

Corruption, Corporate Governance, and Sustainable Development Goals in Africa

Abstract

Purpose: We sought to investigate the relationship between corruption, corporate governance, and sustainable development goals (SDGs) in Africa.

Design/methodology/purpose: We use panel data from 42 African countries over the period 2017 to 2020 and Ordinary Least Square (OLS) regression to test the research hypotheses. We also employ alternative estimation techniques, including the fixed effect and random effect regressions, and the Generalized Method of Moment (GMM) to test the robustness of the results.

Findings: The results indicate that corruption negatively affects sustainable development (SD), whereas the effect of corporate governance is positive and significant. In addition, the positive influence of corporate governance on SD is stronger for countries with high corruption prevalence.

Practical Implication: Policymakers may rely on the outcome of this study to formulate practical and implementable solutions around corruption and corporate governance that can help towards the achievement of the SDGs. Specifically, corporate governance mechanisms may be relied upon to achieve SD in countries with a high corruption prevalence.

Social Implications: The social implication of this paper is that it demonstrates the adverse impact of corruption, which is rife in most African countries. Understanding corruption and the SDGs relationship will promote discussion with overarching implications for developing countries. Overall, the findings can sensitize society to the harmful effects of corruption and the positive effects of good corporate governance.

Originality/value: We contribute to literature and practice by demonstrating that corporate governance plays a significant role in the realization of national and global objectives such as the SDGs. We also provide novel evidence that corporate governance matters more for countries with a higher corruption incidence.

Keywords: Sustainable development goals (SDGs), corporate governance, corruption, institutional theory, Africa.

1. Introduction

Since its inception, the United Nations (UN) Sustainable Development Goals (SDGs) agenda is fast gaining traction beyond the 193 member states to include Non-Governmental Organizations (NGOs), public policy bodies, and private sector organizations (Bebbington and Unerman, 2017). Though achieving the SDGs is an intergovernmental commitment, policymakers are increasingly appreciating the role of the private sector in meeting these goals. Recent literature suggests that all 17 goals are related to companies but are entirely and unevenly associated with the private sector (Frey and Sabbatino, 2018; Rashed and Shah, 2020). This means that if countries are to achieve the desired results in the assigned time, the public and private sectors must become active and practical partners to tackle challenges and create opportunities. In the public sector, corruption is arguably the most critical factor that could directly affect achieving meaningful development (Hope, 2021). Also, corporate governance is an important aspect of the private sector's participation in the attainment of overarching objectives (Agyemang et al., 2019). Therefore,

understanding the role of corruption on the one hand and corporate governance on the other, and their interaction will inform policymakers on how to create social and economic value related to the SD.

Two conflicting hypotheses explain the association between corruption and SD. On the one hand, the 'sand the wheels' hypothesis proposes a negative impact of corruption on SD based on the argument that corruption leads to the circumvention of laws and regulations, an increase in public expenditure, and a decrease in tax revenues (Hoinaru et al., 2020). On the other hand, the 'grease the wheels' hypothesis contends that corruption may lead to development through circumvention of laws, regulations, and bureaucratic bottlenecks (Achim, 2017). Empirical evidence supports both the 'sand the wheels' hypothesis (Jiang and Nie, 2014; Hoinaru et al., 2020) and the 'grease the wheels' proposition (Absalyamova et al., 2016; Achim, 2017; Hope, 2021). **Regarding the interaction between corruption and corporate governance, there seems to be a consensus that good corporate governance reduces corruption by mitigating agency conflict, minimizing coordination problems, and preventing extortion demands from corrupt officials (Wu, 2005).** Though corruption has been described as the major factor hindering economic growth and SD (Murphy and Albu, 2018), empirical evidence in the African context is sparse.

Furthermore, the institutional theory could explain the linkage between corporate governance and SD. According to the theory, in seeking to achieve legitimacy, firms respond to social and regulatory pressure by conforming to rules, norms, and expectations. The theory alludes to self-regulatory institutions to enhance a firm's commitment to sustainability, thereby enhancing corporate legitimacy (Haque and Ntim, 2017). Legitimacy serves as a strategic asset for organizational success, which improves a firm's relationship with the government and other stakeholders (Li et al., 2017). The literature proposes three forms of institutional isomorphism that explain the role of pressure on firms, namely coercive, cognitive, and normative (DiMaggio and Powell, 1983). Coercive isomorphism relates to the direct and indirect influence of institutional forces on organizational structures and processes that help to achieve and maintain firm legitimacy. These include government regulations, laws and policies, and the broader cultural expectations that shape corporate behavior. Cognitive isomorphism involves the process of enhancing legitimacy by keeping up with the best practices of the leading players in the industry. Simply put, firms try to emulate the best practices adopted by top companies in the same industry. Lastly, normative isomorphism explains a situation where a firm's structures and processes are influenced by the network of managers, specialized staff, and employee unions. Overall, the institutional theory argues national institutional environment shapes the formal rules, policies, and companies' constraints. Therefore, since SD reflects broad national objectives, we predict that corporate governance structures influence the extent to which these objectives are met by African countries. As part of national institutional structures, corporate governance mechanisms such as the strength of accounting and auditing standards, conflict of interest regulation and shareholder governance could influence SD.

The debate surrounding the role of the private sector in achieving SD at the institutional level has been intense (Betti, Consolandi, and Eccles, 2018). In recognition of the private sector's role, the European Commission in 2018 adopted measures aimed at encouraging private sector participation

in pursuing the SDGs. These measures include a strategy to link finance to sustainability through “reorienting capital flows towards sustainable investments, managing financial risk connected to climate change, social issues, and environmental degradation, and fostering long-term financial and economic activities” (Betti et al., 2018, p2). Also, the role of corporate governance has expanded in recent times beyond the provision of firm stewardship to embracing environmental, social, and governance responsibilities. This development compels firms to operate within social and environmental standards to maintain a healthy relationship with their stakeholders (Arayssi, Jizi, and Tabaza, 2019). The role of institutional environment and corporate governance is more critical for African countries, which have high corruption incidence. In such an environment, there is a greater threat of expropriation of investors' wealth and the tendency for managers to engage in unprofitable investments. However, where corporate governance mechanisms such as investor protection and strict enforcement of accounting and reporting standards, conflict of interest will be reduced (Gompers, Ishii, and Metrick, 2003). In this context, we examine the effect of corruption and corporate governance and how the interaction of the two variables impacts SD.

This research is motivated by several factors. Firstly, the UN SDGs offer new avenues for research in several interconnected areas, including natural sciences, humanities, and other social sciences. Specifically, Bebbington and Unerman (2017) called for more interdisciplinary research in SD by recognizing the significant role of corporate entities in realizing transformational global development. Our paper responds to this call by investigating whether corruption and corporate governance structure matter for SD in Africa. Our paper is an intersection of humanities, accounting, and economics. In addition, concerning the speed of achieving the SDGs, African countries are behind their European, North American, and Asian counterparts due to their peculiar institutional and cultural factors. This is because the African continent is characterized by a high corruption rate, weak institutional structures, and political instability among other factors (Agyemang et al., 2019). Though Agyemang et al. (2019) investigated the impact of country-level corporate governance on foreign direct investment, their analysis did not cover corruption and SD. Thus, there is a dearth of empirical studies on the role of national factors and private sector institutional structures in achieving SDGs. To this extent, our paper is among the early empirical studies that seek to examine whether corruption and corporate governance influence SD in Africa.

The analysis covers 42 African countries whose data for all variables are available from the period 2017 to 2020. The results indicate that corruption retards the realization of SDGs, while corporate governance is positively associated with SD. The results further indicate that corporate governance reverses the negative impact of corruption on SDGs. These findings are robust to alternative estimation techniques, including fixed-effect, random-effect, and GMM. Overall, the results demonstrate the need for policymakers in Africa to develop practical and implementable policies aimed at reducing corruption and improving corporate stewardship by strengthening accounting and auditing standards, conflict of interest regulation, and shareholder governance.

We contribute to literature on corruption, corporate governance, and SD in the context of Africa. First, we add to the literature by being among the earlier studies to provide evidence that corporate governance may be relied upon to achieve the SDGs in countries facing high corruption incidence. These findings contribute to the debate surrounding private sector contribution to SD, especially

in Africa, where many countries have weak regulatory and institutional structures. Recently, African countries have gained some significant strides in economic development, and many nations such as Nigeria, Rwanda, and Morocco are among the fastest developing economies in the world. However, since the focus of regulators and policymakers has shifted from economic growth and development to SD, investigating factors that impact SD is imperative. More so, at a time when African countries are looking for ways of combatting corruption and enhancing private sector participation in the achievement of national objectives such as SD, a study of this nature is timely. Overall, these findings suggest that sound private sector governance could significantly help in achieving the SDGs. Further, our research has policy implications for African countries and their development partners regarding ways of improving the continents' contribution to the global economy through the elimination of corruption and strengthening the private sector regulations. The findings also provide useful information to governments and the general public on the negative impacts of corruption and the positive influence of sound corporate governance in achieving global development objectives.

The next section discusses the conceptual issues and develops the study hypotheses. **The research methodology is discussed in section three.** The result and findings are discussed in section four, while section five is dedicated to conclusions and implications of the findings.

2. Literature review and hypotheses development

Sustainable Development Goals

SD refers to an economy's ability to maintain living standards above mere economic growth (Hope, 2020). The goal of SD is the long-term stability of the economy and environment. In the context of this work, SD and SDGs are used interchangeably to imply the ability of the present generation to meet its societal goals without compromising the future generation's ability to meet its economic needs. The UN 2030 agenda, which was developed by the United Nations General Assembly (UNGA) in 2015, aims to provide a plan of action that ensures the world's sustainability in the future. The SDGs comprise seventeen (17) core areas linked to actions to reduce poverty and inequality, the impact of climate change, and improve education and health, among other things. As noted earlier, the focus of policymakers has shifted from mere public sector actions to incorporating private sector support in achieving the SDGs (Frey and Sabbatino, 2018). Also, the adoption of the United Nations 2030 agenda by all member nations has further increased stakeholder pressure to scrutinize the extent to which companies are complying with regulations and their commitment to sustainability (Martínez-ferrero and García-meca, 2020).

Corruption

Corruption refers to the abuse of power for private benefit (Marchini et al., 2019). Corruption manifests in various forms, including bribery, abuse of office, and trading in influence. It takes place through several channels such as theft and embezzlement, bribes and kickbacks, money laundering and other illicit financial flows, and state capture (Hope, 2021; Hope 2020). Corruption can be perceived from two perspectives: public and private. While public corruption relates to the use of public office for private gains, private corruption refers to the deliberate violation of legal regulations of an organization for personal gain at the detriment of the corporate objectives.

The literature provides several measurements of corruption. One of the most widely recognized measures is Corruption Perception Index (CPI). The CPI is a governance indicator compiled by World Bank, which ranks countries by their corruption levels. According to Baumann (2019, p2), CPI

is used as an umbrella term for a wide range of comparative evaluation techniques – such as audits, rankings, indicators, indexes, baselines, or targets – which systematically assess the performance of actors, populations, or institutions based on standardized measurements, metrics, and rankings.

The CPI has gained significant attention over the years because of its media exposure and its influence on policymaking in both developed and developing nations. Therefore, the CPI is a tool used as a mechanism for holding national governments to account.

Countries have different corruption levels with the developing countries being at the top of the ladder. Hope (2021) observed Between 2009 and 2013, Nigeria lost 25.3 billion dollars due to embezzlement of funds in oil subsidy scam through NNPC. He further observed that between 2015 and 2018, the cost of bribes paid to public officials was estimated at 9.2 billion dollars. In South Africa, racketeering, corruption, and money laundering were estimated at over 34 billion dollars between 2010 and 2018. In addition, 98 million dollars was embezzled from the National Youth Service between 2017 and 2018 in Kenya. These disturbing statistics highlight the extent to which corruption continues to affect several facets of the African economy.

Furthermore, from corporate and country-level perspectives, corruption continues to affect social, economic, and environmental aspects of nations. At the country level, corruption leads to slow economic growth by creating business uncertainty, and a lack of trust in government, and institutions (Hope, 2021). At the firm level, it adversely impacts management of public funds, good governance, and market competitiveness. The experience of many corporations over the last three decades emphasizes the widespread corruption at the business level. For example, many companies across the globe engaged in financial statement fraud, insider trading, mismanagement of resources, and excessive executive compensation. The result of these corporate scandals is a loss of investors' confidence and market inefficiencies among other challenges.

Corporate Governance

Corporate governance refers to the internal and external mechanisms developed to support a company's effort to achieve its objectives. These mechanisms involve an attempt to create and manage the relationship with all stakeholders: the board of directors, investors, the state and its legislative framework, and the public sector in general (Benvenuto et al., 2021). Traditionally, corporate governance studies have focused on the firm-level analysis of variables on organizational outcomes. However, we can gain valuable insights by analyzing country-level governance indicators on broader national objectives. Evidence of such analysis exists in the literature. For example, Hillier and Pindado (2010) showed that research and development are affected by corporate governance variables, including common law legal environment, strong law enforcement, minority shareholder protection, bank-based financial statement, a strong market for corporate control, and effective board control. Also, Abdou et al. (2020) found that control of

corruption has a significant moderating effect on corporate governance and earnings management in the UK. [Lameira et al. \(2013\)](#) showed that economic development is positively associated with a country's corporate governance indicators. Klapper and Love (2004) provide evidence that when macro changes occur, corporate governance at a national level affects financial markets. These pieces of evidence suggest that country-level corporate governance can be investigated in relation to global objectives such as the SDGs.

Hypotheses development

Traditionally, empirical literature focused on assessing the effect of corruption on both firm-level outcomes (Abdou et al., 2021; Hope, 2021; Ucar and Staer, 2020) and macro-economic variables (Borja, 2018; Hakimi, 2020; Hope, 2021; Marchini et al., 2019). From a firm-level perspective, Abdou et al. (2020) showed that the control of corruption has a significant moderating effect on corporate governance and earnings management in Egypt. Ucar and Staer (2020) investigated the impact of local corruption (measured as the average number of convictions per capita in millions for a firm's headquarters state in the last five years) on Corporate Social Responsibility (CSR) in a sample of large US firms. The findings indicated that firms located in areas with high corruption rates have lower CSR performance. In a macro-level analysis, Borja (2018) provided evidence that corruption explains the level of economic growth. Similarly, Hakimi et al. (2020) studied the relationship between corruption and government stability and Non-Performing Loans (NPL) of banks in the Middle East and North African regions and found that corruption increases NPLs. From these findings, it can be inferred that corruption retards the health of the financial system by increasing NPLs. Furthermore, Hope (2021) demonstrated that bribery and corruption significantly undermine the achievement of the SD because they adversely affect all SDG-related sectors. Furthermore, Marchini et al. (2019) found that managers shift income to less corrupt countries, indicating that bribery and corruption discourage foreign direct investment.

From the foregoing, the results of several empirical studies seem to suggest that corruption undermines SD. Consistent with these findings, we predict that corruption will preclude SD in Africa.

H1: Corruption has an adverse influence on the level of SD in Africa

Studying the effect of corporate governance on SD has recently attracted the attention of academics, regulators, and policymakers. The empirical studies can be broadly classified into two: those that sought to determine firm-level governance variables on SDGs through sustainability disclosure (Consuelo et al., 2018; Consuelo and Martínez, 2019; Martínez-ferrero and García-meca, 2020) and those that related corporate governance with corruption aspect of SDGs (Carrillo et al., 2019; Jaggi and Macchioni, 2020). In the first instance, Martínez-Ferrero and García-Meca (2020) assessed the contribution of internal corporate governance to SDGs using data from 11 industries in 21 European countries. They found that firms with greater corporate governance strength contributed to the realization of SDGs by disclosing more informative sustainability reports. Also, Pucheta-Martinez and Chiva-Ortells (2018) examined the effect of directors representing controlling shareholders, i.e., institutional shareholders, on SD in the context of CSR reporting. Their results demonstrated the relevance of directors in influencing strategic decisions.

Furthermore, Agyemang et al. (2019) found that corporate governance mechanisms, including board effectiveness, strength in auditing and accounting standards, conflict of interest regulation, and shareholder activism, lead to the inflow of foreign direct investment in Africa. Similarly, Al Maqtari et al. (2020) showed that country-level corporate governance positively influences SD through its effect on entrepreneurial conditions. Other studies found that country-level corporate governance indicators increase per capita wealth (Abdolmohammadi and Tucker, 2002), mitigate tax evasions (Benkraiem et al., 2021), and improve sustainability (Guidara et al., 2021).

It is noteworthy that previous studies have generally studied corporate governance effect on SD based on firm-level, and specific governance variables such as female directors, board independence, and CEO duality. Extant literature seems to suggest that good corporate governance contributes to the realization of SDGs through increased sustainability disclosure, including corruption disclosure and CSR reports. In line with the findings of these studies, we predict that corporate governance positively affects SD in Africa.

H2: Corporate governance has a positive influence on the level of SD in Africa

Emerging literature focuses on the effect of governance variables on the corruption disclosure aspect of SD (Carrillo et al., 2019; Jaggi and Macchioni, 2020; Masud et al., 2019). In this regard, Alonso Carrillo et al (2019) found that CEO duality and outside directors positively impact corruption disclosure in a sample of European firms. Similarly, Jaggi et al. (2019) assessed the factors that determine corruption disclosure in European firms and found that firms with a high proportion of independent directors and gender diversity provide better corporate corruption disclosure. Furthermore, Masud et al. (2019) demonstrated that financial firms having accounting experts, legal experts and political connections have superior corruption disclosure. Also, Rosati (2018) showed that firm size, higher assets tangibility, independent women directors, younger board of directors, higher commitment to sustainability frameworks, and external assurance are positively related to SDGs reporting.

Evidence of the moderating effect of the country-level corporate on the association between corruption and SD is non-existent. Nevertheless, studies have provided that corporate governance reduces corruption's effect on the economy by mitigating both agency conflict and coordination problems (Wu, 2005). Also, corporate governance indicators such as investor protection reduce the effect of CSR on the manipulation of financial reports (earnings management) (Martinez-Ferrero, Gallego-Alvarez, and Garcia-Sanchez, 2015). In addition, companies that operate in countries with strong investor protections are found to be shareholder-value oriented and less likely to engage in unethical behavior (Carrillo et al., 2019). Furthermore, strong accounting and auditing standards help solve information asymmetry problems and deter corrupt practices (Wu, 2005; Boateng et al., 2020). More so, Venard (2013) found that institutional quality influences economic development through its influence on corruption. These analyses suggest that country-level corporate governance positively moderates the effect of corruption on SDGs.

H3: Country-level corporate governance positively moderates the effect of corruption on SD in Africa.

3. Data and Model Specification

We used a quantitative approach to achieve the research objectives. We collected panel data from forty-two (42) out of fifty-four (54) African countries for a period of four (4) years (2017 to 2020). Twelve countries were excluded from the sample because they did not have the complete data for all the variables. The data were obtained from three sources as indicated in Table 1. The Data for SDGs were collected from the Human Development Report of the United Nations Development Programme (UNDP). SDGs were measured using the United Nation's seventeen (17) indicators, which constitute the core targets of SDGs.

Following Agyemang et al. (2019), we obtained country-level corporate governance data from the Global Competitiveness Report (GCR) via the World Economic Forum's Opinion Survey. The GCR provides data on both quantitative and qualitative features of a country's business and economic environment and compares the economic and business prospects of included economies (Agyemang et al., 2019). The data provides scores for each of the corporate governance variables based on their effectiveness in each of the African economies. Therefore, to obtain the overall corporate governance score for a particular country, we sum the scores of three specific indicators, namely the strength of auditing and accounting standards, conflict of interest regulation, and shareholder governance. The data for corruption were extracted from World Bank's Corruption Perception Index (CPI). In the additional analyses, we used the CPI data sourced from Transparency International to test the robustness of the results.

We controlled for seven institutional and macroeconomic factors that have been shown to affect SD. Firstly, we controlled for GDP per Capita, which is a significant determinant of a country's ability to achieve SDGs. The GDP per capita is a popular indicator that measures the economic growth of countries and is a determinant of foreign direct investment and economic growth (Sharma and Joshi, 2015). Secondly, we controlled for access to electricity, because it is a key to achieving many economic goals, including foreign direct investment (Jaraite and Di Maria, 2012), industrialization, and technological development. Governments of developing countries have invested heavily in electricity in a quest to develop their business and economic environment. Thirdly, we controlled for foreign direct investment, which has been found to positively influence SDGs (Agyemang et al., 2019). Other control variables include regulatory quality, legal origin, government efficiency, and quality of infrastructure. These variables have been shown to impact a country's level of SD (Agyemang et al., 2019; Koirala and Pradhan, 2019; Ayemba et al., 2020).

Model Specification

We used the following regression models to test H1, H2, and H3, respectively.

$$SDGs_{i,t} = \alpha_0 + \beta_1 CPI_{i,t} + \beta_2 GDP_{i,t} + \beta_3 ACE_{i,t} + \beta_4 FDI_{i,t} + \beta_5 REQ_{i,t} + \beta_6 LOR_{it} + \beta_7 GEF_{i,t} + \beta_8 QIN_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$SDGs_{i,t} = \alpha_0 + \beta_1 CG_{i,t} + \beta_2 GDP_{i,t} + \beta_3 ACE_{i,t} + \beta_4 FDI_{i,t} + \beta_5 REQ_{i,t} + \beta_6 LOR_{it} + \beta_7 GEF_{i,t} + \beta_8 QIN_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$SDGs_{i,t} = \alpha_0 + \beta_1 CPI_{i,t} + \beta_2 CG_{i,t} + \beta_3 CG * CPI_{i,t} + \beta_4 GDP_{i,t} + \beta_5 ACE_{i,t} + \beta_6 FDI_{i,t} + \beta_7 REQ_{i,t} + \beta_8 LOR_{it} + \beta_9 GEF_{i,t} + \beta_{10} QIN_{i,t} + \varepsilon_{i,t} \quad (3)$$

Where i, t = country i at year t , α_0 = constant, β_{1-6} = parameters to be estimated, and ε = error term, $CG * CPI$ = is the interaction of corporate governance and corruption. Other variables are as defined in Table I.

Consistent with Hayes (2018), models 1 and 2, respectively test the direct (unconditional) effects of corruption and country-level corporate governance on SDGs, while model 3 tests the moderating effect of corporate governance on the relationship between corruption and SDGs.

Table I: Definition and Measurement of Variables

Acronym	Definition	Measurement	Source of data	Nature
SDGs	Sustainable Development Goals	SDG Score	United Nations Development Programme (UNDP)	Dependent Variable
CPI	Corruption Perception Index (1=low to 6=high)	Countries' corruption ranking	World Bank Indicators	Independent Variable
CG	Corporate Governance Index	Countries' corporate governance score	Global Competitiveness Report	Independent/Moderator Variable
GDP	Gross Domestic Product per Capita	Gross domestic product divided by the total population (GDP per Capita at constant price.	World Bank Indicators	Control Variable
ACE	Access to Electricity	Percentage of population with access to electricity	Global Competitiveness Report	Control Variable
FDI	Foreign direct investment	Foreign direct investment divided by GDP	World Bank Indicators	Control Variable
REQ	Regulatory Quality	Business regulatory environment rating (1=low to 6=high)	World Bank Indicators	Control Variable
LOR	Legal Origin	1 for a country practising the British common law, 0 otherwise	La Porta et al. (1998)	Control Variable
GEF	Government Effectiveness	Countries' government effectiveness ranking (1=low to 6 high)	World Bank Indicators	Control Variable
QIN	Quality of infrastructure	Country's quality of infrastructure	World Bank Indicators	Control Variable

ranking (1=poor to
7=best)

Estimation Technique

Given the panel nature of the data, we employed the Hausman Specification test to determine the best regression technique. The Hausman test result showed an insignificant chi2 suggesting that the random effect is more preferred over the fixed effect. In addition, we utilized the Lagrangian Multiplier test to select between the random effect and pooled OLS regression techniques. We obtained an insignificant chi2 result, suggesting that the pooled OLS is most adequate for analysis. Consequently, we employed the pooled OLS estimation technique to test the hypotheses. However, for comparison, we estimated both the fixed-effect and random-effect analyses, the results of which are presented alongside the pooled OLS estimation. The results of the three estimation techniques do not significantly differ from each other and hence they are discussed together. Given the nature of the study, we acknowledge the possibility of reverse causality among the variables. To solve the problems of endogeneity and heteroscedasticity, which are common in panel data analyses, we employed the GMM by Arellano and Bond (1991). The GMM eliminates both simultaneity bias and other country-specific effects by using the lagged levels of the independent variables. The GMM result is discussed in the additional analyses section.

In the next section, we present the results and test the hypotheses.

4. Presentation of Results

The results are divided into descriptive, correlation, regression analyses, and additional analyses.

Descriptive Analysis

Table II: Descriptive Statistics of Variables

Variables	SDGs	CPI	CG	GDP	ACE	FDI	REQ	LOR	GEF	QINF
Mean	51.863	3.095	48.143	4,841.483	47.233	0.0762	3.320	0.399	3.391	3.175
Std. Dev.	8.478	1.073	9.938	5,295.110	31.705	0.173	0.485	0.040	0.532	0.849
Minimum	35.140	1.500	27.770	239.000	3.04	-0.112	2.500	1	2.370	1.516
Maximum	71.100	4.500	74.270	26,656.950	100.00	0.838	4.500	0	4.970	4.854
Obs.	168	168	168	168	168	168	168	168	168	168

Source: Computed by the authors

Note: SDGs: Sustainable Development Goals; CPI: Corruption Perception Index (1=low to 6=high); CG: Corporate Governance Index; GDP: Gross Domestic Product per Capita; ACE: Access to Electricity; FDI: Foreign direct investment; REQ: Regulatory Quality; LOR: Legal Origin; GEF: Government Effectiveness; QIN: Quality of infrastructure.

Table II above shows that the mean value of SD is 51.86 over the period 2017 to 2020. Since the figure is above 50%, it can be concluded that SD among the sample countries is satisfactory. Corruption has an average of 3.095 with a minimum of 1.500 and a maximum of 4.500, indicating that corruption is prevalent among African countries during the period. Corporate governance

records an average of 48.14 with a minimum and a maximum of 27.77 and 74.27, respectively, suggesting that there are fairly strong corporate governance structures among the sample countries. GDP per capita averages 4,841.5 dollars with a minimum of 239 dollars and a maximum of 26,657 dollars. The Table further shows that about 47% of the sample countries have access to electricity, with the least access at 3%. This confirms that African countries are still struggling to have an adequate electricity supply. Nevertheless, a particular country enjoys 100% access. Foreign direct investment as a percentage of GDP has a mean of 0.08, with some countries having negative figures and the maximum value being 0.84. This shows that there is a disparity in the foreign direct investment inflows into the continent as indicated by the large standard deviation of 0.17. Regulatory quality, government effectiveness, and quality of infrastructure have averages of 3.3, 3.4, and 3.2, respectively. These figures are slightly above average, indicating that the sample companies experience a merely satisfactory quality of regulation, quality of infrastructure and government effectiveness. However, the low minimum values suggest that some countries have abysmal performances during the period. Furthermore, the mean of 0.399 for legal origin shows that about 40% of the countries in the sample have common law legal origins.

Correlation Analysis

Next, we analyzed the association among the variables of the study using the Pearson Correlation presented in Table III.

Table III: Correlation Analysis

Variables	SDGs	CPI	CG	CPI*CG	GDP	ACE	FDI	REQ	LOR	GEF	QIN
SDGs	1.000										
CPI	-0.316*	1.000									
CG	0.719*	-0.293*	1.000								
CPI*CG	0.386*	0.328*	0.521*	1.000							
GDP	0.621*	-0.009	0.605*	0.388*	1.000						
ACE	0.583*	-0.060	0.607*	0.441*	0.735*	1.000					
FDI	0.358*	-0.172	0.316*	0.089	0.323*	0.399*	1.000				
REQ	0.501*	-0.159	0.496*	0.347*	0.468*	0.417*	0.230*	1.000			
LOR	0.074	0.128	0.185	0.183	0.047	-0.127	0.097	0.108	1.000		
GEF	0.646*	-0.304*	0.441*	0.194*	0.335*	0.267*	-0.009	0.408*	0.135	1.000	
QIN	0.609*	-0.227*	0.512*	0.333*	0.402*	0.357*	0.055	0.290*	0.152	0.525*	1.000

Source: Computed by the authors

Note: * denotes significance at the 5% level.

SDGs: Sustainable Development Goals; CPI: Corruption Perception Index (1=low to 6=high); CG: Corporate Governance Index; GDP: Gross Domestic Product per Capita; ACE: Access to Electricity; FDI: Foreign direct investment; REQ: Regulatory Quality; LOR: Legal Origin; GEF: Government Effectiveness; QIN: Quality of infrastructure

Table III shows a significant negative correlation between corruption and SD, implying that SD is lower for countries experiencing higher corruption prevalence. The results also indicate that corporate governance and the interaction of corruption and corporate governance are positively correlated with SD. All the control variables are positively and significantly related to SD, with government efficiency having the strongest correlation (0.65). The results further indicate that countries having higher GDP, better access to electricity, greater foreign direct investments,

superior regulatory quality, higher government efficiency, and more quality infrastructure also experience higher SD levels. In addition, legal origin has a positive relationship with all the control variables except access to electricity. Expectedly, there is a negative relationship between corruption and all the control variables, suggesting that corruption is low for countries having favorable macroeconomic variables and institutional qualities. Another interesting finding is that corporate governance is stronger for countries with superior GDP, foreign direct investment, government efficiency, and regulatory and infrastructure qualities. The magnitudes of the correlation values are within the acceptable threshold of 0.80 as suggested by Gujarati and Porter (2009). These results signify the absence of multicollinearity among the variables. However, we tested for the possible existence of multicollinearity using the variance inflation factor (VIF). The result of the test, presented in Table IV, shows that all VIF values are below 10, indicating the absence of harmful collinearity among the independent and control variables. Based on this, we conclude that regression analysis is adequate to test the hypotheses.

Table IV: Multicollinearity Test

Variable	VIF
CPI	1.27
CG	2.34
GDP	2.62
ACE	2.53
FDI	1.32
REQ	1.51
LOR	1.25
GEF	1.68
QIN	1.65
Mean VIF	1.86

Source: Computed by the authors

Note: SDGs: Sustainable Development Goals; CPI: Corruption Perception Index (1=low to 6=high); CG: Corporate Governance Index; GDP: Gross Domestic Product per Capita; ACE: Access to Electricity; FDI: Foreign direct investment; REQ: Regulatory Quality; LOR: Legal Origin; GEF: Government Effectiveness; QIN: Quality of infrastructure.

Empirical Analysis

Based on the Hausman Specification and Lagrangian Multiplier tests, we employed the pooled OLS estimation technique to test the hypotheses. We test the hypotheses and discuss the results of the effect of composite measure of corporate governance. While we acknowledge that individual measures of corporate governance (strength of auditing of accounting standards, conflict of interest regulation, and shareholder protection) may significantly impact SD, our objective was to test the composite country-level corporate governance effect. Hence, we ignore the individual effect of the corporate governance indicators. Nevertheless, we present the result of the individual indicators' effect in the additional analyses.

Table V: Corruption, Corporate Governance and Sustainable Development Goals

Variable	Model 1			Model 2			Model 3		
	OLS Coef.	FE Coef.	RE Coef.	OLS Coef.	FE Coef.	RE Coef.	OLS Coef.	FE Coef.	RE Coef.
Cons.	17.349***	41.731***	20.716***	7.848***	32.237***	13.401	7.017***	37.038***	18.970***
CPI	-1.614**	-0.959	-1.074***				-1.164**	-0.826***	-0.941***
CG				0.231***	0.174***	0.174***	0.233**	0.134**	0.134**
CPI*CG							0.028**	0.012*	0.085**
GDP	1.676**	0.409***	1.610***	1.630**	0.665*	1.750***	1.934**	0.699*	1.659**
ACE	0.029*	0.038**	0.017*	0.083	0.072*	0.052	0.012	0.071	0.051***
FDI	4.629**	0.079	5.201**	2.275**	5.573**	1.341	1.994**	9.097***	2.494**
REQ	2.107*	0.112	0.855	0.818	0.340	0.212	0.813	0.308	0.412
LOR	1.199*	Omitted	1.643*	2.684***	Omitted	2.991**	2.596*	Omitted	2.578**
GEF	4.463***	4.592***	5.861***	4.470***	3.370**	5.044***	4.388**	3.360**	4.766**
QINF	1.783***	0.377*	0.890*	1.543***	0.368*	1.269**	1.659***	0.048	0.866*
R2	0.748	0.399	0.688	0.764	0.506	0.690	0.765	0.565	0.719
F.	51.63	9.76	89.17	56.18	15.06	154.78	44.52	14.58	180.71
Prob.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: Computed by the authors

Note: ***, **, and * represent levels of significance at the 1%, 5% and 10%, respectively.

CPI: Corruption Perception Index (1=low to 6=high); CG: Corporate Governance Index; GDP: Gross Domestic Product per Capita; ACE: Access to Electricity; FDI: Foreign direct investment; REQ: Regulatory Quality; LOR: Legal Origin; GEF: Government Effectiveness; QIN: Quality of infrastructure

Table V presents the results of the three models, namely OLS, fixed effect, and random effect regressions. Models 1 and 2 show the unconditional effects of corruption and corporate governance on SD, respectively, while Model 3 shows the interaction effect of corruption and corporate governance.

The result in Table V shows that corruption has a significant negative effect on SD ($\beta = -1.62$, sig. <0.05). The result is similar for both the fixed and random effect regression, indicating that the influence of corruption is negatively significant at the 5% level. This result confirms H1 that a country's corruption level adversely impacts SD. Based on the pooled OLS estimation, the result suggests that an increase in the corruption perception index will result in a 1.6 unit decline in SD.

The Table (Model 2) indicates that corporate governance has a significant positive effect on SD ($\beta = 0.23$, sig. <0.05). The results are similar in all the three estimation techniques albeit with differences in coefficients. The pooled OLS model shows that a unit increase in corporate governance, ceteris paribus, will lead to an approximate increase of 0.23 points in SD. This supports H2 that corporate governance has a significant positive effect on SD in Africa.

In Model 3, the result shows that corporate governance has a significant positive moderating effect on the relationship between corruption and SDGs. The result is similar to the three regression models. These results support H3 that corporate governance positively moderates the effect of corruption on SD in African countries. In this model, we observe that corruption has a significant negative effect ($\beta = -1.164$, sig. = 0.023), while the influence of corporate governance is positive and significant ($\beta = 0.233$, sig. = 0.052). Considering the joint effect, the negative relationship between corruption and SD is corrected when there is a higher corporate governance score ($\beta =$

0.028, sig. = 0.036). Thus, a greater score of corporate governance reverses the negative influence of corruption on the level of SD.

To further examine the interaction effect of corporate governance, we plot the interaction graph in line with Hayes (2018). The graph is presented in figure 1 below.

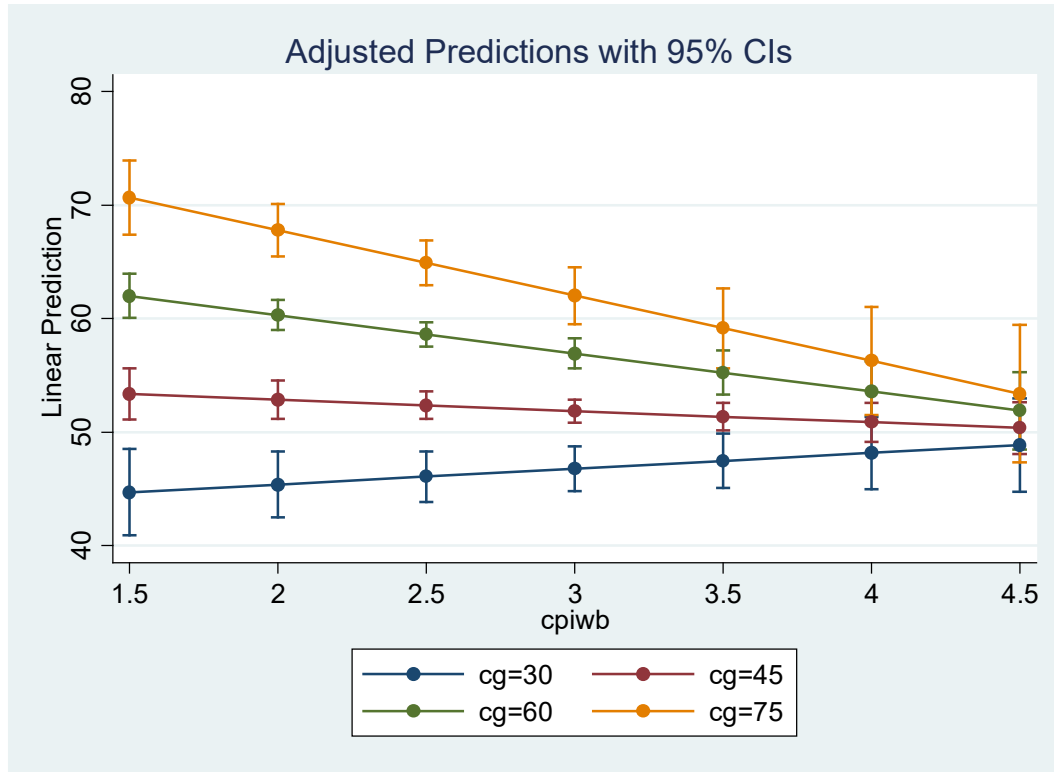


Figure 1: Moderating effect of corporate governance on the relationship between corruption and SD.

Source: Computed by the authors

Figure 1 shows that the effect of corporate governance is positive and significant at higher levels (above 50). That is, at higher levels, corporate governance is effective in reversing the negative effect of corruption on SD. This result illustrates the characteristics of the moderating influence of corporate governance in that a greater score has a significant positive interaction effect on the relationship between corruption and SD.

Regarding the control variables, GDP per capita has a significant positive effect on SD in all the three OLS models. Though access to electricity is positive in all the OLS regressions, it is only significant at the 5% level in the fixed effect result in Model 1. In all the OLS regression models, foreign direct investment exhibits a significant positive influence on SD. This result conforms to the notion that foreign direct investments open economies to different opportunities that enhance development. Surprisingly, the effect of regulatory quality is positive but insignificant in all three OLS regressions. This result seems to imply that regulatory quality does not matter for SD in

Africa. Legal origin appears to have a positive effect on SD, but it is only significant at the 5% level in Model 2. It is worth mentioning that the legal origin variable is omitted in all the fixed effect analyses. This is because fixed effect analysis focuses on within-unit variance and since legal origin is a dummy variable, there is no variation within countries. Firebaugh, Warner and Massoglio (2013: p.116) stated that “Because fixed effects models remove the effects of all time-invariant causes – measured as well as unmeasured – the standard fixed effects model is unable to estimate the effects of time-invariant measured causes”. We also find that government efficiency and quality of infrastructure have significant positive effects on SD in all the OLS models. It is noteworthy that despite the statistical significance of corporate governance and corruption, their economic impacts are small compared with some control variables such as GDP and foreign direct investment.

Discussion of Findings

Firstly, the results indicate that countries with high corruption prevalence have a lower SD index. This conforms to the notion that corruption, which is common among African countries, is a major culprit that precludes the attainment of the UN SDGs. This is in line with the findings of Hope (2021) that since bribery and corruption adversely affect all SDGs related sectors, they significantly undermine the achievement of any meaningful country-level objectives. There are many potential reasons why corruption retards SD. One reason is that corruption represents instability, which causes uncertainty and discourages ethical investments. In addition, corruption has hidden costs for both the private and public sectors, which consequently destroy value (Marchini et al., 2019), leading to countries’ inability to meet up with development objectives. For example, previous studies found that multinational companies shift their income towards less corrupt countries and avoid making transactions with corrupt nations, where managers tend to be dishonest and ignore ethical values (Marchini et al., 2019). The adverse influence of corruption has also been reported through its unfavorable effect on corporate social responsibility (Ucar and Staer, 2020), government stability, non-performing loans (Hakimi et al., 2019), and economic growth (Borja, 2018). These pieces of empirical evidence suggest that corruption retards a country’s ability to achieve the SDGs.

Secondly, the results indicate that corporate governance has a significant positive influence on SD. This finding lends support to the prior evidence of a positive influence of corporate governance on SD through sustainability disclosure (Consuelo et al., 2018; Consuelo and Martínez, 2019; Martínez-ferrero and García-meca, 2020) and the corruption aspect of SDGs (Carrillo et al., 2019; Jaggi and Macchioni, 2020). Previous studies also indicated that country-level corporate governance adversely affects SD in Africa through an increase in the inflow of foreign direct investment (Agyemang et al., 2019). The result also supports the finding that internal governance mechanisms positively influence SD (Martinez-Ferrero and Garcia-Meca, 2020). Thus, we conclude that African countries with sound corporate governance also have a greater tendency to achieve SDGs.

Third, the results further support the proposition that corporate governance could reverse the negative impact of corruption on the country’s level of SD. African countries that experience a higher corruption prevalence will be able to achieve the UN SDGs if they have a strong corporate

governance system. The result is consistent with previous pieces of empirical evidence that corporate governance reduces corruption effect on the economy (Wu, 2005), mitigates the tendency to manipulate financial reports (Martinez-Ferrero, et al., 2015), is more shareholder-value oriented, and is less likely to engage in unethical behavior (Carrillo et al., 2019). The results also point to the possibility that corporate governance is valuable because it resolves information asymmetry problems and deters corrupt practices (Wu, 2005; Boateng et al., 2020), thereby leading to favorable development outcomes. More so, Venard (2013) found that institutional quality influences economic development through its influence on corruption. Thus, the threads of scant empirical evidence seem to suggest that the effectiveness of corporate governance may be a catalyst for breaking the circle of corruption in Africa, thereby leading to the achievement of the SDGs. Further, the result seems to support the notion that country-level corporate governance influences SD through its effect on entrepreneurial conditions (Al Maqtari et al, 2020). Though corruption retards any meaningful development, an effective corporate governance system can affect SD in countries with high corruption rates in at least two ways. Firstly, an effective corporate governance mechanism leads to favorable organizational outcomes, which enhances firms' contribution to economic development. Secondly, sound corporate governance attracts foreign direct investment by increasing investors' confidence (Agyemang et al., 2019), thereby leading to economic expansion.

Overall, the findings lend support to the coercive isomorphism aspect of institutional theory, which relates to the direct and indirect influence of institutional forces on organizational structures and processes that help companies to achieve and maintain their legitimacy. These include government regulations, laws and policies, and the broader cultural expectations that shape corporate behavior. Companies strive to emulate the leading players in the industry in which they operate by maintaining standards in line with cultural values. As companies become more engaged with stakeholders on their societal roles, they increase their commitment to SDG-related standards and practices, which paves the way for others to emulate. This is a win-win situation for both the companies and the entire economy. Greater commitment to societal needs will enhance companies' legitimacy as the nation experiences higher levels of SD. The uniqueness of these findings lies in our ability to examine the impact of country-level corporate governance on the aggregate SDGs by considering all 17 specific goals. This approach further emphasizes the importance of private sector participation in the realization of development goals given that companies are related to all the aspects of the SDGs (Frey and Sabbatino, 2018; Rashed and Shah, 2020).

The result of a positive effect of GDP on SD is consistent with previous studies that identified GDP per capita as an important factor in development (Jaraite and Di Maria, 2012). The result of an insignificant effect of access to electricity may be explained by the choice of variable measurement, which focused on the relevance of access to electricity in driving SD. Perhaps the quality of electricity may have provided a significant positive effect. It is noteworthy that many African countries do not have adequate access to electricity and the cost of using alternative sources is so huge that it hinders local entrepreneurship and discourages the emergence of new industries. These are expected to have adverse consequences on SD. In addition, we find that foreign direct investment leads to greater levels of SD. This finding is consistent with previous studies, which showed that foreign direct investment influences SD in China (Ayamba et al., 2020)

and Africa (Agyemang et al., 2019). This result is expected since foreign direct investments stimulate economic growth and domestic output by financing the physical capital deficit in Africa and other developing countries. Therefore, foreign direct investment is expected to increase SD by contributing to economic growth and supplementing capital deficiency. The result of a positive effect of legal origin seems to support the view of La Porta et al. (1998) that countries having common law origin are more conducive to any meaningful development than those with other legal origins. Easterly and Levine (2016) also found legal origin to be positively associated with economic development. Furthermore, government efficiency and quality of infrastructure reveal a positive influence on SD. These results partly support the empirical findings of Koirala and Pradhan (2019) that the quality of local institutions such as the financial system can promote SD through promoting savings, investment, and economic growth and development.

Additional Analyses

We performed two additional analyses to test the robustness of the results. Firstly, we employed the two-system GMM estimation in recognition of the possibility that SD may be affected by historical data.

Table VI: GMM Estimation

Variables	Coefficient	Prob.
Lag of SDGs	-0.564	0.000
CPI	-0.368	0.015
CG	0.128	0.076
CPI*CG	0.027	0.006
GDP	0.609	0.057
ACE	0.067	0.000
LOR	0	Omitted
FDI	8.062	0.023
REQ	0.390	0.531
GEF	3.503	0.001
QIN	1.596	0.052
Wald Chi (5)	63.40	
Prob.	0.000	

Source: Computed by the authors

Note: SDGs: Sustainable Development Goals; CPI: Corruption Perception Index (1=low to 6=high); CG: Corporate Governance Index; GDP: Gross Domestic Product per Capita; ACE: Access to Electricity; FDI: Foreign direct investment; REQ: Regulatory Quality; LOR: Legal Origin; GEF: Government Effectiveness; QIN: Quality of infrastructure.

The GMM result **presented in Table VI** shows that corruption has a significant negative effect, while corporate governance and the interaction of country-level corporate governance and corruption have significant positive effects on SD. All the control variables exhibit similar effects on SD as in the pooled OLS estimations, indicating that the results are robust to alternative estimation techniques and are not accidental to the choice of regression models. Secondly, we used the pooled OLS estimation to examine the role of individual corporate governance indicators in SD.

Table VII: Country-level corporate governance indicators and SDGs

Variables	Coefficient	t	Probability
Constant	10.155	2.76	0.007
Strength of auditing and accounting standards	0.077	2.64	0.009
Conflict of interest regulation	0.039	1.05	0.295
Shareholder governance	0.023	0.07	0.940
GDP	2.292	3.92	0.000
ACE	0.030	2.22	0.028
FDI	3.252	0.94	0.348
REQ	1.365	2.73	0.007
LOR	1.494	2.09	0.039
GEF	4.728	4.81	0.000
QIN	2.058	4.11	0.000
R-squared	0.716		
F.	44.14		
Prob	0.000		

Source: Computed by the authors

Note: SDGs: Sustainable Development Goals; CPI: Corruption Perception Index (1=low to 6=high); CG: Corporate Governance Index; GDP: Gross Domestic Product per Capita; ACE: Access to Electricity; FDI: Foreign direct investment; REQ: Regulatory Quality; LOR: Legal Origin; GEF: Government Effectiveness; QIN: Quality of infrastructure

The results in Table VII show that among the corporate governance indicators, the strength of auditing and accounting standards has a significant positive effect on SD. Conflict of interest regulation and shareholder governance do not appear to have a significant impact on SD. These results indicate that countries with strong auditing and accounting standards also have a greater SD Index. From this analysis, we conclude that the strength of accounting and auditing standards is a major determinant of corporate governance influence on SD. Thus, effective accounting and auditing standards such as the International Financial Reporting Standards (IFRS) could help boost investors' confidence and lead to SD through increased corporate investment. The result seems to corroborate the finding of Abdolmohammadi and Tucker (2002) that countries with superior accounting standards are associated with higher per capita wealth and a reduction in tax evasion (Benkraiem et al., 2021), leading to the expansion of countries' fiscal capacity and economic infrastructure. A recent study by Guidara, El Ammari, and Khelif (2021) also found that the strength of accounting and auditing standards is associated with sustainability. Overall, the results of the additional analyses show that corporate governance indicators have a positive impact on SDGs in Africa.

Altogether, these results corroborate the coercive isomorphism of the institutional theory, suggesting that corporate governance, which is an institutional structure influences organizational legitimacy by impacting SD. Countries with sound corporate governance mechanisms experience superior SD levels even where there is high corruption prevalence. In addition, the difference in national institutional structures, such as corporate governance explains the SD level across African countries. This evidence supports the notion that corporate governance influences companies' directions towards sustainability practices (Li et al., 2017).

5. Conclusions and Implications of Findings

In this article, we investigated the interaction between corruption, country-level corporate governance, and SDGs in Africa. Our results show that countries with high corruption prevalence are associated with lower SD levels, suggesting that corruption impedes the realization of SDGs in Africa. In addition, the results indicate that corporate governance favorably influences the achievement of the 17 SDGs. Furthermore, our results demonstrate that corporate governance positively moderates the relationship between corruption and SD, implying that sound corporate governance structures can be relied upon to mitigate the adverse effect of corruption on SDGs.

The findings have significant regulatory and policy implications. Firstly, policymakers in Africa may rely on the outcome of this study to formulate practical and implementable solutions around corruption and corporate governance that can help towards the achievement of SDGs. Specifically, corporate governance mechanisms may be relied on to achieve SD in countries with a high prevalence of corruption. In addition, international agencies leading the formulation and implementation of the SDGs should emphasize the importance of strengthening private sector regulations in general and corporate governance in particular if the SDGs are to be attained in the assigned period. Our paper, therefore, is a call to policymakers to strengthen local institutions, which will reverse the adverse influence of corruption on SD. **The social implication of this paper is that it demonstrates the adverse impact of corruption, which is rife in most African countries. Understanding corruption and the SDGs relationship will promote discussion with overarching implications on developing countries. Overall, the findings can sensitize society to the harmful effects of corruption and the positive effects of good corporate governance.**

The following specific recommendations are suggested:

- 1) African countries should as a matter of urgency design an effective institutional structure that will help in curbing corruption that is hurting the continent and hindering the realization of national objectives such as the SD.
- 2) Regulatory bodies should enhance corporate governance structures, especially the strength of auditing and accounting standards, to improve private sector participation in national economic development.
- 3) Policymakers are encouraged to adopt international best corporate governance practices and reporting standards capable of enhancing private sector stewardship for the common good of the African countries.

We contribute to the literature on corruption, corporate governance, and SDGs in several ways. First, through the lens of the 'sand the wheels' and 'grease the wheels' hypotheses, we demonstrate that corruption hinders the attainment of SDGs in Africa. This relationship was not investigated by extant studies as previous empirical evidence was limited to how corruption affects economic growth and development. Second, drawing from the institutional theory, we show that country-level corporate governance plays a significant role in achieving broad objectives such as the SDGs. Previous studies focused on examining how firm-level corporate governance variables influence

certain dimensions of SDGs. In this regard, the study provides a holistic approach to examining the corporate governance – SDGs relationship. Third, by examining the moderating effect of corporate governance on the relationship between corruption and SD, we provide novel evidence that corporate governance matters more for countries with a high prevalence of corruption. These findings shed light on the role of the private sector in helping developing countries in Africa to attain the UN SDGs.

This study has some shortcomings. First, because of the unavailability of data, the analysis is limited to 42 African countries over four years (2017 to 2020). The data shortage may hinder the generalization of the results to other countries. In addition, the study did not control for other factors associated with SD, such as access to Information Communications Technology (ICT), because the data were not available for most of the countries in our sample. **Lastly, some have argued that corporate governance may also be an instrument of corruption (Wu, 2005). For example, there may be situations where corrupt activities will require the approval of the board. This suggests the need for future studies to endeavor to investigate how corporate governance impacts corruption and vice-versa.** Nevertheless, despite these limitations, we believe that the findings are useful in understanding corporate governance and SD nexus in countries with similar institutional and cultural structures. To overcome the shortcomings of this paper, future studies may consider controlling for other factors that affect SDG, including ICT. Also, future studies could explore what corporate factors drive SDGs and test whether those factors are the same for developing and developed countries.

References

- Abdolmohammadi, M.J. and Tucker, R.R. (2002), "The Influence of Accounting and Auditing on a Country's Economic Development", *Review of Accounting and Finance*, Vol. 1 No. 3, pp. 42-53. <https://doi.org/10.1108/eb026990>
- Abdou, H. A., Ellelly, N.N., Elamer, A.A., Hussainey, K. and Yazidfar, H. (2020), "Corporate governance and earnings management nexus : Evidence from the UK and Egypt using neural networks", *International Journal of Finance and Economics*, Vol. 26 No. 4, pp. 6281-6311. <https://doi.org/10.1002/ijfe.2120>
- Absalyamova, S. Absalyamov, T., Khusnullova, A. and Mukhametgalieva, C. (2016), "The impact of corruption on the sustainable development of human capital", *Journal of Physics Conference Series 2016*, pp. 738, 1–6.
- Achim, M.V. (2017), "Corruption, income and business development", *Journal for International Business and Entrepreneurship Development*, Vol. 10 No. 1, pp. 85-100.
- Agyemang, O.S., Gbettey, C., Gatsi, J.G. and Acquah, I.S.K (2019), "Country-level corporate governance and foreign direct investment in Africa", *Corporate Governance: The International Journal of Business in Society*, Vol. 19 No. 5, pp. 1133-1152. <https://doi.org/10.1108/CG-07-2018-0259>
- Al Maqtari, F.A., Farhan, N.H., Al-Hattami, H.M. and Khalid, A.S.D. (2020), "Impact of country-level corporate governance on entrepreneurial conditions", *Cogent Business and Management*, Vol. 7 No. 1, pp. 1-19.

<https://doi.org/10.1080/23311975.2020.1797261>

- Arayssi, M., Jizi, M. and Tabaja, H.H. (2019), " The impact of board composition on the level of ESG disclosures in GCC countries", *Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 1, pp. 137-161. <https://doi.org/10.1108/SAMPJ-05-2018-0136>
- Arellano, M. and Bond, S. (1991), "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations", *The Review of Economic Studies*, Vol. 58 No. 2, pp. 277-29. <https://doi.org/10.2307/2297968>
- Ayamba, E.C., Haibo, C., Abdul-Rahaman, AR. et al. (2020), "The impact of foreign direct investment on sustainable development in China", *Environmental Science and Pollution Research*, Vol. 27, pp. 25625–25637. <https://doi.org/10.1007/s11356-020-08837-7>
- Baumann, H. (2019), "The corruption perception index and the political economy of governing at a distance", *International Relations*, Vol. 34 No. 4, pp. 504-523. <https://doi.org/10.1177/0047117819897312>
- Bebbington, J. and Unerman, J. (2018), "Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research", *Accounting, Auditing & Accountability Journal*, Vol. 31 No. 1, pp. 2-24. <https://doi.org/10.1108/AAAJ-05-2017-2929>
- Benkraiem, R., Bensaad, I. and Lakhel, F. (2021), "How do International Financial Reporting Standards affect information asymmetry? The importance of the earnings quality channel", *Journal of International Accounting, Auditing and Taxation*, In Press. <https://doi.org/10.1016/j.intaccaudtax.2021.100445>
- Benvenuto, M., Avram, R. L., Avram, A. and Viola, C. (2021), "Assessing the Impact of Corporate Governance Index on Financial Performance in the Romanian and Italian Banking Systems", *Sustainability*, Vol. 13 No. 10, pp. 5535-52. <https://doi.org/10.3390/su13105535>.
- Betti, G. Consolandi, C. and Eccles, R.G. (2018), "The Relationship between Investor Materiality and the Sustainable Development Goals: A Methodological Framework", *Sustainability*, 10, pp. 1-23. <https://doi.org/10.3390/su10072248>
- Boateng, A., Wang, Y., Ntim, C. and Glaister, K.W. (2020), "National culture, corporate governance and corruption: A cross-country analysis", Vol. 26 No. 3, pp. 3852-3874. <https://doi.org/10.1002/ijfe.1991>
- Borja, K. (2018), "Corruption indicators, foreign capital, and economic growth in developing countries", *The Journal of Developing Areas*, Vol. 51 No. 4, pp. 95–107. <https://doi.org/10.1353/jda.2017.0090>
- Carrillo, A., Mar, A., and La, P. De. (2019), "The Impact of Corporate Governance on Corruption Disclosure in European Listed Firms through the Implementation of Directive 2014 / 95 / EU 11", *Sustainability*, Vol. 11 No. 22, 6479-6500. <https://doi.org/10.3390/su11226479>
- Consuelo, M., and Martínez, P. (2019), "Female directorship on boards and corporate sustainability policies : Their effect on sustainable development", *Sustainable Development*, Vol. 28 No. 1, 56-72. <https://doi.org/10.1002/sd.1965>

- Consuelo, M., Martínez, P. and Ortells, C. C. (2018), "The role of directors representing institutional ownership in sustainable development through corporate social responsibility reporting", *Sustainable Development*, Vol. 26 No. 6, pp. 835-846. <https://doi.org/10.1002/sd.1853>
- DeFond, M.L. and Hung, M. (2004), "Investor Protection and Corporate Governance: Evidence from Worldwide CEO Turnover", *Journal of Accounting Research*, Vol. 42 No. 2, pp. 269-312. <https://doi.org/10.1111/j.1475-679X.2004.00138.x>
- DiMaggio PJ, Powell, WW. (1983), "The iron cage revisited: institutional isomorphism and collective rationality in organizational fields", *American Sociological Review*, Vol. 48 No. 2, pp. 147–160.
- Easterly, W., Levine, R (2016), "The European origins of economic development. *Journal Economic Growth*, Vol. 21, pp. 225–257. <https://doi.org/10.1007/s10887-016-9130-y>
- Firebaugh, G., Warner, C., Massoglia, M. (2013), "Fixed Effects, Random Effects, and Hybrid Models for Causal Analysis". In: Morgan, S. (eds) *Handbook of Causal Analysis for Social Research. Handbooks of Sociology and Social Research*. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-6094-3_7
- Frey M. and Sabbatino A. (2018), "*The Role of the Private Sector in Global Sustainable Development: The UN 2030 Agenda*". In: Grigore G., Stancu A., McQueen D. (eds) *Corporate Responsibility and Digital Communities. Palgrave Studies in Governance, Leadership and Responsibility*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-63480-7_10.
- Gompers, P., Ishii, J. and Metrick, A. (2003). "Corporate governance and equity prices", *The Quarterly Journal of Economics*, Vol. 118 No. 1, pp. 107-156. <https://doi.org/10.1162/00335530360535162>
- Gujarati, D.N. and Porter D.C. (2009), "*Basic econometrics (international edition)*" New York: McGraw-Hills Inc.
- Guidara, A., Ammari, A.E. and Khelif, H. (2021), "Strength of auditing and reporting standards, ethical behavior of firms and sustainability: a cross-country investigation", *EuroMed Journal of Business*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/EMJB-10-2020-0107>
- Hakimi, A. (2020), "Is the relationship between corruption, government stability and non-performing loans non-linear? A threshold analysis for the MENA region", *International Journal of Finance and Economics*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1002/ijfe.2377>
- Haque, F. and Ntim, C.G. (2017), "Environmental Policy, Sustainable Development, Governance Mechanisms and Environmental Performance", *Business Strategy and the Environment*, Vol. 27 No. 3, pp. 415-435. <https://doi.org/10.1002/bse.2007>
- Hillier, D., and Pindado, J. (2010), "The impact of country-level corporate governance on research and development", *Journal of International Business Studies*, Vol. 42 No 1, pp. 76–98. <https://doi.org/10.1057/jibs.2010.46>

- Hoinaru, R., Daniel B., Sorin N. B., Viorela L. V., and Monica V. A. (2020), "The Impact of Corruption and Shadow Economy on the Economic and Sustainable Development. Do They “Sand the Wheels” or “Grease the Wheels”?, *Sustainability*, Vol. 12 No. 2, pp. 481-496
<https://doi.org/10.3390/su12020481>
- Hope, K.R. (2020), "Corruption Reduction as a Target of the Sustainable Development Goals: Applying Indicators and Policy Frameworks", Blaustein, J., Fitz-Gibbon, K., Pino, N.W. and White, R. (Ed.) *The Emerald Handbook of Crime, Justice and Sustainable Development*, Emerald Publishing Limited, Bingley, pp. 105-130.
<https://doi.org/10.1108/978-1-78769-355-520201009>
- Hope, Sr., K.R. (2021), "Reducing corruption and bribery in Africa as a target of the sustainable development goals: applying indicators for assessing performance", *Journal of Money Laundering Control*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JMLC-03-2021-0018>
- Jaggi, B., & Macchioni, R. (2020). *Determinants of corporate corruption disclosures : evidence based on EU listed firms disclosures*. <https://doi.org/10.1108/MEDAR-11-2019-0616>
- Jaraite, J. and Di Maria, C. (2012), "Efficiency, productivity and environmental policy: A case study of power generation in the EU", *Energy Economics*, Vol. 34 No. 5, pp. 1557-1568.
<https://doi.org/10.1016/j.eneco.2011.11.017>
- Jiang, T. and Nie, H. (2014), "The stained China miracle: Corruption, regulation, and firm performance", *Economic Letters*, Vol. 123 No. 3, pp. 366-369.
<https://doi.org/10.1016/j.econlet.2014.03.026>
- Klapper, L.F. and Love, I. (2004), "Corporate governance, investor protection, and performance in emerging markets", *Journal of Corporate Finance*, Vol. 10 No.5, pp. 703-728.
[https://doi.org/10.1016/S0929-1199\(03\)00046-4](https://doi.org/10.1016/S0929-1199(03)00046-4)
- Koirala, B.S. and Pradhan, G. (2019), "Determinants of sustainable development: Evidence from 12 Asian countries", *Sustainable Development*, Vol 28 No. 3, pp. 39-45.
<http://dx.doi.org/10.1002/sd.1963>
- Lameira, V.J., Ness Jr. W.L, Amaral–Baptista, M.A., Pereira, R.J. and Quelhas, O.L.G. (2013), "Corruption, governance and sustainable development", *International Journal of Monetary Economics and Finance*, Vol. 6 No. 2-3, pp. 213-231
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. W. (1998), "Law and Finance", *Journal of Political Economy*, Vol. 106 No. 6, pp. 1113–1155.
- Li, J., Zhang, Y., Hu, Y, Tao, X., Jiang, W. and Qi, L. (2017), "Developed market or developing market?: A perspective of institutional theory on multinational enterprises' diversification and sustainable development with environmental protection", *Business Strategy and Environment*, Vol
- Marchini, P. L., Mazza, T. and Medioli, A. (2019), "Corruption and sustainable development : The impact on income shifting in European international groups", *Corporate Social Responsibility and Environmental Management*, Vol. 27 No. 2, pp. 717-730.
<https://doi.org/10.1002/csr.1839>

- Martínez-ferrero, J., and García-meca, E. (2020), "Internal corporate governance strength as a mechanism for achieving sustainable development goals", *Sustainable Development*, Vol. 28 No. 5, pp. 1189-1198. <https://doi.org/10.1002/sd.2068>
- Masud, A. K., Bae, S. M., Manzanares, J., & Kim, J. D. (2019), "Board Directors ' Expertise and Corporate Corruption Disclosure : The Moderating Role of Political Connections", *Sustainability*, Vol. 11 No. 16, pp. 4491-4502
- Murphy, J. and Albu, O.B. (2018), "The politics of transnational accountability policies and the (re)construction of corruption: The case of Tunisia, Transparency International and the World Bank", *Accounting Forum*, Vol. No. 1, pp.32-46. <https://doi.org/10.1016/j.accfor.2017.10.005>
- Pindado, J., de Queiroz, V. and de la Torre, C. (2015), "How do country-level governance characteristics impact the relationship between R&D and firm value?", *Research and Development Management*, Vol. 45 No. 5, pp. 515-526.
- Rashed, A.H. and Shah, A (2020), " The role of private sector in the implementation of sustainable development goals", *Environment, Development and Sustainability*, Vol. 23, pp. 2931–2948. <https://doi.org/10.1007/s10668-020-00718-w>
- Rosati, F. (2018), "Addressing the Sustainable Development Goals in sustainability reports : the relationship with institutional factors", *Journal of Cleaner Production*, Vol. 215 No. 1, pp. 1312-1326. <https://doi.org/10.1016/j.jclepro.2018.12.107>
- Sharma, G.D. and Joshi, M. (2015), "Impact of Macroeconomic Indicators on FDI Inflows in Emerging Economies: Evidence from BRICS", *Journal of Global Economics, Management and Business Research*, Vol 4 No. 1, pp. 44-54. Available at SSRN: <https://ssrn.com/abstract=2690821>
- Ucar, E. and Staer, A. (2020), "Local corruption and corporate social responsibility", *Journal of Business Research*, Vol. 116, pp. 266–282. <https://doi.org/10.1016/j.jbusres.2020.05.012>
- Wu, X. (2005), "Corporate Governance and Corruption: A Cross-Country Analysis", *Governance: an International Journal of Policy, Administration and Institutions*, Vol. 18 No. 2, pp. 151-170