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Nexus Among Internal Audit Quality, Corporate Governance and Performance of Selected Banks in Africa

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Abstract

Using a quantitative data set of 213 banks selected from 11 African nations between 2015 and 2020 and ordered probit regression techniques, this study examines the relationship between internal audit quality, corporate governance, and the performance of banks in Africa. The study finds that corporate governance mechanisms (such as board size, board expertise, and corporate governance disclosures), and internal audit quality measures (such as audit experience and internal audit presence) are the critical drivers of bank's performance in Africa. Findings imply that banks with board members experts in accounting and auditing with the support of experienced professional internal auditors and disclosed corporate governance mechanisms reduce the chances of bankruptcy. The study is one of the few studies that provide insights into internal audit quality and corporate governance mechanisms on the performance of banks in Africa, implying that the findings do not only add to the literature but also to policy and practice. Other implications for theory, regulators, shareholders, policymakers, management, global advocacy agencies, investors and other stakeholders are presented.

Keywords

Internal audit quality, corporate governance, performance of banks, sustainable development, Africa

Introduction

Banks are the pinnacle and the primary driver of socioeconomic development in most economies globally (Abaidoo & Agyapong, 2022). Banks play essential roles in economic growth that, to a more significant extent, contribute to more than 45% of the gross domestic product in Africa (Nyantakyi & Sy, 2015).

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Meanwhile, these banks continue to fail and the government in Africa have to spend considerable funds to pay off depositors' savings (Sulub et al., 2020). Recent existing studies argue that the collapse or failure of banks is a result of a lack of corporate governance and internal audit quality of financial institutions (Alzeban, 2020).

In theory and practice, the increasing importance of internal audit quality as a critical contributor to good corporate governance in banks continues to receive much attention in recent studies (Moussa, 2019; Sulub et al., 2020). However, prior studies have neglected internal audit quality and corporate governance, especially in the banking sector (Napitupulu, 2020; Orazalin et al., 2016). Studies that explore internal audit quality, corporate governance and performance neglect the financial sector but rather focus on the survey of internal auditors or accountants (Krichene & Baklouti, 2020), private and public sector firms (Dzomira, 2020), listed firms (Alzeban, 2020), local government (Bananuka et al., 2018) and educational institutions (Christopher, 2015). Studies that examine the financial sector also focus on microfinance institutions and Islamic banks (Aslam & Haron, 2020; Orazalin et al., 2016), neglecting commercial banks in developing countries (Kaawaase et al., 2021). The outcomes of those studies on the financial sector are inconclusive and currently, there is no theory (Sulub et al., 2020). For instance, Orazalin et al. (2016) and Sulub et al. (2020) conclude that corporate governance, including the internal audit quality mechanism, does not affect the performance of banks; Aslam and Haron (2020), however, report that internal audit quality affects corporate governance and bank's performance. This study attempts to fill this gap by using the ordered probit regression technique, a sample of 231 banks from 11 African countries between 2015 and 2020 to examine whether the corporate governance and internal audit quality mechanisms drive the performance of banks in Africa.

Critics, may ask, why Africa? The various corporate governance codes require the firm to follow internal controls and governance mechanisms that enhance the firm performance and prevent bankruptcy. For instance, King III's code of governance in South Africa requires every firm to have expert boards that are independent. Elsewhere in Ghana, Kenya, Rwanda and Nigeria, corporate governance codes require firms to have audit committees, internal audit units, board independence and objectivity. Studies exploring whether firms complying with these codes enhance their performance are limited. Kotb et al. (2020) assert that there are limited studies investigating whether the mechanisms of corporate governance and internal audit quality enhances firm performance. The study, thus, adds to the literature to explore the determinants of corporate governance and internal audit quality mechanisms that positively affects the performance of banks in Africa due to limited research and inconclusive results of existing studies.

The study has several theoretical and practical implications. From the theoretical point of view, the study adds to extant literature to understand corporate governance and internal audit quality factors that affect bank performance from a broader perspective. Thus, the study provides a springboard to generate future research on the nexus of internal audit quality, corporate governance and banks' performance, especially in Africa. Practically, the findings will reveal the key significant corporate governance and internal audit quality mechanisms advancing sustainable performance of banks in Africa. Furthermore, the study can help predict financial performance, serving as a benchmark in avoiding future bankruptcy and liquidity crises in the banking sector. Besides, the management of banks can use the study's findings to institute more effective governance and internal control systems to strengthen financial performance and safeguard external stakeholders' interests. The study can provide empirical evidence that informs policymakers like the Central Banks in developing countries, international bodies (World Bank, IMF, Africa Unions, United

Nations), Finance Ministry, and local and international governments in executing prudent economic, financial, and monetary policies that would enhance efficient and effective corporate governance and internal audit practices. Finally, investors and key banking sector stakeholders in developing economies would use the study's findings in decision-making.

The structure of the rest of the study is as follows. The second section discusses the theory and hypotheses. The third section provides the methods and the fourth section reports and discusses the results. The fifth section provides the implications, the sixth section presents the limitations with suggestions for further studies and the seventh section concludes the study.

Theory and Hypothesis Development

This study embraces institutional and agency theories to assess the nexus between corporate governance, internal audit quality and bank performance in Africa. The institutional theory, formalized by Rowan and Meyer (1977) and DiMaggio and Powell (1983), argues that firms that incorporate institutional strategies and techniques are likely to survive in the long run (Zhao et al., 2017). Thus, a firm must adjust and strategize specific internal audits and corporate governance mechanisms to improve its legitimacy and operational existence compared to rival firms. Firms must consider their financial performance, corporate governance and internal audits by defining their corporate goals. Internal controls, corporate governance, code of ethics, and the company's practice and structures affirm the institution's values, philosophy, and fundamental principles that lead to sustainable development.

The agency theory introduced by Jensen and Meckling (1976) indicates that the owner (principal) assigns decision-making authority to managers (agent) to manage the affairs of the business on their behalf. The concept of agency relation leads to agency problems such as conflict of interest, moral hazard, adverse selection, among others. Effective corporate governance and internal audit quality would help reduce these agency problems as well as prevent fraud resulting from material misstatement and improve performance (Raimo et al., 2021).

Based on similar extant literature (see Alzeban, 2020; Aslam & Haron, 2020; Sulub et al., 2020), the study employs 18 measures to investigate the nexus of internal audit quality, corporate governance and performance. The board's expertise, board independence, audit committee, corporate governance disclosures, the board size and CEO duality are corporate governance measures and internal audit quality measures are internal auditor experience, audit certification, presence of internal audit, objectivity and audit size. The following subsections discuss each of these variables.

Board Expertise

Nkundabanyanga (2016) reveals that financial expertise is prevalently associated with corporate performance. Likewise, Michelon et al. (2015) purport that accounting expertise is relevant for board members in management performance evaluation (via external reporting and internal control) and appreciating the role of accounting procedures and information systems on how financial reports can rely upon it. Salehi et al. (2018) and Herbert and Agwor (2021) argue board expertise increases corporate performance. Additionally, Nalukenge et al. (2017) record a positive relationship between board expertise and performance. The study hypothesized that:

H1. Board expertise has a positive effect on the performance of banks.

Board Independence

According to Nalukenge et al. (2017), board independence consists of non-executive directors who do not bond with the business organization and extend beyond the directors' duties. The board's independence prevents fraud in the firm because 'fraud-free firms' consist of more independent directors (Virk, 2019). Studies show that the existence of independent directors enhances the quality of financial reporting and reduces income smoothing (Nalukenge et al., 2017). Companies with a small proportion of independent directors and weaker corporate governance tend to commit more fraud (Virk, 2019). Prior studies on the nexus between board independence and firm performance have mixed results (Haris et al., 2019). For instance, Aslam and Haron (2020) conclude that non-executive directors decrease corporate performance. However, Hussian et al. (2019) report a positive relationship between non-executive directors (board independence) and performance. The study hypothesized that:

H2. Board independence has a positive impact bank's performance.

Audit Committee

Similar to The Sarbanes-Oxley Act in the USA, the Securities and Exchange Commissions highlight the need to form an audit committee (AC) due to frequent corporate failure and scandals (Aslam & Haron, 2020). Sulub et al. (2020) also argue that ACs are responsible for preserving and protecting shareholders' equity and the external and internal funds of banks. ACs are accountable for reducing agency costs by instituting effective internal control mechanisms (Al Lawati & Hussainey, 2021). Aslam and Haron (2020) report a direct or positive relationship between audit committees and corporate performance. In addition, Hussian et al. (2019) conclude that an independent and effective AC enhances firm performance. Similarly, Toumeh et al. (2020) argue that AC provides fair judgment about the quality of financial reporting, detects material errors and makes informed decisions that enhance the performance of firms. The study hypothesized that:

H3. The audit committee has a positive effect on the performance of banks.

Corporate Governance Disclosures

Due to past corporate failures, extant literature have stressed the role of corporate governance disclosure (CGD) in minimizing information asymmetry between management and shareholders (Sulub et al., 2020). Moreover, CGD deters errors and frauds that increase the performance of the business environment (Osemene et al., 2021). Li et al. (2012) report a positive relationship between CG disclosures and transparency and performance; however, Orazalin et al. (2016) report no significant relationship between CG discourses and performance. In principle, high-performing banks usually disclose governance systems as an indication of transparency in financial information which strengthens stakeholders' continuation to invest funds in the banks (Oladejo & Nwachukwu, 2021). This study presumes that CGD

leads to transparent financial reporting, adequate internal controls or audits and performance. The study hypothesized that:

H4. CGD has a positive effect on the performance of banks.

Board Size

This is the number of the management board of firms that monitors a business's operations to ensure transparency, integrity, accountability and objectivity (Herbert & Agwor, 2021). Extant literature has contradictory outcomes about the effect of board size on firms' performance (Arora & Bodhanwala, 2018). For instance, Jensen (1993) argues that for board effectiveness, the board size should be relatively small such as seven or eight members. Ashraf et al. (2022) posit that a large board size increases accountability, internal audit quality, effective corporate governance and performance. Similarly, Aslam and Haron (2020) and Hussian et al. (2019) add that prominent board members negatively impact a firm's performance, internal audit quality and corporate governance. In contrast, several studies found that a large board size significantly enhances bank performance (Aslam & Haron, 2020; Nawaz, 2019). Thus, the study hypothesized that:

H5. Board size has a positive effect on the performance of banks.

CEO Duality

The ability of a board to perform its oversight duty is weak when CEO doubles as the chairperson of the committee, as assumed in corporate governance guidelines (Chen et al., 2017; Li et al., 2021). When the board's chairperson is the CEO, members loyal to the CEO may always get the nomination to occupy critical committees (Tuwey & Tarus, 2016). Farag et al. (2018) record a negative relationship between CEO duality and performance. Also, Assenga et al. (2018) conclude a significantly negative relationship between CEO duality and the financial performance of firms. The study hypothesized that:

H6. CEO duality has a negative effect on the performance of banks.

Audit Experience

Audit experience is the number of years of a professional chartered accountant practising auditing (Prawitt et al., 2009). Previous studies argue a negative relationship between audit experience and the probability of proposing a qualified audit opinion or adjusting audit findings (Cahan & Sun, 2015). Biggs et al. (1988) study contend that experienced senior auditors increase work during the revenue cycle. Libby and Frederick's (1990) studies that examine the nexus between audit experience and the frequency of financial reporting errors indicate experienced auditors make fewer errors and can use accurate and genuine sources in auditing than inexperienced auditors. Moeckel (1990) also argues that experienced auditors perform better in firms' operations than inexperienced firms. Davis (1996) also found that experienced senior auditors can select a high level of relevant information than inexperienced

auditors. In sum, research has shown that professional accountant or auditor with many internal auditing experiences contributes to firm performance (Cahan & Sun, 2015). The study hypothesized that:

H7. Audit experience has a positive effect on the performance of banks.

Audit Certification

Audit certification represents the ratio of the internal auditors in an organization with a professional certificate in accounting or auditing (Prawitt et al., 2009). Gantz (2014) and Sulub et al. (2020) argue that audit staffs that are professional chartered accountants with the required knowledge and auditing skills contribute significantly to corporate governance and internal audit quality. More than 50% of African countries have institutes of chartered accounting that are members or associates of the International Federation of Accountants (IFAC) that train and provide professional certificates for auditing purposes. Gantz (2014) further argues that chartered accountants follow ethical requirements and exercise duties efficiently and accurately, contributing to the quality of internal audits, corporate governance and performance. The study hypothesized that:

H8. Audit certification has a positive effect on the performance of banks.

Internal Audit Presence

Relevant stakeholders and professionals assert that the presence of an internal audit unit contributes significantly to accountability, effective internal control and corporate governance (Dzomira, 2020). Unlike external auditors, internal auditors add value to the operations of every business and provide relevant advice to the management of suspected fraud, error, risk, or weakness in financial reporting and other appropriate operational activities (Alzeban, 2020). Currently, most businesses have internal audit units that appraise, monitor, evaluate, and provide assurance, assistance or advice, accountability, and consultation to management (Alzeban, 2020). Prawitt et al. (2009) argue that firms that have internal audit units can strengthen internal controls that enhance the performance of firms. The study hypothesized that:

H9. Internal audit presence has a positive effect on the performance of banks.

Objectivity

Objectivity is a vital component of corporate governance: internal audits and financial reporting (Alzeban, 2020). An internal auditor that is objective and independent increases a firm's performance; reduces earning management; fraud or error; contributes to corporate performance (Aslam & Haron, 2020; Prawitt et al., 2009). Bravo and Reguera Alvarado (2018) indicate that the integrity of the financial accounting process influences the board's objectivity in oversight management responsibilities and activities and ensuring that management appropriately accounts for shareholders. Internal auditors must

have integrity and commitment to make unbiased opinions in every circumstance (Sulub et al., 2020). Every auditor must be objective in doing audit work and without the objectivity of the internal auditors, internal audit becomes a part of the management team that is unable to offer a fresh perspective (Alzeban & Gwilliam, 2014). Awuah, et al. (2015) consider the objectivity of internal audits as a determinant of internal audit quality, corporate governance and performance. Iwasaki (2012) finds that an independent audit is statistically significant in influencing the performance of firms. Bliss (2011) reports that board objectivity guarantees quality audits and effective corporate governance and performance. The study hypothesized that:

H10. Objectivity has a positive effect on the performance of banks.

Internal Audit Size

Previous studies suggest that the quality of internal audit work is likely higher when there is a sufficient audit staff (See Alzeban & Gwilliam, 2014). Chi et al. (2012) argue that the 'severest problem' facing internal auditing was a shortage of qualified staff. Studies suggest a positive link between audit staff and corporate performance (Mihret & Woldeyohannis, 2008). Salehi et al. (2018) also report that the size of the internal audit department increases corporate governance. The study hypothesized that:

H11. Audit size has a positive effect on the performance of banks.

Control Variables

This study uses bank size, leverage, bank age, Big Four and gross domestic growth as control variables.

Most literature posits that a bank's size in terms of its total assets determines the effectiveness of internal control systems, corporate governance and performance (Sulub et al., 2020). Also, high leverage increases the probability of a firm defaulting on debt payment when it falls due (Appiah et al., 2020). Calice (2014) further suggests that leverage directly correlates with the bank's governance and low leverage indicates a low probability of bank financial distress due to good management and audit quality. Aslam and Haron (2020) also report an inverse relationship between leverage and performance. Orazalin et al. (2016) concluded that older banks perform excellently or better than younger banks in terms of bank age. Lai et al. (2020) argue that challenges in the internal control procedure of older firms are likely to be at a minimal level than newly emerging firms.

Regarding the Big Four, Alzeban (2020) argued that firms audited by Klynveld Peat Marwick Goerdeler (KPMG), PricewaterhouseCoopers(PwC), Deloitte and Ernst and Young (EY); also known as the Big Four, contribute to corporate performance.

Finally, in terms of country specifics, the study controls gross domestic growth similarly to the study of Aslam and Haron (2020) to measure a country's economic performance that accounts for the population. If a nation's economy grows faster than its population growth, the gross domestic growth increases and the bank's financial health improves due to a positive business environment (Haris et al., 2019).

Methodology

Design and Sample

Following similar methods of prior studies (Aslam & Haron, 2020; Orazalin et al., 2016; Sulub et al., 2020), this study uses quantitative approaches to test the hypotheses. The target population consists of all registered listed banks in 54 countries in Africa. Currently, there is no up-to-date available data on all African banks due to different jurisdictions across African regions (Sulub et al., 2020). Thus, the study uses a convenient sampling technique to select 213 banks between 2015 and 2020 from Sudan, Tanzania, Nigeria, Kenya, Cote D'Ivoire, Uganda, Zambia, Zimbabwe, Rwanda, Ghana and Mauritius. Out of the 213 banks, 12 banks are from Sudan, 29 from Tanzania, 30 from Nigeria, 31 from Kenya, 12 from Cote D'Ivoire, 16 from Uganda, 22 from Zambia, 21 from Zimbabwe, 7 from Rwanda, 18 from Ghana and 15 from Mauritius. The dataset of the 213 banks from the 11 African countries spans between 2015 and 2020, resulting in 1,278 observations, which is more than recent studies by Sulub et al. (2020) that used only 14 banks, Aslam and Haron (2020) 15 banks and Orazalin et al. (2016) 30 banks. The data is retrieved from African Market, African Financial website, Bankscope and World Bank.

Analytical Framework

The analytical model to estimate the dependent measure is an ordered variable with the threshold roots to make decisions. Therefore, a bank can be categorized based on the performance measure that has three different outcomes y_i taking a value of one (1) if the bank is categorized as failed, distressed, unhealthy, or low-performing, two (2) if the bank is a neither failed nor successful or mediocre or safe zone and three (3) if the bank is categorized as successful, healthy, or high performing banks (Zaki et al., 2011). Thus, the model predictor on the high performance of banks of the ordered value three (3) is:

$$P_r\left(y_i = \frac{1}{x_i\beta_i}\right) F\left(-x_i\beta_i\right) \tag{1}$$

The F represents the cumulative distribution function, an increasing function that takes performance values within the ranges of 1 and 3. The probability that observes if the bank is categorized as failed, distressed, unhealthy, or low-performing bank is:

$$P_r\left(y_i = \frac{1}{x_i\beta_i}\right) = 1 - F\left(-x_i\beta_i\right) \tag{2}$$

Based on the exact conditions, the highest probability estimator model indicators, the criterion measure is an unobserved variable that has a linear function to y_i represented as:

$$y_i - x_i\beta_i + \mu_i \tag{3}$$

The μ_i in the equation is the random error term. The criterion measure depends on whether μ_i go beyond a threshold figure or otherwise, that is:

$$y_i = \begin{Bmatrix} 3\ if\ y_i^0 > 0 \\ 2\ if\ y_i^0 > 0 \\ 1\ if\ y_i^0 \le 0 \end{Bmatrix} \tag{4}$$

where y_i^0 represents the figure for the threshold of y_i in which the distribution is normal.

Models and Measures

This study employs the ordered probit models that can predict dependent variables with more than three categories (1, 2 and 3), solving heteroscedasticity problems. The ordered probit models used to achieve the study's objectives are:

$$P_i = P\left(y_i^* > y_i \right) \tag{5}$$

$$P_i = P\left(y_i^* < \beta_0 + \beta_i\ x_{ij} \right) = F\left(y_i \right) \tag{6}$$

$$P_i = f\left(y_i \right) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Zt} e \frac{S^2}{2} ds \tag{7}$$

where P_i represents the likelihood that a bank can be categorized as low/failed, mediocre, or safe/high performance; S is a random measure with a normal distribution with an average value of zero. The y_i is the outcome indicator (high bank performance); y_i^* represents the threshold figure of the outcome indicator. To obtain the estimator of the index variable Zt, the reverse of the accumulative normal distribution equation would be:

$$y_i = f_{\cdot}^{-1}\left(P_i \right) = \beta_0 + \beta_i x_i + \mu_i \tag{8}$$

The coefficients β_0 and β_1 of the ordered probit models give a direct relationship of the impact of the independent variables and the probability of performance only is provided by:

$$\frac{\Phi_i P_i}{\Phi_i x_{ij}} = \beta_{ij} * f\left(Z_i \right) \tag{9}$$

where P_i represents the average arithmetic score or the mean score of the outcome variable is given in the ordered probit regression result as:

$$f\left(Z_i \right) = F_{\cdot}^{-1}\left(P_i \right) \tag{10}$$

The performance of banks (dependent or outcome variable) is measured using the CAMEL financial performance ratios (capital adequacy, asset quality, management soundness, earnings and liquidity criteria). Following Orazalin et al.'s (2016) method, the study combines the CAMEL measures into one and uses it as a proxy to categorize performance.

Note that the coefficient (β) of the indicators are not the same for all the models used in this study. The board's expertise, board independence, audit committee, corporate governance disclosures, board size and CEO duality are corporate governance measures and internal auditor experience, audit certification, presence of internal audit, objectivity and audit size are the internal audit quality measures. Bank size, leverage, bank age, Big Four and country specifics—gross domestic growth are the control variables. STATA 15.0 is used in data analysis.

Specifically, the expanded models consisting of the dependent, independent and control variables are shown below. Model 1 consists of all variables except the control variables and Model 2 includes the control variables. Table 1 shows the measurement of the model's variables.

$$\begin{aligned}\text{Performance} = {} & \beta_0 + \beta_1 \text{Board Size} + \beta_2 \text{Board Independence} + \beta_3 \text{CEO Duality} + \beta_4 \text{Board} \\ & \text{Expertise} + \beta_5 \text{Audit Committee} + \beta_6 \text{Corporate Governance Disclosures} + \\ & \beta_7 \text{Audit Experience} + \beta_8 \text{Audit Certification} + \beta_9 \text{Internal Audit Presence} \\ & + \beta_{10} \text{Objectivity} + \beta_{11} \text{Audit Size} + \varepsilon'\end{aligned} \quad \text{(Model 1)}$$

$$\begin{aligned}\text{Performance} = {} & \beta_0 + \beta_1 \text{Board Size} + \beta_2 \text{Board Independence} + \beta_3 \text{CEO Duality} + \beta_4 \text{Board} \\ & \text{Expertise} + \beta_5 \text{Audit Committee} + \beta_6 \text{Corporate Governance Disclosures} + \\ & \beta_7 \text{Audit Experience} + \beta_8 \text{Audit Certification} + \beta_9 \text{Internal Audit Presence} + \\ & \beta_{10} \text{Objectivity} + \beta_{11} \text{Audit Size} + \delta_{12} \text{Bank Size} + \delta_{13} \text{Leverage} + \delta_{14} \text{Bank Age} \\ & \delta_{15} \text{BIG 4} + \delta_{16} \text{Gross Domestic Growth} + \varepsilon\end{aligned} \quad \text{(Model 2)}$$

Results and Discussion

Banks Classification

As stated earlier, the performance of banks is measured using the CAMEL financial performance ratios. This study follows a similar method of Orazalin et al. (2016) to categorize the performance into unhealthy, mediocre and healthy. Healthy or high performance needs a ratio of 0.51–1.00, mediocre approximately 0.50 and unhealthy or low performance from 0 to 0.49. Out of the 213, 69 banks representing 32.39% had CAMEL composite ratios within 0 and 0.49, 71 banks (33.33%) had approximately 0.50 and 73 banks (34.27%) had within 0.51 and 1.00. Hence, using the CAMEL composite measure, 73, 71 and 69 banks are grouped into high/healthy, mediocre and low/unhealthy performance, respectively.

Descriptive Statistics and Test of Difference

Table 2 presents the descriptive statistics [mean and standard deviation (SD)] and the mean difference (*t*-test) among the 16 independent and control variables of the study. The Chi-squared is used to test the

Table 1. Measurement of the Model Variables.

Variables	Measure	Source
Dependent variables		
1. CAMEL		Orazalin et al. (2016)
i. Capital reserve	The ratio of total capital over total asset	
ii. Annual asset growth	The ratio of the difference between total assets over total asset	Alzeban (2020)
iii. Net interest income	The proportion of net interest income over average interest-earning asset	Aslam and Haron (2020)
iv. Return on assets	The percentage of earnings after tax over the total asset	
v. Return on equity	The ratio of profits after tax over total equity	Aslam and Haron (2020)
vi. Total loans	The ratio of total loans over total assets	Ndlovu and Alagidede (2018)
vii. Loans to deposit	The ratio of total loans over total deposits	
	Banks categories of composite measure:	
	(3)—Safe/healthy/high performance: CAMEL > 0.51	
	(2)—Mediocre/Grey performance: 0.50 < CAMEL < 0.51	
	(1)—Distress/unhealthy/low performance: CAMEL < 50	
Independent variables		
1. Board expertise	1 if at least one member of the BOD has accounting and audit experience 0 otherwise	Nalukenge et al. (2017)Alzeban (2020)
2. Board independence	1 if the BOD consists only of non-executive directors and all the members are independent; 0 otherwise	Alzeban (2020) Sulub et al. (2020)
3. Audit committee	1 if the audit committee exists in the bank; 0 otherwise	Aslam and Haron (2020)
4. Corporate governance disclosures	1 if the bank has disclosed governance systems in the annual report or financial statement; 0 otherwise	Orazalin et al. (2016) Sulub et al. (2020)
5. Board size	Number of board members	Arora and Bodhanwala (2018)
6. CEO duality	1 if the CEO of the bank also holds the position of the chairperson; 0 otherwise	
7. Audit experience	The average number of years of internal auditing experience	Prawitt et al. (2009)
8. Audit certification	Percentage of Chartered Accountants	Prawitt et al. (2009)
9. Internal audit presence	1 if the bank has an internal audit unit; 0 otherwise	Sulub et al. (2020)
10. Objectivity	I if the head of the internal audit function report to the audit committee; 0 otherwise	Prawitt et al. (2009)
11. Audit size	The ratio of the amount spent on internal auditors over total assets	Prawitt et al. (2009)

(Table 1 continued)

(Table 1 continued)

Variables	Measure	Source
Control variables		
12. Bank size	Natural logarithms of total assets	Sarpong-Danquah et al. (2018)
13. Leverage	The proportion of total liabilities over total assets	Appiah et al. (2020)
14. Bank age	Number of years since the setting up of the bank	Orazalin et al. (2016)
15. Big Four	If the external auditors are a member of the Big Four auditing firms; 0 otherwise	Alzeban (2020)
16. Country specifics—GPD	Natural logarithms of the total production in the country	World Bank Database
B and δ	Coefficients	
$\acute{\varepsilon}$ and ε	Error term	

mean differences between dummy variables—board expertise, board independence, audit committee, corporate governance disclosures, CEO duality, internal audit presence and the Big Four. However, a *t*-test tests the mean differences among the remaining variables. From Table 2, in terms of (1) board size, the study records approximately eight for low/unhealthy and healthy/high-performing banks. Thus, the board size for the selected banks in Africa is within eight board members, as Jensen (1993) suggested. For the (2) board independence, the performance scores indicate a considerable proportion (approximately 30%) of the board of directors are non-executive directors and the members are independent. In terms of the (3) CEO duality, none of the scores is even more than 10%, indicating that over 90% banks in Africa do not have a CEO who also holds the chairmanship position. Regarding the (4) board expertise, the study records average scores within 28.9% and 30.1%, indicating that banks in Africa have a considerable number of board of directors members with accounting and audit experience. For the (5) audit committee, more than 50% of banks in Africa have audit committees.

The (6) corporate governance (CG) disclosures show that most banks in Africa disclose their governance systems in their annual report or financial statements. The study reports over 70% of banks in Africa provide information about their corporate governance systems in their annual report. In terms of (7) audit experience, the study shows that internal auditors of low-performing or unhealthy banks have approximately eight years of auditing experience. The audit experiences of roughly 10 years and 11 years are recorded for mediocre and healthy or high-performing banks, respectively. Regarding the (8) audit certification, the study records approximate average scores between 31.9% and 39.7%, indicating that banks in Africa have a considerable number of chartered accountants that are internal auditors. For the (9) internal audit presence, descriptive statistics show that over 88% of banks have internal audit departments. For the (10) objectivity, the result suggests that 63% of internal auditors in high-performing banks reports to the audit committee. For the (11) audit size, the result suggests that banks in Africa spent less than 13% of the total asset to resource the internal auditor's activities for the audit size.

Regarding the first control variable, (12) bank size is operationalized using the natural logarithms of total assets. Table 2 reports bank size within ranges of average logarithms scores of 6 and 9. In terms of (13) leverage, it is interesting that low-performing or unhealthy banks have higher leverage scores than mediocre and healthy banks. The low-performing banks have 70% of their total assets as liabilities compared to 65% for the high-performing banks. For the (14) banks' ages, the study records average

Table 2. Descriptive Statistics and Test of Difference.

Variables (measures)	Low mean/(%)	Low SD	Mediocre Mean/(%)	Mediocre SD	High Mean/(%)	High SD
1. Board size (no. of board size)*	7.521	3.584	8.241	3.149	8.258	4.011
2. Board independence (% of non-executive directors)	28.9%		29.5%		30.1%	
3. CEO duality (% if the CEO is also chairperson)	2.9%		8.5%		5.5%	
4. Board expertise (% of BOD with accounting and audit experience)***	28.9%		29.6%		30.1%	
5. Audit committee (% if there is an audit committee)	49.3%		52.1%		60.3%	
6. CG disclosures (% of banks that disclosed CG systems)***	71.0%		80.3%		82.2%	
7. Audit experience (no. of years of auditing experience)***	8.101	5.074	9.542	5.127	10.882	5.159
8. Audit certification (% of Chartered Accountants)	31.9%		36.6%		39.7%	
9. Internal audit presence (% of presence of internal audit unit)*	88.4%		90.1%		91.8%	
10. Objectivity (% of banks where auditors report to audit committee)	42.0%		59.2%		63.0%	
11. Audit size(ratio of the amount spent on internal auditors over total assets)	0.128 (0.119)	0.119	0.119 (0.078)	0.078	0.129 (0.120)	0.120
12. Bank size (log of total assets)	6.602 (3.001)	3.001	6.717 (3.128)	3.128	6.935 (3.202)	3.202
13. Leverage (total liabilities/total assets)	0.701 (0.539)	0.539	0.638 (0.485)	0.485	0.645 (0.501)	0.501
14. Bank age (no. of years since establishment)	50.115 (10.886)	10.889	54.210 (13.625)	13.625	55.420 (14.124)	14.124
15. Big Four (% external auditors that are BIG Four)***	62.3%		71.8%		72.6%	
16. Gross domestic growth (log. of total production)	14.126 (2.210)	2.210	14.725 (2.325)	2.325	14.963 (2.461)	2.461
Number of banks (Obs over 6 years)	69 (414)		71 (426)		73 (438)	

Note: Significance levels of the mean difference: *** $p < 0.1\%$, ** $p < 1\%$, * $p < 5\%$.

scores between 50 and 55, indicating banks in Africa have an average age of their existence between 50 and 55 years. In addition, the result shows that the healthy or high-performing banks engaged the (15) Big Four auditing firms compared to the low-performing banks. For instance, the high-performing banks use an average score of 72.6% of Big Four firms as their external auditors compared to 62% of low-performing banks and 71.8% of mediocre banks. The final control variable, (16) gross domestic growth, measured using the natural logarithms of the total production in the country, record approximate mean scores of 14.1, 14.7 and 14.9 for low, mediocre, and high-performing banks. These results suggest that high-performing or healthy banks link to an economy with total production or a booming economy. In sum, the descriptive statistics and test of difference record six significant variables among the variables. These are (1) Board size, (4) Board expertise, (6) CG disclosures, (7) Audit experience, (9) Internal audit presence and (15) Big Four.

Correlation and Multicollinearity

Table 3 reports the Pearson correlation matrix and variance inflation factor (VIF) to assess the data's multicollinearity, reliability, or validity. The study records 63 significant correlations among the variables used for the analysis and none of the *R*-values from the Pearson correlation matrix record more than 70% or 0.70. Gyimah et al. (2020) posit no multicollinearity when the *R*-values of correlation are less than 0.70. Like Aslam and Haron (2020), VIF should not be more than 2 to indicate no multicollinearity problems. These results partly reinforce no collinearity or multicollinearity among the variables. Thus, the complete data for the 213 banks used for the study is reliable and valid. The study further tests Shapiro-Wilk Test for Normal Data and the Heteroskedasticity to confirm data validity.

Shapiro-Wilk Test tests the strength of data normality (Razali & Wah, 2011). Razali and Wah (2011) suggest that the W value falls within 0 and 1 with p-value greater than 5%. All the variables are within the threshold with higher p-values ($p > 0.05$), suggesting that the sample is very likely to be normally distributed. The study further employs the Breusch–Pagan/Cook–Weisberg test for heteroskedasticity under the null hypothesis; constant variance (No heteroskedasticity). The study records a chi-squared of 0.71 with a probability of 0.512. The insignificant effect implies that the study fails to reject the null hypothesis and concludes that there is no heteroskedasticity between performance and the error term. Finally, the Hausman test records a chi-square of 0.00 with a probability of 1.000, implying that the random effect model is suitable for estimating the results.

Discussion of Results

Table 4 presents the ordered probit results according to the study's objectives. The test results show that all the models' significant levels are less than 0.05 or 5% ($p < 0.05$). Thus, the models are valid as they categorize the banks as unhealthy/low-performance, mediocre and healthy/high-performing more accurately than random guessing 99% of the periods in Africa. Moreover, the study reports high −2 logarithms likelihood (-2LL) for the models—model 1 and Model 2 recording −2LL of 883.45 and 899.53, respectively. The high −2LL indicates that the econometric models seem perfect and accurately predict the banks' performance. Further, the LR is the likelihood ratio (LR) Chi-Square similar to the *F*-test standard regression. Models 1 and 2 records LR at approximately 89%, suggesting that the models are valid in predicting low-performing/unhealthy, mediocre and high-performing/healthy banks in Africa.

Table 3. Correlation and Variance Inflation Factor.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	VIF
1. Board size																1.721
2. Board independence	0.24															1.702
3. CEO duality	0.31*	0.48*														1.820
4. Board expertise	0.15*	0.21*	0.18													1.722
5. Audit committee	0.34	0.26*	0.27*	0.22												1.715
6. CG disclosures	0.25**	0.08*	0.11**	0.09*	0.07**											1.711
7. Audit experience	0.51*	0.15	0.32*	0.31	0.29**	0.17										1.803
8. Audit certification	0.21	0.28*	0.24	0.29*	0.21**	0.30	0.33									1.716
9. Internal audit pres	0.05**	0.24*	0.08*	0.03	0.29	0.20	0.03*	0.17*								1.689
10. Objectivity	0.21	0.39*	0.29*	0.12**	0.23**	0.37*	0.22	0.11**	0.29							1.705
11. Audit size	0.06	0.52	0.35*	0.25**	0.21	0.50	0.30	0.22*	0.31	0.25						1.729
12. Bank size	0.12**	0.26*	0.48	0.27	0.45**	0.24*	0.41*	0.21	0.55*	0.31	0.24					1.782
13. Leverage	0.49	0.24	0.26**	0.14*	0.49	0.20	0.21	0.13***	0.40	0.33	−0.18	−0.21				1.789
14. Bank age	0.26**	0.68*	0.20*	0.18	0.45*	0.59*	0.20*	0.19***	0.35*	0.48**	0.25*	0.22	0.23			1.753
15. Big Four	0.34*	−0.25	0.24	0.27*	0.42	0.20	0.14**	0.37	0.29	0.27	0.37*	0.21	0.31*	0.12		1.761
16. Gross domestic growth	0.64*	0.19	0.54**	0.11	0.39*	0.28	0.28**	0.36*	0.37	0.15**	−0.34	0.18*	−0.10	0.29*	0.62	1.821

Note: Significance levels: *** $p < 0.1\%$, ** $p < 1\%$, * $p < 5\%$.

Table 4. Ordered Probit Results—CG, IAQ and Performance.

Variables	Model 1 Coef (SE)	Model 2 Coef (SE)
Board size	0.416* (0.205)	0.552*** (0.345)
Board independence	0.427 (0.317)	0.442 (0.310)
CEO duality	0.150 (0.260)	0.189 (0.224)
Board expertise	0.377*** (0.236)	0.182* (0.0172)
Audit committee	0.577 (0.298)	0.588 (0.2545)
Corporate governance disclosures	0.626* (0.224)	0.422** (0.211)
Audit experience	0.499** (0.389)	0.527*** (0.201)
Audit certification	0.468 (0.277)	0.567 (0.224)
Internal audit presence	0.566*** (0.278)	0.226*** (0.146)
Objectivity	0.616 (0.239)	0.629 (0.353)
Audit size	0.486 (0.154)	0.467 (0.246)
Bank size		0.282 (0.324)
Leverage		−0.429 (0.290)
Bank age		0.423* (0.514)
Big Four		0.447*** (0.422)
Gross domestic growth		0.528 (0.652)
Observation	1,278	1,278
Threshold parameters		
K1	1.805 (0.369)	1.739 (0.317)
K2	1.886 (0.362)	1.799 (0.327)
Model test results		
−2 log Likelihood	883.45	899.53
LR (zero slopes)	88.559	89.471
Model Sig.	0.000	0.000
Classification results		
Unhealthy/low perf. banks	30.7	29.6
Mediocre	30.2	30.0
Unhealthy/low perf. banks	39.1	40.4

Note: Significance levels: *** $p < 0.1\%$, ** $p < 1\%$, * $p < 5\%$.

Table 4 indicates that board size, board expertise, corporate governance (CG) disclosures, audit experience and internal audit presence are significant predictors of a bank's performance. Also, the control variables (like bank age and Big Four) increase the performance of banks in Africa. The study records a significant positive relationship between board size and performance. The descriptive statistics record the average board size of eight members which agrees with the suggested ideal size by Jensen (1993). The result implies that banks having at most eight board members can ensure effective monitoring that increases their performance. The result disagrees with the study of Aslam and Haron (2020), Hussian

et al. (2019) and Orazalin et al. (2016) which report an inverse relationship between board size and performance. However, the study agrees with the results of Nawaz (2019), which report similar outcomes.

The study also shows that there is a positive and significant relationship between board expertise and the bank's performance. The result implies that banks having board members that are professional accountants can increase the probability of high performance. The study agrees with Nalukenge et al. (2017) that found a positive relationship between board expertise and performance. In terms of CG disclosures, the positive relationship agrees with the studies of Li et al. (2012) and Sulub et al. (2020) that conclude that CG disclosures reduce fraud and error, minimize information asymmetry and increase internal audit quality, corporate governance and performance, Also, the positive relationship between audit experience and performance agrees with Prawitt et al. (2009), which stipulate that firms that have experienced internal auditors reduce financial errors and provide accurate information that enhances effective governance systems and internal audit quality and performance.

Additionally, the study reports a positive and significant relationship among internal audit presence, audit experience and performance of banks. These results agree with Sulub et al. (2020) which implies that having experienced auditors and internal audit departments contributes to internal audit quality, effective governance and performance of banks in Africa. Bank age records a significant positive relationship between bank age and performance, indicating that older banks contribute to the probability of performance. The result agrees with Orazalin et al. (2016) that report similar findings. Finally, the significant positive relationship between Big Four and the bank performance agrees with Alzeban (2020), asserting that a firm that engages the services of the Big Four firms for auditing purposes contributes to audit quality, governance and performance. Finally, the insignificant association for leverage indicates that debts do not predict audit quality, effective governance and the performance of banks in Africa. The result disagrees with Aslam and Haron (2020), that report an inverse relationship between leverage and performance.

Robustness Test

There is a concern that the data's residual variance is not constant in all the observed data, resulting in inaccurate outcomes. Thus, the study tests for the heteroscedasticity test or residual diversity test. Also, an autocorrelation test is performed to determine whether there is a correlation between residuals that are not independent of one observation to another with a time lag. The results (not presented to reserve space) show that the Modified Wald Test is significant (p-value < 0.05), indicating that there is no heteroscedasticity problem in the estimated model. Also, using the Wooldridge test in STATA, the p-value of 0.0031 indicates that there is no autocorrelation of the predicted models.

Implications

This study provides the foundation for developing more extensive internal audit and corporate governance mechanisms to prevent persistent bank failures in Africa. Thus, the study intends to add value to financial institutions by knowing the drivers that can help them avoid corporate failure and save operation and administration costs. Therefore, bank regulators in Africa should use the study's findings to develop strategies based on the outcomes to advance the financial sector's practices and performance. Further, the significant drivers predicting the financial performance can serve as a benchmark to avoid future

bankruptcy and liquidity crises in the banking sector. Also, the sustainable banking sector contributes to economic development in terms of job creation, poverty reduction, secured depositors' savings and social cohesion.

Shareholders of banks in Africa should revisit the appointment of board members (preferably eight members) to help improve audit quality, governance and performance. Also, shareholders of banks in Africa should appoint independent board members, preferably non-executive directors, to manage the affairs of the banks.

The bank's regulatory organizations and policymakers can use the findings in educating and granting or renewing their license to aspiring and existing banks. For instance, since disclosing corporate governance systems improve the bank's performance, regulatory authorities of financial institutions in Africa should make it mandatory for banks to disclose corporate governance mechanisms in their financial reports. Also, they should ensure that the majority of board members of the banks are professional accountants and the board size should not be more than eight members, as suggested by Jensen (1993).

In addition, banks should consider experienced internal auditors and establish an internal audit department if unavailable. The presence of an internal audit department and experienced auditors would help prevent fraud, errors, or risks in the banks' financial records and eventually affect the banks' performance. In addition, banks should engage the Big Four auditing firms for professional advice and auditing purposes to decrease the chances of bankruptcy.

Besides, the management of banks should institute more effective governance and internal audit quality mechanisms focusing on significant measures to strengthen the financial performance of banks. Advocacy global agencies such as World Bank, IMF, Africa Unions, United Nations and Central Banks should include the critical audit and governance factors in their policy documents from this study for efficient and effective corporate governance and internal audit practices among banks in Africa.

Theoretically, the study relies on institutional theory to open the 'black box' of the internal audit quality and corporate governance mechanisms that increase banks' financial performance (or decrease bankruptcy) in Africa. The study adds to extant literature suggesting that board size, board expertise, corporate governance disclosures, audit experience, internal audit presence, bank age and the Big Four are the significant factors that increase the performance of banks in Africa. These drivers advance the corporate finance literature that can aid in predicting bank performance in Africa.

Limitations and Further Research

The study presents the limitations with suggestions on how to improve these limitations in further studies. The study uses 213 sample banks from selected African regions and the generalization of the study may be challenging to cover the whole African continent. Future studies can duplicate this study using datasets from other developing countries on different continents to improve the generalizability of the results. However, banks in Africa have common characteristics and thus, results could still be helpful for policymaking in Africa. Also, future studies should consider other corporate governance like transparency disclosures and opinions of external auditors to make the model more robust. Finally, this study relies on robust and larger firm-level data from African countries, however, future studies can consider country-level measures such as cultural dimensions, regulatory requirements and governance systems.

Conclusion

The study examines the nexus between internal audit quality, corporate governance mechanisms and the financial performance of banks in Africa. The study finds that corporate governance measures (such as board size, board expertise and corporate governance disclosures) and internal audit measures (like audit experience and internal audit presence) drive the financial performance of banks in Africa. The conclusion is that banks in Africa can prevent bankruptcy and increase performance if they have board members that are experts in accounting and auditing, disclose corporate governance mechanisms to increase stakeholders' confidence and have experienced internal auditors.

The study extends the understanding of internal audit quality and corporate governance mechanisms that influence the performance of banks in Africa. Based on the findings, the study contributes to practical and pragmatic advice for stakeholders in the banking sector. Since there are no unified preditors of internal audit quality and corporate governance mechanisms advancing a bank's performance, the findings contribute to the theory of factors for the sustainable performance of banks in Africa.

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