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Article

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Contemporary Economics

Provided in Cooperation with:

VIZJA University, Warsaw

Suggested Citation: Abotsi, Anselm Komla (2018) : Influence of governance indicators on illicit financial outflow from developing countries, Contemporary Economics, ISSN 2300-8814, University of Finance and Management in Warsaw, Faculty of Management and Finance, Warsaw, Vol. 12, Iss. 2, pp. 139-152,
<https://doi.org/10.5709/ce.1897-9254.268>

This Version is available at:

<https://hdl.handle.net/10419/195516>

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Primary submission: 15.08.2016 | Final acceptance: 24.02.2017

Influence of Governance Indicators on Illicit Financial Outflow from Developing Countries

Anselm Komla Abotsi^{1,2}

ABSTRACT

Economic growth has traditionally been attributed to the accumulation of human and physical capital and the increased productivity arising from technological innovation. The quest to attract physical capital led to the design and implementation of policies and the building of institutions by governments of developing countries to create a congenial investment environment to attract foreign investors. The multinational corporations operating in these developing countries take advantage of these policies to profit from these countries in terms of capital through both legal and fraudulent activities. For governments and stakeholders to be able to fight this menace of illicit financial outflow, there is a need for a comprehensive scrutiny of the quality of governance indicators that enhance the activities of these multinational companies. Therefore, this study seeks to explore the influence of cross-country indicators of governance on the illicit financial flow from developing countries. This study is based on secondary data (panel) derived from the Global Financial Integrity, World Development Indicators and Worldwide Governance Indicators. The total number of developing countries included in the analysis is 139, and 1562 observations are included. Using the multilevel estimation approach, the study finds that regulatory quality has a negative and significant influence on the illicit financial flow, while government effectiveness, corruption and FDI net inflows have a significant positive effect. This finding calls for developing countries to design and implement sound policies, build effective and accountable institutions, control corruption and enhance regulatory quality to control this issue.

KEY WORDS: illicit financial outflow, foreign direct investment, government effectiveness, corruption, regulatory quality

JEL Classification: F18, F23, F20, F30

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Introduction

Economic growth has traditionally been attributed to the accumulation of human and physical capital and

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the increased productivity arising from technological innovation. The importance of capital investment in the economic growth of developing countries cannot be over emphasized. Economies with positive GDP growth (elasticities greater than 0) have positive employment growth, and higher elasticities correspond to more employment-intensive growth. According to Ghazanchyan and Stotsky (2013), investment, among

other important drivers, is a critical component of growth for developing countries. Private investment has been a major determinant of economic growth and employment in many open economies; therefore, opening markets to foreign direct investment (FDI) inflows is as beguiling as it is for trade. Bodies such as the IMF and the World Bank have suggested that attracting large inflows of FDI would result in economic development. The quest to attract FDI inflow led to the design and implementation of policies and the building of institutions, among others, by governments of developing countries to create a congenial investment environment to attract foreign investors. Some of these policies include tax holidays, exemptions on export and import duties, subsidized infrastructures, and limits on workers' rights. The design and implementation of effective tax policies is expected to allow countries to maximize the benefits of external flows by providing higher quality public services and pursuing adequate economic policies (African Development Bank [AfDB], 2012a). Developing countries have been improving their regulatory frameworks to attract more FDI inflow by opening their economies, permitting profit repatriation and providing tax holidays and other incentives (UNCTAD, 2002).

Some of these policies appear to be exploited against the very motives for which they were enacted and implemented. The multinational corporations operating in these developing countries take advantage of these policies to profit from these countries in terms of capital through both legal and fraudulent activities. Illicit financial flows (IFFs) are defined in the Global Financial Integrity (2012) report as "funds that are illegally earned, transferred, or utilized and cover all unrecorded private financial outflows that drive the accumulation of foreign assets by residents in contravention of applicable laws and regulatory frameworks". Issues on illicit financial flows have become very important with respect to the economic development of developing countries. According to Blankenburg and Khan (2012), IFFs are financial flows that have a direct or indirect negative effect on economic growth in the country of origin. Although IFFs from developing countries cannot be measured accurately, there is consensus that the amount is worth more than the official development assistance from Organisation for Economic Co-operation and Development (OECD)

donor countries (Herkenrath, 2014). The socio-economic impact of IFFs on developing countries is more severe because of their smaller resource base and markets (OECD, 2013). The report by Global Financial Integrity (2013) indicates that illicit financial flows from developing countries increased by 10.2 percent per annum between 2002 and 2011 after controlling for inflation. In 2011, for example, Asia recorded the largest proportion of illicit financial flows among the regions; this represents 39.6 percent of total illicit outflows from developing countries, while developing Europe and the Western Hemisphere represented 21.5 percent and 19.6 percent, respectively. The Middle East and North Africa regions represented 11.2 percent of total outflows, on average. Although sub-Saharan Africa had the smallest nominal proportion of regional illicit outflows (7.7 percent), it has the highest average illicit outflows to GDP ratio (5.7 percent (Kar & Le Blanc, 2013). Adedze (2013) indicates that multinational corporations operating in Africa are involved in the illicit transfer of most of the \$1.5 trillion they make in Africa each year back to the developed countries, hurting African economies in the process.

These multinational corporations achieve this situations ranging from "legitimate" international tax systems to dodgy accounting arrangements, according to the Adedze (2013) report. It is estimated that Africa lost over \$854 billion in illicit financial flows between 1970 and 2008 with a yearly average of approximately \$22 billion. Recent estimates put illicit financial outflows from Africa at \$50 billion a year; this poses an economic development threat to Africa against the background that the official development assistance to Africa was \$46.1 billion in 2012. A report on Illicit Financial Flows from Africa (Scale and Developmental Challenges as cited by Adedze, 2013) noted that "Just one-third of the loss associated with illicit financial flows would have been enough to fully cover the continent's external debt that reached US\$279 billion in 2008." Calculations carried out by Global Financial Integrity show that the estimated illicit financial flows from developing countries are approximately ten times the total amount provided as official development assistance (Kar & Freitas, 2012). The consequence of these illicit financial flows is the aggravation of the enormous socio-economic problems confronting developing countries, since these ac-

tivities constitute a drain on foreign exchange reserves and reduce tax revenue, which culminate in worsening poverty in these developing countries. The report by Purje, Ylönen, & Nokelainen, (2010) indicates that illicit financial flows from developing countries have become a major development policy issue since this act deprives states of tax revenue and disrupts the vital development of the private sector, which is recognized in the literature as the engine of growth in developing countries (Abotsi, Dake, & Agyepong, 2014), by distorting competition; this culminates in increased dependency on development assistance (Purje et al., 2010). For governments and stakeholders to be able to fight this issue of illicit financial outflow, there is the need for comprehensive scrutiny of the quality of governance indicators that enhance the activities of these multinational companies. Therefore, this study seeks to explore the influence of cross-country indicators of governance on the illicit financial flows from developing countries. The literature on the determinants of illicit financial flows is limited, although these determinants can inform policy formulation to reduce or curb the incidence of illicit financial flows. A previous study on this subject used import and export misinvoicing (components of illicit financial flow) as the dependent variables (Kar & Le Blanc, 2013); however, this study instead deploys illicit financial outflows as the dependent variable in finding the influence of relevant governance indicators on illicit financial outflows with the FDI inflow as the control. These indicators provide explicit and disaggregated information about particular dimensions of governance that are likely to influence illicit financial flow. In addition, empirical studies in explaining IFFs are generally based on the portfolio choice (PC) model; however, when the PC model is analyzed deploying only developing countries, the empirical results appear to support the assumptions of the PC model only to a certain extent (Herkenrath, 2014). The factors of the PC model have only limited explanatory power.

Using the multilevel estimation approach, this study finds that regulatory quality has a negative and significant influence on illicit financial flow, while government effectiveness, corruption and FDI net inflows have a significant positive effect. This paper continues with a literature review on illicit financial outflow and a set of potential determinant variables that influence

illicit financial outflow (foreign direct investment inflow, governance effectiveness, regulatory quality and control of corruption). This work is followed by a presentation of the methodology deployed in the study. The remainder of the paper presents the results, discussion, and finally, the conclusion.

Literature review

As stated earlier, the Global Financial Integrity (2012) report defined illicit financial flows "as funds that are illegally earned, transferred, or utilized and cover all unrecorded private financial outflows that drive the accumulation of foreign assets by residents in contravention of applicable laws and regulatory frameworks". Illicit financial flow is composed of three components, which include commercial transactions, tax evasion and laundered commercial transactions; the criminal element and bribery; and finally, abuse of office by public officials (Mbeki, 2014). Empirical studies in explaining IFFs are generally based on the portfolio choice (PC) model, which attributed the massive capital outflow from developing countries to expropriation and currency losses and a reaction to comparatively low profit expectations (risks aversion) (Collier, Hoeffer, & Pattillo, 2001). According to Herkenrath (2014), the PC model does not fully explain IFFs that originate from economically successful industrialized countries as well as fast-growing emerging countries, since these flows mainly enhance tax evasion. Furthermore, to assume that these capital flows are mainly connected to the explanatory variables of the PC model (flight from economic stagnation, political instability, or the risk of expropriation) 'would make seemingly little sense' (Herkenrath, 2014). The research shows that the factors of PC model have only limited explanatory power (Herkenrath, 2014) since explained variance of their final empirical model is below 50 percent (Le & Zak, 2006). IFFs are postulated to be a consequence and a cause of development-inhibiting circumstances (Moore, 2012; Shaxson, 2010). A theoretical model of IFFs suggests a circular relationship between IFFs and development-inhibiting economic, political and social conditions (Moore, 2012). The world governance indicators reflect the views of thousands of survey respondents and public, private, and NGO sector experts worldwide on governance. These indicators also present the

empirical measures of governance and thus make it possible to find the influence of these indicators on illicit financial flow from developing countries using qualitative analysis. Multinational corporations have been reported to be involved in the illicit transfer of capital from developing countries (Adedze, 2013). Based on the literature, this study reckons a set of potential quality governance indicator variables that influence illicit financial outflow. These variables include governance effectiveness, regulatory quality and control of corruption with foreign direct investment inflow as the control.

Illicit Financial Outflow

The research on illicit financial flows reveals that a source of more outright illicit financial flows is the mispricing of imports and exports to avoid duties and to the transfer monies, particularly foreign exchange, of these developing countries. Trade misinvoicing is one of the key conduits through which economic agents illegally move money out of developing countries (Bhagwati, 1974). This misinvoicing occurs because the act of deliberately falsifying invoices is illegal in most countries; therefore, trade misinvoicing estimates reflect completely illicit outflows. Another channel of illegal capital flight is via tax havens. Purje et al. (2010) suggests that most of the companies registered to tax havens truly conduct no actual activity in these places. For example, in the Cayman Islands, there is a building called Ugland House, which over 18,000 companies claim as their headquarters, whereas actually these companies conduct no actual activity in this building (Purje et al., 2010). According to Purje et al. (2010) suggests tax havens provide investors and companies with the required tailored legislation, such as banking secrecy and assisting investors with concealing their identities. The report by Mbeki (2014) shows that illicit financial flows from Africa are also attributed to aggressive tax avoidance strategies, which relate directly to the illicit outflows. Criminal activities, ranging from money laundering to drug, people and arms trafficking and smuggling, are also a key component of illicit outflows from developing countries. Commercial activities, according to the High-LevelPanel, are found to be the largest component of illicit financial flows; however, unfortunately, the global institutional framework is least developed in these areas. Resource

extraction contracts that are shrouded in secrecy are another commercial source structured deliberately to deny African countries of legitimate earnings from royalties and taxes. The top 15 exporters of illicit capital are China, Malaysia, India, Indonesia, Thailand, and the Philippines in Asia, Nigeria and South Africa in Africa, Russia, Belarus, Poland, and Serbia in Europe, Mexico and Brazil in the Western Hemisphere, and Iraq in MENA (Kar & Le Blanc, 2013).

It is estimated that approximately €1,200 billion crosses state borders illicitly each year (Shaxson, N., & Christensen 2008), and the sum that leaves developing countries is estimated to comprise over half of this amount (Kar & Cartwright- Smith, 2008). The development assistance paid by rich countries to developing countries in 2008 was only one-ninth or one-tenth of the wealth that flows in the opposite direction illicitly (OECD, 2009). Between 2003 and 2012, the developing world lost US\$6.6 trillion in illicit outflows; after a brief slowdown during the financial crisis in 2009, illicit outflows are once again on the rise, hitting a new peak of US\$991.2 billion in 2012(Kar & Spanjers, 2014). The ratio of illicit financial outflow to GDP is a widely used indicator in assessing the adverse impact of illicit flows on an economy. Illicit financial outflows from Africa, developing Europe and Asia averaged 5.7, 5.8 and 4.1 percent of GDP, respectively, in 2011(Kar & Le Blanc, 2013). Illegal capital flight has been cited as the single most harmful economic problem for developing countries and transitional economies (Baker, 2007). A previous study on the drivers of illicit flows found trade misinvoicing to be driven largely by factors that are regulatory in nature (the export proceeds surrender requirement (EPSR) and the extent of capital account openness); one is governance-related (World Bank Control of Corruption indicator) (Kar & Le Blanc, 2013).

FDI Inflow

The pursuit to attract FDI inflow led to the proliferation of multinational companies or firms in developing countries. A major problem with respect to illicit financial flow is how these multinational firms benefit from tax holidays and then sell out immediately before the expiry period of such concessions, only to re-emerge as a new firm with a new tax holiday period. A cross-cutting issue in addressing illicit financial flows relates

to the activities and practices of tax havens and financial secrecy jurisdictions, which provide a destination for illicit financial flows through tax evasion or money laundering. Multinational companies can have hundreds of subsidiaries in different jurisdictions in which they have little or no activity. Tax dodging by multinational companies accounts for two-thirds of the illegal capital flight (Purje et al., 2010). However, a common practice has been for the group to resort to declaring the most profit in the jurisdiction with the lowest taxes rather than where the profits were generated. A set of key actors in this illicit financial outflow are the multinational corporations (High-Level Panel, 2014) operating in these developing countries. A majority proportion of developing countries' tax losses is also attributed to tax dodging (evasion and avoidance) by multinational companies (Purje et al., 2010). Therefore, countries that receive more FDI inflows are more likely to experience more illicit financial outflow. Although research elsewhere found no macroeconomic factors as well as net FDI flows to be consistently significant in explaining export or import misinvoicing (Kar & Le Blanc, 2013), it is expected in this study that countries receiving more FDI inflows will experience more illicit financial outflow.

Governance Effectiveness and Regulatory Quality

The term 'governance' is broad and far-reaching, and the improvements to 'virtually all aspects of the public sector' is necessary to achieve 'good governance' (Grindle, 2004). Good governance is referred to by the World Bank as 'sound development management' and is regarded as "central to creating and sustaining an environment that fosters strong and equitable development and it is an essential complement to sound economic policies" (World Bank, 1992). Therefore, the quality of a government's policy formulation and implementation and the credibility of the commitment of government to such policies (regulatory quality) is very important in achieving good governance. According to Roy and Tisdell (1998), good governance depends on institutional structures and the economic resources available to achieve good governance. Effective government is enhanced through strong political leadership and competent public administration (AfDB, 2012b). More effective governments offer high-

er quality public services, attract more investment, encourage more human capital accumulation, among others, and increase the productivity of government (Mauro, 1995). The international development agencies have identified 'bad governance' as a major obstacle to economic growth and to improved welfare in poor countries (Moore, 2001). Countries provide higher quality public services and pursue adequate economic policies to maximize the benefits of external flow (AfDB, 2012a). Developing countries also open their economies, permit profit repatriation and provide tax holidays to multinational companies to improve their regulatory frameworks to attract more FDI inflow (UNCTAD, 2002). These multinational companies take advantage of these policies and exploit the system through both legal and illegal means. Mbeki (2014) suggested that to address this issue, illicit financial flow must be framed within the more technical context of political considerations. This suggestion is because of the nature of the actors involved and the 'fact that the most obvious solutions require strong political commitment and leadership'. Multinational companies may also lobby governments in the form of political campaign contributions to formulate and implement policies that will benefit them. Therefore, a country may exhibit good governance yet continue to experience high illicit financial outflow. Case studies on Brazil, the Philippines, and Russia show a relation between purely illicit flows and governance, and this relation tends to be stronger than the relationship between capital flight and governance (Kar & Freitas, 2013; Kar & LeBlanc, 2014). The implications of illicit financial flow for resource mobilization, policy and legislation, and international geopolitics have raised concerns for governments of developed and developing countries alike (High-Level Panel, 2014). It is expected in this study that governance effectiveness and regulatory quality will explain variation in illicit financial outflow; however, the direction of influence of these variables on illicit financial outflow must be determined empirically.

Control of corruption

Corruption epitomizes the illicit use of the willingness to pay as a decision making criterion; therefore, in most cases, multinational companies make payments to public officials in return for a benefit (Abotsi, 2016).

Corruption tends to be low at higher levels of institutional quality and high at low level of institutional quality; therefore, depending on the level of quality of the institutions in the country, corruption may play the role of "sand in the wheels of commerce" or "greasing the wheels" (Abotsi, 2016). Corruption is therefore expected to have a positive impact on FDI inflow at a high level of institutional quality and a negative impact at a low level of institutional quality (Abotsi, 2016). Corruption was found by Mbeki (2014) to be a cross-cutting issue across all categories of illicit financial flows. A report by OECD (2014) states that 'high levels of corruption combined with weak institutions, and sometimes illegitimate regimes are drivers for such illicit financial outflows'. Elsewhere, research findings also show a significant link between corruption and capital flight (Le & Rishi, 2006). Corruption is therefore expected to have a positive influence on illicit financial outflow in this study.

Methodology

The study on the governance indicators that influence illicit financial outflow is based on secondary data. The data on illicit financial flow is derived from Global Financial Integrity (Kar & Le Blanc, 2013; Kar & Spanjers, 2014; Kar & Spanjers, 2015). GFI estimates constitute the most comprehensive dataset, which allows for cross-national and longitudinal comparisons over longer time periods. The data on foreign direct investment inflow is derived from the World Development Indicators (World Bank, 2013). The control of corruption, regulatory quality, and government effectiveness are derived from the Worldwide Governance Indicators (Kaufmann & Kraay, 2014). The frequency of the data is annual, and it spans from 2002 to 2013 for 139 developing countries. These indices are part of the six dimensions of governance included in the Worldwide Governance Indicators. These indices are therefore chosen not only because of their authenticity but also because of their free availability on the internet. The total number of developing countries included in the analysis is 139 from five geographical regions. These geographical regions include Asia, Sub Sahara Africa, Developing Europe, Western Hemisphere, and Middle East and North Africa (MENA).

The panel data estimation technique is employed in the estimation of the factors that influence illicit finan-

cial outflow from developing countries since, according to Ranjan and Agrawal (2011), this technique can capture the dynamic behavior of the parameters and provide more efficient estimation and information of the parameters. Many studies in economics have used panel data in their analysis using various estimation techniques including fixed and random effects. To decide whether to use a fixed or random effect model, the Hausman test is deployed in making this decision. However, the use of the Hausman test to decide which model to estimate has recently come under critical scrutiny (Bell & Jones, 2014; Clark & Linzer, 2015). The Hausman test is not a test of fixed effect versus random effect; instead, it is a test of the similarity of within and between effects. The main reason why the fixed effect model is preferred to the random effect model is the exogeneity assumption (the residuals are independent of the covariates) of the latter, which often does not hold in many standard random effect models. According to Bell and Jones (2014), fixed effect estimation models out higher-level variance and make any correlations between that higher-level variance and covariates irrelevant, without considering the source of the endogeneity. Higher-level entities in a panel study may be countries, and time-invariant variables could be the regional location. The covariates contain two parts: one that is specific to the higher-level entity that does not vary between occasions, and one that represents the difference between occasions, within higher-level entities. These two parts of the variable can have their own different effects, called 'between' and 'within' effects, respectively, which together comprise the total effect of a given time-varying variable (Bell & Jones, 2014). To solve the problem of heterogeneity bias, Bell and Jones, (2014) modeled the flexible random effect framework to correct the heterogeneity bias. Bell and Jones, (2014) posits that understanding the role of context, whether households, individuals, neighborhoods, countries or whatever defines the higher level, is of importance to a given research question. Therefore, it is prudent that one uses a random effect model that analyses and separates both the within and between components of an effect explicitly and assesses how those effects vary over time and space rather than assuming heterogeneity away with fixed effect. Therefore, this study uses the multilevel approach in exploring the factors

that influence illicit financial outflow from developing countries. Multilevel models allow for study effects that vary by entity (or groups) and that estimate group level averages. Examples of advantages of multilevel models are the avoidance of sample problems with individual regressions that may be encountered and the lack of generalization. The use of regular regression ignores the average variation between entities.

The Multilevel-Model of Illicit Financial Outflow

In connection with discussions of the preceding section, the following multilevel-model (equation (1)) is proposed, where the selected variables are expected to influence illicit financial outflow.

$$\begin{aligned} \text{illicit financial flow}_i &= \\ &= \beta_0 + \beta_1 \text{FDI_net_inflows}_i + \beta_2 \text{Control_of_Corruption}_i + \\ &+ \beta_3 \text{Regulatory_Quality}_i + \beta_4 \text{Government_Effectiveness}_i + \\ &+ u_{ij} + u_{ij} \text{FDI_net_inflows}_i + \varepsilon_i \end{aligned} \quad (1)$$

Equation (1) depicts the value of illicit financial flow for the i th county and the j th geographical region as a function of foreign direct investment inflow, control of corruption, regulatory quality and governance effectiveness. The dependent variable is illicit financial flows from developing countries (HMN + GER) in millions of U.S. dollars; this refers to illegal movements of money or capital from developing countries. Hot Money Narrow (HMN) is “a methodology used to measure illicit financial flows recorded in the balance of payments”, and Gross Excluding Reversals (GER) is a “methodology used to measure IFFs enabled by trade misinvoicing, measured the IMF’s Direction of Trade Statistics (DOTS) database in conjunction with the Fund’s International Financial Statistics (IFS) database” (Kar & Spanjers, 2014). Foreign direct investment refers to direct investment equity flows in the reporting economy in current U.S. dollars. The control of corruption index refers to “perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as ‘capture’ of the state by elites and private interests”. Regulatory quality refers to the “perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development”.

Government effectiveness refers to the “perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies” (Kaufmann, & Kraay, 2014). The term u_{ij} is the random intercepts for each of the j regions (it represents the deviation of country i ’s intercept from the overall mean intercept). The term u_{ij} represents the deviation of country i ’s FDI net inflows slope from the overall mean FDI net inflows slope (β_1). The worldwide governance indicator variables are transformed from their original scale, which ranges from approximately -2.5 (weak) to 2.5 (strong), to a new scale, ranging from 0 to 100 for computational purposes, to allow for easy interpretation of the results. The following formula was used: $x = (a + 2.5) * 20$, where x is the value of the transformed variable, and a refers to the value of the original scale. This formula was also used by Abotsi and Iyavarakul (2015). This formula means that the higher a country is on the scale, the better the governance performance is in terms of control of corruption, regulatory quality and government effectiveness. The correlation matrix (Table 1) indicates that there are correlations among some of the independent variables; however, the statistical nature of panel data estimation addresses the collinearity problems (Ranjan & Agrawal, 2011). This study explores how illicit financial outflows vary with each explanatory variable holding other factors constant. The focus is not on causal interpretation; thus, endogeneity and omitted variables are not relevant to the analysis in the current study.

Results

Descriptive statistics

The descriptive statistics of the variables deployed for the study are presented in Table 2. The total observations used for the analysis is 1562. The period under study is from 2002 to 2013. The mean illicit financial outflow is 5288.49, and the standard deviation is 17122.72. This result shows that, on average, the illicit financial outflow is very large and widely dispersed within the developing countries. The result also shows that, over the period under consideration, some of the developing countries experienced negative FDI inflow.

Table 1. Correlation Matrix of Variables

variables	1	2	3	4	5
1 illicit_financial_outflow	1				
2 FDI_net_inflows	0.8191	1			
3 Control_of_Corruption	-0.0487	0.0049	1		
4 Regulatory_Quality	0.0521	0.0889	0.6213	1	
5 Government_Effectiveness	0.0919	0.1021	0.8702	0.6939	1

Table 2. Descriptive Statistics

Variable	Observ.	Mean	Std. Dev.	Min	Max
illicit_financial_outflow	1562	5288.487	17122.72	0	258640
FDI_net_inflows	1562	4.05E+09	1.73E+10	-2.09E+10	2.91E+11
Control_of_Corruption	1562	42.71972	14.13457	13.6	85.2
Regulatory_Quality	1562	44.08707	14.58615	-3.6	80.8
Government_Effectiveness	1562	43.11216	13.92816	5	82

Empirical Results of the Mixed Model Estimation

Model Specification Diagnostics

Before a mixed model can be estimated, it is prudent to determine whether there is sufficient variance represented at a higher level to warrant the mixed approach. This determination is done by using the intraclass correlation coefficient (ICC). As a rule of thumb, approximately 10% of the total variance needs to be represented at a given level. The ICC found in the model in this study is

$$ICC = ((3957.4)^2) / (((3957.4)^2) + ((10145.35)^2)) = 0.132061119.$$

Approximately 13.2% of the total variance in illicit financial outflows can be attributed to differences between the geographical regions (i.e., level 2); this is more than the minimum of 10% expected for fur-

ther modeling. Next is the random intercept model. In contrast to the ordinary least squares (OLS) regression model where the intercept and slope are both fixed and where the population parameters and individuals' variation from the predicted dependent variable are represented completely by the single error term, the individual countries illicit financial outflows are modeled with a mixed model as having a different overall level (or mean), which is represented by the random intercept according to the level 2 unit (or cluster); however, they all share the same regression slope. Random intercept models will represent the statistically problematic situation in which there are known differences on the outcome across levels of a variable that are implicitly (or explicitly) included in the sampling scheme (Gelman & Hill, 2007). To account for this difference across regions, the intercept is allowed to vary randomly (across regions). This variance would allow a slightly more accurate representation of the ef-

fect of the predictors on illicit financial outflows to be obtained. With the estimated standard deviation of the random intercepts (1313.878) in addition to the standard error (495.3016), it can be concluded that these intercepts do vary from place to place since the estimated standard deviation of the random intercepts is significantly different from zero.

The next step is to allow the slope of the regression line to take on a different value across the values of the level 2 variable. The FDI inflows predictor variable is designated as having a random slope; therefore, the slope parameter can have a variance (random coefficient models). This designation will allow FDI inflows to have a different effect on illicit financial outflows across different regions (This allows the slope variance of FDI inflows to vary randomly rather than to be fixed at zero). To determine whether to treat the slope as random or regard it as a fixed effect, there is a need to assess whether the variance of the slope is significantly different from zero. The standard deviation of random slopes on FDI inflows is more than twice its standard error, suggesting significant regional variation. Furthermore, a likelihood ratio test is deployed to test for the random intercept model and the random coefficient model. The difference is distributed as chi-square with degrees of freedom equal to the difference in degrees of freedom across the models (Gelman & Hill, 2007). The null hypothesis is that there is no significant difference between the two models. Since the result of the likelihood ratio test show that LR chi2 is equal to 166.75 with probability of 0.00000, the null hypothesis is rejected with the conclusion that there is a statistically significant difference between the models. This finding shows that the random coefficients model provides a better fit (it has the lowest log likelihood). It can be concluded that the random variance of the FDI inflows slope is different from zero. The Wild Chi-square test of joint significance reports that the null hypothesis that independent variables are jointly equal to zero at any conventional level of significance ($p=0.000$) may be rejected.

Interpretation and discussion of results

The results of the mixed and OLS models are presented in Table 3. The fixed effects of a mixed model are interpreted in the same way as an ANOVA, regression,

or ANCOVA depending on the nature of the explanatory variables(s). However, it should be noted that any of the coefficients that have a corresponding random effect represent the mean over all subjects, and each individual subject has its own "personal" value for that coefficient. Random coefficients must be variable across groups. Conceptually, fixed coefficients may be invariant or varying across groups. The OLS results are presented only for the purpose of comparison. As stated earlier, this study only explores how illicit financial outflows vary with each explanatory variable holding other factors constant and without causal interpretation. Since the object of this study is to have an idea regarding how world governance indicators influence illicit financial flows, only qualitative interpretations of the coefficients are considered. The results show that FDI net inflows, control of corruption, regulatory quality and government effectiveness significantly influence illicit financial flow at 1%. The results show that FDI net inflows and government effectiveness variables have a positive influence on illicit financial flow; however, control of corruption and regulatory quality variables have a negative effect.

The results depict that, on average, countries that receive more foreign direct investment inflow experience more illicit financial outflow from their countries. Multinational corporations have been cited as a set of key actors in this illicit financial outflow from developing countries (High-Level Panel, 2014). It is therefore not surprising that countries that receive more foreign direct investment inflow experience more illicit financial outflow. One of the three different theories of foreign direct investments (the eclectic theory by Dunning, 1988) is the location advantages the multinational corporations enjoy in the foreign country. The specific location advantages can be divided into three categories including economic benefits, political advantages and social advantages (Abotsi, 2016). Structural market distortions such as government intervention, which affect costs and revenues, culminate into these location advantages (Harðardóttir, Óladóttir, & Jóhannsdóttir, 2008). According to Williamson (1985), the governance structure that multinational corporations choose for a venture is driven by the desire to minimize their transaction costs. It is now emerging that these multinational corporations do not only exploit their location advantages in the foreign countries

Table 3. The Results of the Mixed Model

VARIABLES	Multilevel_Model	OLS_Model
	illicit_financial_flow	illicit_financial_flow
FDI_net_inflows	9.10e-07*** (2.60e-07)	7.88e-07*** (1.43e-08)
Control_of_Corruption	-242.5*** (34.97)	-304.3*** (35.43)
Regulatory_Quality	-61.98*** (22.42)	-48.90** (23.15)
Government_Effectiveness	258.1*** (38.72)	317.1*** (39.11)
Constant	3,969*** (1,070)	3,578*** (855.6)
Observations	1,562	1,562
sd(FDI_net_inflows)	5.67e-07 (1.99e-07)	
sd(_cons)	1313.878 (495.3016)	
sd(Residual)	8984.254 (161.3164)	
R-squared		0.687
Number of groups	5	

Note: sd = standard deviation

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

to reduce transaction cost but also involve themselves in activities (misinvoicing, tax haven secrecy, anonymous companies, and money laundering techniques) that facilitate illicit financial outflows.

As indicated earlier, the world governance indicators were transformed from their original scale, ranging from approximately -2.5 (weak) to 2.5 (strong), to a new scale ranging from 0 to 100 for computational purposes and to allow for easy interpretation of results. This finding means that the higher a country is on the scale, the better its governance performance.

The results indicate that, on average, countries that exhibit high governance effectiveness instead experience more illicit financial flow from their countries. This finding is consistent with previous studies that found a link between purely illicit flows and governance (Kar, 2014; Kar & Freitas, 2013; Kar & LeBlanc, 2014). This finding means that the exhibition of high governance effectiveness by developing countries is necessary but not sufficient in fighting illicit financial outflow. The results also indicate that, on average, countries that exhibit high regulatory quality experience less illicit

financial flow from their countries. This result means that the ability of governments to formulate and implement sound policies and regulations is paramount in the fight against illicit financial outflow. In the case of control of the corruption variable, countries scoring low on the scale are relatively highly corrupt, and those scoring high are relatively less corrupt. This finding means that, on average, developing countries that are more corrupt experience more illicit financial flow from their countries. This finding is consistent with earlier studies where panel data regressions indicate that an increase in corruption increases trade misinvoicing (Kar & Le Blanc, 2013). Le and Rishi (2006) also found a significant link between corruption and capital flight. The finding is also consistent with the High-Level Panel (2014) conclusion that corruption is a cross-cutting issue affecting all three components (1. commercial transactions, tax evasion and laundered commercial transactions, 2. the criminal element and bribery and 3. abuse of office by public officials) of illicit financial flows from Africa.

Conclusion

This study explored the factors that are likely to influence illicit financial outflow from developing countries. Deploying the multilevel approach, this study finds that FDI inflow, governance effectiveness, regulatory quality, and control of corruption influence the illicit financial outflow from developing countries. FDI net inflows, government effectiveness and corruption have a positive and significant influence on illicit financial flow, while regulatory quality has a negative effect. This finding calls for developing countries to design and implement sound policies, build effective and accountable institutions, control corruption and enhance regulatory quality to control this issue. Global Financial Integrity suggested specific recommendations (Global Financial Integrity, 2014) that world leaders should focus on to curb the opacity in the global financial system. The recommendations address activities that facilitate these outflows such as misinvoicing, tax haven secrecy, anonymous companies, and money laundering techniques, among others. It is also expected that the announcement made by heads of the leading industrial countries and developing economies of the G20 in 2009 to end the banking secrecy of tax havens and help developing countries to benefit

from "a new era of cooperation in taxation (Purje et al., 2010) will be fulfilled. In as much as FDI inflow is necessary in the development process of developing countries, extreme care should be exercised by these developing countries in the policies they enact. It is recommended that further studies on this topic should be focused on determining why countries with effective governance experience more illicit financial outflows. The study considers that there may be errors in the compilation and estimation of Global Financial Integrity data. However, in the absence of any 'better' alternative data on illicit financial outflow, this study deployed the data by Global Financial Integrity. This finding is the limitation of this study.

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