the absence of relevant data. More so, while providing for the possibility of more fine-tuned empirical analysis with updated policy implications, the richness of the dataset (in appealing time series properties) provides the much needed degrees of freedom essential for robust estimations. Fourthly, the study adapts to methodological insights from recent empirics of policy harmonization based on theoretical underpinnings of the convergence literature, which appear relevant in tackling some of the key questions in the battle against capital flight in developing countries. Hence, employment of the methodology also substantially contributes to the empirics of capital flight.

Cognizant of the above motivations, upholding blanket policies in the battle against capital fight may not be effective unless they are contingent on fundamental characteristics and prevailing trajectories of capital flight in the African continent. Hence, policy makers are most

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7th (Gabon), 8th (Congo), and 10th (Equatorial Guinea) in the continent. While their presidents and other members of the political elite are amassing fortunes abroad, the majority of their fellow citizens live in abject poverty, lacking access to basic social services such as decent sanitation, clean drinking water, elementary school, and health care. Despite Equatorial Guinea's large oil revenues, a baby born there has less chance of living to his or her fifth birthday than the average sub-Saharan African infant. Gabon and Equatorial Guinea rank second and third to last in their rate of immunization against measles, at 55% and 51%, respectively" (Boyce & Ndikumana, 2012b). Beside Boyce & Ndikumana (2012b) who provide excellent stylized facts on this scourge, the Association of Concerned African Scholars (ACAS, 2012) Bulletin 87 on "Africa's Capital Losses: What Can Be Done?", has recently provided a plethora of perspectives on African capital flight (http://concernedafricascholars.org/bulletin/issue87/) .

likely to ask the following questions before benchmarking policy harmonization. Is capital flight converging within Africa? (2) If so, what is the degree and timing of the convergence process? While an answer to the first question will guide on the feasibility of harmonizing blanket policies within identified fundamental characteristics of capital flight, the answer to the second will determine an optimal timeframe for the blanket policies. Accordingly, capital flight should converge from two main reasons: absolute convergence would occur in countries that share the same fundamental characteristics of capital flight (e.g, conflicts/political instability and petroleum exports) and; conditional convergence may occur if countries within the same fundamental characteristic of capital flight differ in macroeconomic and institutional characteristics that determine capital flight. The intuition underlying the linkage between capital flight and harmonization of policies within a homogenous panel is twofold; (1) convergence in the capital flight rate will imply that, the adoption of common policies to combat capital flight is feasible and; (2) full (100%) convergence will mean, the enforcements of these policies without distinction of nationality and locality. Countries need to harmonize policies with convergence in capital flight because; countries with low rates of capital flight are catching-up their counterparts with higher rates. An indication that the capital flight problem is becoming worse in countries that formerly experienced less capital flight. This intuition is consistent with very recent methodological insights into intellectual property rights (IPRs) harmonization against software piracy (Asongu, 2012).

The intuition motivating this paper is also in accordance with the evidence of income convergence across countries which has been investigated in the context of neoclassical growth models, originally developed by the pioneering works of Baumol (1986), Barro & Sala-i-Martin (1992, 1995) and Mankiw et al. (1992). The theoretical underpinnings of income convergence

are abundant in the empirical growth literature (Solow, 1956; Swan, 1956) and have recently been applied in other areas of economic development (Asongu, 2013b). While there is a theory and vast empirical work on per capita income convergence, there is yet not a theory on convergence in other development branches e.g financial markets, IPRs, knowledge economy (KE)...etc. In facts, there is a growing importance of empirical convergence application to IPRs harmonization (Andrés & Asongu, 2013), financial markets (Bruno et al., 2012; Narayan et al., 2011; Asongu, 2013a,b), optimality of currency areas (Asongu, 2013c,d) and KE (Asongu, 2013e). In light of these developments, aware of the risks of 'doing measurement without theory'; we argue that, reporting facts even without the presence of a formal theoretical model is a useful scientific activity. Hence, we concur with recent literature (Costantini & Lupi, 2005; Narayan et al., 2011) in the assertion that, applied econometrics has other tasks than merely validating or refuting economic theories.

As far as we have searched, the literature on African capital flight can be classified into four main strands: the importance of studying the phenomenon in African countries; causes of the scourge; pull factors and destination countries and; measurement of the phenomenon and policy orientation.

The first strand is largely borrowed from Boyce & Ndikumana (2011). Accordingly, the problem of capital flight from African economies deserves serious attention for several reasons. Firstly, most African countries have remained in the grip of a severe external debt crisis. Consistent with Boyce & Ndikumana, in 2000, debt service amounted to 3.8% of GDP for SSA countries. In comparative terms, the sub-region: was among the highest in literacy and infant mortality rates, spent 2.4% of GDP on health and only 55% of its citizens had access to clean drinking water (UNECA, 2007). Hence, to the extent that the proceeds of external borrowing are

not used for the benefit of the African public (but rather to finance the accumulation of private external assets by the ruling elites), the moral and legal legitimacy of these debt-service obligations remains an open debate. Secondly, capital flight constitutes a diversion of scarce resources away from domestic investment and productive activities. In recent decades, African governments have achieved significantly lower investment levels than other developing countries (Ndikumana, 2000). Collier et al. (2001) estimate that if Africa were able to attract back the flight component of private wealth, domestic private capital stock would rise by about two-third. They also postulate that Africa's GDP per capita is 16% lower than it would be if the continent had been able to retain its private wealth at home. Fofack & Ndikumana (2009) are broadly consistent with this position in their documentation of large potential domestic gains from capital flight repatriation. Thirdly, capital flight has pronounced regressive effects on the distribution of wealth. Individuals who engage in this scourge (for the most part) are members of the subcontinent's economic and political elite who take advantage of their privileged positions to acquire and channel funds abroad. Consistent with Boyce & Ndikumana (1998, 2011), both the acquisition and the transfer of funds often involve legally questionable practices, including the falsification of trade documents (trade misinvoicing), the embezzlement of export revenues and, kickbacks on public and private contracts. The negative effects of the resulting shortages of revenues and foreign exchange fall disproportionately on the less wealthy strata of society. The regressive effect of capital flight is further heightened when financial imbalances culminate in devaluation: a situation in which the wealthy that hold external assets are significantly insulated from the effects while the poor enjoy no such cushion. In accordance with the above, the main source of capital flight in African countries is the embezzlement public funds through corruption by officials in government.

In the second strand, we are consistent with Boyce & Ndikumana (2011) in devoting space to highlight some causes of capital flight. Accordingly, we review the existing econometric evidence on the determinants of capital flight. Firstly, Boyce & Ndikumana (2003) have established external borrowing to be strongly correlated with capital flight. A position confirmed by Collier et al. (2004). The pioneering work of Boyce (1992) (which distinguishes four possible causal links between capital flight and external debt) provides an excellent insight: debt-driven capital flight, debt-fueled capital flight, flight-driven external borrowing and flight-fueled capital flight. Secondly, capital flight tends to persists over time: everything being equal, past capital flight 'causes' more capital flight which is an indication of *hysteresis* in the dynamics of capital or the 'training effect' (Boyce & Ndikumana, 2003). Thirdly, higher economic growth is associated with lower capital flight because of higher expected returns (Boyce & Ndikumana, 2003). Fourthly, political risk is widely believed to play a significant role in the capital hemorrhage experienced by African countries (Collier et al., 2004), though there are exceptions to this rule as illustrated by the case of the Congo (Boyce & Ndikumana, 1998). Fifthly, government quality (corruption, government effectiveness, rule of law, regulation quality and voice & accountability) has been identified as an important factor in capital flight.

With regard to pull factors and destination countries in the third strand, while it should be acknowledged that good capital flight may be invested in countries that promise good returns, most capital flight from Africa (which is the bad type for the most part) is deposited in Tax heavens where banking legislation is favorable to bank secrecy. Accordingly, the main pull factor from destination countries should be the possibility of opening secret bank accounts. In spite of the evocative images conjured by the term 'offshore', it would be wrong to think of tax havens and offshore financial centers (the cluster of banks, legal and other intermediary firms

that operate from these jurisdictions) as disconnected and remote from mainstream nation states (Christensen, 2009). Hence, while geographically, many tax havens are located on small island economies dispersed across the spectrum of time zones, politically and economically, the majority of tax havens are intimately linked to major the Organization for Economic Cooperation and Development (OECD) states. Therefore the term 'offshore' is strictly a political statement about the nexus between the state and part of its related territories (Palan, 1999). Hence, tax havens harboring a great chunk of African capital flight are located in the Caribbean and America[3], Europe[4], the Middle East & Asia[5] and; the Indian and Pacific Oceans[6].

The fourth strand has a double perspective. On the one hand, there is a substantial bulk of literature on the measurement of capital flight (Boyce & Ndikumana, 2001, 2008, 2012a) which has provided updated accounts on a better calibration of the phenomenon. On the other hand, many scholars are consistent with the following policy orientation towards the fight against the phenomenon: attitudinal changes culminating in better governance through accountability and transparency (Ajayi, 1997); strong political will on the part of African and Western governments as well as effective cooperation for the repatriation of capital flight (Fofack & Ndkikumana, 2009) and; the position that much of Africa's accumulated debts may be deemed to be odious and their legitimacy challenged by governments and citizens of debtor nations (Boyce & Ndikumana, 2011). The scope of this paper is broadly consistent with this third strand and complements it by providing a feasible timeframe for policy harmonization. The rest of the paper is organized in the following manner. Data and methodology are discussed and outlined

[3] Anguilla, Antigua & Barbuda, Aruba, The Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Costa Rica, Dominica, Grenada, Montserrat, Netherlands Antilles, New York, Panama, Saint Lucia, St Kitts & Nevis, St Vincent & the Grenadines, Turks & Caicos Islands, Uruguay and USA Virgin Islands.

[4] Alderney, Andorra, Belgium, Campione d'Italia, City of London, Cyprus, Frankfurt, Gibraltar, Guernsey, Hungary, Iceland, Ireland, Ingushetia, Isle of Man, Jersey, Liechtenstein, Luxembourg, Madeira, Malta, Monaco, Netherlands, Sark, Switzerland, Trieste and the Turkish Republic of Northern Cyprus.

[5] Bahrain, Dubai, Hong Kong, Labuan, Lebanon, Macau, Singapore, Tel Aviv and Taipei.

[6] The Cook Islands, The Maldives, The Marianas, Marshall Islands, Samoa, Tonga and Vanuatu.

respectively in Section 2. Empirical analysis and discussion of results are covered in Section 3. Section 4 concludes.

2. Data and Methodology

2.1 Data

We examine a sample of 37 African countries with data from African Development Indicators (ADI) and the Financial Development and Structure Database (FDSD) of the World Bank (WB) for the period 1980-2010. The analysis is limited to only 37 African countries because the data on capital flight from Boyce & Ndikumana (2012a) is available only for these countries. Details on the sampled countries are presented in Appendix 4. We devote space to discussing three relevant points in this data section: determination of fundamental characteristics, comparability and compatibility of the capital flight measurement and, choice of control variables.

2.1.1 Determination of fundamental characteristics

Consistent with mainstream literature, it is unlikely to find convergence within a heterogeneous set of countries (Asongu, 2013a). Therefore, the determination of characteristics that are fundamental to capital flight is crucial. Government quality (transparency, corruption, regulation quality …etc) and macroeconomic fundamental characteristics have the limitation of varying over time. Hence, the same threshold may not be consistent over time, especially on a horizon of over 30 years. To categorize the countries, we borrow from Weeks (2012) who has based his analysis on three fundamental characteristics: exporters of petroleum, conflict-affected and others. While these categories may be somewhat exclusive, a consensus exists that 'conflict' and 'an export sector dominated by petroleum' affect macroeconomic performance (Boyce &

Ndikumana, 2012b). However, difficulties arise in assigning countries to these categories in an exclusive and non-arbitrary manner.

Firstly, for the petroleum-exporting group, arbitrariness arises if a country qualifies for only a part of the time period, either because of recent discovery or substantial decline in production. But this is not a major problem for the 37 countries in the dataset. Another objection to the classification might be that, some mineral producers (such as Botswana) have macroeconomic characteristics similar to petroleum exporters. We are consistent with Weeks (2012) in taking a "minimalist" approach, adhering strictly to the petroleum category and including only countries whose exports have been oil dominated for over a decade: Algeria, Angola, Cameroon, Chad, Republic of Congo, Gabon, Nigeria and Sudan. Consistent with Boyce & Ndikumana (2012a), the oil-rich countries account for 72 % of the total capital flight from the SSA sub-region ($ 591 billion). They postulate that the escalation of capital flight over the last decade has coincided with the steady increase in oil prices prior to the global economic crisis.

Secondly, the "conflict-affected" category presents analytical and practical difficulties. This is essentially because; few countries of the world are completely free from conflict. Therefore distinctions must be made on the basis of degree. For the 37 countries over the years 1980-2010, few would object to the inclusion of Burundi, the Democratic Republic of Congo, Mozambique, Rwanda and Sierra Leone. We also include Ethiopia, whose internal conflict lasted throughout the 1980s, formally ending with Eritrean independence and a new government in Addis Ababa in 1991. In the years that followed, the ebb and flow of tensions between the two countries resulted in armed hostilities during the period 1998-2000. Despite the absence of some formal characteristics of civil war, we also include Zimbabwe due to the severity of its internal

strife. An important categorical objection is that, at least two of the petroleum countries also clearly quality as conflict-affected: Angola and Sudan. Contrary to Weeks (2012), for this analysis, the petroleum-exporting state does not take priority over the conflict status. Therefore, a country may fall in many categories if it has the relevant categorical characteristics. Hence, Angola and Sudan are also included in the conflict-affected category. Arguments could be made to include at least three other countries: Côte d'Ivoire (2002-2007 civil war, rekindled in 2011), South Africa (anti-apartheid conflict until the early 1990s) and, Uganda (civil war until about 1985 and conflict in the north since the late 1980s). We omit Côte d'Ivoire because its conflict affects less than a third of the years covered by the statistics. Contrary to Weeks, with include South Africa and Uganda because, while the former was in principle the subject of internal strife until the election of Nelson Mandela in 1994, the latter is still technically at war with the Lord Resistance Army (LRA) because its leader Kony (who refused to sign the 2007 peace agreement) is still at large.

Lastly, the 'others' category includes: 'non-conflict affected' and 'non-petroleum exporting' countries.

2.1.2 Comparability and compatibility of the capital flight measurement

The capital flight indicator has two main shortcomings: it is neither comparable with other variables nor compatible with the underpinnings of the convergence theory. The capital flight indicator in the Boyce & Ndikumana database is in constant $ 2010 million terms. Accordingly, the state of this measurement has two implications: on the one hand, it cannot easily be compared with the control variables that are in current USD ($) GDP ratios for the most part and, on the other hand, it is not compatible with the GDP-based endogenous variables in mainstream convergence literature. To tackle the two issues, we: first convert current GDP to

constant 2010 terms; then we divide the corresponding value by 1 000 000 to obtain a 'GDP constant of 2010 USD (in millions) and; finally we divide the capital flight data by the 'GDP constant of 2010 USD (in millions). Ultimately we have a capital measurement that is comparable with other variables (see Appendix 1) and compatible with theoretical underpinnings of the convergence literature.

2.1.3 Control variables

14 control variables are used in two different specifications to control for financial and trade globalization (foreign direct investment, private capital flows and trade openness), government expenditure (government spending and public investment), economic prosperity (GDP growth and GDP per capita growth), institutional quality (regulation quality and rule of law), financial development (money supply and liquid liabilities), development assistance (total value and that from DAC[7] countries) and price stability (inflation). The choice of these variables is consistent with the theoretical underpinnings of conditional convergence which state that, if countries differ in macroeconomic and institutional characteristics that determine capital flight, then conditional convergence can occur. Consistent with Asongu (2013f), globalization is a natural determinant of capital flight (human and physical). One of the most attractive mediums via which funds are siphoned is the channel of government or public spending (Boyce & Ndikumana, 2012b). Capital flight increases with poor institutional quality and high levels of development assistance (Weeks, 2012). From intuition, investors would naturally be motivated to divert capital abroad in situations of extremely high inflation. Higher economic prosperity that is not petroleum-oriented is associated with less capital flight because of higher expected returns on investment (Boyce & Ndikumana, 2003).

[7] Development Assistance Committee.

Details about the descriptive statistics, correlation analysis (showing the basic correlations between key variables used in this paper) and variable definitions (with corresponding data sources) are presented in Appendix 1, Appendix 2 and Appendix 3 respectively. The summary statistics of the variables show that there is quite a degree of variation in the data utilized so that one should be confident that reasonable estimated relationships would emerge. The purpose of the correlation matrix is to mitigate issues of overparametization and multicolinearity. Based on the correlation coefficients, there do not appear to be any serious concerns in terms of the relationships to be estimated because two specifications are employed that incorporate only one aspect (variable) of highly correlated macroeconomic and institutional characteristics[8]. The fundamental characteristics are presented in Appendix 4.

2.2 Methodology

The estimation approach is based on β-convergence, consistent with the methodological underpinning motivating the study (Asongu, 2012). Beside this justification, the alternative view of convergence (σ-convergence) which postulates that, a group of economies converges when the cross-section variance of the variable under consideration declines, is also inappropriate because the adaptation to the methodological innovation is for *beta*-convergence. Our estimation procedure typically follows the evidence of income convergence across countries which has been investigated in the context of pioneering works in neoclassical growth models (Baumol, 1986; Barro & Sala-i-Martin, 1992, 1995; Mankiw et al., 1992), as well as in recent development literature (Narayan et al., 2011).

[8] We cannot employ all the control variables in a single specification for two main reasons: (1) concerns of overparametization and multicolinearity on the one hand and; (2) constraints in the degrees of freedom needed for the Sargan OIR test of instrument validity on the other hand.

Consistent with the convergence literature (Fung, 2009, 3), the two equations below are the standard approaches in the literature for investigating conditional convergence if $W_{i,t}$ is taken as strictly exogenous.

$$\ln(Y_{i,t}) - \ln(Y_{i,t-\tau}) = \beta \ln(Y_{i,t-\tau}) + dW_{i,t-\tau} + q_i + s_t + u_{i,t} \qquad (1)$$

$$\ln(Y_{i,t}) = a \ln(Y_{i,t-\tau}) + \delta W_{i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \qquad (2)$$

Where $a = 1+ \beta$, $Y_{i,t}$ is the measure of capital flight in country *i* at period *t*. τ refers to the order of non-overlapping intervals. $W_{i,t}$ is a vector of determinants of capital flight, $\eta_i (q_i)$ is a country-specific effect, $\xi_t (s_t)$ is a time-specific constant and $\varepsilon_{i,t} (u_{i,t})$ an error term. Consistent with the neo-classical growth model, a statistically significant negative coefficient on β in Eq. (1) suggests that, countries relatively close to their steady state in 'capital flight growth' will experience a slowdown in the growth of capital flight, known as conditional convergence (Narayan et al., 2011, 2). In the same vein, according to Fung (2009, 3) and recent African convergence literature (Asongu, 2013c), if $0 < |a| < 1$ in Eq. (2) , then $Y_{i,t}$ is dynamically stable around the path with a trend capital flight growth rate the same as that of W_t, and with a height relative to the level of W_t. The variables contained in $W_{i,t-\tau}$ and the individual effect η_i are measures of the long-term level the capital flight is converging to. Therefore, the country-specific effect η_i emphasizes other determinants of a country's steady state not captured by $W_{i,t-\tau}$.

Conditions for convergence elucidated above are valid if and only if, $W_{i,t}$ exhibits strict exogeneity. Unfortunately, this is not the case in the real world because, while institutional quality, economic prosperity, globalization, financial development, development assistance and

inflation (components of $W_{i,t}$) influence capital flight, the reverse effect is also true. Accordingly, we are confronted here with the issue of endogeneity in which control variables ($W_{i,t}$) are correlated with the error term ($\varepsilon_{i,t}$). More so, country- and time-specific effects could be correlated with other variables in the model, which is very probable with lagged dependent variables included in the equations. A way of dealing with the problem of the correlation between the individual specific-effect and the lagged dependent variables consists of eliminating the individual effect by first differencing. Therefore Eq. (2) becomes:

$$\ln(Y_{i,t}) - \ln(Y_{i,t-\tau}) = a(\ln(Y_{i,t-\tau}) - \ln(Y_{i,t-2\tau})) + \delta(W_{i,t-\tau} - W_{i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + (\varepsilon_{i,t} - \varepsilon_{i,t-\tau}) \qquad (3)$$

However Eq. (3) presents another issue; estimation by Ordinary Least Square (OLS) is still biased because there remains a correlation between the lagged endogenous independent variable and the disturbance term. To tackle this issue, we estimate the regression in differences jointly with the regression in levels using the Generalized Method of Moments (GMM) estimation. Arellano & Bond (1991) suggested an application of the Generalized Method of Moments (GMM) that exploits all the orthogonality conditions between the lagged dependent variables and the error term. The procedure employs lagged levels of the regressors as instruments in the difference equation, and lagged differences of the regressors as instruments in the levels equation, therefore exploiting all the orthogonality conditions between the lagged dependent variables and the error term. Between the *Difference* GMM estimator (Arellano & Bond, 1991) and the *System* GMM estimator (Arellano & Bover, 1995; Blundell & Bond, 1998), in a bid for robustness, we shall use both in the empirical analysis. However, in event of conflict

of interest in the findings, those of the *System* GMM will be given priority; in line with Bond et al. (2001, 3-4)[9].

The GMM estimation approach has been extensively applied in the convergence literature. In contrast to Narayan et al. (2011), consistent with Asongu (2013c) we shall adopt Fung (2009) owing to software specificities[10]. In model specification, we choose the *two-step* GMM option because it corrects the residuals for heteroscedasticity[11]. The assumption of no auto-correlation in the residuals is crucial as lagged variables are to be used as instruments for the endogenous variables. In addition, the estimation depends on the assumption that the lagged values of the dependent variable and other independent variables are valid instruments in the regression. When the error terms of the level equation are not auto-correlated, the first-order auto-correlation of the differenced residuals should be significant whereas their second-order auto-correlation should not be. The validity of the instruments is examined with the Sargan over-identifying restrictions (OIR) test.

According to Islam (1995, 14), yearly time spans are too short to be appropriate for studying convergence, as short-run disturbances may loom substantially in such brief time spans. Therefore, considering the data span of 31 years, we use both two-year and three-year non-overlapping intervals (NOI). This implies in the analysis, τ is set to 2 and 3 respectively. We also examine the incidence of short-term disturbances by setting τ to 1 under the hypothesis of

[9] "*We also demonstrate that more plausible results can be achieved using a system GMM estimator suggested by Arellano & Bover (1995) and Blundell & Bond (1998). The system estimator exploits an assumption about the initial conditions to obtain moment conditions that remain informative even for persistent series, and it has been shown to perform well in simulations. The necessary restrictions on the initial conditions are potentially consistent with standard growth frameworks, and appear to be both valid and highly informative in our empirical application. Hence we recommend this system GMM estimator for consideration in subsequent empirical growth research*". Bond et al. (2001, pp. 3-4).

[10] While Narayan et al. (2011) have used Eq. (1) in the absence of fixed effects, this paper applies Eqs. (2) and (3) instead; in line with Fung (2009). The Fung (2009) approach has been used in recent African IPRs (Asongu, 2012) and financial development literature (Asongu, 2013a, b).

[11] In the *one-step*, the residuals are assumed to be homoscedastic.

'no intervals'. Accordingly, we compute the implied rate of convergence by calculating *a*/3, *a*/2, *a*/1 for the three-year, two-year and 'no intervals' datasets respectively. For example, with *a*/2, we divide the estimated coefficient of the lagged differenced endogenous variable by 2 because we have used a two year interval to absorb the short-term disturbances. When the absolute value of the estimated autoregressive coefficient is greater than zero but less than one ($0 < |a| < 1$), we conclude the existence of convergence (in absolute or conditional terms). The broader interpretation suggests, past differences have less proportionate impact on future differences, denoting the variation on the left hand side of Eq. (3) is diminishing overtime as the country is converging to a steady state (Andrés & Asongu, 2013).

To emphasize our point, the estimated lagged value of a standard dynamic GMM approach is a from which 1 is subtracted to obtain β (β= *a*-1). In this context the information criterion for *beta*-convergence is $\beta < 0$. In the same vein, in order to limit the arithmetical gymnastics, a could be reported and the '$0 < |a| < 1$' information criterion used to determine convergence. This interpretation is consistent with recent convergence literature (Prochniak & Witkowski, 2012a, p. 20; Prochniak & Witkowski, 2012b, p. 23).

3. Empirical Analysis

3.1 Presentation of results

This section investigates three principal concerns: (1) examination of the presence of convergence; (2) computation of the speed of convergence and; (3) determination of the time needed for full (100%) convergence. The summary of overall results is presented in Table 6 where-in, the three issues are addressed. African baseline findings for absolute (unconditional)

and conditional convergence are presented in Table 1 and Table 2 respectively. Robustness checks findings for absolute (conditional) convergence are presented in Table 3 (Tables 4-5).

Absolute convergence is estimated with only the lagged difference of the endogenous variable as independent variable whereas; conditional convergence is with respect to Eqs. (2) and (3) in the presence of control variables. Hence, unconditional convergence is estimated in the absence of $W_{i,t}$: vector of determinants (government expenditure, trade, FDI, GDP growth, regulation quality, financial depth, development assistance and inflation) of capital flight[12]. Accordingly, in order to examine the validity of the model and indeed the convergence hypothesis; we perform two tests, notably the Sargan-test which examines the over-identification restrictions and the Arellano and Bond test for autocorrelation which assesses the null hypothesis of no autocorrelation. The Sargan-test examines if the instruments are uncorrelated with the error term in the equation of interest. The null hypothesis is the position that, the instruments as a group are strictly exogenous (do not suffer from endogeneity), which is required for the validity of the GMM estimates. The p-values of estimated coefficients are presented in brackets in the line following the reported values of the estimated coefficients. We notice that the Sargan-test statistics often appear with a p-value greater than 0.10, hence its null hypothesis is not rejected in all the regressions. We give priority to the second order autocorrelation: AR(2) test in first difference because it is more relevant than AR(1) as it detects autocorrelation in levels. For almost all estimated models, we are unable to reject the AR(2) null hypotheses for the absence of autocorrelation, especially for conditional convergence specifications. Therefore, there is robust evidence that most of the models are deficient of autocorrelation at the 1% significance level.

[12] Note that the second vector of determinants entails the second set of control variables for the second specifications (public investment, trade, private capital flows, GDP per capita growth, rule of law, liquid liabilities, development aid from DAC countries and inflation).

3.1.1 Baseline regressions

Table 1 below presents the baseline regressions of absolute convergence (AC) for the African continent. While Panel A shows *Difference* GMM estimations, Panel B reveals corresponding *System* GMM estimations. Based on the results, the presence of AC is consistent across various datasets and estimation methods. The rate of AC varies between 17.33% per annum (pa) and 64.50% pa with corresponding time to full convergence of 17.3 years (yrs) and 1.55 yrs respectively. With the 2 Yr NOI, the rate of AC varies between 30.75% pa and 33.05% pa for full convergence time spans of 6.5 yrs and 6.05 yrs respectively. Accordingly, for the 2 yr NOI, to calculate the rates and corresponding years, with the initial value of 0.615, the rate of convergence is 30.75% pa ((0.615/2)*100) and the time needed to achieve full convergence is 6.5 yrs (200%/30.75%). Hence, 6.5 yrs is required to achieve a 100% convergence for an estimated lagged value of 0.615.

Table 1: Absolute convergence with baseline regressions

	Panel A: Difference GMM			**Panel B: System GMM**		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Initial	**0.543*** **	**0.615*** **	**0.52*** **	**0.654*** **	**0.661*** **	**0.60*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
AR(1)	**-1.015**	**-1.055**	**-1.014**	**-1.015**	**-1.057**	**-1.015**
	(0.310)	**(0.291)**	**(0.310)**	**(0.310)**	**(0.290)**	**(0.309)**
AR(2)	**1.006**	**-1.002**	**-0.992**	**1.006**	**-1.002**	**-0.992**
	(0.314)	**(0.316)**	**(0.320)**	**(0.314)**	**(0.316)**	**(0.320)**
Sargan OIR	**14.815**	**13.265**	**10.505**	**15.034**	**15.022**	**10.621**
	(1.000)	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**
Wald	**1e+4*** **	**4e+4*** **	**5e+4*** **	**8374*** **	**4e+5*** **	**9e+5*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Countries	36	35	35	36	35	35
Observations	986	469	297	1022	504	332

***, **,*: significance levels of 1%, 5% and 10% respectively. AR(2): Second Order Autocorrelation test. OIR: Over-identifying Restrictions test. Initial: lagged endogenous estimated coefficient. Wald: test for the joint significance of estimated coefficients. Yrs: Years. NOI: Non-overlapping intervals. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test.

Table 2 below presents the baseline regressions of conditional convergence (CC) for the African continent. While Panel A shows the first specification, Panel B reveals the second

specification. Both specifications entail *System* and *Difference* GMM estimations. Based on the results, whereas estimates corresponding to the lagged coefficient are significant in the second specification for the most part, this is not the case with the first specification. Accordingly, this is not surprising because conditional convergence is contingent on the variables we choose and empirical test (model). For the 2 Yr NOI the rate of convergence varies between 21.00% pa and 16.5% pa with corresponding time required for full convergence of 9.52 yrs and 12.12 yrs respectively. *Regulation quality* in Specification 1 which is the only significant control variable has the expected sign, since the quality of regulation by intuition should decrease the rate of capital flight. For both AC and CC results in the baseline findings, the magnitude of NOI and choice of modeling approach significantly affect the results.

3.1.2 Robustness checks

A summary of overall findings (baseline and robustness checks) from Tables 3-5 is presented in Table 6. This includes results for AC, CC, the Speed of Absolute Convergence (SAC), the Speed of Conditional Convergence (SCC) and the rate required to achieve full (100%) convergence in both types of convergences.

From a general standpoint, the following conclusions could be drawn. (1) The choice of the GMM approach significantly affects the nature of the results. (2) Contrary to Asongu (2012), "full data" (without mitigation of short-run disturbances) provides significant results for the most part. (3) The convergence rate (years to convergence) decreases (increase) as the number of non-overlapping intervals increase. (4) Conditional convergence results based on the second specification (Table 5) are substantially more significant than those based on the first specification (Table 4). This finding further confirms the empirical basis of the paper. Hence,

conditional convergence is based on the variables we observe and empirically test (or model); which may not reflect all determinants of capital flight that facilitate the convergence process.

Given the heterogeneous nature of the findings, our interpretations will be based on: system GMM results, the second specification of conditional convergence and, the two-year NOI for the following reasons. Firstly, the edge of system GMM estimators over difference GMM estimators has already been outlined in the methodology section. Secondly, conditional convergence is contingent on the variables we model or empirically test and from our findings; determinants of capital flight in the second specification better elucidate cross-country differences in institutional and macroeconomic characteristics than explain conditional convergence. Thirdly, the choice of the two-year NOI has four premises. (1) 'Full data' is not used in mainstream literature because it is inherent of short-run disturbances. This position largely draws on the empirics of Islam (1995, 14). (2) NOI with a higher numerical value (say three-year NOI) eliminates more short-run disturbances at the cost of weakening the model. Hence the preference of the two-year NOI over the three-year NOI is further justified by the need to exploit the time series dimensions as much as possible. (3) A corollary to the above point is the advantage of additional degrees of freedom necessary for conditional convergence modeling. (4) Heuristically, from a visual analysis, capital flight does not show evidence of persistent business cycle (short-term) disturbances.

To ease readership and quick-visual comparative analysis, the results on which the discussion is based are in bold in Panel B of Table 6. Based on the two-year NOI, system GMM findings and the second specification of conditional convergence modeling, the following findings could be established. (1) Petroleum exporting countries significantly affect the absolute convergence process. While the African rate of AC and time to full AC (of 33.05% per annum

and 6.05 years respectively) is broadly consistent across other fundamental characteristics (conflict and non-petroleum), those of 'petroleum exporting' countries are significantly different: with an AC rate of 15.55% per annum and a full convergence period of 12.8 years. (2) Within the perspective of CC, but for the conflict-affected results, African findings are broadly consistent across fundamental characteristics of 'non-conflict affected' and 'petroleum exporting' countries. (3) Irrespective of fundamental characteristics, a feasible timeframe for the harmonization of policies in the fight against capital flight is within a horizon of 6 to 13 years[13].

Most of the significant control variables have the right signs in both specifications. (1) Globalization in terms of trade openness, foreign direct investment and private capital flows increase capital flight (Asongu, 2013f). (2) Public spending is one of the most attractive mediums through which funds are siphoned (Boyce & Ndikumana, 2012b). Capital flight decreases with high levels of regulation quality and development assistance (Weeks, 2012). The intuition that investors would be naturally motivated to divert capital abroad in economic situations of high inflation is confirmed by the positive sign of the inflation coefficient.

[13] The conclusion broadly refers to the entire sample and is based on three information criteria from the empirics: *System* GMM; 2 year-NOI and the second specifications of conditional convergence estimations.

Table 2: Conditional convergence with baseline regressions

	Panel A: Specification 1							Panel B: Specification 2					
	Difference GMM			System GMM				Difference GMM			System GMM		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI		Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Initial	-0.057	-0.185	**-0.47*** **	-0.020	-0.215	**-0.31*** **	Initial	**0.024** **	**-0.42*** **	**-0.44*** **	**0.010***	**-0.33*** **	**-0.27*** **
	(0.781)	(0.113)	**(0.042)**	(0.870)	(0.104)	**(0.002)**		**(0.026)**	**(0.000)**	**(0.000)**	**(0.082)**	**(0.000)**	**(0.000)**
Constant	-0.002	-0.014	0.002	-0.060	-0.044	0.034	Constant	0.051	-0.006	-0.026	-0.010	-0.197	0.083
	(0.904)	(0.549)	(0.939)	(0.618)	(0.695)	(0.778)		(0.184)	(0.842)	(0.484)	(0.948)	(0.455)	(0.608)
Gov't Expenditure	0.001	-0.0009	-0.001	0.000	-0.001	-0.004	Public Investment	-0.011	0.030	0.019	-0.007	0.024	0.021
	(0.675)	(0.757)	(0.742)	(0.980)	(0.483)	(0.504)		(0.582)	(0.592)	(0.634)	(0.443)	(0.474)	(0.288)
Trade	0.001	0.001	-0.0003	0.0002	0.000	-0.000	Trade	-0.003	0.011	0.001	-0.001	0.003	-0.0002
	(0.808)	(0.581)	(0.862)	(0.495)	(0.937)	(0.986)		(0.397)	(0.237)	(0.708)	(0.500)	(0.283)	(0.880)
Foreign Direct Ivt.	0.018	0.008	0.014	-0.000	0.001	0.003	Priv. Capital Flows	0.017	-0.046	0.010	0.012	-0.014	0.012
	(0.605)	(0.495)	(0.367)	(0.988)	(0.676)	(0.711)		(0.279)	(0.340)	(0.424)	(0.354)	(0.523)	(0.273)
GDP Growth	0.011	0.030	0.012	0.009	0.019	0.008	GDPpc Growth	0.0001	0.030	-0.001	0.005	0.011	-0.003
	(0.428)	(0.159)	(0.359)	(0.361)	(0.274)	(0.480)		(0.994)	(0.282)	(0.964)	(0.691)	(0.480)	(0.824)
Regulation Quality	-0.193	-0.116	-0.235	-0.015	**-0.04** **	-0.035	Rule of Law	-0.146	0.078	0.072	0.088	-0.196	-0.157
	(0.801)	(0.201)	(0.157)	(0.762)	**(0.043)**	(0.622)		(0.657)	(0.813)	(0.754)	(0.478)	(0.322)	(0.239)
Financial Depth	0.517	0.532	-0.344	0.049	0.048	-0.043	Liquid Liabilities	-1.048	-0.212	0.435	0.103	-0.425	-0.297
	(0.633)	(0.487)	(0.486)	(0.706)	(0.621)	(0.812)		(0.467)	(0.857)	(0.595)	(0.653)	(0.299)	(0.304)
Foreign Aid	0.006	0.004	0.001	0.004	-0.0003	-0.0002	Foreign Aid (DAC)	0.052	-0.070	-0.094	0.017	-0.020	-0.028
	(0.224)	(0.541)	(0.824)	(0.202)	(0.852)	(0.950)		(0.130)	(0.333)	(0.182)	(0.194)	(0.442)	(0.236)
Inflation	-0.003	-0.003	0.007	-0.002	-0.001	-0.0004	Inflation	-0.0003	0.003	0.0005	0.0004	-0.001	0.0002
	(0.763)	(0.353)	(0.389)	(0.449)	(0.421)	(0.888)		(0.783)	(0.448)	(0.546)	(0.732)	(0.104)	(0.507)
AR(1)	**-1.172**	**-1.395**	**-0.778**	**-1.239**	**-1.242**	**-1.078**	AR(1)	**-1.375**	**-1.068**	**-1.064**	**-1.369**	**-1.034**	**-1.075**
	(0.241)	**(0.162)**	**(0.436)**	**(0.215)**	**(0.213)**	**(0.281)**		**(0.169)**	**(0.285)**	**(0.287)**	**(0.170)**	**(0.300)**	**(0.282)**
AR(2)	**-0.846**	**-0.680**	**-0.914**	**-0.862**	**-0.643**	**-0.571**	AR(2)	**0.941**	**-1.100**	**-0.972**	**0.785**	**-1.135**	**-1.000**
	(0.397)	**(0.496)**	**(0.360)**	**(0.388)**	**(0.519)**	**(0.567)**		**(0.346)**	**(0.271)**	**(0.330)**	**(0.432)**	**(0.256)**	**(0.317)**
Sargan OIR	**11.676**	**14.462**	**11.912**	**10.678**	**13.395**	**16.180**	Sargan OIR	**21.467**	**22.128**	**17.014**	**21.957**	**24.748**	**21.970**
	(1.000)	**(1.000)**	**(0.997)**	**(1.000)**	**(1.000)**	**(0.995)**		**(1.000)**	**(1.000)**	**(0.961)**	**(1.000)**	**(1.000)**	**(0.944)**
Wald	2.521	**37.27*** **	**42.09*** **	**15.09***	**49.72*** **	**56.32*** **	Wald	**57.40*** **	**1e+4*** **	**3038*** **	**21.48** **	**3333*** **	**2031*** **
	(0.980)	**(0.000)**	**(0.000)**	**(0.088)**	**(0.000)**	**(0.000)**		**(0.000)**	**(0.000)**	**(0.000)**	**(0.010)**	**(0.000)**	**(0.000)**
Countries	22	22	22	22	22	22	Countries	28	28	28	28	28	28
Observations	180	127	74	202	149	96	Observations	215	153	91	243	181	119

***, **,*: significance levels of 1%, 5% and 10% respectively. AR(2): Second Order Autocorrelation test. OIR: Over-identifying Restrictions test. Initial: lagged endogenous estimated coefficient. Wald: test for the joint significance of estimated coefficients. Yrs: Years. NOI: Non-overlapping intervals. Petroleum: Petroleum exporting countries. Non-Petroleum: Countries with no significant exports in petroleum. Conflict: Countries with significant political instability. Non-Conflict: Countries without significant political instability. Gov't: Government. Ivt: Investment. GDP: Gross Domestic Product. Priv: Private. GDPpc: GDP per capita. DAC: Development Assistance Committee. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test.

Table 3: Absolute Convergence (robustness checks plus baseline)

Panel A: Difference GMM

	Petroleum			Non-Petroleum			Conflict			Non-Conflict			Africa		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Initial	**-0.24*** **	**-0.34*** **	**-0.30*** **	**0.545*** **	**0.616*** **	**0.52*** **	**0.547*** **	**0.617*** **	**0.52*** **	-0.021	-0.085	**-0.39*** **	**0.543*** **	**0.615*** **	**0.52*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	(0.851)	(0.468)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
AR(1)	**-1.003**	**-1.007**	**-1.017**	**-1.007**	**-1.008**	**-1.011**	**-1.000**	**-1.001**	**-1.000**	**-1.384**	**-0.758**	**-1.261**	**-1.015**	**-1.055**	**-1.014**
	(0.315)	**(0.313)**	**(0.308)**	**(0.313)**	**(0.313)**	**(0.311)**	**(0.317)**	**(0.316)**	**(0.317)**	**(0.166)**	**(0.448)**	**(0.207)**	**(0.310)**	**(0.291)**	**(0.310)**
AR(2)	**-1.013**	**-0.995**	**-1.018**	**1.004**	**-1.009**	**-0.995**	**1.000**	**-0.999**	**-0.999**	**-0.195**	**-0.741**	**-1.303**	**1.006**	**-1.002**	**-0.992**
	(0.311)	**(0.319)**	**(0.308)**	**(0.315)**	**(0.312)**	**(0.319)**	**(0.317)**	**(0.317)**	**(0.317)**	**(0.845)**	**(0.458)**	**(0.192)**	**(0.314)**	**(0.316)**	**(0.320)**
Sargan OIR	**5.674**	**7.971**	**6.647**	**8.240**	**6.327**	**6.925**	**5.195**	**5.352**	**4.948**	**24.447**	**20.637**	**23.706**	**14.815**	**13.265**	**10.505**
	(1.000)	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.994)**	**(1.000)**	**(1.000)**	**(1.000)**
Wald	**1935*** **	**572.2*** **	**286.7*** **	**49570*** **	**105456*** **	**71679*** **	**2e+7*** **	**6e+7*** **	**4e+7*** **	0.035	0.525	**39.61*** **	**1e+4*** **	**4e+4*** **	**5e+4*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	(0.851)	(0.468)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Countries	8	8	8	28	27	27	11	11	11	25	24	24	36	35	35
Observations	225	107	67	761	362	230	313	150	95	673	319	202	986	469	297

Panel B: System GMM

	Petroleum			Non-Petroleum			Conflict			Non-Conflict			Africa		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Initial	**-0.22*** **	**-0.31*** **	**-0.18*** **	**0.656*** **	**0.661*** **	**0.607*** **	**0.650*** **	**0.662*** **	**0.61*** **	-0.016	-0.077	**-0.38*** **	**0.654*** **	**0.661*** **	**0.60*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	(0.891)	(0.484)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
AR(1)	**-1.012**	**-1.000**	**-1.021**	**-1.007**	**-1.009**	**-1.011**	**-1.000**	**-1.001**	**-1.000**	**-1.377**	**-0.773**	**-1.172**	**-1.015**	**-1.057**	**-1.015**
	(0.311)	**(0.317)**	**(0.307)**	**(0.313)**	**(0.312)**	**(0.311)**	**(0.317)**	**(0.316)**	**(0.317)**	**(0.168)**	**(0.439)**	**(0.240)**	**(0.310)**	**(0.290)**	**(0.309)**
AR(2)	**-1.000**	**-1.038**	**-1.014**	**1.004**	**-1.009**	**-0.995**	**1.000**	**-0.999**	**-0.999**	**-0.162**	**-0.727**	**-1.282**	**1.006**	**-1.002**	**-0.992**
	(0.316)	**(0.299)**	**(0.310)**	**(0.315)**	**(0.312)**	**(0.319)**	**(0.317)**	**(0.317)**	**(0.317)**	**(0.871)**	**(0.467)**	**(0.199)**	**(0.314)**	**(0.316)**	**(0.320)**
Sargan OIR	**7.959**	**6.594**	**6.612**	**8.452**	**7.191**	**7.837**	**5.326**	**6.012**	**5.551**	**24.582**	**21.551**	**23.993**	**15.034**	**15.022**	**10.621**
	(1.000)	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.999)**	**(1.000)**	**(1.000)**	**(1.000)**
Wald	**6344*** **	**2087*** **	**160.7*** **	**12660*** **	**2e+6*** **	**7e+5*** **	**4e+7*** **	**7e+7*** **	**3e+7*** **	0.018	0.488	**24.3*** **	**8374*** **	**4e+5*** **	**9e+5*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	(0.891)	(0.484)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Countries	8	8	8	28	27	27	11	11	11	25	24	24	36	35	35
Observations	233	115	75	789	389	257	324	161	106	698	343	226	1022	504	332

***, **,*: significance levels of 1%, 5% and 10% respectively. AR(2): Second Order Autocorrelation test. OIR: Over-identifying Restrictions test. Initial: lagged endogenous estimated coefficient. Wald: test for the joint significance of estimated coefficients. Yrs: Years. NOI: Non-overlapping intervals. Petroleum: Petroleum exporting countries. Non-Petroleum: Countries with no significant exports in petroleum. Conflict: Countries with significant political instability. Non-Conflict: Countries without significant political instability. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test.

Table 4: Conditional Convergence (First specification for robustness checks plus baseline)

Panel A: Difference GMM

	Petroleum			Non-Petroleum			Conflict			Non-Conflict			Africa		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Initial	-0.488	-1.975	**-2.29** **	-0.018	-0.169	**-0.513** **	-0.928	-0.418	-1.601	-0.170	-0.070	-0.463	-0.057	-0.185	**-0.47*** **
	(0.496)	(0.605)	**(0.046)**	(0.895)	(0.105)	**(0.018)**	(0.116)	(0.697)	(0.112)	(0.137)	(0.399)	(0.181)	(0.781)	(0.113)	**(0.042)**
Constant	**-3.491***	-0.022	-0.018	-0.053	-0.013	-0.015	-0.233	0.011	0.003	-0.117	-0.020	0.003	-0.002	-0.014	0.002
	(0.068)	(0.584)	(0.212)	(0.360)	(0.495)	(0.669)	(0.258)	(0.385)	(0.924)	(0.536)	(0.355)	(0.932)	(0.904)	(0.549)	(0.939)
Gov't Expenditure	0.020	-0.0008	0.001	0.003	-0.001	-0.0006	-0.0008	0.0006	0.011	-0.014	-0.003	-0.003	0.001	-0.0009	-0.001

	(0.741)	(0.804)	(0.711)	(0.473)	(0.660)	(0.903)	(0.487)	(0.860)	(0.312)	(0.343)	(0.260)	(0.368)	(0.675)	(0.757)	(0.742)
Trade	0.049	0.002	-0.004	0.006	0.001	-0.001	---	-0.003	-0.002	0.007	0.002	0.0003	0.001	0.001	-0.0003
	(0.184)	(0.547)	(0.302)	(0.315)	(0.656)	(0.588)		(0.721)	(0.727)	(0.330)	(0.464)	(0.835)	(0.808)	(0.581)	(0.862)
Foreign Direct Ivt.	---	---	---	0.018	0.0003	**0.021****	---	---	0.007	0.035	0.004	0.015	0.018	0.008	0.014
				(0.387)	(0.977)	**(0.031)**			(0.839)	(0.577)	(0.750)	(0.165)	(0.605)	(0.495)	(0.367)
GDP Growth	---	---	---	0.020	**0.041****	0.013	---	---	---	0.001	0.028	0.009	0.011	0.030	0.012
				(0.185)	**(0.023)**	(0.354)				(0.971)	(0.258)	(0.420)	(0.428)	(0.159)	(0.359)
Regulation Quality	---	---	---	-0.011	-0.048	**-0.30***	---	---	---	-0.361	-0.035	-0.157	-0.193	-0.116	-0.235
				(0.976)	(0.644)	**(0.090)**				(0.656)	(0.697)	(0.147)	(0.801)	(0.201)	(0.157)
Financial Depth	---	---	---	0.058	0.586	-0.157	---	---	---	0.873	0.666	0.034	0.517	0.532	-0.344
				(0.945)	(0.393)	(0.762)				(0.573)	(0.337)	(0.975)	(0.633)	(0.487)	(0.486)
Foreign Aid	---	---	---	0.018	0.008	-0.002	---	---	---	0.037	-0.001	-0.004	0.006	0.004	0.001
				(0.181)	(0.354)	(0.822)				(0.553)	(0.907)	(0.461)	(0.224)	(0.541)	(0.824)
Inflation	---	---	---	**-0.022***	-0.006	**0.012***	---	---	---	-0.009	-0.008	**0.005****	-0.003	-0.003	0.007
				(0.092)	(0.205)	**(0.081)**				(0.470)	(0.254)	**(0.013)**	(0.763)	(0.353)	(0.389)
AR(1)	**1.431**	**0.154**	**0.549**	**-1.539**	**-1.365**	**-0.932**	**0.082**	**-0.326**	**-0.407**	**-1.188**	**-1.339**	**-1.108**	**-1.172**	**-1.395**	**-0.778**
	(0.152)	**(0.877)**	**(0.582)**	**(0.123)**	**(0.172)**	**(0.351)**	**(0.934)**	**(0.744)**	**(0.683)**	**(0.234)**	**(0.180)**	**(0.267)**	**(0.241)**	**(0.162)**	**(0.436)**
AR(2)	**1.418**	**-0.669**	**-1.344**	**0.190**	**-0.826**	**-0.823**	-21.7***	**0.056**	**-1.244**	**-0.941**	**-1.129**	**-0.639**	**-0.846**	**-0.680**	**-0.914**
	(0.155)	**(0.503)**	**(0.178)**	**(0.848)**	**(0.408)**	**(0.410)**	(0.000)	**(0.954)**	**(0.213)**	**(0.346)**	**(0.258)**	**(0.522)**	**(0.397)**	**(0.496)**	**(0.360)**
Sargan OIR	**0.012**	**0.087**	**3 e-5**	**7.372**	**10.289**	**9.390**	**1.658**	**2.973**	**3e-17**	**6.014**	**10.776**	**6.858**	**11.676**	**14.462**	**11.912**
	(1.000)	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.999)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.997)**
Wald	2.489	5.323	**8.224****	8.232	**28.75*****	**56.65*****	2.996	0.629	**70.8*****	10.449	12.611	**27.46*****	2.521	**37.27*****	**42.09*****
	(0.477)	(0.149)	**(0.041)**	(0.510)	**(0.000)**	**(0.000)**	(0.223)	(0.889)	**(0.000)**	(0.315)	(0.181)	**(0.001)**	(0.980)	**(0.000)**	**(0.000)**
Countries	5	5	5	19	19	19	6	6	5	17	17	17	22	22	22
Observations	130	64	42	158	110	65	148	71	42	139	99	58	180	127	74

Panel B: System GMM

	Petroleum			Non-Petroleum			Conflict			Non-Conflict			Africa		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Initial	0.481	0.002	0.077	0.043	**-0.22****	**-0.36*****	0.020	-0.060	-0.936	**-0.114****	0.005	-0.304	-0.020	-0.215	**-0.31*****
	(0.786)	(0.996)	(0.842)	(0.703)	**(0.044)**	**(0.000)**	(0.965)	(0.940)	(0.172)	**(0.035)**	(0.949)	(0.133)	(0.870)	(0.104)	**(0.002)**
Constant	-0.031	-0.043	-0.141	-0.048	**-0.193***	-0.090	0.050	-0.064	0.003	0.096	0.011	-0.070	-0.060	-0.044	0.034
	(0.902)	(0.632)	(0.180)	(0.744)	**(0.097)**	(0.403)	(0.137)	(0.724)	(0.967)	(0.599)	(0.914)	(0.633)	(0.618)	(0.695)	(0.778)
Gov't Expenditure	0.003	0.0001	-0.004	0.001	-0.0007	-0.0003	-0.011	-0.0009	0.005	-0.004	-0.004	-0.0003	0.000	-0.001	-0.004
	(0.957)	(0.983)	(0.143)	(0.500)	(0.806)	(0.871)	(0.585)	(0.735)	(0.189)	(0.304)	(0.128)	(0.940)	(0.980)	(0.483)	(0.504)
Trade	---	0.001	**0.002***	0.0001	0.0004	-0.0008	---	0.002	0.001	0.0008	0.0001	0.000	0.0002	0.000	-0.000
		(0.505)	**(0.050)**	(0.810)	(0.422)	(0.496)		(0.585)	(0.189)	(0.176)	(0.746)	(0.930)	(0.495)	(0.937)	(0.986)
Foreign Direct Ivt.	---	---	**0.023***	0.006	-0.0002	0.008	---	---	0.001	0.0001	-0.001	0.003	-0.000	0.001	0.003
			(0.084)	(0.478)	(0.929)	(0.450)			(0.564)	(0.986)	(0.755)	(0.779)	(0.988)	(0.676)	(0.711)
GDP Growth	---	---	---	0.008	**0.033***	0.015	---	---	---	0.007	0.017	0.012	0.009	0.019	0.008
				(0.438)	**(0.055)**	(0.183)				(0.654)	(0.401)	(0.535)	(0.361)	(0.274)	(0.480)
Regulation Quality	---	---	---	0.031	-0.019	-0.105	---	---	---	0.039	0.007	0.005	-0.015	**-0.04****	-0.035
				(0.530)	(0.663)	(0.166)				(0.426)	(0.868)	(0.933)	(0.762)	**(0.043)**	(0.622)
Financial Depth	---	---	---	0.007	**0.143***	0.136	---	---	---	-0.151	0.009	0.100	0.049	0.048	-0.043
				(0.943)	**(0.071)**	(0.443)				(0.258)	(0.896)	(0.573)	(0.706)	(0.621)	(0.812)
Foreign Aid	---	---	---	**0.006****	0.0005	-0.0008	---	---	---	0.002	0.001	0.0003	0.004	-0.0003	-0.0002
				(0.036)	(0.875)	(0.856)				(0.373)	(0.664)	(0.942)	(0.202)	(0.852)	(0.950)
Inflation	---	---	---	-0.006	-0.001	0.004	---	---	---	-0.008	-0.005	0.002	-0.002	-0.001	-0.0004
				(0.234)	(0.711)	(0.224)				(0.177)	(0.145)	(0.508)	(0.449)	(0.421)	(0.888)
AR(1)	**-0.848**	**-0.721**	**-1.407**	**-1.268**	**-1.285**	**-1.101**	**-1.068**	**-0.793**	**-0.111**	**-1.172**	**-1.361**	**-1.016**	**-1.239**	**-1.242**	**-1.078**
	(0.396)	**(0.470)**	**(0.159)**	**(0.204)**	**(0.198)**	**(0.270)**	**(0.285)**	**(0.427)**	**(0.911)**	**(0.241)**	**(0.173)**	**(0.309)**	**(0.215)**	**(0.213)**	**(0.281)**
AR(2)	**0.488**	**0.403**	**-1.150**	**-0.303**	**-0.796**	**-0.380**	**0.277**	**0.550**	**-1.144**	**-1.121**	**-1.082**	**-0.066**	**-0.862**	**-0.643**	**-0.571**

	(0.625)	**(0.686)**	**(0.249)**	**(0.761)**	**(0.426)**	**(0.703)**	**(0.781)**	**(0.582)**	**(0.252)**	**(0.262)**	**(0.278)**	**(0.947)**	**(0.388)**	**(0.519)**	**(0.567)**
Sargan OIR	**2.093**	**3.887**	**3.6e-18**	**9.708**	**9.110**	**7.378**	**3.039**	**1.981**	**0.883**	**8.679**	**10.095**	**5.765**	**10.678**	**13.395**	**16.180**
	(1.000)	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.995)**
Wald	0.795	1.228	**56.21*** **	**17.03** **	**25.30*** **	**105.2*** **	**27.40*** **	4.381	1.962	10.766	**21.01** **	**18.44** **	**15.09***	**49.72*** **	**56.32*** **
	(0.671)	(0.746)	**(0.000)**	**(0.048)**	**(0.002)**	**(0.000)**	**(0.000)**	(0.223)	(0.580)	(0.292)	**(0.012)**	**(0.030)**	**(0.088)**	**(0.000)**	**(0.000)**
Countries	5	5	5	19	19	19	6	6	6	17	17	17	22	22	22
Observations	135	69	36	177	129	84	154	77	53	156	116	75	202	149	96

***, **,*: significance levels of 1%, 5% and 10% respectively. AR(2): Second Order Autocorrelation test. OIR: Over-identifying Restrictions test. Initial: lagged endogenous estimated coefficient. Wald: test for the joint significance of estimated coefficients. Yrs: Years. NOI: Non-overlapping intervals. Petroleum: Petroleum exporting countries. Non-Petroleum: Countries with no significant exports in petroleum. Conflict: Countries with significant political instability. Non-Conflict: Countries without significant political instability.Gov't: Government. Ivt: Investment. GDP: Gross Domestic Product. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test.

Table 5: Conditional Convergence (Second specification for robustness checks plus baseline)

Panel A: Difference GMM

	Petroleum			Non-Petroleum			Conflict			Non-Conflict			Africa		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Initial	**-0.18*** **	**-0.39*** **	**-0.34*** **	-0.084	-0.141	**-0.51*** **	**0.21*** **	**0.423*** **	**0.24*** **	**0.025** **	**-0.44*** **	**-0.55*** **	**0.024** **	**-0.42*** **	**-0.44*** **
	(0.000)	**(0.000)**	**(0.000)**	(0.507)	(0.330)	**(0.004)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.025)**	**(0.000)**	**(0.000)**	**(0.026)**	**(0.000)**	**(0.000)**
Constant	-0.181	0.002	0.020	-0.001	-0.019	-0.006	-0.091	-0.380	-0.444	-0.015	0.029	-0.010	0.051	-0.006	-0.026
	(0.684)	(0.932)	(0.401)	(0.935)	(0.168)	(0.841)	(0.437)	(0.539)	(0.395)	(0.820)	(0.683)	(0.845)	(0.184)	(0.842)	(0.484)
Public Investment	0.015	0.0003	-0.009	0.002	-0.020	0.004	0.019	-0.120	0.407	-0.026	0.043	**0.067***	-0.011	0.030	0.019
	(0.886)	(0.990)	(0.588)	(0.888)	(0.306)	(0.821)	(0.886)	(0.809)	(0.484)	(0.363)	(0.555)	**(0.050)**	(0.582)	(0.592)	(0.634)
Trade	---	**0.013** **	-0.001	0.002	0.0006	-0.001	-0.119	-0.123	-0.336	-0.004	0.008	-0.009	-0.003	0.011	0.001
		(0.014)	(0.806)	(0.400)	(0.775)	(0.642)	(0.364)	(0.351)	(0.347)	(0.600)	(0.402)	(0.235)	(0.397)	(0.237)	(0.708)
Priv. Capital Flows	-0.067	-0.031	0.008	**0.033***	0.014	**0.025***	0.122	0.132	0.523	**0.037** **	-0.044	**0.041** **	0.017	-0.046	0.010
	(0.336)	(0.259)	(0.508)	**(0.099)**	(0.272)	**(0.066)**	(0.476)	(0.421)	(0.360)	**(0.012)**	(0.471)	**(0.020)**	(0.279)	(0.340)	(0.424)
GDPpc Growth	-0.121	-0.010	0.008	0.010	0.013	0.011	-0.093	0.301	0.474	-0.017	0.030	-0.052	0.0001	0.030	-0.001
	(0.185)	(0.387)	(0.511)	(0.407)	(0.547)	(0.516)	(0.317)	(0.367)	(0.362)	(0.511)	(0.506)	(0.256)	(0.994)	(0.282)	(0.964)
Rule of Law	---	---	---	0.087	-0.117	-0.170	---	---	---	-0.399	0.374	-0.159	-0.146	0.078	0.072
				(0.763)	(0.309)	(0.243)				(0.524)	(0.367)	(0.781)	(0.657)	(0.813)	(0.754)
Liquid Liabilities	---	---	---	-0.043	0.893	-0.064	---	---	---	-0.424	-1.112	0.314	-1.048	-0.212	0.435
				(0.968)	(0.277)	(0.944)				(0.789)	(0.631)	(0.751)	(0.467)	(0.857)	(0.595)
Foreign Aid (DAC)	---	---	---	0.010	0.014	-0.010	---	---	---	**0.087** **	-0.174	**-0.221***	0.052	-0.070	-0.094
				(0.368)	(0.214)	(0.540)				**(0.026)**	(0.254)	**(0.081)**	(0.130)	(0.333)	(0.182)
Inflation	---	---	---	-0.014	-0.0008	**0.011** **	---	---	---	0.005	0.013	**0.02*** **	-0.0003	0.003	0.0005
				(0.256)	(0.820)	**(0.010)**				(0.670)	(0.410)	**(0.004)**	(0.783)	(0.448)	(0.546)
AR(1)	**-1.092**	**-0.993**	**-1.023**	**-1.637**	**-1.439**	**-0.967**	**-1.000**	**-1.025**	**-1.007**	**-1.172**	**-1.101**	**-1.262**	**-1.375**	**-1.068**	**-1.064**
	(0.274)	**(0.320)**	**(0.306)**	**(0.101)**	**(0.150)**	**(0.333)**	**(0.317)**	**(0.304)**	**(0.313)**	**(0.241)**	**(0.270)**	**(0.206)**	**(0.169)**	**(0.285)**	**(0.287)**
AR(2)	**-0.929**	**-0.993**	**-0.984**	**-0.239**	**-0.597**	**-0.773**	**1.000**	**-0.998**	**0.994**	**0.946**	**-1.039**	**-1.147**	**0.941**	**-1.100**	**-0.972**
	(0.352)	**(0.320)**	**(0.324)**	**(0.810)**	**(0.550)**	**(0.439)**	**(0.317)**	**(0.317)**	**(0.319)**	**(0.344)**	**(0.298)**	**(0.251)**	**(0.346)**	**(0.271)**	**(0.330)**
Sargan OIR	**1.533**	**1.034**	**1.010**	**8.339**	**16.051**	**12.884**	**7.523**	**8.072**	**6.838**	**9.778**	**7.803**	**7.861**	**21.467**	**22.128**	**17.014**
	(1.000)	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.995)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.961)**
Wald	**76.66*** **	**1730*** **	**1729*** **	**24.82*** **	**49.90*** **	**104.8*** **	**19200*** **	**81421*** **	**11375*** **	**90.48*** **	**4453*** **	**1455*** **	**57.40*** **	**1e+4*** **	**3038*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Countries	7	7	7	23	23	23	10	10	10	19	19	19	28	28	28
Observations	131	66	43	177	123	75	225	110	73	148	106	63	215	153	91

Panel B: System GMM

	Petroleum			Non-Petroleum			Conflict			Non-Conflict			Africa		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Initial	**-0.19*** **	**-0.31*** **	**-0.22*** **	-0.052	-0.223	**-0.45*** **	-0.742	**0.59*** **	**0.56*** **	**0.010** **	**-0.33*** **	**-0.30*** **	**0.010* **	**-0.33*** **	**-0.27*** **
	(000)	**(0.000)**	**(0.000)**	(0.662)	(0.124)	**(0.000)**	(0.555)	**(0.000)**	**(0.000)**	**(0.033)**	**(0.000)**	**(0.000)**	**(0.082)**	**(0.000)**	**(0.000)**
Constant	-1.360	-0.258	-0.228	-0.094	-0.097	-0.046	-0.146	5.001	4.124	0.102	0.102	0.122	-0.010	-0.197	0.083
	(0.320)	(0.408)	(0.167)	(0.444)	(0.308)	(0.598)	(0.592)	(0.410)	(0.383)	(0.721)	(0.660)	(0.741)	(0.948)	(0.455)	(0.608)
Public Investment	0.303	0.009	-0.004	0.005	-0.005	0.004	0.018	-0.610	-0.484	-0.021	0.022	0.034	-0.007	0.024	0.021
	(0.256)	(0.444)	(0.658)	(0.572)	(0.456)	(0.454)	(0.295)	(0.334)	(0.330)	(0.135)	(0.516)	(0.197)	(0.443)	(0.474)	(0.288)
Trade	---	0.007	0.005	-0.001	0.000	-0.0007	0.0003	0.038	0.041	-0.001	0.001	-0.001	-0.001	0.003	-0.0002
		(0.295)	(0.149)	(0.395)	(0.967)	(0.477)	(0.897)	(0.612)	(0.451)	(0.405)	(0.558)	(0.683)	(0.500)	(0.283)	(0.880)
Priv. Capital Flows	-0.132	-0.020	0.019	0.026	0.003	0.010	0.004	-0.291	-0.334	0.017	-0.005	**0.030* **	0.012	-0.014	0.012
	(0.255)	(0.245)	(0.409)	(0.152)	(0.705)	(0.389)	(0.347)	(0.514)	(0.408)	(0.257)	(0.763)	**(0.059)**	(0.354)	(0.523)	(0.273)
GDPpc Growth	---	---	---	0.013	0.018	0.013	0.002	0.181	0.091	-0.006	0.040	-0.008	0.005	0.011	-0.003
				(0.296)	(0.289)	(0.340)	(0.856)	(0.387)	(0.571)	(0.735)	(0.284)	(0.842)	(0.691)	(0.480)	(0.824)
Rule of Law	---	---	---	-0.071	-0.043	-0.086	-0.056	---	---	0.154	-0.111	-0.307	0.088	-0.196	-0.157
				(0.433)	(0.618)	(0.264)	(0.441)			(0.543)	(0.687)	(0.421)	(0.478)	(0.322)	(0.239)
Liquid Liabilities	---	---	---	0.030	0.150	-0.013	---	---	---	0.208	-0.460	-0.513	0.103	-0.425	-0.297
				(0.850)	(0.224)	(0.941)				(0.519)	(0.356)	(0.364)	(0.653)	(0.299)	(0.304)
Foreign Aid (DAC)	---	---	---	0.001	0.005	-0.009	---	---	---	0.027	-0.027	-0.059	0.017	-0.020	-0.028
				(0.766)	(0.405)	(0.381)				(0.175)	(0.567)	(0.368)	(0.194)	(0.442)	(0.236)
Inflation	---	---	---	-0.001	0.001	0.006	---	---	---	0.0007	-0.009	0.008	0.0004	-0.001	0.0002
				(0.764)	(0.601)	(0.202)				(0.891)	(0.266)	(0.203)	(0.732)	(0.104)	(0.507)
AR(1)	**-1.027**	**-1.037**	**-1.027**	**-1.532**	**-1.327**	**-1.124**	**-0.112**	**-1.004**	**-1.001**	**-1.196**	**-1.013**	**-1.050**	**-1.369**	**-1.034**	**-1.075**
	(0.304)	**(0.299)**	**(0.304)**	**(0.125)**	**(0.184)**	**(0.261)**	**(0.910)**	**(0.314)**	**(0.316)**	**(0.231)**	**(0.310)**	**(0.293)**	**(0.170)**	**(0.300)**	**(0.282)**
AR(2)	**-0.783**	**-0.789**	**-0.935**	**-0.397**	**-0.921**	**-0.501**	**-0.713**	**-1.001**	**0.991**	**0.938**	**-1.092**	**-1.009**	**0.785**	**-1.135**	**-1.000**
	(0.433)	**(0.430)**	**(0.349)**	**(0.690)**	**(0.356)**	**(0.615)**	**(0.475)**	**(0.316)**	**(0.321)**	**(0.348)**	**(0.274)**	**(0.312)**	**(0.432)**	**(0.256)**	**(0.317)**
Sargan OIR	**1.197**	**1.784**	**1.850**	**15.019**	**17.049**	**13.919**	**2.933**	**8.641**	**7.576**	**10.231**	**10.380**	**13.078**	**21.957**	**24.748**	**21.970**
	(1.000)	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.999)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(0.999)**	**(1.000)**	**(1.000)**	**(0.944)**
Wald	**1086*** **	**120.3*** **	**69.06*** **	**32.72*** **	**37.12*** **	**39.07*** **	6.763	**8715*** **	**65401*** **	**23.65*** **	**10261*** **	**833*** **	**21.48** **	**3333*** **	**2031*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	(0.343)	**(0.000)**	**(0.000)**	**(0.004)**	**(0.000)**	**(0.000)**	**(0.010)**	**(0.000)**	**(0.000)**
Countries	7	7	7	23	23	23	9	10	10	19	19	19	28	28	28
Observations	138	73	50	200	146	98	95	120	83	167	125	82	243	181	119

***, **,*: significance levels of 1%, 5% and 10% respectively. AR(2): Second Order Autocorrelation test. OIR: Over-identifying Restrictions test. Initial: lagged endogenous estimated coefficient. Wald: test for the joint significance of estimated coefficients. Yrs: Years. NOI: Non-overlapping intervals. Petroleum: Petroleum exporting countries. Non-Petroleum: Countries with no significant exports in petroleum. Conflict: Countries with significant political instability. Non-Conflict: Countries without significant political instability.Priv: Private. GDPpc: GDP per capita. DAC: Development Assistance Committee. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test.

Table 6: Summary of results on Absolute and Conditional Convergences (for robustness checks plus baseline)

Panel A: Difference GMM

	Petroleum			Non-Petroleum			Conflict			Non-Conflict			Africa		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Absolute Convergence with Specifications in Table 3															
Absolute C (AC)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
% of A.C	24.32%	17.35%	10.13%	54.55%	30.80%	17.33%	54.74%	30.88%	17.40%	n.a	n.a	13.10%	54.30%	30.75%	17.33%
Years to A.C	4.11Yrs	11.5Yrs	29.6Yrs	1.83Yrs	6.49Yrs	17.3Yrs	1.82Yrs	6.47Yrs	17.2Yrs	n.a	n.a	22.9Yrs	1.84Yrs	6.50Yrs	17.3Yrs
Conditional Convergence with Specifications in Table 4															
Conditional C (CC)	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	Yes
% of C.C	n.a	n.a	n.a	n.a	n.a	17.10%	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	15.73%
Years to C.C	n.a	n.a	n.a	n.a	n.a	17.5Yrs	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	19Yrs
Conditional Convergence with Specifications in Table 5															
Conditional C (CC)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
% of C.C	18.70%	19.8%	11.36%	n.a	n.a	17.16%	21.97%	21.18%	8.30%	2.50%	22%	18.53%	2.40%	21.15%	14.76%
Years to C.C	5.34Yrs	10.1Yrs	26.4Yrs	n.a	n.a	17.4Yrs	4.55Yrs	9.44Yrs	36.1Yrs	40Yrs	9.09Yrs	16.1Yrs	41.6Yrs	9.45Yrs	20.3Yrs

Panel B: System GMM

	Petroleum			Non-Petroleum			Conflict			Non-Conflict			Africa		
	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI	Full Data	2 Yr NOI	3Yr NOI
Absolute Convergence with Specifications in Table 3															
Absolute C (AC)	Yes	**Yes**	Yes	Yes	**Yes**	Yes	Yes	**Yes**	Yes	No	**No**	Yes	Yes	**Yes**	Yes
% of A.C	22.33%	**15.55%**	6.26%	65.64%	**33.05%**	20.23%	65.00%	**33.11%**	20.36%	n.a	**n.a**	12.83%	64.50%	**33.05%**	20.23%
Years to A.C	4.47Yrs	**12.8Yrs**	47.9Yrs	1.52Yrs	**6.05Yrs**	14.8Yrs	1.53Yrs	**6.04Yrs**	14.7Yrs	n.a	**n.a**	23.3Yrs	1.55Yrs	**6.05Yrs**	14.8Yrs
Conditional Convergence with Specifications in Table 4															
Conditional C (CC)	No	No	No	No	Yes	Yes	No	No	No	No	No	No	No	**No**	Yes
% of C.C	n.a	n.a	n.a	n.a	11.25%	12.10%	n.a	n.a	n.a	n.a	n.a	n.a	n.a	**n.a**	10.50%
Years to C.C	n.a	n.a	n.a	n.a	17.7Yrs	24.7Yrs	n.a	n.a	n.a	n.a	n.a	n.a	n.a	**n.a**	28.5Yrs
Conditional Convergence with Specifications in Table 5															
Conditional C (CC)	Yes	**Yes**	Yes	No	**No**	Yes	No	**Yes**	Yes	Yes	**Yes**	Yes	Yes	**Yes**	Yes
% of C.C	19.50%	**15.65%**	7.43%	n.a	**n.a**	15.0%	n.a	**29.75%**	18.86%	1.05%	**16.88%**	10.26%	1%	**16.50%**	9.06%
Years to C.C	5.12Yrs	**12.7Yrs**	40.3Yrs	n.a	**n.a**	20Yrs	n.a	**6.72Yrs**	15.9Yrs	95.2Yrs	**11.8Yrs**	23.2Yrs	100Yrs	**12.1Yrs**	33.1Yrs

AC: Absolute Convergence. CC: Conditional Convergence. Petroleum: Petroleum exporting countries. Non-Petroleum: Countries with no significant exports in petroleum. Conflict: Countries with significant political instability. Non-Conflict: Countries without significant political instability.

3.2 Discussion of results

3.2.1 Discussion and policy implications

Before we dive into the discussion of results, it is important at the outset to understand the economic intuition motivating absolute and conditional convergence of capital flight in the African continent. Absolute convergence in capital flight occurs when countries share similar fundamental characteristics with regard to bases governing capital flight such that, only variations across countries in initial levels of capital flight exist. Absolute convergence therefore results from factors such as the significant export of petroleum and national instability owing to conflicts. Absolute convergence also occurs because of adjustments common to petroleum or conflict-affected countries. Hence, based on the intuition we expect capital flight to be higher in petroleum and conflict-affected countries. This is a necessary but not a sufficient condition for speedy convergence because of disparities in initial conditions of capital flight. These differences in initial conditions depend on: (1) time-dynamic evidence of significant petroleum exports, either because of recent discovery or substantial decline in productions and; (2) spontaneous reoccurrence of conflicts after relatively stable periods or arbitrary and unilateral violation of peace accords.

On the other hand, conditional convergence is that which is contingent on cross-country differences in structural and institutional characteristics that determine capital flight. Consistent with the economic growth literature (Barro, 1991), conditional convergence depicts the kind of convergence whereby, one's own long-term steady state (equilibrium) is contingent on structural characteristics and fundamentals of its economy in general and its institutions in particular. For instance, non-petroleum exporting countries may differ substantially in the level of globalization, institutional quality, financial development, economic prosperity, price stability, foreign aid…etc

To this end, our model for conditional convergence is contingent on globalization (trade, FDI and private capital flows), institutional quality (rule of law and regulation quality), financial development (at overall economic and financial system levels), economic prosperity (GDP growth at macro and micro levels), inflation and development assistance (total NODA and NODA from DAC countries). Owing to constraints in degrees of freedom, some models have not been conditional on all the determinants of capital flight outlined above. This is not a major issue because some conditional specifications in mainstream literature are not beyond two macroeconomic control variables (Bruno et al., 2012).

We have observed the following from the findings. (1) Absolute convergence in petroleum exporting countries is significantly different from that of other panels in particular and Africa in general. The corresponding lower (higher) rate (time) of (to full) convergence in petroleum countries could be explained by significant differences in initial conditions of capital flight discussed above: time-dynamic evidence of significant petroleum exports, either because of recent discovery or substantial decline in productions. (2) Conflict-affected countries significantly have a higher (lower) rate (time required) of (for full) conditional converge because of substantially lower cross-country differences in macroeconomic and institutional characteristics determining capital flight. Hence, cross-country differences in factors governing capital flight among conflict-affected countries are not very substantial. (3) Irrespective of fundamental characteristics, a feasible timeframe for the harmonization of policies in the fight against capital flight is within a horizon of 6 to 13 years. This empirically means that countries with lower rates of capital flight are catching-up their counterparts with higher rates, both in absolute and conditional terms. Within the framework of the intuition motivating this analysis on benchmarking policy harmonization, two inferences could be made: on the one hand,

convergence implies that, adopting common policies against the scourge is feasible and; full (100%) convergence within the specified time horizon reflects the implementation (or harmonization) of the feasible policies without distinction of nationality or locality.

3.2.2 Towards harmonizing policies on African capital flight

The African Union (AU) is already putting some efforts towards stemming the tide of capital flight (Christensen, 2009) and some sources of the AU have accused multinational companies of promoting capital flight from the continent. We have observed from the analysis that a standard-setting framework is feasible on the horizon of between 6 to 13 years. The following four points are relevant issues that need to be resolved to facilitate this harmonization: improvement of the investment climate and ease of doing business to deter capital fight based on prospects of higher returns; formulation of common policies that would culminate in the repatriation of corruption-related capital flight deposited in Western banks and the improvement of formal institutions that will oversee the recuperation for this stolen capital (as well as deter potentially corrupt officials); involvement of Western banks in particular and the international community in general and; challenging the legitimacy of part of African debts.

Firstly, African governments need to make it easier to do business in their countries. In fact, excessive and unhelpful regulation put off local and foreign investors all over Africa. Hence, growth and development are held back by governments that lack interest and capacity to foster private sector growth (which brings jobs, improvements to currency flows and tax revenues). African governments should also find ways of: streamlining and improving business regulations; getting rid of old or contradictory laws and; improving capacity at business licensing, tax and other business related government departments. This is consistent with Fofack & Ndikumana (2009) who have established that African governments have to focus on

improving the regulatory framework in order to attract private assets that were acquired legally and only held abroad for the purpose of maximization of returns on investment and risk minimization. Available evidence still indicates that African countries are trailing behind other countries in terms of the quality of investment climate (World Bank, 2007). This is due to relatively higher transactions costs which make it hard to attract legitimate assets held abroad by Africans. Hence, within the specified horizon of 6-13 years outlined above, the strategy for repatriating acquired assets should be an integral part of the national agenda for promoting both domestic and foreign investments.

Secondly, another focus of policy in the period leading to full convergence will be the improvement of governance in African countries. Governments should work towards demonstrating to asset holders that, repatriated assets will not be subject to distortionary treatment (taxation) or risk of embezzlement by corrupt leaders. Within this perspective, commitment to transparency by the African leadership will be critical in convincing private asset holders to repatriate their wealth back to the continent. Accordingly, a critical ingredient in the success of these strategies is strong political will both at the level of African governments and at the international level to enforce transparency in banking and capital account transactions. Ultimately, African countries will have little chance of uncovering and repatriating stolen funds without the support and cooperation of their Western counterparts. In essence, repatriation of capital flight should figure prominently on the agenda for mobilizing domestic resources and boosting international support to accelerate the common initiatives.

Thirdly, during the defined horizon, policies under consideration should integrate the participation of Western governments who also have a very important role to play in facilitating the repatriation of capital flight. It is the responsibility of Western governments to uproot

practices that enable their banks to accept deposits from African corrupt officials. These governments also have to play a critical role in the recovery of stolen assets by utilizing their economic and financial intelligence services to uncover deposits of illegally acquired funds, especially from African leaders and their private acolytes. Hence, individual countries' initiatives for capital repatriation will require a concerted effort at the international level, especially via the ratification and implementation of specific conventions against fraud, corruption and money laundering. Within this perspective, initiatives such as the UN Resolution 55/188 of illegal transfer of assets, the Stolen Asset Recovery initiative and, the International Center for Asset Recovery need to be supported and given adequate material, human and political resources to promote transparency in international financial institutions (Fofack & Ndikumana, 2009). Regulatory mechanisms should include the following: sanctions to both African smugglers and their bankers; disclosure of the identity of holders of large balances to the authorities of both the country-of-incorporation of the bank and the country-of-origin of the asset holders; including of transparency related to stolen assets in the corporate ratings of Western banks to deter them from colluding in acts of financial crime; among others.

Fourthly, on challenging the legitimacy of part of African external debt, the following points could be raised: past borrowing practices failed the test of benefiting the people; the debts were often borrowed in the name of the people without their consent and, historical evidence can readily establish the test of creditor awareness (Boyce & Ndikumana, 2011). This point is consistent with the thesis that, the burden of proof of legitimacy of past debts must rest on the lenders and that enforcing the doctrine of odious debt will result in a win-win situation for borrowers and lenders. Prior to full convergence, as Africa searches for ways to recuperate stolen funds and mitigate capital flight, we believe that the strategies outlined above for addressing the

issues must feature prominently in debates at the national and international development assistance community levels; with the AU playing the leading role.

3.2.3 Caveats

Three main caveats have been retained: the absence of a sound theoretical basis, draw-backs in the methodology and failure to distinguish various capital flight components.

Firstly, using econometrics to accomplish more than just testing theory is not without downsides. The intuition basis of the work implies, results should be interpreted with caution as the model is conditioned on the variables we choose and empirically test, which may not directly reflect all macroeconomic and institutional conditions on which 'capital flight convergence' is endogenous.

Secondly, the choice of the convergence approach justified by the empirical underpinnings of Asongu (2012) also has its draw-backs. Accordingly, we would have loved to compute the corresponding *sigma*-convergence coefficients but we have stopped short of doing so because we are unaware of how to compute the rates of and time to full convergence for the approach. It should be noted that, we are adapting to a methodological innovation in the estimation of beta-convergence. Consistent with Apergis et al. (2010), critics of β-convergence dispute that, if countries converge to a common equilibrium with identical internal structures, then the dispersion of the variable under consideration should disappear in the long-run as all countries converge to the same long-run path. If on the other hand, states converge to 'convergence clubs' or to their own unique equilibrium, the dispersion of this measure will not approach zero (Miller & Upadhyay, 2002). Moreover, in the latter case of country-specific equilibrium, the movements of the dispersion will be contingent on the initial distribution of the variable under investigation with regard to their final long-run outcomes. Unfortunately, it is not

feasible to avoid disparities in initial conditions within fundamental characteristics for reasons already discussed. These differences in initial conditions depend on: (1) time-dynamic evidence of significant petroleum exports, either because of recent discovery or substantial decline in productions and; (2) spontaneous reoccurrence of conflicts after relatively stable periods or arbitrary and unilateral violation of peace accords. The econometric results are heterogenous as statistical convergence of capital flight is not found in all the regressions for two main reasons. (1) Conditional convergence is relative, so it is normal for the results to vary with changes in the conditioning information set. (2) From an empirical standpoint, it is not unexpected to see some differences in the *System* GMM in comparison to the *Difference* GMM estimations because the former is based on some insufficiencies in the latter.

Thirdly, we have not distinguished 'bad capital flight' (i.e. illegally acquired funds, especially from African leaders and their "private acolytes") from "good capital flight", i.e. funds legally transferred by households and firms. Hence even in the presence of full convergence, policies may not be adopted without distinction of nationality and locality because: (1) capital moving from one country to another may be of different types across source countries and; (2) they may move for different reasons. Moreover, an opposite thesis might be advanced because while convergence facilitates understanding the depth of the capital flight problem, it is not the only condition for the adoption of policies because national specific reasons may be advocated to stem the tide.

4. Conclusion

With earthshaking and heartbreaking trends in African capital flight provided by a new database, this paper has complemented existing literature by adapting an existing methodology to answer some key policy questions on the feasibility of and timeframe for policy harmonization

in the battle against the economic scourge. Three main findings have been established. (1) African countries with low capital flight rates are catching-up their counterparts with higher rates, implying the feasibility of policy harmonization towards fighting capital flight. (2) Petroleum-exporting and conflict-affected countries significantly play out in absolute and conditional convergences respectively. (3) Regardless of fundamental characteristics, a genuine timeframe for harmonizing policies is within a horizon of 6 to 13 years. In other words, full (100%) convergence within the specified horizon is an indication that policies and regulations can be enforced without distinction of nationality or locality. Policy making strategies prior to harmonization have been discussed.

Appendices

Appendix 1: Summary Statistics

	Variables	Mean	S.D	Min.	Max.	Observations
	Capital Flight	3.647	28.643	-13.637	399.14	540
Expenditure	Government Expenditure	4.015	10.790	-68.238	80.449	376
	Public Expenditure	7.704	4.636	0.000	30.120	487
Globalization	Trade Openness	69.503	38.157	8.199	246.89	557
	Foreign Direct Investment	2.300	4.393	-16.118	35.190	485
	Private Capital Flows	2.410	4.555	-16.118	35.295	489
Institutional	Regulation Quality	-0.606	0.607	-2.526	0.857	293
Quality	Rule of Law	-0.697	0.648	-2.312	0.863	294
Economic	GDP growth	3.539	4.624	-29.178	24.176	559
Prosperity	GDP per capita growth	1.060	4.407	-23.539	23.104	564
Foreign Aid	Total NODA	10.223	9.915	0.054	62.344	559
	NODA from DAC countries	6.062	6.144	-0.175	53.017	559
Finance and	Money Supply	0.305	0.202	0.001	1.224	472
Inflation	Liquid Liabilities	0.235	0.186	0.001	1.017	474
	Inflation	105.80	1226.3	-100.00	24411	520
	Petroleum	0.216	0.412	0.000	1.000	592
	Non-Petroleum	0.783	0.412	0.000	1.000	592
Categorization	Conflict	0.297	0.457	0.000	1.000	592
	Non-conflict	0.702	0.457	0.000	1.000	592

S.D: Standard Deviation. Min: Minimum. Max: Maximum.

Appendix 2: Correlation Analysis

Expenditure (Ex)		Financial Openness		Trade	Institutional Quality		Economic Prosperity		Foreign Aid (NODA)		Finance			Capital	
Gov. Ex	Pub. Ivt	FDI	PCF	Openness	R.Q	R.L	GDPg	GDPpcg	Total	DAC	M2	LL	Inflation	Flight	
1.000	0.098	0.080	0.082	0.101	0.014	0.028	0.332	0.344	0.038	0.044	-0.033	-0.018	-0.356	-0.070	Gov. Ex
	1.000	0.116	0.111	0.227	0.231	0.383	0.146	0.163	0.261	0.269	0.181	0.151	-0.108	-0.148	Pub. Ex
		1.000	0.982	0.511	-0.153	0.097	0.128	0.176	-0.084	-0.063	0.145	0.185	0.056	-0.060	FDI
			1.000	0.504	-0.150	0.108	0.117	0.172	-0.068	-0.040	0.167	0.208	0.054	-0.068	PCF
				1.000	0.032	0.218	0.107	0.163	-0.110	-0.088	0.196	0.257	0.018	-0.049	Trade
					1.000	0.791	0.146	0.170	-0.163	-0.179	0.301	0.370	-0.193	-0.049	R.Q
						1.000	0.091	0.161	-0.109	-0.119	0.590	0.636	-0.128	-0.025	R.L
							1.000	0.973	0.047	0.041	0.011	0.025	-0.197	0.069	GDPg
								1.000	0.056	0.059	0.085	0.106	-0.189	0.053	GDPpcg
									1.000	0.953	-0.260	-0.286	-0.012	-0.080	Total Aid
										1.000	-0.218	-0.253	0.004	-0.062	DAC Aid
											1.000	0.967	-0.084	0.004	M2
												1.000	-0.082	0.004	LL
													1.000	-0.009	Inflation
														1.000	Cap. Fight

Gov. Ex: Government Expenditure. Pub. Ivt: Public Investment. FDI: Foreign Direct Investment. PCF: Private Capital Flows. R.Q: Regulation Quality. RL: Rule of Law. GDPg: GDP growth. GDPpcg: GDP per capita growth. NODA: Net Official Development Assistance. Total: Total NODA. DAC: NODA from DAC countries. M2: Money Supply. LL: Liquid Liabilities.

Appendix 3: Variable Definitions

Variables	Signs	Variable Definitions(Measurement)	Sources
Government Expenditure	Gov. Ex	Government Final Consumption Expenditure (% of GDP)	World Bank (WDI)
Public Investment	Pub. Ivt	Gross Public Investment (% of GDP)	World Bank (WDI)
Foreign Investment	FDI	Foreign Direct Investment (% of GDP)	World Bank (WDI)
Private Capital Flows	PCF	Private Capital Flows (% of GDP)	World Bank (WDI)
Trade Openness	Trade	Imports plus Exports of Goods and Services (% of GDP)	World Bank (WDI)
Regulation Quality	R.Q	Regulation Quality (estimate): Measured as the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	World Bank (WDI)
Rule of Law	R.L	Rule of Law (estimate): Captures perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police, the courts, as well as the likelihood of crime and violence.	World Bank (WDI)
GDP Growth	GDPg	Average annual GDP growth rate	World Bank (WDI)
GDP per capita Growth	GDPpcg	Average annual GDP per capita growth rate	World Bank (WDI)
Foreign Aid (1)	Total Aid	Total Net Official Development Assistance (% of GDP)	World Bank (WDI)
Foreign Aid (2)	DAC Aid	NODA from DAC Countries (% of GDP)	World Bank (WDI)
Financial Depth	M2	Money Supply (% of GDP)	World Bank (FDSD)
Liquid Liabilities	LL	Financial System Deposits (% of GDP)	World Bank (FDSD)
Inflation	Inflation	Consumer Price Index (Annual %)	World Bank (WDI)
Capital Flight	Cap. Flight	Capital Flight (constant of 2010 in % of GDP)	Boyce & Ndikumana (2012a)

FDSD: Financial Development and Structure Database. WDI: World Bank Development Indicators. NODA: Net Official Development Assistance. DAC: Development Assistance Committee.

Appendix 4: Presentation of Countries

Category	Panels	Countries	Num
Africa		Botswana, Lesotho, Uganda, Nigeria, Malawi, Ghana, Swaziland, Sudan, Kenya, Zambia, South Africa, Sierra Leone, Tanzania, Seychelles, Zimbabwe, Burkina Faso, Chad, Congo Republic, Mozambique, Burundi, Cameroon, Congo Democratic Republic, Côte d'Ivoire, Rwanda, Ethiopia, Madagascar, Central African Republic, Guinea, Mauritania, Gabon, Angola, Cape Verde, Sao Tomé & Principe, Algeria, Egypt, Morocco, Tunisia.	37
Resources	Petroleum Exporting	Nigeria, Chad, Congo Republic, Cameroon, Sudan, Algeria, Gabon, Angola.	8
	Non-Petroleum Exporting	Botswana, Lesotho, Uganda, Malawi, Ghana, Swaziland, Kenya, Zambia, South Africa, Sierra Leone, Tanzania, Seychelles, Zimbabwe, Burkina Faso, Mozambique, Burundi, Congo Democratic Republic, Côte d'Ivoire, Rwanda, Ethiopia, Madagascar, Central African Republic, Guinea, Mauritania, Cape Verde, Sao Tomé & Principe, Egypt, Morocco, Tunisia.	29
Stability	Conflict	Uganda, Mozambique, Burundi, Congo Democratic Republic, Sudan, Rwanda, Ethiopia, South Africa, Angola, Sierra Leone, Zimbabwe.	11
	Non-Conflict	Botswana, Lesotho, Nigeria, Malawi, Ghana, Swaziland, Kenya, Zambia, Tanzania, Seychelles , Burkina Faso, Chad, Congo Republic, Cameroon, Côte d'Ivoire, Madagascar, Central African Republic, Guinea, Mauritania, Gabon, Cape Verde, Sao Tomé & Principe, Algeria, Egypt, Morocco, Tunisia.	26

Num: Number of cross sections (countries).

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