Sub-Sahara African Academic Research Publications
September, 2021 Editions

JMSE
Journal of Management Science & Entrepreneurship.
Vol.21, No.7, ISSN 2285-8138

CORRUPTION AND FOREIGN DIRECT INVESTMENT IN SUB-SAHARA AFRICAN COUNTRIES

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ABSTRACT

Sub-Saharan African region receive negligable amount of FDI inflow compare to the other regions in the world. Therefore there is the need to look into the consequences of this task. In this regard,the prime objective of this paper is to investigate the influence of corruption on foreign direct investment in Sub-Saharan African countries from 2000 to 2018.The study employed panel data analysis including: the CD test, the panel unit root test, panel co integration test and fully modified least square method (FMOLS). The finding reveals that, all the variables are co-integrated. In addition, the results show that, corruption was negative and statistically significant in influence FDI in region.While financial development was positive and statistically significant in influencing FDI inflow in the region. Therefore, Sub- Saharan African Countries should create policies that are used to reduce the level of corruption in the region through improvement of existenceinstitution that fight corruption to the minimal level. More so, the governments should createa, sound financial policiesin order to attract more FDI inflow in the region.

Keywords: *Corruption, Financial Development, Foreign Direct Investment (FDI); fully modified ordinary lease square, (FMOLS)*

INTRODUCTION

One of the economic Issues of LDCs is that they do not have enough capital formation so as to finance their investments and provide the basic welfare to

their citizen. There are no stable demands of foreign capital in forms of both direct and indirect investments. Initially, they took loans from International Organizations like World Bank, IMF, Paris Club and the foreign countries' commercial banks. But in the 1980s the drying-up of foreign commercial bank lending, because of debt crises, forced many countries to reform their investment policies so as to attract more foreign capital in their economy as an investment alternative rather than getting loans from the international organizations. FDI seems to be one of the easiest contexts to get foreign capital without taking any debt-related risks. It has thus become an appealing alternate to bank loans as a resource of capital inflows. Due to that, all over the world, countries especially developing countries strived to attract FDI in to their host economy for the purpose of their economic prosperity, but some region among these countries are receiving more FDI than the other. This due to the fact that, the investment is highly influenced by macro economic shocks that have severely affected the FDI inflow and outflow through changes in macro economic factors.

FDI inflow in African region is very negligible compared to the other regions in the world. For example out of the $1,365,106.9 trillion total FDI inflow in the world in 2010, Africa region received only $46, 620.1 billion representing only 3 % of the total world FDI inflow and it was less than 3 % in 2016 respectively, which indicate the growth rate of FDI inflow is unstable to in region (WDI, 2017).

Consecutively, the recent issues of corruption in most African countries and insecurity together with political turmoil affecting the countries have caused serious negative impact and uncertainty in their economies that clearly shows how the FDI is falling in most of the period. For example in 2005-2009, Figure 1 showed that, the FDI in ESSACs decreased by -0.25% from the increases of 16.80% in Angola, -1.58% from the increase of 3.98% in Ethiopia, -25% from the increase of 19% in Mozambique, -3.26% from the increase of 0.49% in Kenya, and by -0.45% from the increase of 1.02% in Nigeria, by-0.44% from the increase of 0.77% in senegal in 2000-2004 and1980-1984 respectively. In 2010-2014, also showed the decreased of 1.41% from the increases of 2.20% in South Africa which also became a total set back to their economies (Transparency International, 2016).

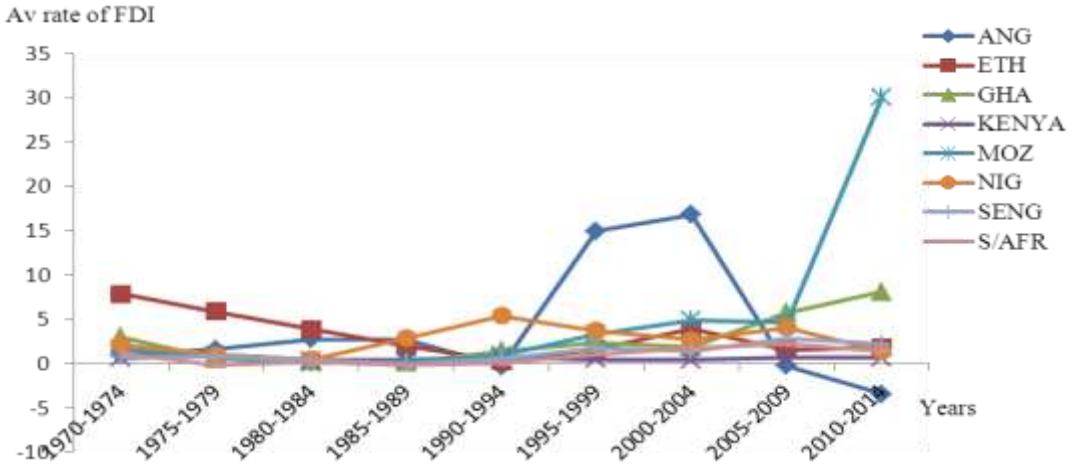

Figure 1 Time series plot of Average Foreign Direct Investment in Sub-Saharan Africa, Source: World Bank Development Database Indicator (2017).

From figure 1 above, there is clear indication that, the FDI in most those countries is unpredictable by considering both the increasing and decreasing pattern based on the percentage increases and decreases of the FDI. Are these decreases are due to high level of corruption associated with region or not, or it is becouse of other factors? Many scholars in the region try to answer this question by identifying some determinant of FDI in the Africa. Examples of these schoolars are: (Edward, Paul & Donatus, 2019; Federico et al., 2019; Dondashe & Phiri, 2018; Hemed & Suleiman,2017; Nvuh, 2017; Akinlo, 2017; Elbenezer, 2017; Maxwell, 2016;Anyanwu, 2012; Anyanwu & Yameogo, 2015; Ojewumi & Akinlo, 2017; lateef & Muhammad, 2015; Muthoga,2003; and Tuman & Shirali, 2017; among others). These were done in order to discover the major factors attracting FDI inflow in the region.

Therefore, one can ask, what are the major determinants of FDI? Is this because of high level of corruption as well as low level of economic growth found in the region? These questions motivate us to investigate the influence of corruption on foreign direct investment in Sub- Saharan African countries from 2000 to 2018.

LITERATURE REVIEW

Concept of Corruption (COR)

There is no clear definition of corruption that is accepted globally Mbaku (2000) lists the words of corruption often used in the relating-matter literature: Bribery,

perversion or misuse of public office or position, nepotism, patronage, sale of public office. The UN Anti-Corruption Toolkit describes as Grand and Petty two main fields of corruption. Huge corruption exists in the government's central function and this type of corruption mainly affects a country's rule of law and good governance. Petty corruption indicates to corruption on a small scale, mostly kept among individuals (UN Anti-Corruption toolkit, 2004).

According to transparency, international corruption refers to the abuse of entrusted power for private gain and can be classified as grand, petty and political, depending on the amounts of money lost and the sector where it occurs. Grand corruption consists of acts committed at a high level of government that distort policies or the central functioning of the state, enabling leaders to benefit as the expense of the public good. Petty corruption refers to every day abuse of entrusted power by low-and mid- level public officials in their interactions with ordinary citizens, who often are trying to access basic goods and services in place like hospitals, schools, police departments and other agencies. Political corruption is a manipulation of policies, institutions and rules of procedure in the allocation of resources and financing by political decision makers, who abuse their position to sustain their power, status and wealth (Corruption Index, 2016). In addition, corruption refers to the abuse of entrusted power for private gain and also can be classified as grand, petty and political, depending on the amounts of money lost and the sector where it occurs.This explanatory variable is to be used in this study due to the fact that Sub – Sahara African countries are ranked among the top corrupted countries in the world (Corruption Index, 2016).

Theoretical framework

Institutional Theory: Institutional investigation, which was produced by SaskiaWilhelms (1998), investigates the significance of institutional system on the inflows of FDI. The theory said that, political steadiness is the key variable of a sound institutional structure. As indicated by this theory, FDI is resolved more by institutional factors viz. laws, policies, and their execution and less by inflexible fundamentals. The four establishments adding to FDI inflows are governments, markets, training and socio culture.

Empirical Literature

Empirical finding of the relationship between corruption and FDI is one of the debatable among researchers around the globe, but yet their findings fail to

reach consensus. For instance Carril-Caccia et al. (2020) examines the nexus among foreign direct investment, corruption and growth in developing and developed markets. The study applies a panel vector autoregressive (PVAR) model to the context of the generalized method of moment's estimation technique to determine the relationships in 54 developed and developing countries over the period of 1996 to 2018. The findings suggest that the control of corruption negatively (positively) affects inward FDI and economic advancement in developing (developed) countries, suggesting that weak (strong) institutional quality and higher (lower) corruption boost investments and economic development. The study further finds that economic growth and corruption have a positive bidirectional relationship for developing countries and negative unidirectional association for developed countries. Besides, the bidirectional linkage of FDI with corruption and economic growth is observed in both developed and developing countries. The findings are elicited through a series of robustness tests, including two-step system generalized method of moments. The results provide policy implications to government and regulatory authorities. Song et al. (2020) and Son, Liem, & Khuong (2020). Song et al. (2020) verify the negative association of corruption and economic growth and financial development using the panel FMOLS estimations. And Son et al. (2020) find that corruption increases the non-performing loans, brings a decline in the banking industry performance and economic growth. More so Gru¨ndler and Potrafke (2019) have found that real economic growth declines 17% by 1% increase in corruption. The researchers have further indicated that this association has a spillover effect on reduced FDI and increased inflation in the economy. Also Federico et al., (2019) reassesses the impact of good governance and democracy on Foreign Direct Investment (FDI) in oil-abundant countries. They used gravity equation for a dataset that covers 182 countries during 2003-2012. Their findings confirm that compliance to rule of law, lack of corruption, political stability and democracy could boost new FDI links through the extensive margin and results could not rule out the oil curse, meaning that oil producers attract fewer new Greenfield projects than similar countries without oil. Unlike other researchers were shows that the impact of institutions is not necessarily undermined by the presence of natural resources.

Shah (2018) empirically investigates the Corruption and Foreign Direct Investment: The Case of South Asia. He apply Owing to the long-term relationship with the host, absence of corruption and bureaucratic interventions

are crucial location advantages of host countries, especially in case of countries lacking abundant natural resources to attract foreign investors. The results through random effects panel estimation method indicate the significant effects of absence of corruption, honest public office holders, efficient bureaucracy and government stability for the foreign direct investors in SAARC nations. While Youssouf (2017) investigated the robust FDI determinants in sub-Sahara Africa for the period 1985 to 2012 and his empirical analysis shows the following key findings: (i) natural resources and market size are the most robust determinants; ii inflation, infrastructure, human capital and trade openness are weak robust, iii corruption and political instability are very less robust determinants in sub-Sahara African countries.

Fahad & Ahmad (2016) examine the impact of Corruption on foreign Direct Investment in post- Conflict Countries: A panel Causality Test. The study applies Dynamic Ordinary Least Squares (DOLS) method in order to test for the long-run effect of corruption on inward FDI in PCC utilizing E-Views 9 as a statistical package. The results show that corruption impacts negatively upon inward FDI in PCC in the long-run, and the 1 unit increase in corruption decreases inward FDI by -1.34 unit. The paper further suggests that PCC should pay more attention for institutional reform in its general notion and for corruption in particular, given that more corrupt institutions in PCC may exacerbate their own difficulties in providing a friendly-business environment and eventually hinder their efforts in attracting FDI. Base on the results, the study suggests that PCC should rely on both their own capabilities as well as specialized international institutions in order to achieve a better institutional reform, and learn the best international practices in fighting corruption.

Stoddard and Noy (2015) analyse a panel data of 40 emerging and developing countries over the period from 1987-2009. They apply panel Arellano–Bond GMM using both Freedom House and ICRG indexes to measure corruption and find that corruption stimulus FDI.

Anselm & Iyavarakul (2015) state the Tolerable Level of Corruption for Foreign Direct Investment in Africa. The study is based on secondary data collected from the World Bank World Development Indicators. Using a dynamic panel data estimation technique while controlling for other variables, the estimated TLCI in Africa is -0.27 on the control of corruption scale, which ranges from approximately -2.5 (weak) to 2.5 (strong). The result reveals that

African leaders and stakeholders, especially in countries that fall below the TLCI, should intensify their efforts in the fight against corruption to reduce corruption in their respective countries to at least the TLCI to attract foreign investors

METHOD OF DATA PRESENTATION

Sources of Data

The data for the purpose of this study were collected on eight emerging sub-Saharan African countries, namely Angola, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Senegal and South Africa spanning a 19 year period, from 2000 to 2018 from world development indicators. The variables are foreign direct investment net inflow stand as FDI, corruption perception index (CPI) is used as proxy for corruption and Gross Domestic Product Current to US Dollar (GDP %$) stand as GDP should be use as a proxy for economic growth

Model Specification and Procedure

The model was adopted based on the objectives of the research and the nature of data used and it is specified as follows:

$$FDI = F(COR, FD) \dots\dots\dots\dots\dots 1$$

Where:

FDI = Foreign Direct Investment, net inflows

COR= CPIA transparency, accountability, and corruption in the public sector rating (1=low to 6=high)

FD= Financial Development

F= functional relationship

*= multiplication symbol

Therefore, the above equations are transformed in to econometric models as follows

$$FDI_{it} = \alpha + \beta_1 \mathrm{COR}_{\mathrm{it}} + \beta_2 \mathrm{FD}_{\mathrm{it}} + + \varepsilon_{\mathrm{it}} \dots\dots\dots..2$$

Where, the prior expectations of the parameters in equation 2 are, $\beta_1 < 0$ and $\beta_2 > 0$ respectively.

Cross-sectional Dependency Test

Pesaran (2004) developed the cross-section dependence test. It is the principal test before to investigates, at the order of integration of the series; the most concern is to test the cross-sectional dependence of the arrangement. Hence, it

is the first analysis to choose the fitting unit root series. The failure to consider about cross-sectional dependence between the series may bring about bias results (Breusch and Pagan, 1980; Pesaran, 2004). The suggested test of the ordinary least squares (OLS) residual from the panel regressions are:

$$Z_{it} = \gamma_i + \delta_i y_{it} + \theta_{it} \ \dots\dots\dots\dots\dots\dots\dots\dots \quad 3$$

Where γ_i and δ_{i_i} are the intercepts and slope, $i = 1,2,3$----N is an indexes of the cross section dimension and t=1,2,3……Q is the time series dimension. For each $i, \vartheta_{it}, \sim iid(0, \sigma_{i\theta}^2)$ and for all t, while they could be cross sectional interrelated. The dependence ofθ_{it} across $i$could arise in a various ways. It could be due to unobserved common components of θ_{it} and θ_{ij} for $i \neq j$. the regressors could have lagged values of Z_{it}, be either stationary or non-stationary. The CD test is as follows:

$$CD = \sqrt{\frac{2Q}{N(N-1)} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \check{R}_{ij}} \qquad \dots\dots\dots\dots\dots 4$$

Panel Unit Root Test

To verify the order of integration, The Fisher-ADF panel test otherwise known as Choi (1991) panel unit-root test is applied. Choi (2001) proposed the use of a non-parametric test which uses a grouping of the p-values from a unit root test applied to each cross-section of the panel data. The advantage of the Fisher test over LLC is that it reduces the restraining hypothesisthat I?$_i$ is the same in the alternative". Accordingly Choi (2001) considers the model:

$$y_{it} = d_{it} + x_{it} \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 5$$

$$d_{it} = \delta_{i0} + \delta_{i1} t + \cdots + \delta_{im} t^m \ \dots\dots\dots\dots\dots\dots\dots\dots 6$$

&

$$x_{it} = \rho_i x_{it}(t-1) + \mu_{it} \ \dots\dots\dots\dots\dots\dots\dots\dots 7$$

Co-integration Test

In the second phase of the estimation process, when the series is found to be integrated in the same order, a long-run co-integrating connection in them is calculated. The Pedroni panel cointegration tests (1999, 2004), are used. Pedroni (1999, 2004) presents seven residual-based tests in the null relationship of no long-term co-integration among the variables. Of the 7 tests provided, 4

are based on mixing the residuals for group estimates (including panel statistics, panel v-statistics, panel PP-statistics, and panel ADF-statistics) whereas the other 3 are based on pooling the residuals for group estimates (including group statistics, group PP statistics, and group ADF statistics). One of the key advantages of the between group estimators, according to Pedroni (2001) is that the point estimate has a more useful interpretation in case the true co-integrating vectors are heterogeneous. Following Pedroni (1999, 2004), the mean panel co-integration statistics for the heterogeneous panel and heterogeneous group are determined as follows:

$$Z_v = \left(\sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{it-1}^{2} \right)^{-1} \quad \dots\dots\dots\dots\dots\dots\dots 8$$

Panel $I?$ –statistic:

$$Z_{I?} = \left(\sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{it-1}^{2} \right)^{-1} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} (\hat{e}_{it-1} \Delta \hat{e}_{it} - \widehat{I}_{i}) \dots\dots \quad 9$$

Panel PP-statistic:

$$Z_\rho = \left(\hat{\sigma}^2 \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{it-1}^{2} \right)^{-1/2} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\gamma}_i) \dots\dots\dots\dots 10$$

Panel ADF-statistic:

$$Z_{I?}^{*} = \left(\hat{S}^{*2} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{it-1}^{*2} \right)^{-1/2} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{it-1}^{*2} \Delta \hat{e}_{it}^{*2} \dots\dots\dots 11$$

Group ρ –statistic:

$$\tilde{Z}_\rho = \sum_{i=1}^{N} \left(\sum_{t=1}^{T} \hat{e}_{it-1}^{2} \right)^{-1} \sum_{t=1}^{T} (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\gamma}_i) \dots\dots\dots\dots\dots\dots\dots 12$$

Group PP-statistic:

$$\tilde{Z}_\rho = \sum_{i=1}^{N} \left(\hat{\sigma}^2 \sum_{t=1}^{T} \hat{e}_{it-1}^{2} \right)^{-1/2} \sum_{t=1}^{T} (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\gamma}_i) \dots\dots\dots\dots\dots\dots\dots 13$$

Group ADF-statistic:

$$\tilde{Z}_t^{*} = \sum_{i=1}^{N} \left(\hat{\sigma}^2 \sum_{t=1}^{T} \tilde{S}_t^2 \hat{e}_{it-1}^{*2} \right)^{-1/2} \sum_{t=1}^{T} (\hat{e}_{it-1}^{*} - \hat{e}_{it}^{*2}) \dots\dots\dots\dots\dots 14$$

Here, $\hat{e}_{it}$ is the estimated residual from equation (14)
$\hat{L}_{11i}$ Is the estimated long run covariance matrix for$\Delta\hat{e}_{it}$. Of the 7 tests presented by Pedroni (1999, 2004), the panel v-statistic reject the null hypothesis of no co-integration with large positive figures, whereas The remained research statistics refute the null hypothesis that large negative values do not co-integrate. In Pedroni (1999) the critical values are provided and also given by some econometric software packages.

Long Run Estimation

When the long-run co-integration relationship was found to exist between $FDI_{it}, COR_{it}\ and\ FD_{it}$ the long-term Co-integrating Vector for heterogeneous co-integrated panels produced by Pedroni (2000) is calculated using the fully modified ordinary least square (FMOLS). This technique is centred on the dimension estimator which takes heterogeneity into account across countries. This is chosen due to the mode where the data is redistributed enables for greater flexibility in the existence of co-integrating vector heterogeneity. As per Pedroni (2000) the point estimate can be viewed as the average value of the co-integrating vector for the between dimension estimator. Thus, the regression could be considered:

$$FDI_{it} = \alpha + \beta_{1i}\mathrm{COR}_{it} + \beta_{2i}\mathrm{FD}_{it} + +\varepsilon_{it} \ldots\ldots\ldots..15$$

Where $FDI_{it}, COR_{it}\ and\ FD_{it}$ are co-integrated with slopes $\beta_{1i}$and β_{2i}which might or might not be universally homogeneous. The definition for the inter-dimensional, group-mean panel FMOLS estimator as illustrated in Pedroni (2001) is:

$$\hat{\delta}^{*}_{GFM} = N^{-1}\sum_{i=1}^{N}\hat{\delta}^{*}_{GFM,i} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..16$$

Where $\hat{\delta}^{*}_{GFM}$ "is the time-series FMOLS estimator which is applied to each country member of the panel. The associated t-statistic for the between dimension-estimator is given as:

$$t\hat{\delta}^{*}_{GFM} = N^{-1/2}\sum_{i=1}^{N}t\hat{\delta}^{*}_{GFM.i} \ldots\ldots\ldots\ldots\ldots\ldots.17$$

Where $t\hat{\delta}^{*}_{GFM}$ is the associated t-value from the individual FMOLS estimates

RESULT AND DISCUSSION

Descriptive Statistics

The starting point of our formal analysis is the examination of the characteristic and pattern of the data. Therefore, descriptive statistics describe the basic features of the data used in this study. The aim of this statistics is merely to summarize the data set, rather than being used to test the hypotheses. Table 2 presents the descriptive results of the variables used in the study. The variables are FDI, COR and FD respectively, where FDI is the dependent variable while COR and FD are independent variables. Therefore, table 2 shows that, FDI has the highest mean of 1.98E+09 follow by FD with mean of 27.44421, while COR has the lowest mean of 3.003676 respectively. In terms of median the FDI still has the highest value of 6.71E+08 among the variables; follow by DCB with 23.14496, then COR with 3.000000. The maximum and minimum value of the variables under study show that, FDI has the maximum of 9.89E+09 and minimum of -7.12E+09, FD with 78.29413 as maximum and 1.966540 as minimum, and COR has a maximum of 4.000000 and minimum of 2.500000 respectively. Also the descriptive statistics present the indicators of skewness and kurtosis, as well as the test for normality of the variables in order to know the nature of the variables under study. This allows us to make some inferences about the distribution of the variables. The distributions of the dependent variable FDI and other Independent variables appear to be normally distributed, as shown by the jarquebera LM test. The dependent variable as well as Independent variables appears to have a kurtosis of less than three (3) as indicated in table 2

Table 2 Descriptive Statistic

	FDI	COR	FD
Mean	1.98E+09	3.003676	27.44421
Median	6.71E+08	3.000000	23.14496
Maximum	9.89E+09	4.000000	78.29413
Minimum	-7.12E+09	2.500000	1.966540
Std. Dev.	2.86E+09	0.401370	17.19850
Skewness	0.084489	0.676692	1.600231
Kurtosis	2.890900	2.263313	2.853288
Jarque-Bera	7.676475	1.772242	7.150661

Probability	0.721532	0.224580	0.694512
Sum	2.69E+11	408.5000	3732.412
Sum Sq. Dev.	1.11E+21	21.74816	39931.46
Observations	152	152	152

Source: Author's Computation 2020.

.Cross–Sectional Dependence Test (CD TEST)

Cross-sectional dependence test was conducted in order to examine the contagious effects of shocks within the cross-sections (Pesaran& Yamagata, 2008). Table 3 presents three cross sectional dependency tests, which include: the Breusch-Pagan LM, the Pesaran Scaled LM and the Pesaran CD tests of cross-sectional dependence. Based on the results, all the variables indicates no presence of common factor affecting the cross sectional units which paved way to use the first generation panel unit root test.

TABLE 3 Cross-Section Dependence Test

Test	**Statistic**	**d.f.**	**Prob.**
Breusch-Pagan LM	30.5262	28	0.1123
Pesaran scaled LM	20.03105		0.1005
Pesaran CD	40.009508		0.2541

Source: Author's Computation 2020

Panel Unit Root Test

Since the variables do not have presence of common factor affecting the cross sectional units, the panel unit root test was conducted in order to avoid spurious regression result. Therefore, Choi (2001) Unit root test with trend and intercept was conducted for the variables of interest under study, in order to investigate the respective order of integration. The result reveals that, all the variables were not stationary at level but stationary at first difference with different level of significant. For example, FDI and FD were stationary at 1% statistically level of significant while, COR was statistically significant at 5% level of significant in table 4. This indicates that, all the variables are integrated of order one I(1) .

Table 4 Choi (2001) Panel Unit Root Test

	At Level		**At First Difference**	
Variables	Statistic	Prob.	Statistic	Prob.
FDI	-1.10846	0.1657	-4.68926	0.0000*
COR	1.85437	0.9682	-1.80342	0.0357**

FD	1.87955	0.9699	-5.24309	0.0000*

Source: Author's Computation 2020

*Note : *&** indicate significant at 1% and 5% level of significance*

Pedoroni Co-integration Test

Since the variables are on the same order of integration, this paved way to conduct pedroni panel co-integration test. Therefore, table 5 presents the results of the Pedroni panel co-integration test for the corruption, financial development and FDI in the Sub Saharan African countries (ESSACs). The table indicates that, the null hypothesis of no co-integration cannot be rejected for Panel ρ-statistics, Panel PP-statistics and Group ρ-statistics. However, the null hypothesis of no co-integration is rejected for Panel υ-statistics, Panel ADF-statistics, Group PP-statistics and Group ADF-statistics at 1 percent level of significance.Thus, it can be concluded that the variables under study possess co-integration in the long run for Sub- Sahara African Countries

Table 5 Pedoroni Co-integration Test

Test	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-1.135626	0.8719	-0.433208	0.6676
Panel rho-Statistic	-0.580821	0.2807	-0.902029	0.1835
Panel PP-Statistic	-1.727402	0.0420**	-4.333921	0.0000*
Panel ADF-Statistic	-2.778714	0.0027*	-3.542206	0.0002*
Group rho-Statistic	0.002611	0.5010		
Group PP-Statistic	-9.907001	0.0000*		
Group ADF-Statistic	-4.800043	0.0000*		

Source: Author's Computation 2020

*Note : *&** indicate significant at 1% and 5% level of significance*

Estimation of the Long Run Relationship

Having found that, the long run relationship exist between FDI and the independent variables for the Sub-Sahara African Countries, the next stage is to estimate the FMOLS regression. Table 6 shows the FMOLS estimation for the model of FDI and Corruption in the region under study. From the table 6, the estimated coefficient of COR was negative and statistically significant in determining FDI in the study area under review. But FD was positive and statistically significant at 1% level of significant in attracting FDI inflow to the

region. The findings is in line with the findings of Fiza et al. (2020), Shah (2018), Fahad (2016), Anselm & Iyavarakul (2015) among others and contradict with the findings of Stoddard and Noy (2015) among others

TABLE 6 FMOLS Regression for Corruption and FDI in the ESSAC Dependent Variable FDI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COR	-4.97E+08	0.481617	-1.03E+09	0.0000*
FD	2.73E+08	32543779	8.388339	0.0000*
R-squared	0.747536			
Adjusted R-squared	0.633623			

Source: Author's Computation 2020

*Note: * indicates significant at 1% level of significance.*

CONCLUSION AND RECOMMENDATIONS

The purpose of this study is to examine the influence of corruption in determining FDI inflow in Sub-Saharan African countries from 2000 to 2018. The properties of panel data were checked to avoid spurious results followed by co integration analysis as well as estimation of the variables using FMOLS under study. Based on the findings of the research, the studies conclude that, corruption and financial development are among the major determinants that attract or hinder FDI inflow in the study area. Based on that, the following are some of the suggested policy options and strategic alternatives that most of these countries under study and policy makers should consider:

Firstly Sub-Sahara African Countries should provide extensive policies on curtailing act of corruption from both public and private sectors as it has been emphasized that (ESSAR) region is the highest among all countries in terms of corruption should be address in the region. As it is shown in the finding, it has negative impact on FDI in the region. More so, these countries should step up their attempts to reorient culture against corruption by imposing strong ethical expectations that must be respected for all. Also governments in region can strengthen their political will to eliminate corruption in the framework by building structures that cannot stand in the way of combating corruption.

Secondly the findings also suggest that, the governments of the region should emphasize and reconsider the important of financial reform policies, especially with regards to financial development. This is because financial development

has a positive effect in attracting FDI in the region. Therefore, there is the need to implement policies that will enhance credit allocation and accessibility, by the government of these countries under study in order to have more FDI inflow which in turn accelerate economic growth. Moreover, this will enable more number of people with access of capital for investment, increasing standard of living and reduce extreme poverty among various communities of these countries. The governments should create enable environment which will bring sound financial development due to its role in determining of FDI inflow.

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