Article

Economic development, corporate governance, and firm performance in Sub-Saharan Africa

Isaac Luke Agonbire Atugeba [1,*] (iD) and **Emmanuel Acquah-Sam** [2] (iD)

[1] Accra Institute of Technology/Open University Malaysia & Bolgatanga Technical University, Ghana, email: aatugeba@gmail.com
[2] Wisconsin International University College, Ghana, email: acquah.sam@wiuc-ghana.edu.gh
[*] Corresponding author.

Abstract: The study examines the impact of corporate governance on firm performance in five Sub-Saharan African countries, focusing on the role of economic development. The research uses a two-stage least squares (2SLS) regression approach to examine data from 309 publicly traded companies spanning the years 2016–2022. The study found that firms in upper-middle-income (UMI) countries outperform those in lower-middle-income (LMI) countries. Corporate governance positively influences firm performance in LMI countries but negatively affects it in UMI countries. The study further observed that economic development significantly impacts corporate governance-performance relationships in LMI countries compared to UMI countries. Policymakers, especially in UMI countries, are urged to re-assess their current institutional frameworks and consider reforms aimed at alleviating bureaucratic obstacles that impact businesses.

Keywords: corporate governance, economic development, firm performance, 2SLS regression technique, multi-theoretical framework, Ghana, Kenya, Nigeria, Botswana, South Africa, Sub-Saharan Africa

JEL classification: G30, M0, M2, O1

1. Introduction

The interplay between economic development, corporate governance, and firm performance in Sub-Saharan Africa presents a complex yet vital area of study, reflecting the region's unique challenges and opportunities. As economies within this region strive for growth amidst varying political and socio-economic levels of development, understanding the mechanisms that drive firm performance becomes increasingly essential. The level of economic development within a country is a significant factor in shaping the corporate governance landscape and influencing firm performance. Economies at different stages of development exhibit varying degrees of institutional strength, regulatory frameworks, and access to resources, all of which affect the role and effectiveness of firm governance (Filatotchev, Jackson, & Nakajima, 2013; Ntim, 2013; Hwang, Song, Lee, & Kang, 2024). Oyerogba et al. (2024) stated that effective corporate governance emerges as a cornerstone for fostering an environment conducive to sustainable economic development, ensuring that firms operate transparently and responsibly. Good corporate governance not only enhances operational efficiencies and accountability within local enterprises but facilitates the attraction of foreign investment. This operational dynamic is evident as these investors strategically seek to capitalize on local advantages. Notably, the effectiveness of institutional frameworks, such as stock markets, remains contentious—some scholars suggest that these markets have not played a pivotal role in driving real economic growth in low and middle-income countries,

asserting that they often do not complement corporate governance as expected (Singh, 2008). Consequently, understanding these intertwined elements is crucial for assessing firm performance and economic resilience in this diverse region (Henley et al., 2008).

The emphasis on improving governance within companies aims to reduce agency problems and enhance firm performance (Dey, 2008). Numerous studies have investigated the relationship between corporate governance and firm performance, but results have been inconsistent. For instance, Tornyeva and Wereko (2012) found that corporate governance factors such as board size, board skills, management capabilities, long-serving CEOs, audit committee size and independence, foreign ownership, institutional ownership, dividend policies, and annual general meetings are positively related to the financial performance of insurance companies in Ghana. Kapil and Mishra (2019) reported that while board size positively impacts performance, CEO duality has a negative effect. Additionally, board independence was positively correlated with accounting-based performance, whereas the frequency of board meetings positively affected market-based performance measures. Neralla (2021) further observed a positive impact of larger board sizes on firm performance and noted a positive correlation between board meetings and Tobin's Q performance indicators. Conversely, there was a negative correlation between return on equity (ROE), net profit margin (NPM), and corporate governance indicators related to CEO duality. Furthermore, Abdullah and Tursoy (2023) provided evidence that the characteristics of the audit committee and board of directors adversely affect firm financial performance. Asiedu and Mensah (2023) discovered that there is a cause-and-effect link between corporate governance and firm performance, which is mediated by financial reporting quality (FRQ). This means that FRQ improves firm performance both directly and indirectly through good corporate governance.

These mixed findings have prompted researchers to investigate the underlying reasons and boundary conditions that may help clarify these discrepancies. Some of the factors that have been looked at in the past that affect the link between corporate governance and performance are macroeconomic variables, national governance (Aggarwal, Erel, Ferreira, & Matos, 2011; Ojeka et al., 2019; Nguyen et al., 2021; Manasseh et al., 2022; Acheampong, Baidoo, & Somuah, 2023), and the industries that companies operate in (Kapil & Mishra, 2019; Boachie & Mensah, 2022). For instance, Nguyen et al. (2021) examine the impact of national governance quality on the relationship between boardroom gender diversity and firm performance across 46 countries. Meanwhile, Boachie and Mensah (2022) examine the effects of earnings management on firm performance in Anglophone sub-Saharan African countries, highlighting the moderating role of corporate governance quality. Kapil and Mishra (2019) focus on the relationship between corporate governance and firm performance in India. However, Nguyen et al.'s analysis does not specifically address sub-Saharan Africa, a region characterized by unique challenges and dynamics that may affect these relationships differently than in other contexts. Additionally, Boachie and Mensah's study does not explore other potential moderating variables, such as economic development, which could further clarify the complexities of firm performance in this region. Similarly, Kapil and Mishra's research raises concerns about the generalizability of their findings to other areas, particularly SSA, where different economic and governance structures may exist. The goal of this study is not only to focus on the unique situation in sub-Saharan Africa but also to expand the analysis by adding more moderating factors, which will help fix the problems that were found in earlier studies.

The study integrates agency, resource dependency, resource-based, and institutional theories to analyze the relationship between corporate governance and firm performance in the context of sub-Saharan Africa. This theoretical framework helps to contextualize the unique challenges and opportunities faced by firms in developing economies (Zattoni et al., 2017; Tessema, 2019; Wu, 2021), distinguishing it from studies conducted in developed countries. Our study highlights the need to consider economic development levels when analyzing corporate governance and firm performance. This perspective is crucial as it

addresses a gap in the literature regarding how economic growth influences governance structures and their effectiveness in Sub-Saharan Africa (Lawal et al., 2018). In this context, it is essential to explore how various governance mechanisms, such as board composition, ownership structure, and shareholder rights, affect firm performance while accounting for the unique economic landscapes of SSA countries. Our study focuses on two groups of countries: those classified as "lower-middle-income countries" and those classified as "upper-middle-income countries" based on their economic indicators, such as GDP per capita (World Bank, 2023). Looking at the differences between these two groups in terms of the relationship between corporate governance and firm performance will help one understand how economic growth affects corporate governance practices and how those practices then affect firm performance. These findings would have important implications for policymakers, regulators, and corporate leaders in the region, as they seek to enhance the effectiveness of corporate governance structures and promote sustainable economic growth.

The remainder of the paper follows this structure: Section 2 offers a review of pertinent prior studies; Section 3 details the data and methodology employed; Section 4 presents the findings; Section 5 concludes the study; and Section 6 discusses the implications of the research.

2. Literature Review

2.1. Theoretical framework

This study uses a multi-theoretical framework that combines agency theory, resource dependency theory, resource-based theory, and institutional theory to examine the impact of corporate governance on firm performance in sub-Saharan Africa, especially concerning the role of economic development. This multifaceted approach provides a thorough understanding of how governance practices affect firm outcomes within the region's distinct context.

Agency theory provides a fundamental framework for understanding the connection between firm governance and corporate performance. It argues that conflicts can arise between principals (shareholders) and agents (managers) due to differing interests (Jensen & Meckling, 1976). In Sub-Saharan Africa, where ownership structures are frequently concentrated, agency problems may be particularly evident. Ineffective governance mechanisms can result in inefficiencies, mismanagement, and diminished firm performance (Fama & Jensen, 1983; Klapper & Love, 2004; Ali, Liu, & Su, 2022). Good governance practices, like having independent boards and strict reporting requirements, can solve these agency problems by making sure that management's goals are aligned with those of shareholders, which improves overall performance (Anita & Dharmastuti, 2022; Biswas, Bhattacharya, Sadarangani, & Jin, 2022; Asiedu & Mensah, 2023).

Pfeffer and Salancik's (1978) resource dependency theory highlights the significance of external resources and relationships in influencing organizational behavior and performance. In Sub-Saharan Africa, firms frequently depend on external stakeholders for essential resources, such as capital, information, and talent. Effective governance structures can enhance engagement with these stakeholders, allowing firms to obtain the resources needed for growth and competitive advantage. By cultivating strong relationships with investors, suppliers, and regulatory bodies, firms can strengthen their resource base, which may lead to improved performance outcomes (Ojeka et al., 2019). This theory emphasizes governance's strategic role in navigating the external environment and effectively leveraging resources for organizational success.

This study is also grounded in the resource-based theory (RBT), which asserts that firms can attain competitive advantage and superior performance by effectively leveraging their unique resources and capabilities (Barney, 1991). In the context of Sub-Saharan Africa, this theory is particularly relevant due to the region's distinct economic challenges and opportunities. The resource-based theory indicates that firms that

successfully utilize their resources—such as skilled labor, technological capabilities, and access to capital—are more likely to thrive in a developing economy (Wernerfelt, 1984). In this regard, economic development can improve firm performance by facilitating access to better resources and markets, which can subsequently enhance corporate governance practices. Furthermore, strong corporate governance is considered a valuable asset that firms can utilize to boost their performance (Aguilera & Jackson, 2003). Companies with effective governance structures are more likely to attract investment, manage risks, and meet stakeholder needs, ultimately resulting in better financial outcomes. Therefore, the resource-based theory provides a meaningful framework for examining how economic development and corporate governance impact firm performance in Sub-Saharan Africa.

Institutional theory further provides insights into how the institutional context influences governance practices and firm performance (DiMaggio & Powell, 1983). In Sub-Saharan Africa, the quality of institutions—such as legal frameworks, regulatory environments, and cultural norms—can significantly affect corporate governance practices. Firms operating in environments with strong institutions are more likely to adopt effective governance mechanisms that promote transparency and accountability, which can enhance performance (North, 1990). Conversely, firms in weaker institutional contexts may struggle with governance challenges that hinder their performance (Nguyen et al., 2021). By examining the role of institutional quality, this theory underscores the necessity of considering the broader socio-economic and political landscape when assessing the impact of governance on corporate performance.

Putting together the agency, resource dependency, resource-based, and institutional theories in this study gives us a full picture of how corporate governance and economic development in Sub-Saharan Africa all work together to spur corporate performance. This multifaceted approach highlights the importance of both internal governance mechanisms and external institutional factors. This offers valuable insights for policymakers, business leaders, and researchers seeking to enhance corporate governance and promote sustainable economic growth in the region.

2.2. Corporate governance and firm performance

Empirical studies have confirmed a significant relationship between corporate governance and firm performance, supporting the traditional agency theory (Heo, 2018; Kapil & Mishra, 2019; Khatib, Abdullah, Al Amosh, et al., 2022; Osman & Samontaray, 2022; Asiedu & Mensah, 2023; Oyerogba et al., 2024). Previously, Shleifer and Vishny (1997), Claessens and Fan (2002), and Gillan (2006) conducted analysis on the correlation between corporate governance and firm performance. The evidence from these investigations has consistently presented a significant relationship between corporate governance and firm performance. Nevertheless, other studies, including the latest research conducted by Ali et al. (2022), challenge the conventional agency theory and demonstrate insignificant impacts of company governance on business performance. Already, Coskun and Sayilir (2012) have reported a negligible effect of corporate governance on firm performance. The significance of context, which is difficult to accurately measure in quantitative studies, has been mentioned as the reason for these divergent results.

This study acknowledges the contradictory results of previous research on the impact of corporate governance on firm performance and provides plausible explanations for these findings. However, it argues from an agency theoretical perspective and proposes that corporate governance is strongly associated with business performance through specific transmission mechanisms. The agency theory highlights the inherent conflict of interest known as the agency problem, which occurs when ownership and control are separated. It also acknowledges the importance of strong corporate governance systems in disciplining management, limiting managerial opportunism, and aligning managerial interests with those of shareholders. By implementing strong governance practices that link the interests of managers with shareholders, there is a mutual agreement to improve

business outcomes, ensuring benefits for both parties involved. Therefore, we define our initial hypothesis as follows:

H$_1$: Corporate governance has a positive and significant effect on firm performance, irrespective of a country's level of economic development in Sub-Saharan Africa.

2.3. *The moderating effect of economic development on the relationship between corporate governance and firm performance*

The level of a country's economic development can greatly affect the efficacy of corporate governance systems and, as a result, their influence on company performance (Saleh & Alaallah, 2022). The present study proposes that the relationship between corporate governance and performance may be influenced by the level of economic development. It suggests that a significant level of economic development is required to achieve any positive performance outcomes from firm governance practices in companies. The mechanisms by which effective governance might impact corporate performance include the enhancement of economic development, which in turn improves the investment climate. This, in turn, strengthens the correlation between governance and performance (Atuahene & Xusheng, 2024). For instance, companies that operate in stable and economically advanced contexts have a higher likelihood of attracting greater investment. This enables them to use effective governance practices to enhance their operational efficiency and profitability (Cornett, Marcus, & Tehrani, 2009; Shin, Moon, & Kang, 2023). In mature economies with robust institutions and established regulatory frameworks, corporate governance has a more significant impact on performance (Brown & Caylor, 2006). In contrast, companies in economically developing nations place a higher importance on immediate profitability to maintain their business operations, which can make it difficult to effectively allocate resources for long-term performance efforts (Hwang et al., 2024). Therefore, we anticipate that the link between governance and performance would be more advantageous for companies in upper-middle-income nations compared to lower-middle-income countries in Sub-Saharan Africa. Based on the information presented, the study aimed to evaluate its second hypothesis in the following manner:

H$_2$: The level of economic development significantly moderates the relationship between corporate governance and firm performance in UMI countries compared to those in LMI countries.

2.4. *Conceptual framework*

Both theoretical and empirical literature highlight the connections between corporate governance and firm performance (Khatib, Abdullah, Al Amosh, et al., 2022; Osman & Samontaray, 2022; Asiedu & Mensah, 2023; Oyerogba et al., 2024), as well as the moderating role that economic development plays in this governance-performance relationship (see Shin et al., 2023; Hwang et al., 2024). Acknowledging these relationships, Figure 1 presents an analytical framework illustrating the relationship among corporate governance, economic development, and firm performance.

Figure 1. This figure presents a conceptual framework that demonstrates the moderating effect of economic development on the relationship between corporate governance and firm performance. Additionally, the figure includes both firm-level and country-level control variables.
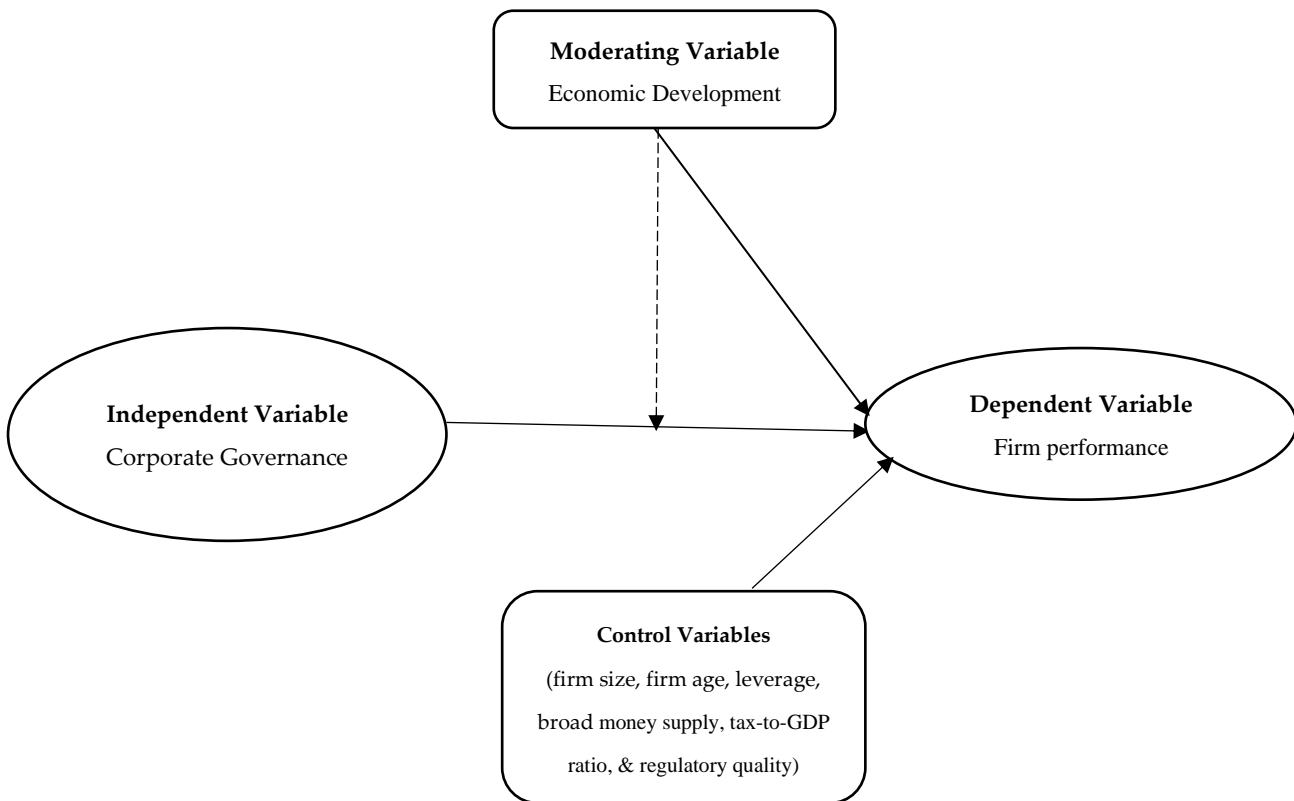
Source: Authors' construct

3. Data and Methods

3.1. Data and sample selection

This study employs an explanatory research design. An explanatory design is particularly suitable for this research as it aims to explain the causal relationships among variables, providing insights into how governance practices influence performance in different economic contexts (Creswell, 2014). The study sample included publicly listed companies from three lower-middle-income (LMI) countries, Ghana, Kenya, and Nigeria, as well as two upper-middle-income (UMI) countries, Botswana and South Africa. We selected these countries based on their varying levels of economic development, as evidenced by their gross domestic product (GDP) per capita (World Bank, 2023). The selection of these countries is further supported by several reasons: (i) they display diverse corporate governance frameworks and practices, enabling comparative analysis; (ii) the chosen countries represent various sub-regional blocs within Sub-Saharan Africa; (iii) they provide relatively accessible data on corporate governance practices, economic indicators, and firm performance metrics, which facilitates thorough analysis; and (iv) finally, these nations encounter unique challenges (such as corruption and regulatory issues) and opportunities (including investment prospects and technological advancements), making them ideal for examining the connections between governance, development, and performance.

We collected the corporate governance and financial data from the annual reports of the respective firms and the selected stock exchange websites. For our analysis, we obtained the annual GDP per capita growth rate from the World Development Indicators (WDI) and regulatory quality data from the World Governance Indicators (WGI). These

comprehensive databases, maintained by the World Bank, are well-known for their extensive collection of economic, social, and environmental data from across the globe. The sample size is 309 firms (147 from UMI countries and 162 from LMI countries) spanning seven years from 2016 to 2022. The data period chosen for this study is based on the availability of corporate governance, financial, and macroeconomic data. It is also to maintain the consistency of the sample data set.   A company sampled for this study is based on the following criteria.

i)   The company must be listed on the security market of the selected countries,

ii)   There should be available data for the selected companies, and

iii) The company should not be a foreign-incorporated entity; rather, it should be a local company domiciled in the selected country.

Table 1 outlines the process used to determine the sample size.

Table 1. Sample size determination

Sample criteria		Total Companies	South Africa	Nigeria	Ghana	Kenya	Botswana
Companies listed on the JSE, NXG, GSE, NSE, BSE		647	353	155	37	66	36
Less:	Firms with < 5 years data between 2016-2022 + foreign incorporated companies	(338)	(224)	(62)	(15)	(19)	(18)
Final sample size		309	129	93	22	47	18
Expected firm-year observations (309 x 7)		2,163					

Source: ASEA (2022); African'Xchanges (2022)

3.2. Model specification

A panel regression model, which recognizes the nature of the CG—firm performance relationship, is formulated to analyze data that consists of multiple entities observed over time (Munisi & Randøy, 2013; Ndu et al., 2019; Asiedu & Mensah, 2023). Panel regression models help understand the relationships between variables while accounting for the variations across entities and over time. The model is specified as follows:

$$\text{ROA}_{i,t} = \alpha + \beta_j \text{CGI}_{i,t} + \beta_q \text{CONTROLS}_{i,t} + \mu_i + \eta_i + e_{i,t} \tag{1}$$

In the second perspective, the study analyses the baseline model in equation (1) to include an economic development variable (measured by GDP/capita) and an interaction term (corporate governance × ED) and formulates it as follows:

$$\text{ROA}_{i,t} = \alpha + \beta_j \text{CGI}_{i,t} + \beta_n \text{ED}_t + \beta_k (\text{CGI}_{i,t} * \text{ED}_t) + \beta_q \text{CONTROLS}_{i,t} + \mu_i + \eta_i + e_{i,t} \tag{2}$$

The variable '*ROA*' signifies return on assets, measuring the performance of the firm*(i)* at year *(t).* The variable '*CGI*' stands for corporate governance of firm *(i)* at year *(t).* The variable '*ED*' represents the level of economic development of a country at year *(t).* The variable '*CONTROLS*' represents both the firm-level and country-level variables. The μ_i represents the firm-fixed effect, η_i is the country fixed-effects, and $e_{i,t}$ is the regression error term. Furthermore, α is the constant, β_j, β_k, β_n, and β_q are the coefficients to be estimated.

3.3 Dependent variable: firm performance

Various organizations conceptualize and quantify performance in various ways, such as Tobin's Q, ROA, and ROE. However, performance is defined as the degree to which a company has produced value or returns for its investors and other stakeholders (Neralla, 2021; Nguyen et al., 2021; Asiedu & Mensah, 2023). This research uses ROA as its measure of performance rather than ROE. This is because ROA reflects returns generated for all corporate finance providers, including equity providers of finance, whereas ROE reflects returns generated for only equity providers of finance, which is

somewhat restrictive and ignores the contributions of other corporate stakeholders. The ROA assesses the competitiveness of the business and the effectiveness of the management team. This is how the ROA was determined:

$$ROA_{it} = \frac{EAT_{i,t}}{TA_{i,t}}$$

where EAT_{it} refers to earnings after tax for a firm (*i)* at year (*t)*, and TA_{it} also refers to total assets for a firm (*i)* at year (*t)*.

3.4 Independent variable: corporate governance

Corporate governance is a well-known concept with no universally accepted definition in the literature. Corporate governance is considered a set of procedures and rules that direct and control companies. Corporate governance is an institutional, legal, and cultural framework that is more or less country-specific and shapes the patterns of shareholder (or stakeholder) influence on managerial decision-making (Brown et al., 2011; Azeem et al., 2013; Biswas, 2013; Prommin et al., 2014, 2016; Biswas et al., 2022; Asiedu & Mensah, 2023; Boachie & Mensah, 2022; Chen et al.; 2007; Wang et al., 2022; Yeh et al., 2012; Ben Salah & Jarboui, 2021; Wu, 2021). The study adapted 15 items measuring corporate governance from prior literature of Asiedu and Mensah (2023) and Ledi and Ameza-Xemalordzo (2023). These items cover almost all aspects of corporate governance, such as board composition, ownership structures, audit, remuneration, nomination committees' composition, stakeholder engagements, compliance with laws, and other firm governance items. The CGI is developed as follows:

$$CGI = \frac{\sum_{i=1}^{n} X_{ij}}{N_j}$$

where N_j is the total number of items estimated for the jth firm, with the maximum score assigned, the X_{ij} assumes the value one if the CG item is disclosed in the firm's annual report and 0 for non-disclosure.

3.5 Moderating variable: economic development

The research measured economic development using the annual GDP per capita growth rate, following previous studies (Saleh & Alaallah, 2022; Hwang et al., 2024). The GDP per capita growth rate measures how much a country's economic output per person has increased over a specific period, usually expressed as a percentage (Dincer & Dost, 1997). The GDP per capita growth rate is a vital indicator of economic performance and individual prosperity within a country (Callen, 2008; Edo & Nnadozie, 2023).

3.6 Control variables

The firm-level and country-level control variable comes from previous research (Mensah & Boachie, 2023; Anita & Dharmastuti, 2022; Ojeka et al., 2019), and it is used to look at how economic development affects the link between corporate governance and firm performance. The control variables include firm size, firm age, leverage, broad money supply, tax-to-GDP ratio, and regulatory quality. The summary of variable descriptions and measurements is presented in Table 2.

Table 2. Summary of variable descriptions and measurements

	Variable	Measurement	Expected Sign	Sources of Data
Dependent variables				
ROA	Return on Assets	Earnings after interest and tax / total assets	na	Annual reports
Independent Variable				
CGI	Corporate Governance Index	The CGI is derived by computing the proportion of the total scores to the maximum score attainable using the following formula $\sum_{i=1}^{n} X_{ij}/N_j$, where N_j is the total number of items estimated for the jth firm, with the maximum score assigned. X_{ij} assumes the value one if the CG item is disclosed in the firm's annual report and zero otherwise.	+	Annual reports
Moderating variable				
ED	Economic Development	The annual GDP per capita growth of year t	-/+	WDI
Firm-level control variables				
SIZE	Firm size	Natural logarithm of total assets of firm i at year t	+	Annual reports
AGE	Firm age	Current year minus the firm listing year	+	Annual reports
LEV	Leverage	The ratio of total debt to total assets of firm i at year t	-/+	Annual reports
Country-level control variables				
TAX	Tax-to-GDP ratio	Tax revenue (% of GDP)	-/+	WDI
M2+	Broad money supply	Broad money growth (annual %)	-/+	WDI
RQ	Regulatory quality	Regulatory quality index ranging from -2.5 to 2.5.	-/+	WGI

Source: Authors' work

4. Results and Discussion

4.1. Descriptive statistics

Table 3 presents the descriptive statistics for the study variables. Notably, we found that firm performance, as measured by return on assets (ROA), is 0.026 for firms operating in lower-middle-income (LMI) countries. In contrast, firms operating in upper-middle-income (UMI) countries achieved a significantly higher average ROA of 0.146 during the study period. The findings suggest that various factors inherent to UMI countries, such as more developed market conditions, better access to resources, and improved infrastructure, may contribute to enhanced operational efficiency and profitability. Conversely, firms in LMI countries may face challenges such as limited access to capital, weaker institutional frameworks, and economic instability, which can hinder their financial performance. Further analysis reveals that corporate governance practices in UMI countries, reflected by a corporate governance (CG) score of 0.963, are marginally better than those reported in LMI countries, which have a CG score of 0.922. This slight edge in governance practices may be indicative of more robust regulatory environments, higher standards of accountability, and greater investor protections in UMI nations.

The mean value of 0.002 for economic development in LMI countries suggests that, on average, these nations are experiencing very low levels of economic advancement. This figure implies that many LMI countries are grappling with fundamental economic challenges, including high poverty rates, insufficient infrastructure, and limited access to education and healthcare. The median value of 0.008 further highlights the difficulties faced by LMI countries. Conversely, the mean value of -0.001 for UMI countries indicates a slightly negative average level of economic development. The median value of 0.003 further highlights the difficulties faced by UMI countries in the study period. This could

imply that UMI nations are confronting specific economic challenges that affect their development trajectory, potentially due to factors such as economic volatility, structural issues, or external shocks that impede growth. Additionally, the disparity in the datasets between LMI countries and UMI countries may significantly contribute to these intriguing results. Moreover, the adverse GDP per capita growth rate experienced by certain UMI countries during specific years can further explain the unexpected outcomes.

Table 3. Descriptive statistics

	LMI countries							UMI countries						
Variables	Mean	Std. Dev.	Min.	Median	Max.	Skewness	Kurtosis	Mean	Std. Dev.	Min.	Median	Max.	Skewness	Kurtosis
ROA	0.026	0.114	-0.827	0.025	0.705	-0.641	16.298	0.065	0.146	-0.853	0.045	0.959	1.147	13.028
CGI	0.922	0.076	0.533	0.933	1.000	-1.267	6.511	0.964	0.055	0.733	1 .000	1.000	-1.513	4.879
ED	0.002	0.027	-0.041	0.008	0.057	-0.022	2.254	-0.001	0.037	-0.104	0.003	0.101	-0.682	4.109
SIZE	7.155	1.251	3.237	7.059	10.865	-0.130	3.968	7.419	1.469	3.762	7.187	12.236	0.417	3.053
LEV	0.560	0.602	-6.056	0.574	4.441	-2.880	41.333	0.460	0.438	-4.156	0.441	5.016	2.035	49.222
AGE	23.904	15.520	1.000	21.000	74.000	0.609	2.345	26.158	20.434	1.000	21.000	87.000	1.111	3.469
TAX	0.103	0.026	-1.100	0.087	0.151	0.704	1.814	0.240	0.017	0.209	0.248	0.288	-0.392	2.867
M2+	0.181	0.150	0.038	0.142	0.621	1.719	5.427	0.067	0.015	0.027	0.061	0.094	0.419	2.566
RQ	-0.695	0.340	-1.155	-0.878	-0.130	0.337	1.472	0.066	0.229	-0.185	0.008	0.727	1.496	4.453

Notes: The study uses an unbalanced panel data of 2081 observations (LMI countries - 1114; UMI countries - 967). ROA is the return on assets measuring firm performance; CGI represents the corporate governance index; ED represents the level of economic development; SIZE epitomizes firm size; AGE signifies firm age; LEV denotes firm leverage; TAX represents tax-to-GDP ratio; M2+ is broad money supply; and RQ represents regulatory quality.

In terms of control variables, our analysis uncovers notable differences between firms operating in LMI and UMI countries within the Sub-Saharan Africa (SSA) region regarding average firm size, firm leverage, and firm age. Specifically, firms in UMI countries tend to be larger on average, which may be a reflection of better access to capital and resources, allowing them to scale operations more effectively. In contrast, firms in LMI countries may be smaller and more vulnerable, with limited capacity to expand or invest in growth opportunities. Additionally, the leverage ratios indicate that firms in LMI countries might be more inclined to utilize debt financing compared to their counterparts in UMI countries. Moreover, the age of the firms also varies between these two groups. Older firms in UMI countries may benefit from established market positions, brand recognition, and accumulated experience, which can enhance their competitive advantage. In contrast, younger firms in LMI countries may struggle to gain a foothold in the market due to various barriers, including regulatory hurdles and limited market access. Similarly, the differences in fiscal and monetary policies, as well as regulatory quality between these sub-groups within the SSA region, further underscore the complexities of the economic landscape.

4.2. Correlation analysis

Table 4 presents the correlation matrix, which highlights the relationships among the variables analyzed in the study. These correlations offer valuable insights into how the various components are interconnected, improving our understanding of their potential relationships. The analysis showed that corporate governance, firm size, leverage, and firm age have significant correlations with return on assets for firms operating in LMI countries. In contrast, for firms in UMI countries, return on assets is significantly related only to firm size, leverage, and the broad money supply.

Table 4. Pair-wise correlation matrix

Variable	ROA	CGI	ED	SIZE	LEV	AGE	TAX	M2+	RQ
LMI countries									
ROA	1.000								
CGI	0.127***	1.000							
ED	0.060*	0.028	1.000						
SIZE	0.142***	0.448***	-0.185***	1.000					
LEV	-0.450***	0.069**	0.002	0.112***	1.000				
AGE	0.060**	0.171***	0.059*	0.058**	-0.011	1.000			
TAX	0.025	0.064***	0.643***	-0.312***	0.008	0.050	1.000		
M2+	-0.018	0.026	0.427***	-0.142***	0.027	0.050*	0.508***	1.000	
RQ	0.018	0.015	0.621***	-0.367***	0.018	-0.001	0.258***	0.448***	1.000
UMI countries									
	ROA	CGI	ED	SIZE	LEV	AGE	TAX	M2+	RQ
ROA	1.000								
CGI	0.024	1.000							
ED	0.053*	-0.035	1.000						
SIZE	-0.186***	0.158***	-0.094***	1.000					
LEV	-0.401***	-0.088***	0.024	0.118***	1.000				
AGE	0.043	0.084***	-0.023	0.040	-0.018	1.000			
TAX	0.017	0.047	0.174***	0.020	-0.041	0.011	1.000		
M2+	-0.079***	0.016	-0.572***	0.121***	0.009	0.062*	-0.546***	1.000	
RQ	0.014	-0.208***	0.123***	-0.363***	0.047	-0.153***	-0.004	-0.295***	1.000

Notes: Number observations (LMI countries - 1114; UMI countries - 967). ROA is the return on assets measuring firm performance; CGI represents the corporate governance index; ED represents the level of economic development; SIZE epitomizes firm size; AGE signifies firm age; LEV denotes firm leverage; TAX represents tax-to-GDP ratio; M2+ is broad money supply; and RQ represents regulatory quality. The triple stars (***) represent significance at 1%, double stars (**) represent significance at 5%, and a single star (*) refers to significance at 10%.

4.3.1. Normality tests

As shown in Figure 2, a histogram normal-density plot was employed to assess the normality of the data. This visual representation aids in determining how closely the data aligns with a normal distribution. Furthermore, skewness and kurtosis metrics were used to delve deeper into the distribution characteristics of the dataset. The results indicate that the dataset does not follow a normal distribution. The skewness values for LMI countries, ranging from -2.880 to 1.719 as presented in Table 3, suggest a slight leftward skew. In contrast, the skewness values for UMI countries, which range from -1.513 to 2.035, indicate a slight rightward skew. This implies the presence of a few exceptionally high values, contributing to the deviation from normality. Additionally, the kurtosis values for LMI countries range from 1.472 to 41.333, indicating a distribution that is highly peaked with heavy tails. Similar patterns are observed for UMI countries. High kurtosis values signify that the distribution contains more extreme outliers than would typically be found in a normal distribution. Together, the skewness and kurtosis values offer important insights into the shape and characteristics of the distribution. Skewness reveals the degree of asymmetry in the distribution compared to a normal distribution, while kurtosis highlights the tendency for extreme values. Values that lie outside the conventional ranges for skewness ($-0.5 \leq$ skewness $\leq +0.5$) and kurtosis ($-1 \leq$ kurtosis $\leq +1$) suggest a distribution that is either excessively peaked or overly flat, both of which are considered unfavorable indicators of normality (Al Hawaj & Buallay, 2022; George, 2011).

Despite the lack of normality in the data, this does not undermine the credibility of the study's findings. The large sample size used in the analysis helps to mitigate the effects

of non-normality, as larger samples tend to produce more reliable estimates and can approximate normality due to the Central Limit Theorem. This theorem posits that the distribution of sample means will tend to be normal, regardless of the shape of the population distribution, provided the sample size is sufficiently large. Therefore, while the data's deviation from normality is notable, it is not considered detrimental to the overall reliability and validity of the research outcomes.

Figure 2. Normality test
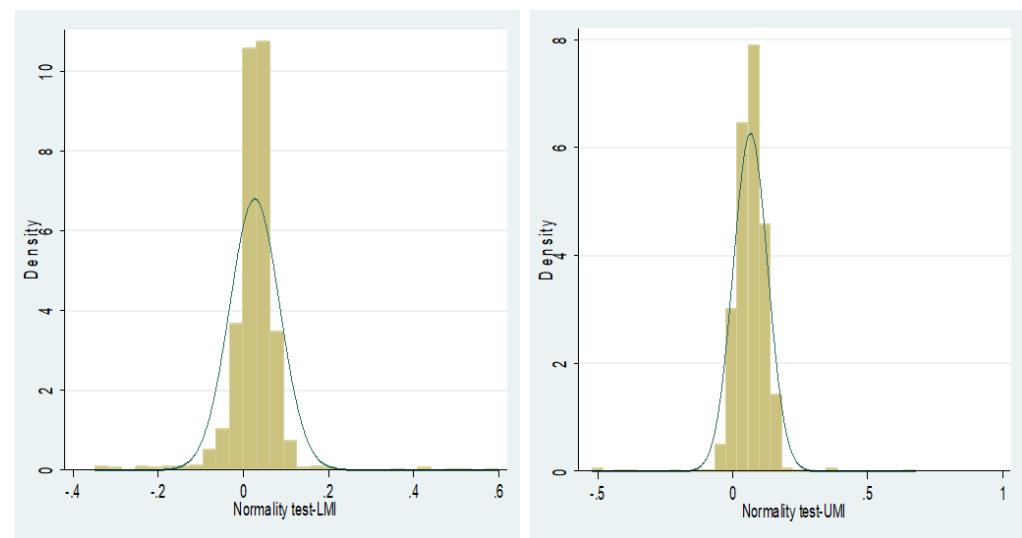
4.3.2. Collinearity test

The effectiveness of the linear model hinges on the crucial assumption that the independent variables are not correlated. When there are high levels of multicollinearity—where independent variables are highly correlated—it can lead to inflated standard errors of the estimated coefficients. This inflation undermines the reliability of the coefficient estimates, making it difficult to ascertain the individual effect of each independent variable on the dependent variable. To address this issue, we calculated the variance inflation factor (VIF), a commonly used measure to evaluate the extent of multicollinearity among the independent variables. According to the work of Gujarati and Porter (2003), a VIF value that exceeds 10 is indicative of a significant multicollinearity problem concerning the variable in question. In our analysis, as detailed in Table 5, we found that, except for the tax-to-GDP ratio and regulatory quality variables in LMI countries, the VIF values for all other independent variables remained below the threshold of 10. Likewise, the correlation coefficient of 0.258 between regulatory quality (RQ) and tax indicates that collinearity between these variables is not an issue.

4.3.3. Models diagnostics

A critical assumption of regression analysis is the presence of heteroscedasticity, which refers to the condition where the variance of the error terms varies across observations. If heteroscedasticity is present, it can lead to inefficient estimates and affect the validity of hypothesis tests. To assess the presence of heteroscedasticity in our models, we utilized the Breusch–Pagan tests. These tests are designed to detect whether the variance of the errors is dependent on the independent variables. As illustrated in Table 6, the p-values derived from the Breusch–Pagan tests for all three models (models 1a,b, 2a,b, and 3a,b) were significantly lower than the conventional significance threshold of 5% (specifically, $p < 0.000$). Thus, we can conclude that our regression models do not suffer from heteroscedasticity, lending credibility to the estimates obtained from the analysis.

Table 5. Collinearity test

Variables	LMI countries		UMI countries	
	VIF	Tolerance	VIF	Tolerance
CGI	1.36	0.733	1.07	0.933
ED	1.76	0.569	1.58	0.634
SIZE	1.55	0.644	1.20	0.835
LEV	1.02	0.978	1.04	0.964
AGE	1.06	0.944	1.03	0.971
TAX	14.72	0.067	1.57	0.638
M2+	1.42	0.704	2.45	0.408
RQ	13.86	0.072	1.37	0.729

Notes. CGI represents the corporate governance index; ED represents the level of economic development; SIZE epitomizes firm size; AGE signifies firm age; LEV denotes firm leverage; TAX represents tax-to-GDP ratio; M2+ is broad money supply; and RQ represents regulatory quality. VIF denotes the variance inflation factor

In addition to testing for heteroscedasticity, we also employed the Durbin–Watson (DW) test to investigate potential autocorrelation issues within the residuals of the regression models. Autocorrelation occurs when the residuals from one observation are correlated with those from another, violating the assumption of independence and potentially leading to biased coefficient estimates. Table 6 indicates that the DW values for the models fall within the range of approximately 1.5 to 2.5. This range is generally considered acceptable and suggests that there is no significant autocorrelation problem that could affect the results of the regression analysis. The absence of autocorrelation further reinforces the reliability of our model estimates, ensuring that the conclusions drawn from the regression analysis are robust and valid. Overall, the results from both the Breusch–Pagan and Durbin–Watson tests support the integrity of the regression models employed in this study.

Table 6. Model diagnostics

	LMI countries			UMI countries	
	Heteroskedasticity Breusch-Pagan	Autocorrelation test Durbin–Watson		Heteroskedasticity Breusch-Pagan	Autocorrelation test Durbin–Watson
Model 1a	86.48***	2.017	Model 1b	178.70***	2.006
Model 2a	86.27***	2.012	Model 2b	179.12***	2.008
Model 3a	71.43***	0.952	Model 3b	12.29***	1.989

Notes. The triple stars (***) represent significance at 1%, double stars (**) represent significance at 5%, and a single star (*) refers to significance at 10%.

4.3.4. Hausman test for model preference

As detailed in Table 7, we conducted the Hausman test to determine whether to utilize our analysis's panel data with fixed effects or random effects. Specifically, the Hausman test evaluates whether there is a significant correlation between the individual effects and the error term of the model. If the null hypothesis is not rejected, it suggests that the individual effects are random (exogenous) and not correlated with the error term, thereby supporting the use of random effects. Conversely, if the null hypothesis is rejected, it indicates that the individual effects are correlated with the error term, advocating for the use of fixed effects. According to Tarighi et al. (2023), this distinction is important for ensuring the appropriateness of the estimation method. In our analysis, the p-values for the Chi-Square statistics associated with models 1a,b, 2a, and 3a,b were all found to be below the conventional significance threshold of 5%. This result leads us to accept the fixed-effect method for these models. However, the findings for model 2b differed. In this case, the probability value of the Chi-Square statistics exceeded the 5% significance level, indicating that there is no significant correlation between the individual effects and

the error term. As a result, the use of a random-effects technique was deemed more appropriate for this specific model.

4.3.5. Endogeneity test

Many statistical researchers operate under the assumption that explanatory variables are exogenous, meaning they are determined by factors outside the model and not influenced by the dependent variable. In contrast, error terms are often considered endogenous because they arise from the relationships and interactions within the research model itself. This distinction is critical because one of the fundamental assumptions of a regression model posits that there should be no significant correlation between the explanatory variables and the error terms (Tarighi et al., 2022 & 2023). When this assumption is violated and endogeneity bias is present, the reliability of the regression estimates is compromised. Researchers may find themselves unable to trust the outcomes of their models, leading to potentially misleading conclusions (Zimon et al., 2021). One of the most effective methodologies for addressing the issue of endogeneity bias is the application of instrumental variables (IV). This approach has garnered strong support within the field of econometrics as a reliable means of isolating causal relationships by using external instruments that are correlated with endogenous explanatory variables but uncorrelated with error terms (Tarighi et al., 2022 & 2023).

Table 7. Hausman test for model preference and endogeneity test

	LMI countries			UMI countries	
Test	(Fixed-effect vs. Random-effect) Hausman test	Endogeneity test Wu-Hausman test (Ho: variables are exogenous)		(Fixed-effect vs. Random-effect) Hausman test	Endogeneity test Wu-Hausman test (Ho: variables are exogenous)
Model 1a	[$\chi^2(7)$ = 18.76, p-value = 0.009] (FE)	(χ^2= 40.908, p-value = 0.000)	Model 1b	[$\chi^2(7)$ = 17.34, p-value = 0.015] (FE)	(χ^2= 21.106, p-value = 0.000)
Model 2a	[$\chi^2(9)$ = 18.76, p-value = 0.027] (FE)	(χ^2= 39.851, p-value = 0.000)	Model 2b	[$\chi^2(9)$ = 15.88, p-value = 0.069] (RE)	(χ^2= 20.650, p-value = 0.000)
Model 3a	[$\chi^2(9)$ = 18.03, p-value = 0.034] (FE)	(χ^2= 137.486, p-value = 0.000)	Model 3b	[$\chi^2(9)$ = 31.60, p-value = 0.000] (FE)	(χ^2= 62.438, p-value = 0.000)

Source: Authors' work

In our analysis, as shown in Table 7, we conducted the Wu-Hausman test to assess the presence of endogeneity in our models. The null hypothesis for this test posits that the variables are exogenous (Ho: variables are exogenous). Upon examining the results, we found that the p-values for the Chi-Square statistics for all three models were below the 5% significance level. This outcome led us to reject the null hypothesis of homogeneity, indicating that our baseline regression (OLS method) is indeed affected by endogeneity issues. To effectively address these endogeneity challenges, we employed Instrumental Variable (IV) regressions using a two-stage least squares (2SLS) estimation technique for our analysis. The 2SLS method allows us to obtain consistent and unbiased estimates by first predicting the problematic endogenous variables using the instrumental variables and then using these predicted values in the second stage of the regression analysis. This approach not only enhances the robustness of our findings but also increases our confidence in the validity of the research results.

4.4 The effect of corporate governance on firm performance

Table 8 provides comparative results from the regression analysis conducted to investigate the influence of firm governance on business performance across different income categories of countries. For firms located in LMI countries, the results indicate a positive and statistically significant relationship between corporate governance and

business performance, with a coefficient of 0.710 and a p-value of less than 0.005. The positive coefficient implies that as governance practices strengthen—such as enhanced board oversight, better compliance with regulations, and greater transparency—firms in LMI countries experience an increase in their overall performance metrics. In stark contrast, the results for firms in UMI countries reveal a different narrative. The coefficient for firm governance in this group is -3.453, also accompanied by a p-value of less than 0.005. This negative coefficient indicates that contrary to the findings for LMI countries, corporate governance is associated with a decline in business performance among firms in UMI countries. The surprising relationship could be attributed to various interconnected factors, including bureaucratic inefficiencies, misalignment with market needs, resource allocation conflicts, risk aversion, reduced managerial autonomy, cultural mismatches, and challenging economic conditions (Hwang et al., 2024). Future research could explore these hypotheses further, providing deeper insights into how governance practices can be tailored to enhance rather than hinder firm performance in diverse economic contexts.

This result rejects the study's hypothesis 1 (H1), as the study observed that corporate governance positively and significantly affects firm performance in LMI countries but negatively and significantly affects firm performance in UMI countries. These contrasting results highlight the complexities of the relationship between corporate governance and firm performance across different economic contexts, suggesting that the effectiveness of governance practices varies significantly depending on a country's income level and economic environment. The detrimental effect of corporate governance on firm performance in UMI countries can be linked to the challenges these firms face in effectively utilizing their internal resources and capabilities. The resource-based theory suggests that organizations possessing valuable, rare, and hard-to-imitate resources can outperform their competitors. However, the cultural and contextual factors inherent in UMI countries may complicate the dynamics between corporate governance and firm performance. As a result, firms might focus on short-term gains at the expense of long-term sustainability, leading to a suboptimal use of their available resources. The result aligns with a majority of empirical studies that have established a positive relationship between firm governance and corporate performance, thus reinforcing the principles of traditional agency theory (Heo, 2018; Kapil & Mishra, 2019; Khatib, Abdullah, Al Amosh et al., 2022; Osman & Samontaray, 2022; Asiedu & Mensah, 2023; Oyerogba et al., 2024). These studies collectively suggest that effective governance structures contribute to enhanced performance outcomes by mitigating agency problems and fostering accountability among management. Moreover, this finding is further corroborated by Hwang et al. (2024), who posited that firms operating in developing economies often place a strong emphasis on internal governance mechanisms as a means to ensure their operational sustainability. In these contexts, where external regulatory frameworks may be weaker, companies tend to rely more heavily on their internal governance practices to navigate challenges and promote stability. This reliance on robust internal governance leads to improved decision-making processes, better resource allocation, and, ultimately, enhanced performance.

Table 8. Panel regression results on the effect of corporate governance on firm performance

Variables	LMI countries - model 1a				UMI countries - model 1b			
	OLS	IV(2SLS) estimation	Random-effect	Fixed-effect	OLS	IV(2SLS) estimation	Random-effect	Fixed-effect
CGI	0.097***	0.710***	0.027	-0.033	0.014	-3.453***	-0.046	-0.192
	(0.045)	(0.091)	(0.054)	(0.070)	(0.079)	(1.292)	(0.102)	(0.146)
Controls:								
SIZE	0.018***		0.021***	0.031***	-0.014***		-0.011***	-0.006
	(0.002)		(0.004)	(0.008)	(0.003)		(0.003)	(0.005)
LEV	-0.091***	-0.092***				-0.167***		-
	(0.004)	(0.005)	-0.089***	-0.089***	-0.127***	(0.020)	-0.132***	0.141***
			(0.005)	(0.005)	(0.009)		(0.011)	(0.013)
AGE	0.001	-0.001				0.008***		-
	(0.001)	(0.002)	0.003	-0.001	0.001	(0.004)	0.002	0.014***
			(0.003)	(0.001)	(0.001)		(0.003)	(0.004)
TAX	-0.017	-0.041**	0.014	-0.192	-0.438	-0.234	-0.418	0.137
	(0.018)	(0.021)	(0.019)	(0.146)	(0.295)	(0.517)	(0.258)	(0.316)
M2+	-0.017	-0.008			-	-1.463***		-0.170
	(0.023)	(0.025)	-0.018	-0.010	0.982***	(0.632)	-0.982***	(0.381)
			(0.019)	(0.020)	(0.355)		(0.300)	
RQ	0.067	0.078***				-0.167***		-
	(0.032)	(0.035)	0.009	-0.023	-0.027	(0.073)	-0.034	0.286***
			(0.031)	(0.037)	(0.021)		(0.028)	(0.079)
Constant	-0.114***	-0.541***	-0.092*	-0.215***	0.384***	3.617***	0.419***	0.739***
	(0.036)	(0.080)	(0.048)	(0.107)	(0.116)	(1.247)	(0.125)	(0.175)
Firm fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1114	1114	1114	1114	967	75.46	967	967
Number of firms	162	162	162	162	147	147	147	147
R^2	0.257	0.133	0.253	0.224	0.189	0.002	0.187	0.146
F-statistic	54.88			39.05	31.94			19.91
Wald χ^2		327.46	335.95			75.46	169.42	
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Standard errors are presented in parentheses. ROA is the return on assets measuring firm performance; CGI represents the corporate governance index; ED represents the level of economic development; SIZE epitomizes firm size; AGE signifies firm age; LEV denotes firm leverage; TAX represents tax-to-GDP ratio; M2+ is broad money supply; and RQ represents regulatory quality. The instrumental variable is SIZE, 2SLS denotes two-stage least squares. The triple stars (***) represent significance at 1%, double stars (**) represent significance at 5%, and a single star (*) refers to significance at 10%.

4.5 The moderating effect of economic development

Table 9 provides a comparative analysis of how economic development moderates the relationship between corporate governance and company performance in selected lower-middle-income (LMI) and upper-middle-income (UMI) countries within Sub-Saharan Africa.

Table 9. Panel regression results with ED as a moderator

Variables	LMI countries - model 2a				UMI countries - model 2b			
	OLS	IV(2SLS) estimation	Random-effect	Fixed-effect	OLS	IV(2SLS) estimation	Random-effect	Fixed-effect
CGI	0.101***	0.745***	0.029	-0.034	0.021	-3.508***	-0.041	-0.206
	0.046)	(0.098)	(0.054)	(0.070)	0.079)	(1.344)	(0.102)	(0.146)
ED	0.513	4.389	-0.214	-0.487	-3.510*	0.190	-3.878***	-3.658**
	(1.272)	(1.543)	(1.241)	(1.335)	(1.936)	(3.675)	(1.646)	(1.655)
ED as a moderator:								
CGI x ED	-0.241	-4.378***	0.530	0.846	3.756*	-0.395	4.148***	4.044**
	(1.371)	(1.663)	(1.340)	(1.441)	(2.045)	(3.925)	(1.740)	(1.753)
Controls:								
SIZE	0.018***		0.021***	0.031***	-0.014***		-0.010***	-0.004
	(0.002)		(0.004)	(0.008)	(0.003)		(0.003)	(0.005)
LEV	-0.091***	-0.091***	-0.089***	-0.088***	-0.127***	-0.168***	-0.132***	-0.141**
	(0.004)	(0.005)	(0.005)	(0.005)	(0.009)	(0.021)	(0.011)	(0.013)
AGE	0.002	-0.001	0.002	-0.002	0.003	0.008***	0.002	-0.015***
	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)	(0.004)	(0.003)	(0.004)
TAX	-0.023	-0.046***	0.009	-0.201	-0.372	-0.319	-0.363	0.175
	(0.019)	(0.021)	(0.019)	(0.146)	(0.303)	(0.529)	(0.262)	(0.318)
M2+	-0.024	-0.012	-0.026	-0.016	-0.755	-1.806**	-0.740**	0.279
	(0.023)	(0.025)	(0.019)	(0.020)	(0.444)	(0.871)	(0.374)	(0.473)
RQ	0.063*	0.069**	0.005	-0.042	-0.020	-0.173***	-0.022	-0.255***
	(0.032)	(0.035)	(0.031)	(0.037)	(0.022)	(0.079)	(0.029)	(0.080)
Constant	-0.122**	-0.584***	-0.094*	-0.197*	0.344***	3.713***	0.381***	0.718***
	(0.038)	(0.087)	(0.048)	(0.107)	(0.123)	(1.330)	(0.129)	(0.175)
Firm fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1114	1114	1114	1114	967	967	967	967
Number of firms	162	162	162	162	147	147	147	147
R²	0.260	0.130	0.256	0.228	0.192	0.002	0.190	0.153
F-statistic	43.24			31.11	25.26			16.29
Wald χ²		329.55	342.00			75.07	175.67	
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Standard errors are presented in parentheses. ROA is the return on assets measuring firm performance; CGI represents the corporate governance index; ED represents the level of economic development; SIZE epitomizes firm size; AGE signifies firm age; LEV denotes firm leverage; TAX represents tax-to-GDP ratio; M2+ is broad money supply; and RQ represents regulatory quality. The instrumental variable is SIZE, 2SLS denotes two-stage least squares. The triple stars (***) represent significance at 1%, double stars (**) represent significance at 5%, and a single star (*) refers to significance at 10%.

Table 10. Robustness check – alternative measure of firm performance (Tobin Q)

Variables	LMI countries - model 3a				UMI countries - model 3b			
	OLS	IV(2SLS) estimation	Random-effect	Fixed-effect	OLS	IV(2SLS) estimation	Random-effect	Fixed-effect
CGI	0.848***	434.006	0.964***	0.690	2.363***	-65.011***	1.469	-1.278
	(0.422)	(1135.37)	(0.480)	(0.562)	(0.872)	(22.683)	(1.114)	(1.644)
ED	14.254	2620.997	-1.170	-2.129	33.700	104.340*	28.829	22.671
	(11.659)	(6849.557)	(10.242)	(10.682)	(21.254)	(61.995)	(18.446)	(18.594)
ED as a moderator:								
CGI x ED	-12.236	-2794.385	4.824	6.405	-36.401	-115.646*	-30.884	-22.627
	(12.565)	(7310.222)	(1.061)	(1.530)	(22.451)	(66.218)	(19.503)	(19.697)
Controls:								
SIZE	-0.165***	-12.696			-0.274***		-	-0.309***
	(0.027)	(32.949)	-0.254***	-0.438***	(0.034)		0.301***	(0.057)
			(0.039)	(0.066)			(0.042)	
LEV	.0534***		0.602***	0.635***	0.585***	-0.197	0.545***	0.487***
	(0.045)		(0.041)	(0.044)	(0.108)	(0.361)	(0.126)	(0.156)
AGE	0.003**	-0.252	0.002	-0.003	0.006***	0.016***	0.006	-0.029
	(0.001)	(0.673)	(0.00)	(0.015)	(0.002)	(0.007)	(0.003)	(0.048)
TAX	0.211	-15.311	0.111	-0.261	-1.059	-0.040	-1.923	-4.091
	(0.174)	(40.739)	(0.171)	(1.173)	(3.335)	(8.936)	(2.929)	(3.575)
M2+	-0.203	8.044	-0.222	-0.206	-2.737	-22.794	-2.209	1.335
	(0.215)	(22.385)	(0.160)	(0.167)	(4.874)	(14.709)	(4.199)	(5.319)
RQ	-0.740***	3.123	-0.670***	-0.697***	-0.449*	-3.366***	-0.218	0.346
	(0.297)	(13.1433)	(0.256)	(0.302)	(0.241)	(1.342)	(0.316)	(0.903)
Constant	0.880***	-309.745	1.379***	2.849***	1.395	65.696***	2.646*	6.566***
	(0.353)	(814.581)	(0.455)	(0.856)	(1.351)	(22.451)	(1.422)	(1.969)
Firm fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1114	1114	1114	1114	967	967	967	967
Number of firms	162	162	162	162	147	147	147	147
R^2	0.134	0.130	0.128	0.208	0.090	0.003	0.086	0.065
F-statistic	18.98			27.65	10.63			6.26
Wald χ^2		0.18	245.50			12.35	69.27	
p-value	0.000	1.000	0.000	0.000	0.000	0.136	0.000	0.000

Notes: Standard errors are presented in parentheses. Q is the Tobin Q measuring firm performance; CGI represents the corporate governance index; ED represents the level of economic development; SIZE epitomizes firm size; AGE signifies firm age; LEV denotes firm leverage; TAX represents tax-to-GDP ratio; M2+ is broad money supply; and RQ represents regulatory quality. The instrumental variable is SIZE, 2SLS denotes two-stage least squares. The triple stars (***) represent significance at 1%, double stars (**) represent significance at 5%, and a single star (*) refers to significance at 10%.

The research reveals that in LMI nations, the interaction term (CG * ED) is -4.378, with a p-value of less than 0.05, indicating that economic development plays a significant role in shaping the relationship between corporate governance and return on assets (ROA) in these countries. In contrast, firms in UMI countries displayed an interaction term of -0.395, accompanied by a p-value greater than 0.005. This result implies that economic development does not significantly influence the link between corporate governance and ROA in these nations. Consequently, our second hypothesis (H2) is rejected, as the findings indicate a lack of supportive evidence for the idea that economic progress

enhances the effectiveness of governance practices in UMI contexts. These results stand in opposition to prior research conducted by Cornett et al. (2009), Atuahene and Xusheng (2024), and Shin et al. (2023), which suggested that firms operating in stable and economically advanced environments are better equipped to leverage effective governance practices to improve operational efficiency and profitability. Furthermore, the findings challenge the principles of both resource dependency theory and institutional theory, which posit that external economic conditions should enhance firms' abilities to utilize governance structures effectively to optimize performance.

4.6. Robustness check

To assess the robustness of the results presented in Table 9, we conducted additional tests using an alternative measure for firm performance. Following the approaches of Xie et al. (2022) and Tarighi et al. (2023), we employed the Tobin Q variable as our performance metric. Tobin's Q is an economic ratio that compares a company's market value to its book or replacement value. Data for this measure were obtained from the annual reports of the sampled companies. The findings from this analysis differ from those reported in Table 9. The results shown in Table 10 indicate that economic development does not significantly moderate the relationship between corporate governance and firm performance, in either upper-middle-income or lower-middle-income countries. These findings suggest that while economic development may influence the effectiveness of corporate governance in driving accounting-based performance, it does not appear to have the same effect on companies' market value in Sub-Saharan Africa.

5. Conclusion and Recommendations

Assessing the intricate relationship between corporate governance, levels of economic development, and firm performance is becoming increasingly relevant in the Sub-Saharan African (SSA) region. This study emphasizes the need to consider both internal governance structures, external economic factors, and the level of economic development of countries when evaluating firms' performances. Corporate governance is crucial for ensuring the reliability and credibility of financial statements (Filatotchev & Nakajima, 2014; Boachie & Mensah, 2022). Consequently, this research aims to determine whether the governance-performance relationship differs between companies operating in upper-middle-income countries (such as Botswana & South Africa) and those in lower-middle-income countries (like Ghana, Kenya, & Nigeria) within the SSA region. In the SSA region, no prior study has compared the relationship between corporate governance and firm performance based on the economic development levels of countries, therefore necessitating a study of this kind. For this investigation, 309 firms were sampled over seven years, from 2016 to 2022. We utilized the Instrumental Variable (IV) approach employing a two-stage least squares (2SLS) estimation technique to analyze the results.

Our findings revealed that firms in UMI countries demonstrated significantly higher performance compared to those in LMI countries during the study period. Additionally, corporate governance practices in UMI countries were found to be slightly more effective than those in LMI countries. Conspicuously, our study indicated that corporate governance has a positive and significant impact on firm performance in LMI countries, whereas it has a negative and significant effect in UMI countries. Furthermore, the research highlighted that in LMI nations, the level of economic development plays a crucial role in influencing the relationship between corporate governance and firm performance, while it does not significantly affect this relationship in UMI countries. Several potential reasons could be identified for this phenomenon. First, the negative GDP per capita growth rate observed in the UMI countries during certain years of the study period may significantly contribute to these intriguing results. This decline in economic performance can have various implications, such as reduced consumer spending, lower business investment, and overall economic uncertainty, which can adversely affect firm

performance and corporate governance practices. Second, the aggregation of data may also play a role in explaining this outcome. In this study, LMI countries have a larger dataset compared to UMI countries. This disparity in data availability could skew the findings, as the greater volume of information from LMI countries might overshadow the performance and governance insights from UMI countries. Consequently, the differences in data representation can impact the overall analysis, potentially leading to conclusions that are more reflective of the LMI context than that of the UMI countries. Thirdly, the governance frameworks in UMI countries may be more developed, yet they might not be effectively aligned with the specific needs of firms operating within these countries. According to resource dependency theory, organizations depend on resources from their environment to achieve their goals. In UMI countries, firms may be navigating a complex web of relationships with government agencies, stakeholders, and market forces that complicate the straightforward influence of governance on performance. Moreover, the economic factors in UMI countries might introduce unique challenges that overshadow the benefits of sound corporate governance. For instance, firms may face higher levels of market volatility, regulatory uncertainties, or socio-political risks, which could undermine the positive effects of governance practices. In such scenarios, the focus may shift from governance to survival strategies, where firms prioritize short-term gains over long-term governance improvements. In contrast, in LMI countries, the relative novelty and ongoing development of governance systems may create a more direct link between governance and performance. In this instance, firms may still be in the process of implementing best practices and aligning governance structures with performance objectives. As a result, effective governance can serve as a vital resource that drives performance improvements, supported by the economic development that enhances organizational capabilities and market access.

The conclusions drawn from this study are noteworthy in several aspects. First of all, the findings lend support to agency theory, as effective governance practices, such as the presence of independent boards and stringent reporting standards, can address agency issues by ensuring that the objectives of management align with those of shareholders. This alignment has the potential to enhance firm performance, particularly in struggling economies. Furthermore, the study emphasizes the importance of institutional theory and resource dependence theory, emphasizing the crucial impact of external resources and relationships on organizational behavior and performance. Consequently, this research enhances our understanding of the relationship between corporate governance and corporate performance in SSA economies characterized by limited investor protection and concentrated ownership among a small group of major shareholders. Moreover, the results from this study also provide helpful hints for policymakers regarding economic development issues. While it is reported that corporate governance plays a positive role in firm performance, particularly in LMI countries compared to UMI countries, these insights should guide government and regulatory bodies in LMI and UMI countries to consider developing governance frameworks that are specifically tailored to the unique economic and cultural contexts of these nations. Also, policymakers in UMI countries should re-evaluate existing governance structures in these countries and consider reforms that reduce bureaucratic burdens on firms while maintaining essential oversight responsibility over firms' operations. They should also put in place measures that will enable firms to respond to future economic shocks. Furthermore, the managers of Securities and Exchange Commissions and Stock Exchanges in Sub-Saharan African (SSA) countries have a critical role to play in enhancing the integrity of corporate reporting. They must prioritize the strict enforcement of corporate reporting standards to ensure that companies provide accurate, timely, and transparent data. This commitment to rigorous reporting is essential for researchers, policymakers, and investors who seek to understand the dynamics of corporate governance and firm performance in the region.

Despite the above-mentioned contributions, this research inevitably has limitations. Unlike developed economies, the Sub-Saharan African (SSA) region lacks a formal,

comprehensive database on corporate governance practices. Due to the limited availability of extensive and dependable data on various firm governance indices, the current study relied on the corporate governance information disclosed in publicly available annual reports to create its governance index. This method may not fully capture the complexities and details of governance practices and economic development indicators in the region. Studies indicate that other methods exist that can measure corporate governance efficiently and give more precise results. Using other more efficient econometric or statistical methods to measure corporate governance and firm performance may produce better results and can be an avenue for future research. Second, the proxy for the level of economic development used in this research can be problematic in other scenarios. This limits the scope of the conclusions as well as the power of the robust checks. Accordingly, future research may utilize different measures of economic development to provide a better picture. Furthermore, it is important to acknowledge that the findings of this research are specific to the selected Anglophone SSA countries and may not apply to Francophone nations or other developing regions, so the findings of this study should be replicated or validated in other settings to establish the robustness and broader applicability of the observed relationships among corporate governance, economic development, and firm performance.

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