Impact of Corruption on Foreign Direct Investment Inflow in Ghana

ABSTRACT

This study investigates the relationship between corruption and foreign direct investment (FDI) inflow in Ghana, using data spanning from 1995 to 2021. We employed the autoregressive distributed lag (ARDL) Bounds model. A Bounds Cointegration test was performed; nonetheless, no cointegration was found. The results show that corruption has a negative impact on FDI inflow in Ghana. This suggests that as corruption increases, FDI inflow declines, which is consistent with the "grabbing hand" hypothesis of corruption. However, the lags of corruption have an insignificant impact on foreign direct investment inflow. We argue that corruption disrupts the smooth functioning of public institutions, leading to inefficiencies and higher costs of doing business, which deters investors. The study recommends implementing measures to mitigate corruption and enhance institutional effectiveness to attract foreign direct investment. Further studies can investigate the impact of corruption on sectoral FDI, differentiate between horizontal and vertical FDI, and determine the extent to which each is affected by corruption.

Keywords: Corruption, Foreign Direct Investments, Autoregressive Distributed Lag (ARDL), Regression

1. INTRODUCTION

Foreign Direct Investment (FDI) plays an important role in economic development. It is a vehicle for multinational corporations to scale their operations beyond saturated markets into untapped, potentially profitable markets. In addition to benefiting from these corporations, FDI offers host countries access to advanced technology, managerial expertise, heightened local market competition, and increased employment opportunities (Castro & Nunes, 2013). The literature confirms a positive, long-term impact of FDI inflow on economic growth (Owusu-Antwi & Erickson, 2018). The International Monetary Fund (IMF) defines FDI as investments that grant the investor a lasting interest of at least 10% on an entity different from the investor's home economy (IMF, 1993).

The United Nations indicates FDI inflow represents an important source of capital for investment in developing countries as demonstrated in Figure 1. Being the primary external capital source, FDI surpasses remittances, official development assistance (ODA), and portfolio investment for developing economies from 2010 to 2018. The development narrative of Africa is incomplete without acknowledging the contribution of FDI inflow.

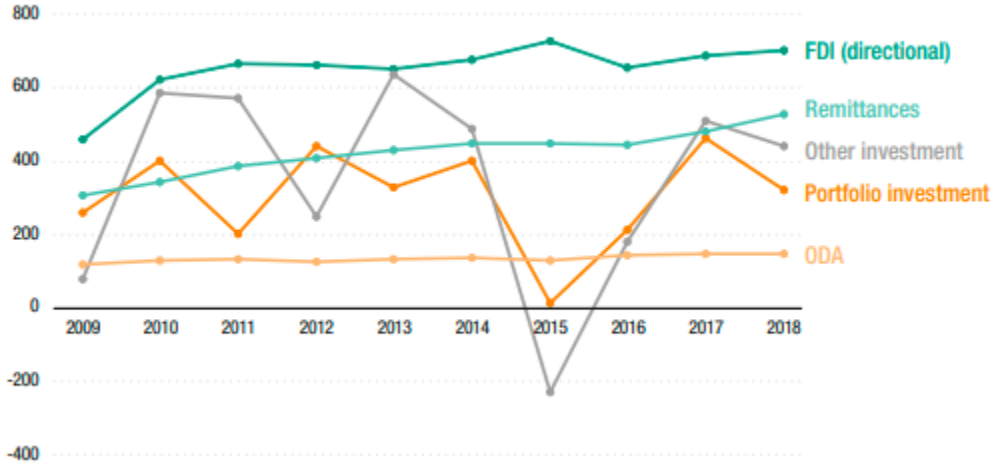

Figure 1

Sources of external financing for developing economies, 2009 – 2018 (billions of US dollars).

Ghana emphasizes FDI attraction because of its aspirations for economic self-sufficiency, encapsulated in the government's vision of "a Ghana beyond Aid" (Government of Ghana, 2019). The Ghana Beyond Aid agenda aimed to transition Ghana into a prosperous and thriving economy without dependency on aid (Government of Ghana, 2019). This vision has spurred concerns among citizens who perceive it as a risky endeavor that can jeopardize the nation's economic stability because of potential capital insufficiency. The fear of the populace is not unfounded. Similar to most African countries, aid has always been a major source of capital, and suddenly growing out of it without a clear strategy and alternatives is a cause for concern.

To address these concerns, the government set up a committee that outlined strategies and policy reforms to stimulate economic growth. Its central focus was on fostering a conducive environment for private sector investment (Government of Ghana, 2019). Subsequently, high-profile campaigns have been initiated to promote Ghana as an entrepreneur-friendly destination for foreign investors. These campaigns have given rise to initiatives like the "Year of Return,"

designed to attract Africans living abroad to invest and settle in Ghana. It offers incentives such as litigation-free land and even Ghanaian citizenship to diasporans (The African Diaspora Group, 2022).

Throughout its history, Ghana has pursued various policy reforms to promote FDI inflow, with programs such as the Economic Recovery Programme (1983), Investment Code Act (1985), and Ghana Investment Act (1994). These had notable impact on the nation's FDI (Tsikata, Asante & Gyasi, 2000). Furthermore, past and present government leaders have embarked on diplomatic missions to Europe, America, and other parts of the world to attract investors by highlighting the investment opportunities within Ghana.

However, attracting sufficient FDI to stimulate economic growth is still a challenge. Multinational firms require a strong regulatory framework that ensures economic freedom, efficiency, and the security of their investments (Peres, Ameer & Xu, 2018). Weak regulatory structures, often associated with corruption and other anti-investment issues, render economies unattractive to potential investors (Peres et al., 2018). Cleeve (2012) suggests that institutional credibility, particularly in terms of controlling corruption, significantly impedes FDI inflow. The perception of corruption levels in a country can greatly influence investors' decisions to invest in a country.

Corruption, defined as the misuse of entrusted public power for personal gain (World Bank, 1997; Transparency International, 2023), is a key determinant of international capital flows. The Association of Certified Fraud Examiners (ACFE) defines it as "a scheme in which an employee misuses their influence in a business transaction in a way that violates their duty to the employer to gain a direct or indirect benefit e.g., schemes involving bribery or conflicts of interest" (2024). Inarguably, corruption represents one of the most significant obstacles to Ghana's development efforts (Acquah, 2017). Since independence, corruption in Ghana has continued to rise despite promises and concerted efforts to combat it. Almost every government since independence has campaigned on promises to eradicate corruption. However, they have often faced public backlash, ousters through coups, or electoral defeat owing to a perceived lack of transparency and concrete actions against corruption (Ghana Integrity Initiative, 2018). The fight against corruption, in essence, is the most frequently violated part of the social contract between elected officials and the citizens of Ghana (Ghana Integrity Initiative, 2018). The consequences of corruption are manifold, including the erosion of trust, hindrance to economic progress, and the creation of social divisions (Transparency International, 2023). Corruption disproportionately benefits the rich and powerful, whereas those unable to participate in corrupt practices are denied opportunities (Transparency International, 2023). On the Corruption Perceptions Index, Ghana consistently scores negative values, except for 2007 and 2010, indicating the persistence of corruption as a significant issue (Kaufmann & Kraay, 2023).

The cost of corruption to Ghana is staggering, estimated at approximately 3 billion US dollars annually (Universal Periodic Review, 2017; IMANI, 2016). The World Economic Forum identifies corruption as the most problematic factor for doing business in Ghana, and it is second only to issues related to access to capital (2017). Corruption also distorts FDI inflow by redirecting investments towards trading and light manufacturing sectors, where firms can more easily relocate their operations when the cost of corruption becomes unbearable. Conversely, heavy manufacturing sectors are often abandoned owing to the risk associated with large fix-asset investments. This is because corrupt officials exploit such investors, knowing that it will be too costly for such foreign investors to relocate. Corrupt governments have been known to forcibly

nationalize foreign firms that resist their demands. Consequently, some foreign investors avoid long-term investments in countries with pervasive corruption (World Bank, 1997).

Studies on the relationship between corruption and FDI inflow lack consensus. Several studies suggest a positive impact of corruption on FDI inflow (Eguae Obazee, 2014; Egger & Winner, 2005; Omodero, 2019), whereas others contend a negative relationship (Wei, 1997; Cuervo-Cazurra, 2007; Al-Sadiq, 2009; Castro & Nunes, 2013; Epaphra & Massawe, 2017). A substantial body of research finds no significant relationship between corruption and FDI inflow (Wheeler & Mody, 1992; Cleeve, 2012; Anyanwu, 2012; Okafor, 2015). The debate between the "grabbing hand" and "helping hand" theories continues with no clear consensus. Therefore, further research is needed to assist in reaching a consensus.

Despite extensive research on the topic, most studies have focused on Western economies, with few cross-country research involving African economies. Single-country studies have been scarce, especially in the Ghanaian context, with Nsor-Ambala and Coffie (2022) being among the few recent studies focusing on Ghana. This study addresses the gap in the Ghanaian context by investigating the relationship between corruption and FDI inflow in Ghana. Our methodology employs the autoregressive distributed lag model (ARDL). Whereas Nsor-Ambala and Coffie (2022) incorporated a comprehensive set of variables in their study, it is notable that their analysis primarily focused on corruption as the sole institutional variable of interest. However, it is imperative to acknowledge that institutional factors carry substantial weight when multinational corporations make investment decisions in a foreign country. Therefore, an analysis devoid of additional institutional variables may yield regression results with limited robustness. This study will incorporate institutional variables that the previous study omitted.

2. LITERATURE REVIEW

2.1 Theoretical Review

Two distinct theories underpin the study of the relationship between corruption and foreign direct investment inflow into a country. These theories are commonly known as the "grabbing hand" or “sand in the wheel" and the "helping hand" or “grease in the wheel” theories. The former theory posits that corruption results in increased transactional costs, reducing investors' profit and acting as a hindrance to commerce (Wei, 1997). In contrast, proponents of the "helping hand" theory assert that corruption can make conducting business in a country more appealing, especially in cases where institutions fail to function effectively. Considering such instances, bribery can expedite processes, acting as a "grease in the wheels of commerce" (Zangina & Hassan, 2020).

Shleifer and Vishny (1993) have demonstrated that corruption may either impede or promote business, depending on whether it involves theft or not. In the case of corruption without theft, a government official who holds the power to limit the supply of government goods sells them at the government price along with an additional benefit (bribe). The official keeps the bribe and returns the actual price to the government. Consequently, the cost of the good exceeds its actual price, thereby increasing the investor’s procurement cost. Regarding the second case (corruption with theft), the official gives nothing to the government but steals the goods and keeps all the proceeds from the sale. With the discretion to set a price, the official chooses a lower price than the government price. Investors benefit from corruption with theft because they can procure goods at prices lower than the market prices, thereby enjoying higher profits from their investments.

Corruption's cost to business also varies depending on the associated uncertainty (Wei, 1997). When the corruption rate is certain, the impact of corruption is comparable to a distortionary tax; nevertheless, corruption typically induces uncertainty. As corruption-induced uncertainty increases, its impact is worse than a distortionary tax. Because investors seek to maximize profits, as corruption and its associated uncertainty increase, all other things equal, investors will reduce their investments or in the worst case, quit.

The critics of the grabbing hand hypothesis contend that the theory is founded on unrealistic assumptions that governments have the intention of promoting business and ensuring the smooth functioning of systems, which when disrupted by corruption, results in associated costs (Leff, 1964). However, in developing countries, it may be that most governments have other priorities, such as maintaining power and strengthening military forces. This leads to a low allocation of resources to promote business and the functioning of institutions. Corruption, in this case, serves as a resource allocation mechanism. Leff (1964) suggests that by paying bribes, firms can hedge their business against bad economic policies, encourage innovation, avoid monopolies, and promote efficiency. Corruption ensures efficient allocation by offering the service to the highest bidder, often foreign efficient firms. It is also possible that firms paying the highest bribes may just be successful rent-seekers and not necessarily efficient firms (Tanzi & Davoodi, 1997; Tanzi, 1998).

Similarly, Lui (1985) utilizes the queuing model to explain the helping hand theory. In his model, customers in a queue for a service choose to pay a bribe depending on the value they attribute to time spent in the queue. Those who pay the highest bribe will be placed ahead of those who pay a lower bribe. The amount of bribe paid depends on the value the person places on the speed of service gained from paying the bribe. More people will pay a bribe if the server expedites the process for those who pay. However, if the process is too quick, the cost of being in the queue will be lower than the cost of a bribe. Therefore, for the server to increase his bribery revenue, he expedites the process to an optimum level while probably frustrating those who will not pay. In relation to foreign firms, bribes allow them to expedite transaction processes in bureaucratic institutions. Because the bribe is paid according to the firm’s value for the time saved, those who attribute the highest value will pay the highest bribe and receive their service, ensuring efficient allocation of resources.

Finally, Beck and Maher (1986) model commission transaction bribery in the context of government procurement and compare it to competitive bidding. The model assumes that firms possess knowledge of their own profits, costs, and government contract price. However, they are without information regarding their competitors' profits, costs, or the amount of bribe they pay to the government. The model shows that the bribe paid is a markdown on profits. The firms that obtain contracts are usually with higher profits and are the higher bribe payers. This demonstrates that bribery operates similarly to competitive bidding, in which firms offer discounts as a markdown on their profits. Therefore, although bribes may increase the cost of transactions, it does not exceed their profits. Bribery serves as an alternative to bidding for contracts so that more efficient firms in production can win more contracts by offering higher bribes.

2.2 Empirical Review

There is empirical evidence in support of the helping hand theory of corruption (Hines, 1995; Egger & Winner, 2005; Omodero, 2019). Studying both developed and developing countries over the period (1995-1999), Egger and Winner (2005) found that corruption has a clear positive

impact on FDI in both the short and long runs. It has also been found that policies that seem to clamp down on corruption tend to deter foreign investments. Hines (1995) found that prior to 1977, US firms invested more in corrupt countries, but their investments reduced post 1977. He attributes this to the introduction of the Foreign Corrupt Act of 1977, which criminalized bribery by US firms in foreign lands. In the African context, Quazi *et al.* (2014) uses a sample of 53 African countries to show that corruption positively impacts FDI. Omodero (2019) used two indices and found that the Corruption Perception Index (CPI) has a positive relationship with FDI Inflow in Nigeria but is insignificant when the corruption rank is used.

The evidence for the grabbing hand hypothesis is compelling (Wei, 1997; 2000; Cuervo-Cazurra, 2007; Al-Sadiq, 2009; Castro & Nunes, 2013). The literature shows that regardless of the estimation technique used (Al-Sadiq, 2009) or the corruption indices used (Epaphra & Massawe, 2017), corruption negatively impacts FDI. Wei (1997) shows that there is a negative relationship between corruption and FDI, and the effect of corruption-induced uncertainty is worse than distortionary tax. He shows that the effect of increasing corruption-induced uncertainty from 0.64 to 1.75 is equivalent to the effect of increasing tax by 54%. On the contrary, Cuervo-Cazurra (2007) argues that arbitrary corruption is less harmful to FDI than pervasive corruption in transition economies. He argues there is no point in fearing the possible devil (uncertain corruption) more than the known and unavoidable one. Belgibayeva and Plekhanov (2015) further show that the relationship between corruption and FDE also matters for source countries. They find that as corruption in a host country is controlled, foreign direct investment flows more from clean countries but only increases by a small margin from some corrupt source countries and declines in others.

Most of the studies have assumed a linear relationship between corruption and FDI. However, Zangina and Hassan (2020) used the nonlinear autoregressive distributed lag to estimate the impact of controlling corruption in Nigeria with data covering the period 1984 to 2017. It showed that corruption is negatively correlated with FDI. As control of corruption improves, FDI significantly increases. However, when control of corruption reduces, there is an insignificant negative effect on FDI.

Although the literature predominantly supports either the "grabbing hand" or "helping hand" hypotheses, a few find an insignificant relationship. While Wheeler and Mody (1992) found no significant relationship between corruption and FDI in the context of US multinationals, these results have been critiqued for potential methodological limitations, potentially “a high noise-to-signal ratio in the composite indicator” (Wei, 2000, pp. 8). Similarly, Cleeve (2012), Anyanwu (2012), and Okafor (2015) also found no statistically significant impact of corruption on FDI inflow across African countries using different methodologies. Notably, Hakkala et al. (2008) found that corruption had an insignificant impact on FDI in Sweden overall but displayed a significant negative impact on *horizontal FDI*- an extension of the same type of business abroad - while not affecting *vertical FDI*- foreign investment in a different stage of the supply chain than the business the investor operates in the home country.

The literature reviewed above is dominated by linear estimation approaches with limited nonlinear approaches. The empirical literature on the topic is also dominated by cross-country analysis, with few country-specific studies. There is enough documented evidence to support all sides of the argument. It also shows that the relationship between corruption and FDI may depend on whether FDI is vertical or horizontal. The result may also depend on the corruption indices used to proxy corruption. The literature, however, seems to be lacking in nonlinear estimation methodologies.

3. METHODOLOGY

3.1. Econometric Approach

The research utilizes the autoregressive distributed lag model according to **Pesaran, Shin and Smith (2001)** to estimate the impact of corruption on FDI. It is plausible that FDI inflow is not solely influenced by contemporaneous corruption but also the corruption level in previous years. Moreover, foreign investors with less knowledge of a country's economic environment are attracted to countries with significant number of foreign firms, as it gives the impression that the country is investment-friendly (Anyanmu, 2012). This suggests that the past FDI inflow contributes to the present FDI inflow. The autoregressive distributed lag model is suitable for this scenario as it accounts for the impact of past corruption on FDI, as well as past FDI on current FDI inflow. As a result, the lags of both FDI and corruption are included, and the lag length is determined using the AIC criterion.

The ARDL model is also employed in this study because it can be used for variables integrated at different orders, and it is also efficient in the presence of a small sample size. Our sample size is small due to insufficient data available for some variables, especially corruption. Below is the compact ARDL model.

$$Y_t = \beta_0 + \sum_{i=1}^{p} \alpha_i Y_{t-i} + \sum_{i=0}^{q} \delta_i X_{t-i} + \varepsilon_t$$

For ease of interpretation, all variables are transformed into logarithmic form. The autoregressive distributed lag estimator employed in this study is presented below:

$$\begin{aligned} FDI_t = a_0 + \sum_{i=1}^{p} \alpha_i FDI_{t-1} + \beta_1 COC_t + \beta_2 RGDPPC_t + \beta_3 ExchRate_t + \beta_4 Openness_t \\ + \beta_5 Inflation_t + \beta_6 Govern_t + + \sum_{i=1}^{p} \delta_{1i} Corruption_{t-i} \\ + \sum_{i=0}^{q} \delta_{2i} RGDPPC_{t-i} + \sum_{i=0}^{q} \delta_{3i} ExchRate_{t-i} + \sum_{i=0}^{q} \delta_{4i} Openness_{t-i} \\ + \sum_{i=0}^{q} \delta_{5i} Inflation_{t-i} + \sum_{i=0}^{q} \delta_{6i} Govern_{t-i} + \varepsilon_t \end{aligned}$$

Here, FDI_t represents the foreign direct investment inflow at any given time t from 1980 to 2019, with FDI_{t-1} being the lag of foreign direct investment inflow. COC_t indicates the percentile rank of the control of corruption with COC_{t-1} being the first lag of corruption. $RGDPPC_t$ refers to the real gross domestic product per capita, $ExchRate_t$ represents the official exchange rate, $Openness_t$ denotes the trade openness, INF_t signifies the inflation rate (GDP deflator), and $Govern_t$ indicates the government effectiveness.

The parameter α_i are the coefficients of the FDI lags, which measures the effect of changes in the lags of FDI on current FDI inflow. The parameters β_1 to β_6 are the coefficients of the independent variables, excluding the lags of FDI. Also, the parameters, δ_1 to δ_6 denotes the coefficients of the lags of the independent variables. The term ε_t represents the error term at a given time t. Here, **log(.)** represents the natural logarithm.

3.1.1 Rationale for the Control Variables Employed

The choice of control variables employed in this study is grounded in preceding empirical research, a majority of which is assessed in chapter 2. Inflation is an important determinant of FDI inflow. In the presence of stable inflation, FDI tends to flow more. (Nunes & Castro, 2013). Additionally, investors find weak currencies more favourable.

When a host country is open to trade, companies are afforded greater ease of entry to the market. This move encourages more companies to invest in the country. Additionally, open economies tend to implement policies that promote the welfare of businesses, thereby engendering a perception that is conducive to attracting FDI (Epaphra & Massawe, 2017; Castro & Nunes, 2013).

The exchange rate is utilized as an indicator for the strength of a domestic economy's currency. Investors prefer it if the host economy's currency is weaker relative to their own. This is because a weaker currency is associated with lower borrowing costs, which serves as an incentive for investors to invest in the host country (Okafor, 2015).

Government effectiveness is a measure of policy formulation and implementation, public service effectiveness, and the quality of bureaucracy in the host country (Epaphra & Massawe, 2017).

GDP per capita serves as a proxy for the market size or market potential of the host country. A larger market size implies a greater demand for goods and services, thereby making the country more attractive to foreign investors. Additionally, a host country with a large market size has the advantage of attracting more FDI, as companies that are situated near large markets tend to reduce their transaction costs (Epaphra & Massawe, 2017; Castro & Nunes, 2013).

3.2 Data Description

The study relies on secondary data on corruption, Foreign Direct Investment (FDI), and other independent variables functioning as control variables. The sample data encompasses the period from 1995 to 2021.

The control of corruption and government effectiveness data are sourced from the World Governance Indicator's (WDI) database, a project of the World Bank. The government's effectiveness and control of corruption are reported among four other governance indicators, namely voice and accountability, political stability and absence of violence, regulatory quality, and rule of law. These governance indicators are reported in two ways: (1) the standard normal unit ranging from -2.5 (weak) to 2.5 (strong) and the percentile rank ranging from 0(poor) to 100(excellent performance). In this research, we used the percentile rank of the control of corruption and the standard normal unit of government effectiveness. The control of corruption is also within the range of 0 (highly corrupt) to 100 (clean or no corruption), while the government effectiveness ranges from -2.5(weak) to 2.5(strong). They are constructed using surveys from various primary sources, including Afrobarometer, Global Competitiveness Report Survey, Economist Intelligence Unit, Political Risk Services, Reporters Without Borders, and Global Integrity Report (Kaufmann & Kraay, 2023). The data from the primary sources are averaged to arrive at the Worldwide Governance Indicator's measure of the governance variables. For purposes of this research, we used the control of corruption percentile rank, which ranges from 0(lowest control) to 100(highest control). The real GDP per capita, trade openness, inflation (GDP deflator),

exchange rate, and FDI data are sourced from the World Bank's database. The data for all five variables are annually reported, covering the period from 1960 to 2019.

4. RESULTS

4.1 Preliminary Analysis

The dependent variable (FDI) graph and the percentile rank of the control of corruption variables are plotted individually to show the trend over time. The graph below shows the trend in foreign direct investment inflow in Ghana from 1995 to 2021.

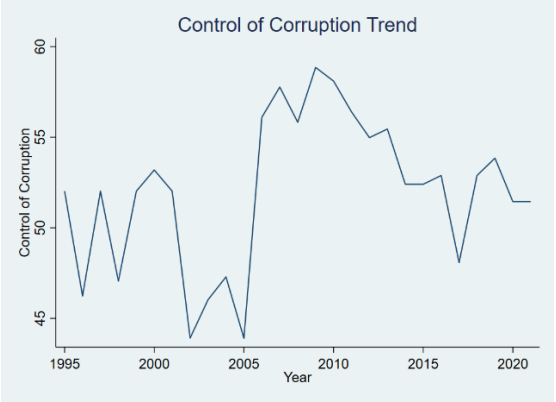

Figure 1: Control of Corruption

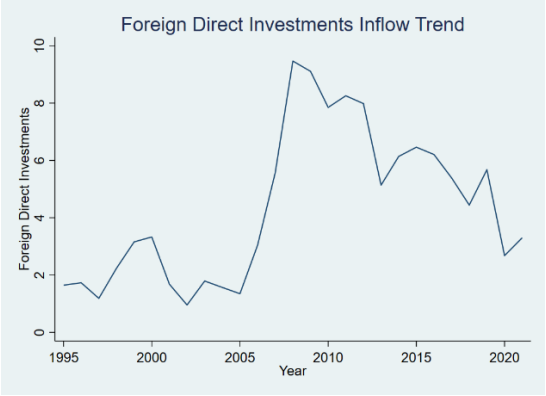

Figure 2: Foreign Direct Investments Inflow

4.2 Test for Stationarity

Time series data gives invalid results in the presence of unit root (Wooldridge, 2010). Any statistical estimation from nonstationary series will be misleading (Hanck, Arnold, Gerber, & Schmelzer, 2020). Hence, we test for unit root using the Augmented Dickey-Fuller (ADF) test (*see table 3*). The following are the hypothesis to be tested:

H_0: The time series process is not stationary.

H_1: The time series process is stationary.

Table 3

Augmented Dickey-Fuller Unit Root Test Results

			Level	First Difference
Variables	Test-statistic	P-Value	Test-statistic	P-Value
lnCOC	-2.151	0.224	-4.298	0.0004
lnFDI	-1.74	0.3887	-3.21	0.016
RGDPPC	-0.538	0.884	-3.109	0.026
ExchRate	-1.484	0.5414	-3.212	0.0193
Trade	-1.762	0.3995	-4778	0.0001

INF	-1.703	0.4294	-5.757	0.0000
Govern	-3.408	0.0107		

Source: Author's computations using data from World Bank

As *table 3* shows, for all variables, the p-values of the are higher than 5 percent significance level, except the government effectiveness variable which has a p-value less than the 5 percent level. Hence, government effectiveness is level stationary, all the rest are not. All other variables are stationary after the first difference.

4.3 Regression Output

In regression 1, we use the optimal lag selected by the STATA. However, we notice that the R-squared is too high, approximately 99 percent. We suspect that this is an indication of over specification (Adeleye, 2023) and implies low degrees of freedom. If there is indeed an over-specification, an ARDL Bounds test will reveal it by showing an error correction term (ECT) greater than 2 in absolute terms. So, we ran Regression 2, an ARDL Bounds test, and confirmed the existence of cointegration. Note, however, that though cointegration is confirmed, the ECT is -2.573. This indicates a potential over specification. ETCs are known to be susceptible to lag structure and the choice of variables (Adeleye, 2023). So, we can correct this by either changing the variables or changing the lag structure.

To fix this, we restrict the lags and include only the lags of Corruption and Foreign direct investments. We maintain 1 lag for both corruption and foreign direct investments and zero lag for the other independent variables. So, we end up with an ARDL (1 1 0 0 0 0 0 0 0) model as shown in regression 3.

In Regression 3, we observe that the R-squared is now about 86.2 percent, which is a good R-squared value. When we re-estimate the Bounds test, we find that the ETC term is within the normal range of 0 to -1(See regression 4 in Table 5). However, cointegration cannot be confirmed since the F-statistic is not greater than the upper bound (see Appendix). Therefore, we go ahead to interpret Regression 3, an ARDL model (see Table 4).

Table 4
ARDL Regression

	Regression1 (ARDL 2,2,2,2,2,2,2,)	**Regression 3** (ARDL 1,1,0,0,0,0,0)
VARIABLES	lnFDI	lnFDI
L.lnFDI	0.002	0.101
	(0.339)	(0.236)
L2.lnFDI	-1.576***	
	(0.342)	
lnCOC	9.507**	3.196**
	(2.333)	(1.334)
L.lnCOC	8.451**	1.527

	(2.118)	(1.373)
L2.lnCOC	3.306*	
	(1.379)	
lnRGDPPC	-0.379	0.685**
	(1.328)	(0.262)
L.lnRGDPPC	-2.802*	
	(1.270)	
L2.lnRGDPPC	5.082**	
	(1.358)	
lnExchRate	0.788	-0.145
	(1.657)	(0.133)
L.lnExchRate	-5.774**	
	(1.673)	
L2.lnExchRate	5.102**	
	(1.339)	
lnTrade	1.375**	0.910*
	(0.371)	(0.443)
L.lnTrade	0.709	
	(0.670)	
L2.lnTrade	3.682**	
	(1.187)	
lnINF	0.344	0.018
	(0.225)	(0.136)
L.lnINF	0.701*	
	(0.272)	
L2.lnINF	0.803**	
	(0.187)	
Govern	-2.266	-0.104
	(1.093)	(0.804)
L.Govern	1.386	
	(0.791)	
L2.Govern	-1.355	
	(0.882)	
Constant	-123.034**	-26.126***
	(27.555)	(8.810)
Observations	25	26
R-squared	0.986	0.862

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

Table 5
ARDL Bounds Test

	Regression 2	**Regression 4**

VARIABLES	ADJ	LR	SR	ADJ	LR	SR
LD.lnFDI			1.576***			
			(0.342)			
D.lnCOC			-11.757**			-1.527
			(3.174)			(1.373)
LD.lnCOC			-3.306*			
			(1.379)			
D.lnRGDPPC			-2.281			
			(1.909)			
LD.lnRGDPPC			-5.082**			
			(1.358)			
D.lnExchRate			0.672			
			(1.467)			
LD.lnExchRate			-5.102**			
			(1.339)			
D.lnTrade			-4.391*			
			(1.690)			
LD.lnTrade			-3.682**			
			(1.187)			
D.lnINF			-1.504**			
			(0.395)			
LD.lnINF			-0.803**			
			(0.187)			
D.Govern			-0.030			
			(1.012)			
LD.Govern			1.355			
			(0.882)			
lnCOC		8.263***			5.252***	
		(0.975)			(1.663)	
lnRGDPPC		0.739**			0.762**	
		(0.207)			(0.320)	
lnExchRate		0.045			-0.161	
		(0.095)			(0.165)	
lnTrade		2.241**			1.011*	
		(0.498)			(0.498)	
lnINF		0.718***			0.020	
		(0.140)			(0.151)	
Govern		-0.869				
		(0.709)				
L.lnFDI	-2.573***			-0.899***		
	(0.511)			(0.236)		
Govern					-0.116	
					(0.885)	

Constant			-123.034**			-26.126***
			(27.555)			(8.810)
Observations	25	25	25	26	26	26
R-squared	0.962	0.962	0.962	0.603	0.603	0.603

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

In Regression 3, in Table 5 above, the coefficient of corruption, COC, is positive and is statistically significant. However, the percentile rank of COC variable is a measure of control of corruption ranging from 0(lowest control) to 100(highest control). As a result, an increase of 1 percent in COC implies a decline in corruption (an improvement in corruption control). So, the positive coefficient of control of corruption implies a negative relationship between corruption and FDI. As the table shows, an increase in corruption leads to a 3.2 percent decline in FDI inflow. In other words, as corruption goes up, foreign direct investments flow less into the country. Past corruption (as shown by the lag of corruption) has an insignificant effect on FDI inflow.

Moreover, past FDI inflow does not have a significant impact on the current FDI inflow. As we observe, the coefficient of the FDI lag is insignificant. Hence, the so-called agglomeration effect does not exist in Ghana. Although GDPPC has a significant positive effect on foreign direct investment inflow, the magnitude is too small. A percentage increase in GDPPC only leads to a 0.685 percent increase in Ghana's foreign direct investment inflow.

At the 5 percent significance level, the exchange rate, trade openness, inflation, and government effectiveness are all insignificant. Hence, we cannot confirm any impact of these variables on foreign direct investments.

5. CONCLUSIONS AND RECOMMENDATIONS

The study sought to investigate the relationship between corruption and foreign direct investment inflow in Ghana. We found that corruption negatively impacts foreign direct investment inflow in Ghana. The ARDL Bounds model did not confirm cointegration or long-term relationship. We also could not confirm the so-called agglomeration effect, suggesting that more foreign direct investments flow into countries with the most FDI firms in existence.

The study has provided evidence to support the grabbing hand theory of corruption, which postulates that FDI flows less into highly corrupt regions (Wei, 1997). The finding is consistent with the empirical literature, with many authors providing strong evidence for the negative impacts of corruption on foreign direct investment inflow (Wei, 1997; 2000; Cuervo-Cazurra, 2007; Al-Sadiq, 2009; Castro & Nunes, 2013). Thus, corruption in Ghana serves as sand in the wheels of commerce. This further implies that institutions would function effectively in the absence of corruption. The presence of corruption renders these institutions ineffective, as government officials may cause intentional delays in processes to compel those seeking their services to pay bribes for expedited service delivery.

5.1 Recommendation for Research and Policy Making

The study has shown that corruption is negatively related to FDI. This means that if corruption increases, FDI will decline. The Ghana Investment Promotion Centre (GIPC) needs to

implement measures that will induce foreign investors to invest in Ghana to reduce the negative impact of corruption. The literature shows that countries with existing inefficiency will attract more FDI in the presence of corruption. However, when institutions are already efficient, the desire for corruption induces government officials to artificially create inefficiency so that investors will pay a premium for expedited service, which increases their transaction costs and consequently repels investment inflow. That could be the case in Ghana. Hence, people found culpable of corruption must be severely dealt with to serve as a deterrent for other officeholders in Ghana.
We suggest four directions for future research:

- Future research could first review and study the nature of institutions and regulations in Ghana and how these may facilitate corruption
- Future studies could also focus on the impact of corruption on sectoral FDI inflow in Ghana.
- Future research should segregate FDI into its two components, horizontal and vertical, to see how these two are individually affected by corruption
- Future research should also attempt to accommodate more institutional variables

5.2 Study Limitations

The sample size of the data used in this study is small. We tried as much as possible to be thorough in our methodology to have robust results. The ARDL estimator produces robust results even with a small sample size. A larger sample size may have proved useful nonetheless. In addition, because of the presence of unit roots and multicollinearity, we dropped some variables that the literature deems important in the corruption-FDI relationship. Aside from control of corruption, the only institutional variable included is the government effectiveness; other institutional variables like regulatory quality and voice and accountability provide major contributions to the equation.

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APPENDIX

	F-Statistic	**Upper Bound**
Regression 2	3.99	4.145
Regression 4	3.698	4.18

Appendix A: Cointegration Bounds Test Results