Evidence on the impact of corporate governance on bank performance from deposit money banks in Sub-Saharan Africa

International Journal of Business Sustainability

Volume: 1,
Issue: 1, 2025

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Abstract

Purpose: The purpose of this study is to investigate how corporate governance traits affect the financial performance of banks in the sub-Saharan African region from 2008 to 2022.
Design/methodology/approach: The performance of a few chosen banks in Sub-Saharan Africa is examined in relation to corporate governance using static panel regression analysis. The following variables were used to present corporate governance in the study: board size (BDS), board gender diversity (BGD), board independence (BDI), number of audit committee meetings (NAM), and number of foreign members on the board (SFM). Return on assets (ROA) was employed as the dependent variable. Fixed effect (FE), random effect (RE), and common effect (CE) estimators were used with static panel data. The model estimate procedure is based on the 'Log-Lin' specification. The estimation includes eleven models, ten of which relate to the individual country and one that captures the SSA countries used in this study.
Findings: The FE effect estimator seems to be more efficient than the RE estimator overall, according to the all-country specification. In assessing the study's goal, the fixed effect estimator is thus selected. Regarding the country, the RE estimator worked well for Ghana and Kenya. The selected banks in Ghana and Kenya have distinct organisational cultures and management philosophies. Conversely, for the other selected countries, the common effect (CE) or pooled OLS estimator appears to be useful, suggesting that the selected banks in those countries have similar organisational principles as those listed in the appendix section. Consequently, the selected estimators for every country were used to evaluate the connection between financial success and corporate governance.
Originality/value: Corporate governance and bank performance topics are well grounded in literature with evidence from developed countries. However, there is a darth in developing countries particularly in the sub-Saharan African region. This study presents multi-country empirical evidence within the SSAs which gives the study more samples, this study makes use of balance data from 2008 to 2022 being the latest data coverage from SSA, and no prior research has examined the impact of corporate governance mechanisms on bank performance in the SSA region through the use of multi-country samples.
Keywords: Bank performance, corporate governance, sub-Saharan African (SSA), gender diversity, foreign member of the board, multi-country

Received: 11 May 2025
Revised: 26 June 2025
Accepted: 11 June 2025
Published: 31 July 2025

Introduction

Because of banks' unique characteristics and significant impact on the national economy, corporate governance issues in the banking sector need to be closely monitored (El-Mokdad 2022). According to Kyei (2022), the success and survival of institutions depend on good corporate governance, and banks that have more sophisticated corporate governance frameworks and processes are more effective at distributing their resources (Osamor et al.,

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

2019). Furthermore, Crowther and Seifi (2016) contend that the cost of financial intermediation is impacted by the effective application of corporate governance practises in addition to bank performance. According to Fu et al. (2018), a strong corporate governance framework also improves public accountability, adds value, reduces risk exposure, increases efficiency, and guarantees returns to investors by lowering related investment risks and improving the performance of businesses (Shleifer & Vishny, 1997). According to Kyei (2022), effective corporate governance is critical for a number of reasons, including improved and more seamless bank operations, lower funding costs, decreased risk exposure related to the likelihood of related party transactions within the banks, and an impact on bank performance.

There is currently no agreement on the precise impact of corporate governance variables, particularly concerning the bank board. The literature on the relationship between corporate governance mechanisms and the performance of the bank is more prevalent in developed countries than developing ones, particularly in the sub-Saharan African region. Research conducted across a variety of industries, sample sizes, proxy corporate governance methods, and periods has shown that there are significant differences in the correlation between bank performance and attributes such as audit committee composition, gender diversity, independence, and size of the board as well as the presence of foreign directors. Therefore, it is crucial to research corporate governance and bank performance in the SSA region to pinpoint the primary concerns with corporate governance and regulatory quality in African banks. This will enable the regulatory bodies to determine the best course of action to address these issues and enhance the performance of these banks. This reality poses a concern about how corporate governance might influence the performance of banks in such a collection of nations. Furthermore, the best corporate governance structure to enhance bank performance in this particular area is still unclear. Stated differently, can the data indicate the board size that will be sufficient for better bank performance? Can the data provide us with the level of board independence that will be sufficient for better bank performance? Can data tell us the number of female members needed to be on the for a better bank performance? Can data provide us with the number of audit committee meetings that will result in better operational performance of banks? Can data tell us how many foreign board members that is needed on the board to have a better bank performance? This fact continues to be a driving force behind additional research that aims to contribute to this ongoing debate.

Corporate governance continues to be a major factor in determining the success of African banks. The academic work on these topics in Africa has a lot of gaps. First off, as far as the researcher is aware, there isn't much research on corporate governance and bank performance in Africa. Few studies have examined banks' corporate governance (e.g., Berger et al. (2005); Spong and Sullivan (2007); Grove et al. (2011); Macey and O'Hara (2016); Ayadi et al. (2019); Aslam and Haron (2021); López-Penabad et al. (2023)). Africa received relatively little attention in this research, which mostly concentrated on developed and Asian nations (Aebi et al., 2012). Thus, research on corporate governance, bank performance, and governance at the country level is necessary in Africa.

While a number of studies have examined the precise relationship between corporate governance and bank performance in the SSA region (e.g., Kyei (2019)) used 48 countries in an attempt to view Africa as a unified entity; however, the study failed to consider the peculiarities (cultural background, bank regulations, judicial and legal system, population, and security system) of the countries selected for the study; all of these peculiarities are capable of posing different stances, and as such, such findings may lack the generalising capacity to present the true and fair view of African emergence, also the sample used in their study comprises of quoted and unquoted banks with unbalanced financial information, these studies contain some flaws that can be summed up as follows. First, it may not be possible to extrapolate the results of those studies to the entire SSA region because the vast majority of them only focus on a single country, which will reduce the study's sample size. Second, utilising unbalanced datasets, the studies that are available end with 2018 data, and we are now in 2025. To date,

no prior research has examined the impact of corporate governance mechanisms on bank performance in the SSA region through the use of multi-country samples. Consequently, there is currently a lack of conclusive empirical evidence regarding the potential influence of corporate governance variables on bank performance both overall and among individual countries. To the best knowledge of the researcher, this study is the first country-to-country investigation in SSA to provide findings of the association involving corporate governance and bank performance in SSA. Therefore, by using multi-country samples and balanced data, the study provides valuable insights into this underexplored area of research in the SSA region when compared to the study done in the MENA region by El-Mokdad (2022) using data that ends in 2018 and Kyei (2019) using datasets that ends in 2016 and are these data are unbalanced. Third, this analysis sheds new light on the link between CG and BP in the SSA, utilising data from 2008 to 2022 that include the most recent information available from SSA on board elements of CG and BP. As a result, this study provides new information on how board aspects of corporate governance in African banks contribute to lower or higher bank performance.

By examining the relationship between SSA banks' performance and corporate governance practices, this research seeks to close the aforementioned gaps. This is accomplished by using a panel data structure with sixty banks chosen from ten sub-Saharan African nations that are members of the African Central Bank Association and the African Corporate Governance Network. By doing this, the chosen nations will share a common ideology and organisational framework for the fifteen years between 2008 and 2022. The paper makes use of five different variables of corporate governance.

The remainder of this paper is organised as follows. The pertinent literature is discussed in the next section. Subsequently, the variables that were used and the empirical technique are described. Next, the dataset is displayed as empirical findings and their explanations. The paper ends with a conclusion and contributions of the study.

Literature Review

An overview of relevant research that has shown how corporate governance affects bank performance is provided in this section. There will be two sections to the literature review: the first will present and discuss the results of earlier research on industrialised countries, and the second will present and discuss research on emerging markets, including the SSA region. The reason for this is that the corporate governance frameworks and codes of conduct of the two sets of nations differ, and as a result, there may be variations in the effects of corporate governance factors on the effectiveness and performance of banks.

Research concerning the developed world

In the analysis of the paper titled "Effects of corporate governance on financial innovation and performance in Taiwan's banking industry," Wang and Cao (2022) covered the years 2011 through 2019. According to the research, banks that offer more innovative banking goods and services are those that have a larger proportion of independent directors, a higher average education level, additional institutional investors, and experience in finance or accounting. Grove et al. (2011) used the US commercial banks to study corporate governance and performance during financial crises. To account for bank size and growth potential, the authors used a sample of 236 publicly traded commercial banks. An inverse link is shown between CEO dualism and bank performance when using a multiple regression model to investigate the effects of corporate governance parameters on financial performance. The findings validate that the presence of CEO duality is detrimental to the success of the company and indicates a weakness in corporate governance.

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

Corporate governance, business performance, and financial leverage were examined by Kijkasiwat et al. (2022) for both developed and emerging nations. The research analyses the linkages using a two-stage dynamic panel and a generalised method of moments (GMM). In both developed and emerging nations, the findings indicated that financial leverage mediates the relationship between corporate governance and company success.

Analysis was done on the cumulative impact of inside and outside governance measures on European banks before and following the economic downturn of 2007/2008 (Ayadi et al., 2019). In particular, from 2004 to 2009, they took advantage of a sample of thirty banks that were active in Finland, Germany, Belgium, and France. The findings reported that ROE and ROA are negatively impacted by board size (albeit only significantly for ROA), implying that a larger board is associated with lower financial performance. Second, the data indicated a negative and statistically significant correlation between the proportion of outside directorship and ROE and ROA, indicating that a larger outside director percentage is linked to lower bank performance. The authors found a small but favourable impact on performance from the existence of committee rewards. In conclusion, the authors demonstrated how a role duality improves banks' financial performance significantly.

Through the use of six distinct techniques, such as return on average equity (ROAE), return on average assets (ROAAs), and Tobin's Q ratio, Pathan and Faff (2013) investigated whether the gender, size, and independence of a bank's board have any bearing on the performance of the bank (Q). US bank holding companies (BHC) from 1997 to 2011 are the panel used in the study. Results demonstrate that having female directors on board had a positive impact on bank performance before the Sarbanes-Oxley Act (SOX) period (1997–2002), albeit this benefit of gender diversity on bank performance declined in the post–SOX era. The study used a sample of the top 212 BHCs in the US (2003-2006). In addition, García-Meca et al. (2015) examined how 159 banks in nine different countries between 2004 and 2010 performed concerning the impact of board diversity. According to the findings, gender diversity improves bank performance by having a beneficial impact on it.

The study of Wang et al. (2012) investigated the connection between the corporate governance and operating performance of 68 bank holding companies (BHCs) in the United States in 2007. The authors quantified the performance of the BHCs, summarised by technical efficiency, by integrating the five CAMEL rating indicators using a modified data envelopment approach. The CEO-chairman duality, outside directors, and board size all have a negative and significant effect on BHC's technical efficiency, according to their empirical findings.

Research about the developing and growing nations

Following a discussion of research conducted on established markets, this section will address studies conducted on developing countries, particularly the SSA countries and other rising economies. That examined the relationship between corporate governance and bank performance. Research on corporate governance is still scarce in developing nations and emerging economies (El-Mokdad, 2022). According to the authors, institutional environment structures and a nation's overall level of development have a major role in determining corporate governance difficulties. The study went on to say that although emerging and developing nations have recognised the general significance of corporate governance, there is still a lack of knowledge regarding some specific issues, primarily those on the interaction between corporate governance and stakeholders' roles, performance and governance mechanisms, and enforcement and related changes to the industry. Agénor and Pereira da Silva (2012) listed some flaws that characterise less developed nations, including (1) undeveloped capital markets; (2) little bank competition; (3) more severe information asymmetry issues; (4) government's direct or indirect involvement in the banking industry; (5)

weak property rights and ineffective legal systems. This could lead to inferior governance procedures and structures.

In the Vietnamese banking sector, Nguyen et al. (2022) examined bank performance and corporate governance. They discovered that the size of the board, the presence of a major shareholder, and the CEO duality had a statistically significant impact on the bank's operating efficiency ratio (OER) and return on assets (ROA). The existence of foreign investors or institutional shareholders had little effect on Vietnam's banking industry. Following Saudi corporate governance regulations, Habtoor (2022) assessed board characteristics and bank performance. The study found that a variety of research findings indicate that board attributes, including board size, significantly improve operational bank performance (ROA).

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A two-stage dynamic panel and a generalised method of moments (GMM) are used to evaluate the links between corporate governance, company performance, and financial leverage for both developed and emerging economies in the Kijkasiwat et al. (2022) study. The findings demonstrated that, in both developed and emerging economies, financial leverage mediates the relationship between corporate governance and company success. Another study of 293 banks listed on the Indonesian stock exchange market found that having an independent board of directors improves bank performance (Handriani & Robiyanto, 2019).

According to Okoyeuzu et al. (2021), board independence is a poor predictor of bank performance in Nigeria when employing a system-generalized linear model (GMM). The impact of board gender diversity on bank efficiency is examined by Adeabah et al. (2019) using a sample of 21 banks that were active in Ghana between 2009 and 2017. The authors calculated bank efficiency using a data envelopment technique, and the results showed that gender diversity increases bank efficiency. A positive and statistically significant association was seen between board size and efficiency up to a maximum of nine members, indicating a threshold influence of board size on bank efficiency. Thirdly, they demonstrated that a bank's efficiency decreases with an increased proportion of independent directors.

Examining how boards of directors and risk management-related corporate governance processes are related to bank performance, Battaglia and Gallo (2015) used a sample of 15 Chinese and 21 Indian listed banks (commercial, cooperative, and bank holdings firms) for the years 2007-2011. Generally speaking, they discovered no meaningful correlation between board size and ROE or ROA (though it is positive for ROE and negative for ROA). Furthermore, their empirical findings demonstrated that ROE and ROA deteriorate with an increased proportion of outside directors. Lastly, they demonstrated that both performance indicators are positively and significantly impacted by the size of the risk committee, indicating that banks with larger risk committees have higher profitability. Additionally, from an Indian viewpoint, Bezawada and Adavelli (2020) used a sample of 34 commercial banks between 2009 and 2018 to investigate the effects of board characteristics on bank profitability (measured by ROA). They found that board independence and size have a positive and significant impact on ROA. A considerable negative correlation existed between the percentage of executive directors and the ROA. The authors contended that these findings validate the existence of a trade-off between Indian bank boards' advisory and monitoring responsibilities.

The fundamental ideas identified in the literature about corporate governance and bank performance

The following was discovered following the extensive and in-depth examination and discussion of the pertinent literature in the overall evaluation of the literature on corporate governance and bank performance. A favourable correlation has been observed between board size and bank performance in most of the listed studies, including Hassan and Marimuthu (2018), Habtoor (2022), Augustia et al. (2022), Kijkasiwat et al. (2022), and Nguyen and Huynh (2023). A negative correlation has been discovered between the number of independent directors and

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

bank performance by most of the mentioned studies, including Adeabahet al. (2019), Okoyeuzu et al. (2021), and Ayadi et al. (2019). The impact of gender diversity on the board: nearly all of the listed studies (Marquez-Cardenas et al., 2022; Brahma et al., 2021; Yilmaz et al., 2022; Zhang 2020); (Adeabahet al., 2019; Garciaet al. 2015) have found a positive correlation between board gender diversity and the performance and efficiency of banks.

Study after study, there is a favourable correlation between the number of audit committee meetings and bank performance. These studies include Nguyen and Nuynh (2023), Fariha et al. (2022), Nguyen (2020), Baiden (2020), Mawar (2023), Klein (2002), Okolie and Ogbaragu (2022), and Al-Jalahma (2022). Also, a test will be conducted to see how a foreign member of the board affects the performance of the bank. Research conducted by Berhe (2023), Okere et al. (2019), and Zakari et al. (2022) revealed a positive correlation between the performance of banks and the participation of foreign board members.

Hypotheses development

There are some differences between the results of the literature mentioned above, but overall, the results of most of the research that were covered allow for the development of many hypotheses. This has led to the development of the following theories.

Hypothesis 1: Bank performance is negatively impacted by board size.

Hypothesis 2: Bank performance is negatively impacted by the number of independent board members.

Hypothesis 3: Bank performance is positively impacted by the gender diversity of the board.

Hypothesis 4: Bank performance is positively impacted by the number of audit committee meetings.

Hypothesis 5: Bank performance is positively impacted by the number of foreign directors on the board.

Methodology and Variables Specifications

To investigate how corporate governance affects the performance of certain banks in Sub-Saharan Africa, the study used static panel regression analysis. Static panel estimators are used for short panels with a larger number of cross-sections (Hoyos & Sarafidis, 2006). Pooled ordinary least squares (POLS), random effect (RE), and fixed effect (FE) methods are used. The choice of estimator depends on specific statistical tests, such as the cross-section F-test, which compares the common effect (POLS) and fixed effect models. The pooled OLS estimator is suitable if the F-statistic is insignificant, indicating a common effect or homogeneity. The test is based on the following hypotheses:

H_0: Pooled OLS estimator is appropriate

H_1: Fixed effects estimator is appropriate

The pooled OLS estimator appears to be suitable if the cross-section F-statistic is insignificant, which implies evidence of common effect or homogeneity among the cross-sections (Greene, 2008). However, the significant test result suggests the presence of (individual-specific effects) heterogeneity among the cross-sections.

Meanwhile, if the cross-section F-test favours the FE estimator, then, a choice would be made between FE and RE estimators using the Hausman test. Thus, the Hausman test is based on the hypotheses:

H_0: Random effects estimator is appropriate

H_1: Fixed effects estimator is appropriate

The 60 cross-section units are combined in the fixed effect model (FEM), which permits each cross-sectional unit (banks) to have a unique intercept (fixed effect). As a result, each cross-sectional unit is represented by a dummy variable (Greene, 2008). The different intercepts distinguish one cross-sectional entity from another. The different intercepts may be due to certain features intrinsic to each of the selected banks, such as institutional differences, sizes and management philosophy among others.

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It is expected that the chosen bank (cross-sectional units) has a common mean value for the intercept in the random effects model (REM). However, the individual differences in the intercept value of the banks are reflected in individual-specific error terms (Hoyos & Sarafidis, 2006). In other words, FEM and REM allow heterogeneity in selected cross-sectional entities.

Meanwhile, having 60 (*N*) selected banks from 10 selected countries, the model estimations involve overall cross-sectional (banks-wise) and country-wise. The overall bank-wise reveals a single estimation result for all the banks across the selected countries. The foregoing suggests that the selected countries are considered as a single entity. However, to provide robust assessments of the corporate governance-bank performance nexus, country-wise model estimations were conducted. In other words, model estimation for each of the countries provides an avenue for comparisons among the countries. Thus, considering the foregoing, a total number of 11 model estimations is provided given the size (*n*, *T*) of each country, *i.e.*, the number of country (*n*) for country and time points (*T*). Additionally, the "Log-Lin" specifications provide the basis for the model estimate technique since the policy variables could not be recorded with zero values. Therefore, the coefficients derived in the case of the "Log-Lin" specification are written as semi-elasticities multiplied by 100 (Gujarati & Dawn, 2009). By reflecting the logarithmic translation of the data, the model's coefficients represent the percentage change in the dependent variable for each unit change in the independent variable. A more comprehensible percentage format is used to depict the semi-elasticities after multiplying by 100. Linearising the correlations between variables and enhancing the objectivity and dependability of the model's estimations require the use of the log transformation. This approach allows for a clearer interpretation of the effects of independent variables on the dependent variable.

To verify the validity of the panel regression estimates, post-estimation tests were performed, such as the cross-sectional dependence test and the normalcy test. To find out if there is any correlation between the cross – section entities (banks), the cross-sectional dependence (CD) test was used (interdependent or cross-sectionally dependent). Nonetheless, it is preferable to reject the null hypothesis that there is no cross-sectional dependence (That is, the presence of cross-sectional independence is required to have efficient estimates and valid test statistics). Since $T<N$, Pesaran's CD test will be applied for the cross-sectional dependence (Hoyos & Sarafidis, 2006).

Definitions and Measurement of Variables

Fundamentally, the analysis of the first objective involves corporate governance measures and bank performance. The bank performance as the dependent variable will be measured using return on assets. The explanatory variables include the selected corporate governance measures (see Table 1). The selected are corporate governance measures board size, board gender diversity, number of board independence, number of audit committee meetings and the size of foreign board members. Besides, it is necessary to introduce a control variable in the study. Thus, the study employs the firm size, exchange rate, and gross domestic product as the control variables.



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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

Table 1. Variable Description Summary

Dependent Variable	Proxy/Measure	Definition	Sources
Bank Performance	Return on assets (*ROA*)	Measures the relative profitability of a consumer goods firm based on total assets. $ROA_{i,t} = \frac{Net\ Operatng\ income}{Total\ Assets}$	Wang et al. (2024), Sarkar and Selarka (2021), Brahma et al. (2021)
Corporate Governance	**(a)** Board size (BDS)	The total number of board members (director).	Mokhtar (2022), Zalelem et al. (2022), Chrisman (2019)
	(b) Board gender diversity (*BGD*)	Board gender diversity is concerned with women's representation on boards of directors.	Wang et al. (2024), Brahma et al. (2021), Garanina and Muravyer (2021).
	(c) Board independence (BDI)	A sizable number of directors that are not participatory in the operations of the organisations	Nguyen (2023), Habtoor (2022), El-Chaarani et al. (2022)
	(d) Number of audit committees' meetings (*NAM*)	The number of audit committee meetings held in a year.	Mawardi et al. (2023), Nguyen (2023), Baiden (2020), Bazhair (2022).
	(e) Size of foreign members (*SFM*)	The number of foreign directors as board members.	Berhe (2023), Kirimi at al. (2023)
Firm size (*FSZ*)	Log of total assets	Total assets include both current and non-current assets.	Yahaya, Shagari and Mohammed (2022), Abu-Serdaneh (2018), Dogan (2013)
Exchange rate (*EXR*)		Measure the units of a home currency to one US Dollar.	Agyei et al. (2022)
Growth (*GRWTH*)	Growth of Revenue	Measures the periodic proportionate changes in the earnings capacity of a firm.	Mensah and Onumah (2022),
GDP		The market value of the output of the activity sector of a country in a given fiscal year.	Yahaya, Shagari and Mohammed (2022), Ahmed and Anifowose (2023), Asare et al. (2023)

Source: Researcher's compilation

To be consistent with other studies (Assenga, 2021; Muhammad et al., 2022; Kyei et al., 2022; Mensah & Onumah, 2023; Yilmaz, 2021; Grove et al., 2011), ROA is used to measure the bank performance in this study as is the most widely and conveniently used performance measurement in the banking sector (Grove et al., 2011; Vintila & Gherghina, 2012). ROA is an accounting-based measure of performance that is well-established in the literature (e.g., Wang et al., 2024; Sarkar & Selarka, 2021; Brahma et al., 2021; Gafoor et al., 2018; Kyei et al., 2022; Ntim & Osei, 2011)), which indicates how bank increases their income by using resources of the independent corporate governance variables for this are board characteristics which are the number of audit committee meetings (NAM_{it}), which is the number of meetings the audit committee of the bank I at time t. This is also in consonance with extant literature Mawardi et al. (2023), Nguyen (2023), baiden (2020), and Bazhair (2022). Board size (BDS_{it}), which is the total number of board directors as seen by Mokhtar (2022), Zalelem et al. (2022), and Chrisman (2019). Board gender diversity (BGD_{it}), Board gender diversity is concerned with women's representation on boards of directors Wang et al. (2024), Brahma et al. (2021), Garanina and Muravyer (2021). Board Independence (BDI_{it}), which is a sizable number of

directors that are not participatory in the operations of the organisations Nguyen (2023), Habtoor (2022), El-Chaarani et al. (2022). Size of the foreign board member on the board (SFM_{it}), is the number of foreign directors as board members Berhe (2023), Kirimi et al. (2023).

In this study, several controls were put in place to control for both firm-specific and macroeconomic factors. First, these variables are variables that are significant at both 1% and 5% levels of significance to the dependent variable (ROA), also they are well established in the literature that concerns corporate governance and bank performance. These are firm sizes ($\mathrm{FSZ_{it}}$), exchange rate ($\mathrm{EXR_{it}}$), growth rate ($\mathrm{GRWTH_{it}}$), and gross domestic product ($\mathrm{GDP_{it}}$). **Error! Reference source not found.** provides a summary of the description of the variables.

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Model Specifications

The study's goal is to determine the response variable, which is the bank's performance as measured by return on assets (ROA). Corporate governance metrics, on the other hand, comprise the explanatory factors (such as board size, gender diversity, independence, frequency of meetings of the audit committee, and proportion of foreign board members). The implicit or functional forms of the model are expressed as follows in light of the aforementioned:

$$lnROA_{it} = f(BDS_{it},\ BGD_{it}, BDI_{it}, NAM_{it}, SFM_{it}, FSZ_{it}, EXR_{it}, GRWTH_{it}, GDP_{it}) \quad (1)$$

Specification for Pooled OLS Model (FEM)

Every cross-section is taken into account by the pooled OLS model. Consequently, the model aggregates the observations of all the chosen banks since it is predicated on the supposition that there are no differences among the chosen banks. To clarify, it is assumed that the chosen banks are similar in terms of their institutional or management framework because they are homogenous. For equation (1), the pooled OLS (common effect) model can be defined as:

$$\ln(ROA_{it}) = \beta_1 + \beta_2 BDS_{it} + \beta_3 BGD_{it} + \beta_4 BDI_{it} + \beta_5 NAM_{it} + \beta_6 SFM_{it} + \beta_7 FSZ_{it} + \beta_8 EXR_{it} + \beta_9 GRWTH_{it} + \beta_{10} GDP_{it} + \mu_{it} \quad (2)$$

In general, the common effect model states that the chosen banks' regression coefficients are the same.

Specification for Fixed Effects Model (FEM)

With the fixed effect regression model (FEM), every cross-sectional unit entity can have its intercept by designating a dummy variable for each bank (fixed effect). The different intercepts display the heterogeneous aspects of the cross-sectional entity, which may be attributed to differentiating factors like size, management styles, and institutional discrepancies, among others. By contrast, the term "fixed effect" implies that, despite the different intercepts among the selected institutions, the intercept for each bank stays the same throughout time.

In light of equation (1), the panel data regression model can be written as follows:

$$\ln(ROA_{it}) = \beta_{1i} + \beta_2 BDS_{it} + \beta_3 BGD_{it} + \beta_4 BDI_{it} + \beta_5 NAM_{it} + \beta_6 SFM_{it} + \beta_7 FSZ_{it} + \beta_8 EXR_{it} + \beta_9 GRWTH_{it} + \beta_{10} GDP_{it} + \mu_{it} \quad (3)$$

The intercepts of the sixty chosen banks appear to differ, as indicated by the subscript I on the intercept term, β_1. Equation (3) can be changed as follows by applying the dummy variable technique to permit the fixed effect intercepts to differ between the banks:

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

$$\ln(ROA_{it}) = \alpha_1 D_{1t} + \alpha_2 D_{2t} + \cdots + \alpha_6 D_{60t} + \beta_2 BDS_{it} + \beta_3 BGD_{it} + \beta_4 BDI_{it} + \beta_5 NAM_{it} + \beta_6 SFM_{it} + \beta_7 FSZ_{it} + \beta_8 EXR_{it} + \beta_9 GRWTH_{it} + \beta_{10} GDP_{it} + \mu_{it} \quad (4)$$

Equation (4) can be summarised as follows:

$$\ln(ROA_{it}) = \sum_{i=1}^{60} \alpha_i D_{it} + \beta_2 BDS_{it} + \beta_3 BGD_{it} + \beta_4 BDI_{it} + \beta_5 NAM_{it} + \beta_6 SFM_{it} + \beta_7 FSZ_{it} + \beta_8 EXR_{it} + \beta_9 GRWTH_{it} + \beta_{10} GDP_{it} + \mu_{it} \quad (5)$$

By employing dummy variables, the regression model's intercept in the FEM is permitted to vary throughout the chosen banks. The meaning of the dummy variable is

$$D_{it} = \begin{cases} 1, & for\ bank\ i \\ 0, & for\ other\ banks \end{cases}$$

To clarify, the dummy variable takes the value of 1 for a certain entity (bank) and zero (0) for all other entities.

Specification for Random Effects Model (REM)

The error component model (ECM), also known as the random effect model (REM), is expressed as follows:

$$\ln(ROA_{it}) = \beta_1 + \beta_2 BDS_{it} + \beta_3 BGD_{it} + \beta_4 BDI_{it} + \beta_5 NAM_{it} + \beta_6 SFM_{it} + \beta_7 FSZ_{it} + \beta_8 EXR_{it} + \beta_9 GRWTH_{it} + \beta_{10} GDP_{it} + \varepsilon_i + \mu_{it} \quad (6)$$

The intercept value in the random effects model is represented as follows for an entity (bank):

$$\beta_{1i} = \beta_1 + \varepsilon_i \quad (7)$$

There appears to be a consistent mean value for the intercept (i.e., $\boldsymbol{\beta_1}$) among the cross-sectional entities (banks) according to equations (6) and (7). The intercept value of each entity varies, and these variations are represented in the error term, $\boldsymbol{\varepsilon_i}$. The composite error term can be expressed as, $\varepsilon_i + \mu_{it}$. The cross-sectional or bank-specific error component is denoted by the term $\boldsymbol{\varepsilon_i}$, whereas the combination of time series and cross-section components is known as an idiosyncratic term. The expression for equation (5) can be reformulated as follows:

$$\ln(ROA_{it}) = \beta_1 + \beta_2 BDS_{it} + \beta_3 BGD_{it} + \beta_4 BDI_{it} + \beta_5 NAM_{it} + \beta_6 SFM_{it} + \beta_7 FSZ_{it} + \beta_8 EXR_{it} + \beta_9 GRWTH_{it} + \beta_{10} GDP_{it} + v_{it} \quad (8)$$

Where:

$$v_{it} = \varepsilon_i + \mu_{it} \quad (9)$$

As a result, the composite error term (v_{it}) incorporates the variations in the entities' shared mean intercept (β_1).

β_2 - β_8 = partial regression coefficient

Results

This section presents the empirical analysis, results, and discussion of the findings of the study. It includes descriptive analysis, panel data estimation and discussion of findings.

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Descriptive Analysis

This section presents the data for the study in the form of descriptive or summary statistics of the variables being examined in the study such as return on asset (*ROA*), board size (*BDS*), board gender diversity (*BGD*), board independence (*BDI*), number of audit committee meeting per year (*NAM*), size of foreign members on board (*SFM*), country-level governance (*COG*), firm size (*FSZ*), exchange rate (*EXR*), firm growth (*GRWTH*) and gross domestic product (*GDP*). The detail of the descriptive statistics is exhibited in Table 2.

Table 2. Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Skew.	Kurt.
BDS	900	10.743	3.237	1	25	0.819	3.833
BGD	900	2.310	1.282	0	8	0.870	4.199
BDI	900	4.703	2.831	1	15	0.729	3.142
NAM	900	4.481	2.309	0	36	2.952	41.413
SFM	900	2.216	1.847	0	12	2.202	9.702
COG	900	-0.349	0.580	-2.140	1.130	0.100	4.247
FSZ	900	7.379	1.435	5.089	9.711	0.100	1.926
EXR	900	0.076	0.160	0	1	3.061	12.456
GRWTH	900	0.519	2.384	-0.977	30.909	7.508	76.007
GDP	900	11.575	2.129	6.652	14.836	-0.649	2.428

Source: Researcher's computation

The summary statistics of the above-mentioned corporate governance and financial performance measures. It could be observed that all the corporate governance measures as well as *FSZ* and *GDP* appear to have low variability such that their standard deviations, as a measure of variability, are below their respective mean values. The foregoing suggests that the variables seem to have some degree of stability across the selected cross-sections (banks) for the given sample period, thus, having high predictive power. However, *COG*, *EXR* and *GRWTH* exhibit high variability having their standard deviations above the respective averages, thus, may have low forecasting power. Meanwhile, except for *GDP*, all other panel series appear to have positively skewed distributions judging by the coefficients of skewness. Similarly, judging by the coefficients of kurtosis, all variables, except for *FSZ* and *GDP*, appear to be leptokurtic having their kurtosis coefficient above the threshold of 3 following a moment distribution.

Multi-collinearity Test

The correlation matrix and variance inflation factor (VIF) were utilized to test for the existence or otherwise of multicollinearity among the independent variables. The correlation matrix shows the pair-wise correlation coefficients among the explanatory variables to inspect the presence or otherwise of multicollinearity. The VIF indicates the level by which the variance of the estimate of an explanatory variable may get inflated resulting from any collinearity among the explanatory variables. In other words, the VIF demonstrates the presence or otherwise of multicollinearity between/among the policy variables.

Table 3 shows the pair-wise correlation coefficients among the variables. As a rule of thumb, a correlation coefficient above the threshold of 0.8 indicates the existence of multicollinearity (Gujarati& Dawn, 2009). Consequently, all pair-wise correlation coefficients are less than 0.8. Thus, according to the correlation coefficients, there is no presence of multicollinearity (strong relationships) among the policy variables.

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

Table 3. Pair-Wise Correlation

Variables	BDS	BGD	BDI	NAM	SFM	COG	FSZ	EXR	GRWTH	GDP
BDS	1.000									
BGD	0.457*	1.000								
	(0.000)									
BDI	0.201*	0.158*	1.000							
	(0.000)	(0.000)								
NAM	0.039	-0.017	0.063	1.000						
	(0.248)	(0.611)	(0.059)							
SFM	0.116*	-0.052	0.251*	0.030	1.000					
	(0.001)	(0.121)	(0.000)	(0.374)						
COG	-0.016	-0.173*	0.177*	0.018	0.115*	1.000				
	(0.631)	(0.000)	(0.000)	(0.591)	(0.001)					
FSZ	0.615*	0.271*	0.145*	-0.010	0.180*	0.143*	1.000			
	(0.000)	(0.000)	(0.000)	(0.758)	(0.000)	(0.000)				
EXR	-0.145*	-0.154*	0.038	-0.025	0.126*	0.272*	-0.142*	1.000		
	(0.000)	(0.000)	(0.249)	(0.462)	(0.000)	(0.000)	(0.000)			
GRWTH	0.012	-0.035	0.035	0.090*	0.051	0.020	-0.109*	-0.011	1.000	
	(0.710)	(0.294)	(0.297)	(0.007)	(0.127)	(0.546)	(0.001)	(0.735)		
GDP	0.247*	0.082*	-0.206*	0.074*	0.014	0.063	0.202*	-0.559*	0.007	1.000
	(0.000)	(0.014)	(0.000)	(0.027)	(0.664)	(0.057)	(0.000)	(0.000)	(0.083)	

**** p<0.01, ** p<0.05, * p<0.1; Sample: N = 60, T = 15 (2008 – 2022)*

Source: Researcher's computation

Table 4 displays the indices for the VIFs and the tolerance (1/VIF) among the explanatory variables. As a rule of thumb, a variance inflation factor below the threshold of 10 indicates the absence of multicollinearity among the variables. As a result, all the VIFs are below 10, thus, suggesting that there is no presence of multicollinearity (almost perfect relationships) among the included independent variables for the given model. Both the correlation matrix and the variance inflation factor demonstrate the non-existence of multicollinearity among the policy variables.

Table 4. Variance Inflation Factor

Variable	Dependent Variables: ROA	
	VIF	Tolerance
BDS	2.014	0.496
LGDP	1.703	0.587
FSZ	1.700	0.588
EXR	1.553	0.644
BGD	1.318	0.759
BDI	1.233	0.811
SFM	1.159	0.862
GRWTH	1.038	0.964
NAM	1.023	0.977
Mean VIF	**1.416**	.

Source: Researcher's computation

Model Estimation

The model estimation results are shown in this subsection. Static panel data estimators were employed, including fixed effect (FE), random effect (RE), and common effect (CE) estimators. The 'Log-Lin' specification forms the basis of the model estimate process because zero values for the policy variables could not be logged. Therefore, in the instance of the "Log-Lin" specification, the coefficients found are stated as semi-elasticities that have been multiplied

by 100 (Gujarati & Dawn, 2009). Ten country-specific requirements and an overall bank specification were included in the estimation of eleven specifications.

However, before conducting the model estimation, an endogeneity test was conducted to ascertain the presence or otherwise of any endogeneity in the models under consideration. Table 5 presents the endogeneity test results for ROA. Following the endogeneity test, it could be observed that both the Durbin chi-square and Wu-Hausman test statistics yielded insignificant results for the ROA model without the interaction with country-level governance. The foregoing implies the absence of endogeneity in the policy variables in the model. Thus, the ROA model without moderation is free from omission variable bias, measurement errors and simultaneity bias.

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Table 5. Endogeneity Test Results

Model	H_0	Durbin Chi2	*p*-value	Wu-Hausman F-stat.	*p*-value
CCIP	Exogenous	10.6821	0.0987	1.7689	0.1026

Sample: N = 60, T = 15 (2008 – 2022)
Source: Research's computation

Overall Model Estimation

The estimation of each bank's specification while considering all of the countries as a single entity is known as the overall model estimation. Consequently, the panel data structure includes 60 subjects, or banks (N=60), and 15 years (T=15) from 2008 to 2022. Table 6 presents the summary of the estimates and statistics obtained from the estimation of the overall or all-country specification using the pooled OLS or common effect (CE), random effect (RE) and fixed effect (FE) estimators.

Based on the fixed effect test result (F-stat. = 8.760, p = 0.000 < 0.05) between the CE and FE estimators, the fixed effect method is found to be more efficient than the common effect estimator. Similarly, the random effect test result (LM stat. = 506.490, p = 0.000 < 0.05) between the CE and RE estimators, the random effect (RE) estimator is found to be more efficient than the common effect (POLS). Moreover, the Hausman test result (χ^2 = 1.370, p = 0.998 > 0.05) indicates that the RE effect estimator appears to be more efficient than the FE estimator. Thus, the RE effect estimator is chosen to evaluate the study's objective.

Following the random effect model estimation result as shown in Table 6, changes in the number of audit committee meetings (*NAM*, β = 0.0467, p = 0.000 < 0.01) exert a significant positive effect on the return on asset (*ROA*) of the selected banks across the selected countries. Meanwhile, board size (*BDS*, β = -0.0139, p = 0.088 < 0.1), board gender diversity (*BGD*, β = -0.0440, p = 0.003 < 0.01) individually exert significant negative effects on return on asset (*ROA*) of the selected banks across the countries. However, changes in board independence (*BDI*, β = 0.0095, p = 0.262 > 0.1) and the size of foreign board members (*SFM*, β = 0.0027, p = 0.838 > 0.1) exert an individual positively insignificant effect on return on assets. Meanwhile, *FSZ* and *GRWTH* appear to have individual negatively significant impacts on *ROA* while positively insignificant effects emanate from the changes in *EXR* and *GDP* of the selected banks. Despite the foregoing tests of individual significance, the considered corporate governance measures as well as the selected firm size, exchange rate, firm growth and GDP appear to have a collective and significant effect (F stat. = 161.840, p = 0.000) on financial performance (using ROA as a measure).

Published by UIR Press

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

Table 6. Overall Panel Model Estimates

Estimator:	OLS Estimator	FE Estimator	RE Estimator
Dependent Variable:	**ROA**	**ROA**	**ROA**
Independent Variables			
Constant	-2.466***	-2.151**	-1.980***
	(0.000)	(0.0262)	(0.000)
BDS	-0.0144*	-0.0199**	-0.0139*
	(0.0621)	(0.0218)	(0.0882)
BGD	0.00170	-0.0492***	-0.0440***
	(0.914)	(0.00135)	(0.00342)
BDI	0.00911	0.0109	0.00948
	(0.186)	(0.246)	(0.262)
NAM	0.0268***	0.0481***	0.0467***
	(0.000508)	(5.97e-10)	(5.32e-10)
SFM	-0.0129	0.00658	0.00271
	(0.208)	(0.667)	(0.838)
FSZ	-0.105***	-0.266***	-0.165***
	(7.76e-11)	(0.000)	(0.000)
EXR	0.598***	0.0981	0.223
	(1.41e-05)	(0.542)	(0.136)
GRWTH	-0.0184**	-0.0299***	-0.0245***
	(0.0143)	(7.20e-05)	(0.000827)
GDP	0.0243**	0.106	0.0209
	(0.0244)	(0.190)	(0.284)
Further Statistics and Tests			
Effect Tests			
Fixed Effect test (F-Stat.)	-	8.760***	
		(0.000)	
BP-LM Test (X^2)	-		506.490***
			(0.000)
Hausman Test (X^2)	-		1.370***
			(0.9980)
Explanatory Power			
R-squared	0.1400	0.1843	0.1240
Adj. R-squared	0.1313	-	-
F-statistic (or Wald Test)	16.100***	20.870***	161.840***
	(0.000)	(0.000)	(0.000)
Diagnostics			
CD Test:			
Friedman's test	-	58.68	154.377
		(0.5599)	(0.000)

Note: The values in the parentheses () are *p*-values of the respective coefficients and statistics while ***, ** & * denote statistical significance at the conventional 1%, 5% and 10% levels of significance, respectively.
Source: Researcher's computation

Country-wise Model Estimation

Model estimation for every country is provided by the analysis broken down by country. The chosen banks serve as the cross-section for the specified period, and each nation is regarded as an entity. The key point is comparing the relationships between corporate governance and financial success among the various nations. Following the effects tests Appendix 1, the fixed effect (LSDV) estimator was found to be efficient for Ghana, Kenya, Mauritius, Nigeria, South Africa, Tanzania, Uganda and Zimbabwe. The foregoing suggests that the selected banks in the above-mentioned countries are heterogeneous in terms of management philosophy and other organisational cultures. However, the common effect (CE) or pooled OLS estimator appeared to be efficient for Zambia and Malawi thus, suggesting that the selected banks in the country

are similar in terms of organisational principles. Therefore, the selected estimator for each country was utilized in evaluating the corporate governance–financial performance nexus.

Following the estimation result as shown in Appendix 1, changes in board size (*BDS*) exert significant positive effects on the return on asset (*ROA*) of the selected banks in Mauritius (β = 0.0644, p = 0.0086 < 0.01), Nigeria (β = 0.0502, p = 0.0059 < 0.01), and Zimbabwe (β = 0.0962, p = 0.0002 < 0.01). On the contrary, Malawi (β = -0.0761, p = 0.0457 < 0.05), South Africa (β = -0.0396, p = 0.0774 < 0.1), Uganda (β = -0.0669, p = 0.0026 < 0.01) and Zambia (β = -0.250, p = 0.0012 < 0.01) witnessed negatively significant effects of *BDS* on *ROA* of the selected banks. However, changes in board size (*BDS*) exert insignificant effects on the return on asset (*ROA*) of the selected banks in Ghana (β = -0.0005, p = 0.9830 > 0.1), Kenya (β = -0.0305, p = 0.148 > 0.1) and Tanzania (β = -0.0008, p = 0.979 > 0.1). Most of the selected sub-Saharan countries witnessed a significant influence of the number of board members on return on assets.

As shown in Appendix 1, changes in board gender diversity (*BGD*) exert significant effects on the return on asset (*ROA*) of the selected banks in Malawi (β = 0.208, p = 0.0132 < 0.05), Tanzania (β = 0.170, p = 0.0571 < 0.1) and Zambia (β = 0.162, p = 0.0482 < 0.05). On the contrary, Kenya (β = -0.0542, p = 0.0220 < 0.05) and Zimbabwe (β = -0.151, p = 0.0034 < 0.01), witnessed negatively significant effects of *BGD* on *ROA* of the selected banks. However, changes in board gender diversity (*BGD*) exert insignificant effects on return on asset (*ROA*) of the selected banks in Ghana (β = 0.0360, p = 0.427 > 0.1), Mauritius (β = -0.0189, p = 0.727 > 0.1), Nigeria (β = -0.0303, p = 0.356 > 0.1) and South-Africa (β = 0.0034, p = 0.884 > 0.1) and Uganda (β = -0.0684, p = 0.120 > 0.1).

Moreover, Appendix 1 reveals that changes in board independence (*BDI*) exert significant positive effects on the return on asset (*ROA*) of the selected banks in Ghana (β = 0.0534, p = 0.0413 < 0.05), South Africa (β = 0.0419, p = 0.0697 < 0.1), Uganda (β = 0.129, p = 0.0312 < 0.05) and Zambia (β = 0.121, p = 0.0026 < 0.01). On the contrary, Mauritius (β = -0.130, p = 0.0000 < 0.01) and Nigeria (β = -0.0597, p = 0.0139 < 0.05) witnessed negatively significant effects of *BDI* on the *ROA* of the selected banks. However, the responsiveness of return on asset to the changes in board independence is semi-inelastic with magnitudes below 1 per cent for the above-mentioned countries. However, changes in board independence (*BDI*) exert insignificant effects on the return on asset (*ROA*) of the selected banks in Kenya, Malawi, Tanzania and Zimbabwe.

Following the estimation result as shown in Appendix 1, changes in the number of audit meetings (*NAM*) exert significant effects on the return on asset (*ROA*) of the selected banks in Ghana (β = 0.123, p = 0.000 < 0.01), Kenya (β = 0.132, p = 0.000 < 0.01) and Mauritius (β = 0.0292, p = 0.0736 < 0.1). On the contrary, Zimbabwe (β = -0.0323, p = 0.0830 < 0.1) witnessed negatively significant effects of *BDI* on the *ROA* of the selected banks. Besides, the responsiveness of return on assets to the changes in the number of audit meetings (*NAM*) of the above-mentioned countries is semi-inelastic with magnitudes below 1 per cent. However, changes in the number of audit meetings (*NAM*) exert insignificant effects on the return on assets (*ROA*) of the selected banks in Malawi, Nigeria, South Africa, Tanzania, Uganda, and Zambia.

Following the estimation result as shown in Appendix 1, changes in the size of foreign members (*SFM*) exert significant effects on the return on assets (*ROA*) of the selected banks in Kenya (β = 0.0864, p = 0.000 < 0.01) and Zambia (β = 0.284, p = 0.0016 < 0.01). On the contrary, Ghana (β = -0.0892, p = 0.0010 < 0.01) witnessed negatively significant effects of *SFM* on the *ROA* of the selected banks. In addition, the responsiveness of return on assets to the changes in the size of foreign members (*SFM*) of the above-mentioned countries is semi-inelastic with magnitudes below. However, changes in the size of foreign members (*SFM*) exert insignificant effects on the return on assets (*ROA*) of the selected banks in Malawi, Mauritius, Nigeria, South Africa, Tanzania, Uganda, and Zimbabwe.

International Journal of Business Sustainability

Volume: 1, Issue: 1, 2025



Published by UIR Press

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

Meanwhile, changes in firm size (*FSZ*) exert positively significant effects on the return on assets (*ROA*) of the selected banks in Tanzania, while a negative effect was observed in Ghana, Mauritius, Nigeria, South Africa, and Uganda. However, Kenya, Malawi, Zambia, and Zimbabwe witnessed an insignificant impact of *FSZ* on *ROA*. As shown in Appendix 1, *ROA* responds positively and significantly to the exchange rate (*EXR*) in Kenya, South Africa, and Tanzania, while Nigeria witnessed a significant negative effect. However, Ghana, Malawi, Mauritius, Uganda, Zambia, and Zimbabwe had insignificant impacts of *FSZ* on *ROA*. Zimbabwe witnessed positive and significant effects of Firm growth (*GRWTH*) on *ROA,* while Ghana, South Africa, and Uganda witnessed negative and significant effects. However, insignificant impacts of *GRWTH* on *ROA* were observed in Kenya, Malawi, Mauritius, Nigeria, Tanzania, Zambia, and Zimbabwe. With regards to GDP, Kenya, Mauritius, Nigeria, and Uganda witnessed positive and significant effects on *ROA,* while Tanzania witnessed negative and significant effects. However, insignificant impacts of *GDP* on *ROA* were observed in Ghana, Malawi, South Africa, Zambia, and Zimbabwe.

Despite the tests of individual significance, the considered corporate governance measures appear to have jointly significant effects on financial performance (using ROA as a measure) for all the countries.

Discussion

The relationship between corporate governance and the financial performance of particular banks in particular Sub-Saharan African nations is examined in this study. The study uses ten (10) selected Sub-Saharan African countries and sixty (60) banks using the panel data technique for 15 years, from 2008 to 2022. According to the aggregate estimation result, the number of audit meetings and the size of the board both individually had a significant and favourable impact on the return on assets of the chosen banks in each of the chosen Sub-Saharan countries. In line with the aforementioned conclusions, similar empirical results were obtained in investigations conducted by Habtoor (2022) and Nguyen et al. (2022). Conversely, (Ayadi et al., 2019) discovered that board size had a negative impact on ROA, indicating that a larger board was associated with a poorer return on assets (a measure of financial performance). Additionally, it was corroborated by (Okolie & Ogbaragu, 2022; Al-Jalahma, 2022) that the audit committee was a crucial factor in determining the success of firms. Shamsuddin and Alshahri (2022), on the other hand, disagreed with the previous finding and claimed that regular audit committee meetings didn't seem to improve businesses' financial performance.

However, it seemed that the gender diversity of the board was having a negative and considerable impact on the return on assets. According to related research, board gender diversity has a major impact on financial performance (Marquez-Cardenas et al., 2022; Brahma & Boateng, 2021; Yilmaz et al., 2022). According to Zhang (2020), the presence of women on corporate boards was also associated with improved financial success. However, gender diversity and financial performance were not found to be related by Martinez-Jimenez et al. (2020). This undesired result could be attributable to the peculiarities of the region, in the sense that women are not accorded the support to participate in running and managing corporate affairs when compared to the developed economy. Therefore, policymakers are advised to establish effective standards requiring banks to have a certain number or percentage of women on their boards and ensure that those standards are strictly adhered to, and bank performance may improve. To improve performance, banks in the SSA region need to imitate these successful practices and be diversity-oriented when it comes to the inclusion of women on bank boards, because overall representation of women on the board is insufficient, and government agencies should implement a policy that promotes strict inclusion of female diversity on boards. Diverse directors' unique perspectives have the potential to enrich the knowledge provided by the committee to management with the aim of improving performance.

Having women on the management team can improve accountability and decision-making at board meetings due to their unique viewpoints compared to men.

Nonetheless, the return on assets of the banks in each of the chosen Sub-Saharan nations is positively and negatively impacted by the number of foreign board members and board independence, respectively. Based on the aforementioned, it can be seen that whereas Okoyeuzu et al. (2021) found that high board independence would impede bank performance, Handriani and Robiyanto (2019) found that board independence considerably and favourably enhanced banks' performance. When combined, the following factors have a major impact on return on assets: number of audit meetings, diversity of genders on the board, size of foreign board members, and board size. It is therefore recommended that bank management appoint foreign talent to the board in order to enhance diversity and improve the overall performance of the bank. To enable the banking sector to be sanitised and compete globally, the government should create an atmosphere of opportunity that welcomes and draws in foreign investors.

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In the meantime, the research broken down by country reveals that board size seems to be a positively important factor in determining the return on assets of the chosen banks in Kenya, Malawi, Uganda, and Zambia. Among the aforementioned countries, board size appears to be more significant in the selected East-African countries amidst the sub-saharan such as Kenya and Uganda. However, other countries witnessed an insignificant impact of board size on return on assets. Thus, board size appears to be significantly apparent in a few of the selected countries under investigation. It was discovered that, in Malawi, Nigeria, South Africa, and Zambia, board gender diversity had a significantly positive impact on return on assets; in Kenya and Zimbabwe, however, it had a significantly adverse impact. In other nations (including Ghana, Mauritius, Tanzania, and Uganda), the impact of gender diversity on the board on return on assets was negligible. From what has been said thus far, gender diversity seems to be pronounced in most of the countries that are being studied.

Additionally, it was discovered that in Kenya, Uganda, and Zambia, board independence had a favourably substantial impact on return on assets. Conversely, though. The effect of board independence on return on assets was negligible in the other chosen nations. According to the information above, board independence seems to be notably evident in only a small number of the study countries. Board independence seems to be more important in the chosen East African nations, including Kenya and Uganda, than board size.

In Ghana, Kenya, Malawi, and Mauritius, the frequency of audit committee meetings seemed to have a positive significant impact on return on assets; whereas, in South Africa, Tanzania, and Zimbabwe, it appeared to have a negative significant impact. There was little to no effect on the return on assets from the number of audit committee meetings in other nations, including Zambia, Uganda, and Nigeria. According to the information above, the majority of the countries under examination seem to have a disproportionately high number of audit committee meetings.

Furthermore, the number of foreign board members was found to have a negative significant impact on return on assets in Ghana, South Africa, and Zimbabwe, but a positive significant impact in Kenya, Tanzania, and Zambia. There was no discernible effect of the size of foreign board members on return on assets in other nations (such as Malawi, Mauritius, Nigeria, and Uganda). It is evident from the above that in the majority of the countries being studied, the size of foreign board members is a significant factor.

One of the distinctive features of this study is its provision of a perspective for collective extrapolation alongside the specific characteristics of individual countries. The country-wise result difference specifically in relation to board gender diversity and board independence shows that the countries in this study still have some of their corporate orientation affected by their unique situations, even though they are in the same region. The Central Bank Association and the Corporate Governance Network are two groups that look after the banks in the SSA



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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

region. They need to make sure that the rules that govern how the banks work are the same for everyone in the banking industry and the code of corporate governance.

Overall, the empirical results of this study showed that the return on assets was significantly impacted by some corporate governance factors, including the number of annual audit committee meetings, gender diversity, number of foreign members on the board, and size of the board, board independence. The aforementioned result is consistent with the agency theory. Better corporate governance, in the opinion of the agency theory, lowers or eliminates agency costs, which in turn leads to higher stock prices and better long-term performance (Albanese et al.,1997).

Conclusion

The study's introduction stated that the banking industry in Sub-Saharan Africa is highly developed in certain regions, and the region's financial institutions are highly diverse. Nevertheless, not all households have access to banking services. Corruption is one of the biggest issues facing Africa, yet there is insufficient enforcement to address it. Similar to other regions of the world, sub-Saharan Africa's banking industry has challenges that negatively impact banks' operational performance. Due to the aforementioned issues, corporate governance in Africa's emerging sub-Saharan region has received more attention than it does in industrialised nations. As a result, corporations are expected to abide by various corporate governance regulations that have been released by numerous African nations. Over the past 20 years, there have been multiple modifications to the corporate governance rules for SSA banks. In particular, the SSA's banking legislation had previously only addressed disclosure standards and board composition. However, during the last 20 years, the African Central Bank Association, an organisation run by the central banks, has imposed additional controls.

Presently, the corporate governance codes concerning board membership (nomination, independence, qualification, and conflict of interest), executive remuneration, the role of shareholders, board committees (internal audit), the role of external audit (appointment, independence, and conflict of interest), and disclosure and transparency have been developed by the SSA regulatory authorities for banks in the region to adopt.

While the relationship between corporate governance and bank performance has been the subject of numerous studies in industrialised nations, there are relatively few in the Middle East and North Africa (MENA). Applying this to the emerging sub-Saharan African region, where there is a dearth of empirical knowledge, has become crucial as well to observe the outcomes of these correlations. The impact of the sub-Saharan region's developed corporate governance code on bank performance was examined in this study. The impact of corporate governance practices on bank performance, particularly in the SSA area, is examined in this study using panel data. This study includes 60 banks from 10 SSA nations, selected using the sample selection criteria listed in the methods section (two from the western part, namely Nigeria and Ghana; three from the eastern part, namely Kenya, Tanzania, and Uganda; and the southern part, namely South Africa, Malawi, Mauritius, Zimbabwe, and Zambia). A total of 900 observations were made during the 15-year study period, which ran from 2008 to 2022. The corporate governance metrics that were selected to investigate the correlation with bank performance are the number of audit committees, board independence, gender diversity, and size of the board, as well as the number of foreign members.

Research contributions

This research is not like other studies that look at the association between corporate governance and bank performance in general or specifically. Several new insights regarding

corporate governance and bank performance are added by this study to the body of existing knowledge.

First, a total of 900 firm-year observations over 15 years are provided by the study using balanced panel data from 60 banks across 10 sub-Saharan African nations between 2008 and 2022. The impact of corporate governance on bank performance in Africa is demonstrated empirically and in great detail by this study. Furthermore, this study includes banks from 10 of the 13 active sub-Saharan African countries, according to the World Bank, unlike most previous studies that only included one or a small number of countries in their sample. Because of the aforementioned, it is possible to extrapolate from the study's findings about the links between corporate governance and bank performance in the Sub-Saharan African region.

Second, in contrast to earlier research, this study provides the first empirical proof of the relationship between corporate governance and bank performance, both nationally and overall, utilising data from more than two-thirds of the most productive sub-Saharan African nations. Conformity with the findings of a few earlier investigations (Habtoor, 2022; Nguyen et al., 2022; Okolie & Ogbaragu, 2022; Al-Jalahma, 2022; Marquez et al., 2022; Brahma et al., 2021; Yilmaz et al., 2022; and Zhang 2020).

International Journal of Business Sustainability

Volume: 1, Issue: 1, 2025

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

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International Journal of Business Sustainability

Volume: 1, Issue: 1, 2025



Published by UIR Press

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382

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Appendix 1. Country-wise Panel Model Estimates

Country	1-Ghana	2-Kenya	3-Malawi	4-Mauritius	5-Nigeria	6-S. Africa	7-Tanzania	8-Uganda	9-Zambia	10-Zim.
	T = 15, *N* = 9	*T* = 15, *N* =11	*T* = 15, *N* = 5	*T* = 15, *N* = 4	*T* = 15, *N* = 12	*T* = 15, *N* = 5	*T* = 15, *N* =5	*T* = 15, *N* = 3	*T* = 15, *N* = 3	*T* = 15, *N* = 3
Estimator:	**FE**	**FE**	**CE**	**FE**	**FE**	**FE**	**FE**	**FE**	**CE**	**FE**
Dependent Variable:	**ROA**	**ROA**	**ROA**	**ROA**	**ROA**	**ROA**	**ROA**	**ROA**	**ROA**	**ROA**
Independent Variables										
Constant	-2.260*	-12.55***	-15.91	-13.69***	-22.71***	-0.434	18.72**	-17.04***	-4.634*	-3.898***
	(0.0937)	(0.00266)	(0.393)	(0.00261)	(4.87e-05)	(0.748)	(0.0277)	(0.000396)	(0.0684)	(0.00465)
BDS	-0.000525	-0.0305	-0.0761**	0.0644***	0.0502***	-0.0396*	-0.000758	-0.0669***	-0.250***	0.0962***
	(0.983)	(0.148)	(0.0457)	(0.00855)	(0.00593)	(0.0774)	(0.979)	(0.00258)	(0.00116)	(0.000157)
BGD	0.0360	-0.0542**	0.208**	-0.0189	-0.0303	0.00338	0.170*	-0.0684	0.162**	-0.151***
	(0.427)	(0.0220)	(0.0132)	(0.727)	(0.356)	(0.884)	(0.0571)	(0.120)	(0.0482)	(0.00337)
BDI	0.0534**	0.00933	-0.0121	-0.130***	-0.0597**	0.0419*	0.0127	0.129**	0.121***	0.0279
	(0.0413)	(0.542)	(0.728)	(4.33e-06)	(0.0139)	(0.0697)	(0.835)	(0.0312)	(0.00259)	(0.333)
NAM	0.123***	0.132***	0.0736	0.0292*	0.0136	-0.00279	0.0341	0.135	-0.00377	-0.0323*
	(5.28e-07)	(0)	(0.148)	(0.0736)	(0.621)	(0.861)	(0.218)	(0.209)	(0.633)	(0.0830)
SFM	-0.0892***	0.0864***	-0.0926	0.0409	-0.00561	0.0391	0.110	0.0253	0.284***	-0.0453
	(0.000955)	(5.80e-06)	(0.167)	(0.257)	(0.907)	(0.362)	(0.169)	(0.478)	(0.00161)	(0.257)
FSZ	-0.258***	-0.0337	-0.151	-0.394***	-0.805***	-0.272***	0.258*	-0.443***	0.0324	-0.0117
	(0.00149)	(0.565)	(0.282)	(1.30e-05)	(4.32e-09)	(4.85e-05)	(0.0851)	(0.000437)	(0.680)	(0.841)
EXR	0.278	51.27**	50.00	6.739	-0.767*	2.914***	468.4***	6.297	0.936	-1.007
	(0.193)	(0.0124)	(0.173)	(0.349)	(0.0664)	(0.01000)	(0.00384)	(0.943)	(0.366)	(0.767)
GRWTH	-0.0552**	-0.0104	0.0389	-0.000943	0.00879	-0.0403***	-0.154	-0.383***	0.0842	0.0249**
	(0.0135)	(0.922)	(0.858)	(0.991)	(0.454)	(0.00197)	(0.235)	(0.00843)	(0.494)	(0.0183)
GDP	0.0778	0.761**	1.121	1.033**	2.048***	-0.0257	-1.664***	1.151***	0.223	0.0843
	(0.589)	(0.0296)	(0.439)	(0.0108)	(3.73e-06)	(0.802)	(0.00805)	(0.000577)	(0.397)	(0.660)
Further Statistics and Tests										
Effect Tests										
Fixed Effect test	6.890***	10.950***	0.530	10.410***	5.570***	40.330***	3.570**	24.780***	0.160	16.120***
	(0.0000)	(0.000)	(0.7149)	(0.000)	(0.0000)	(0.0000)	(0.0112)	(0.000)	(0.8558)	(0.000)
BP-LM Test (X^2)	0.000	0.000	0.000	0.000	4.200**	0.000	0.000	0.000	0.000	0.000
	(1.0000)	(1.000)	(1.000)	(1.000)	(0.0202)	(1.0000)	(1.000)	(1.000)	(1.000)	(1.000)
Hausman Test (X^2)	102.93***	25.170***	1.960	39.64	27.620***	36.670***	12.320**	61.140***	0.310	65.930***
	(0.000)	(0.0028)	(0.9920)	(0.000)	(0.0011)	(0.000)	(0.0151)	(0.000)	(1.0000)	(0.0000)
Explanatory Power										
R-squared	0.4324	0.4224	0.3865	0.7197	0.3674	0.5311	0.4561	0.4231	0.7237	0.5759
Adj. R-squared	-	-	0.3025	-	-	-	-	-	0.6526	-
F-statistic (or Wald Test)	9.900***	33.960**	4.550***	13.41***	10.260***	7.680***	5.680***	37.470***	10.190***	4.980***
	(0.000)	(0.000)	(0.0001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.0003)
Diagnostics CD Test:										
Friedman's test	16.278	24.382	-	13.650	34.083	9.060	7.860	11.733	-	15.367
	(0.0386)	(0.0066)		(0.0000)	(0.0004)	(0.0596)	(0.0968)	(0.0028)		(0.0005)

Source: Researcher's computation (2024)

Note: The values in the parentheses () are *p*-values of the respective coefficients and statistics while ***,**&* denote statistical significance at the conventional 1%, 5% and 10% levels of significance, respectively.1.

International Journal of Business Sustainability
Volume: 1, Issue: 1, 2025

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e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2025.22382