

Sustainability Reporting and Capital Adequacy of Listed DMBs in Ghana, Kenya and Nigeria

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doi: 10.51505/IJEBMR.2023.7614

URL: <https://doi.org/10.51505/IJEBMR.2023.7614>

Received: June 6, 2023

Accepted: June 12, 2023

Online Published: June 15, 2023

Abstract

Meeting capital requirements for adequate banking services has become a complex issue. Prior studies had advanced that effective sustainability reporting influences corporate performance and banks' capital adequacy. Consequently, this study empirically examined how sustainability reporting affected capital adequacy. This study was inspired by the importance of sustainability reporting in improving corporate performance and deposit money banks' (DMBs') capital adequacy. The study used an *expo facto* research design and a sustainability reporting checklist of the Global Reporting Initiative for 12 years from 20 to 2021. Secondary data were extracted from the annual financial statements of the DMBs listed in Ghana, Kenya, and Nigeria. 95 DMBs made up the research population, and 35 banks were chosen for the study using a purposive sample strategy. The result of the analysis demonstrated that sustainability reporting exerted a positive significant effect on the capital adequacy of the listed DMBs in Ghana, Kenya and Nigeria adequacy (Adj R2 = 0.91, Wald-test (4, 367) = 3958.9, $p < 0.05$). The study recommended that the management of the banks should ensure the effective implementation of sustainability reporting regulations and compliance in order to increase corporate legitimacy and banks' capital adequacy.

Keywords: Capital adequacy, Corporate performance, Environmental indicators, Governance indicators, Social indicators, Sustainability reporting.

Introduction

The organization's main goal is to constantly expand and endure over the long haul, thereby increasing its corporate performance. Corporate performance is considered one of the means of strategic evaluation of how well a corporation can use its resources to increase the profits of the company. The majority of managers are aware that their companies are part of a much larger system that has a significant direct and indirect impact on how they conduct business. This suggests that in order for these companies to successfully and efficiently achieve their goals, they should make the necessary adjustments to their environment (Gao et al., 2023; Mahmut et al., 2022; Abdi et al., 2022). According to the systems model of viewing business, adapting organizations especially large ones to their environments denotes a reciprocal or symbiotic relationship between the "duos." This view is consistent with that of Kim and Oh (2019); Duque-Grissales and Aguilera-Caracuel (2021); Ghardallou (2022) who noted that given the current environmental crisis, businesses must do more to protect the environment.

The significance of corporate performance in deposit money banks (DMBs) is crucial and cannot be overstated. All companies must have an organizational strategy, especially during difficult times. Aguilera-Caracuel (2021) posited that the essential business drivers are maintained, and your strategic goals are carried out. It's crucial to keep in mind that corporate performance management is essentially a collection of smart business tools that assist organizations in measuring and improving their performance. However, all of these tools take into account a variety of organizational viewpoints, including learning and growth, business processes, customers, and finance. Shakil, et al. (2020); Muttanachai (2023) contended that the banks' fundamental economic and corporate performance is reflected in the stability and strength of the banking sector. The banking industry's capacity to provide the general public with high-quality, value-driven services is also unclear and understudied, and there is no clear agreement on whether the corporate performance of DMBs correlates with their sustainable performance, despite the fact that there is a wealth of literature on sustainability (Akben-Selcuk, 2019; Al-Jaifi, 2020). The quality of services provided for business performance in establishing sensitivity to operational market risks, responding to customers and stakeholders' sustainability reporting expectations, and a variety of discrepancies have been documented, are rather demanding and complex (Amorelli & Gracia-Sanchez, 2020; Ghardallou, 2022; Xie, et al., 2020).

Uncertainty exists regarding a company's capacity to fulfil in the fundamental areas of employee treatment and relations, service delivery quality and fairness, community relations, environmental issues, gender diversity, and sustainability reporting (Ben-Amar et al., 2019). In order to promote economic growth through the effective allocation of financial resources that are well-established with financial system sustainability within the economy, DMBs' corporate performance is essential in every country (Lotto, 2019). Financial resources cannot be directed to the economy's most productive sectors under a financial system lacking effective management (Birindelli et al., 2019). Despite the sharp decline in corporate performance at banks, quality and effective corporate performance remains crucial instrument for performance assessment (Chang, et al., 2018). Globally, inadequate capital funding tends to have a negative effect on banks' corporate performance, however, even when banks are adequately capitalized and profitably positioned, with stable funding; some of these banks are still vulnerable to large corporate defaults and deposit withdrawals (Dal Maso, et al., 2020; IMF, 2016; Jaouad & Lahsen, 2018). The nature and size of problems affecting banks' corporate performance largely depend on each nation's macroeconomic environment, and the ability of the banks to withstand these plausible macroeconomic shocks (Abar et al., 2017).

One of the challenges in countries of Ghana, Nigeria and, Kenya is that of poor corporate performance within their DMBs though at varying degrees. While Nigeria's poor corporate performance has been attributed to the executives of the banks being embroiled amassed with corrupt practices, insider trading and poor corporate governance practices (Asamoah et al. (2020); Yombo et al. (2021); the Ghana DMBs are quite fragile and quite emerging, yet there are uncertainties as to the extent of corporate performance considering the accumulated rots in the system over the years. Kenya DMBs are equally an emerging system not as broadened as the Nigeria banking system.

The problem of poor corporate governance has been the hallmark of the problem plaguing banks' effectiveness that had resulted in complexities of non-performing loans and inefficiencies (Adegbe & Adesanmi, 2020). According to Tomomewo et al., (2022), there is clear evidence of poor corporate performance by looking at the non-performing loans profile of the banks. Tomomewo et al., (2022), stressed in June 2019, non-performing loans stood at a whopping total of N1.4 trillion, representing (9 per cent) of the total loans in the economy, whereas the threshold set by the Central Bank of Nigeria was (5 per cent), a revelation of unprecedented absolute violation of regulations and non-compliance to prudential guidelines due to weak regulatory and compromising institutions in Nigeria alone.

The long-held digital technologies, innovations and digitalization of the banking industry were supposed to solve problems, though it has been solving problems, yet these technologies have created huge disruptions, new problems of huge cybercrimes and data breaches involving financial services firms, with each attack costing DMBs millions of US Dollars (Burlakoy, 2019). Apparently, Distributed Ledger Technology (DLT) and Blockchain are expected to play a significant role in solving problems of cybercrimes, incidentally, the existing infrastructures pose unprecedented and serious problems for DMBs (Barbera et al., 2019; Boshnak, 2021).

Wanguu and Kipkurui (2015) noted that Countries of Ghana, Kenya and Nigeria countries have not attracted adequate foreign direct investment in the region partly because the corporate performance of the banks is underreported and the extent of sustainability reporting has not been sufficiently disclosed, making the region appear to have been striving unethical and insider trading in their respective markets (Adegbe & Adesanmi, 2020; Maina, 2018). Therefore, research in this direction will bring an integral expected understanding of the significance of sustainability reporting as novelty research to the existing literature on the corporate performance of banks (Egbe et al., 2019). Hence, an empirical investigation to examine the efficiency of resource management in DMBs in Ghana, Kenya and Nigeria is considered justifiable and most appropriate at this time.

From Kenya: Ojera and Odoyo (2020) studied current sustainability reporting, in the case of public universities in Western Kenya, and some gaps were identified: One, the study considered only a region in Kenya (Western Kenya) for the study, while this study considered the entire Kenya and others. Two, the study considered only five Universities (Masero University, Egerton University, Moi University, and Kibabii University for only two years period (2017-2018). Two years period is considered inadequate to report sustainability reporting in a country. Three, the checklist employed was not in conformity Global Reporting Initiative (GRI) or the Global Standards of the International Integrated Reporting Committee (IIRC). Four, the study was not clear whether the dependent variable and its measuring proxy. There was clear evidence of a lack of in-depth empirical review carried out in the study of Ojera *et al.*, (2020). This study can be more robust and expanded in the current study. Apparently, while Ojera *et al.*, (2020) focused on 5 Universities, this current study made a shift to the DMBs different from the study carried out in Kenya.

Consequently, in contributing to knowledge and bridging gaps in the literature, this study examined the effect of sustainability reporting on the capital adequacy of listed DMBs in this study Ghana, Kenya and Nigeria. In addressing the problem of capital adequacy, this study considered the following hypothesis:

Sustainability reporting has no significant effect on the capital adequacy of listed DMBs in Ghana, Kenya and Nigeria.

The rest of the paper was fashioned in this form: In section one, the study considered a literature review and theoretical framework, and in section three the methodology was presented. In section four, the study provided data analysis, results and discussions. In section five, the study provided the conclusion, recommendations, limitations and suggestions for further studies.

2. Literature Review and Theoretical Review

2.1 Conceptual Review

Capital Adequacy

In this study, capital adequacy is one of the essential and important indicators of the financial health and capital position of the banks. Capital adequacy indicators are defined as the overall financial parameters that assess the financial health of banks and the capability of the management of the banks to meet the financial needs both on a short- and long-term basis (Abar et al., 2017). Capital adequacy indicators reveal the appropriateness and capital base sufficiency of banks in meeting their financial obligations (Ajili & Bouri, 2018). The adequate capital base tends to give assurance to depositors and other stakeholders on the ability of the banks to absorb the possible and potential losses generated by the inherent operations risks or other macroeconomic financial system vulnerabilities and imbalances, especially in developing economies and in particular in the Countries of Ghana, Kenya and Nigeria countries where banks had been exposed to various security challenges and lack of adequate capital base among the banks' operating within the African continent (Urban & Wojcik, 2019; Zorn et al., 2018).

Capital adequacy indicators allow the banks to maintain an appropriate level of capital base and retain depositors' and other stakeholders' confidence as well as preventing the possibility of sudden collapse or liquidation. Capital adequacy indicators are some of the indicators that measure the banks' ability to meet regulatory compliance with regard to minimum capital base and reserves in each of the countries in the African continent (Brin & Nehme, 2019). While there are international capital adequacy thresholds as established by the Basel III's total capital ratio requirements, the banks in the Countries of Ghana, Kenya and Nigeria countries had operated without regard to this minimum capital base threshold (Ngugi & Kihara, 2019; Main & Udoly, 2019; Agugum & Ajayi, 2020).

Sustainability Reporting

Sustainability reporting is defined as a corporate-determined decision to disclose and communicate economic, social, environmental, and corporate governance goals as well as the organization's process towards their disclosure (Waswa et al., 2018; Zobolotnyy & Wasilewski,

2019). In addition, Almansoori and Nobanee (2019) defined sustainability reporting as the gathering of required information in relation to social, economic, governance performance and environmental aspects of banking management. Most banks communicate their commitment to corporate social responsibilities (CSR) through social or sustainability reporting as the best means, periodically required by the public. From the banking perspective, Xie et al. (2020) defined sustainability reporting as voluntary or solicited disclosure of information concerning banking activities in relation to environmental, social, economic and governance issues of the banks. In related studies, Yahaya (2018); Walker et al.(2019, posited that sustainability reporting tends to report non-financial required information that can improve corporate transparency and corporate image. Yahaya (2018) posited that banks are required to critically play dual roles in the orate sustainability of the industry.

Environmental

According to Agbanike et al. (2019), environmental sustainability is the deliberate strategic plans of the banks to disclose information in relation to preserving the environment, conserving natural resources, efforts towards preventing or reducing pollution of all forms and reversing environmental damage as well as biodiversity. Environmental indicators in the study represent one of the measures of sustainability reporting of the banks. Alazzani et al. (2017) defined environmental sustainability reporting as voluntary or solicited information showing the banks' plans towards environmental protection and minimizing greenhouse gasses, wastes, and other harmful substances other than toxic by-products. Antoun et al. (2018) noted that incidentally, the banks have not shown much expected corporate commitment in contributing towards environmental protection and wrongly assumed that the protection of the environment only lies with the manufacturing and other industrial companies.

Social

Social sustainability reporting has been defined as deliberate efforts of the banks to disclose policies and strategies of the banks in threat of people and human capital of the banks (Fadare & Adegbe, 2020). Social indicators are in this study as some of the measures of sustainability reporting. The social element of sustainability of the banks is concerned with the promotion and enhancement of the mental health being of the people, physical and emotional welfare, and well-being of people in such that allow future generations to have better or similar benefits, in other words, the social sustainability relates to the equity of all employees. Also, Elmagrhi et al. (2019) defined social sustainability as the process of corporate organizational framework geared at promoting the well-being of a company's employees as well as supporting the capability of the generation to come to have a healthy future while carrying out their banking activities

Corporate governance

Corporate governance indicators are one of the measures of sustainability reporting that have been defined by Okafor (2018) as the disclosure of the banks or organization processes strategically put in place to ensure quality corporate governance practices capable to protect the assets and human capital of the banks or any other organization. Endiana et al. (2020) posited that governance sustainability reporting is essentially significant since it considers how well the

top management and the directors attend to the interest of the company and that of the various stakeholders' interest protection. The governance sustainability reporting seeks to disclose policies of the banks in protecting the interest of stakeholders- bank employees, banks customers, borrowers and depositors, the type of interest charges and the percentages, the default charges and processing fees, shareholders' treatment and the government. The extent the banks comply with regulatory guidelines and do the banks give back to the community where they are located (Sisaye, 2021; Umar et al. 2021; Agugom, 2020).

2.2 Theoretical Underpinning

Stakeholder Theory: The stakeholder theory was propounded by Freeman in the year 1984 in his famous book 'strategic management: Stakeholder's Approach' (Mutya, 2018). In the literature, some studies have supported the stakeholders' theory are reiterating what will likely motivate the stakeholders and the need for the management of banks in this instance to understand and meet the information needs, transparency and desires of the stakeholders (Brin & Nehme, 2019; Chang et al., 2018). In this perspective, the success or failure of banks and their consistent patronage by the depositors and other stakeholders for their banking products and services, are largely influenced by stakeholders' satisfaction (Birindelli et al., 2018). In most banks, the managers are pre-occupied with the pursuit of wealth maximization, prompt dividend payments and quick response to the information needs of the shareholders in Africa, but the same cannot be said of the stakeholders who hold a significant stake in the future of the banks in the African region Chikwendu et al., 2019). The ethical standards demand equity, and the same treatment for all, unfortunately, the managers do not have a better option than to attend to the demands and queries of the stakeholders in the current day business operations (Cucchiella et al., 2017).

Accountability Theory: Accountability Theory was developed by Fredrick Taylor in the year 1911 following the publication "The Principles of Scientific Management" in the year 1911 (Fredrick, 1911). In some literature, the accountability theory has been attributed to Lerner and Tetlock who made theoretical postulation in the year 1999 as one of the guiding principles of effective management in production and in factories (Tetlock, 1992). According to Fredrick (1911), accountability theory is concerned with the efficiency and scientific management of human and capital resources of an organization to ensure adequate human services in the public sector and corporate organizations. The need for human services becomes increasingly necessary as a result of increased demand for services, changing political and economic priorities and the inability of the employers to personally perform all these functions are they arise, hence the need for third-party participation, delegation and need for accountability (Tetlock & Boettger, 1989). The accountability theory further suggested that transparency and accountability are interrelated in private and public service where servants and ownership of businesses are obtainable as no one gives account to himself to another person and the act of accountability are essential since one will always be required to render accounts of service at one time of the servitude (Eargle et al., 2013).

2.3 Empirical Review

Tomomewo et al. (2022) investigated the DMBs' effect of sustainability reporting on capital adequacy and banks' performance. An ex-post facto research design was adopted for the study. Eleven (11) DMBs were selected from the population, using the judgmental sampling technique for a period of 10 years from 2009 to the year 2018. The data were extracted from the financial statements of the banks. Subsequent to the regression analyses conducted, the study found that the banks' capital adequacy had a passive attitude towards sustainability reporting across the years investigated. In addition, the study found that sustainability reporting had a negative and no significant effect on capital adequacy and also on firm performance among the sample and tested money deposit banks in Nigeria. This study done by Tomomewo et al. (2022) is in conformity with the study done by Olanyinka and Oluwamayowa (2014) whose study revealed that sustainability accounting reporting had a positive effect on the market value of the companies listed in the area tested. On the other hand, Tomomewo et al. (2022)'s study does not conform to the study result obtained by Osazefua (2020) whose result showed that sustainability practice had a negative relationship with performance in Nigeria.

Atanda et al. (2021) investigated the impact of sustainability financial reporting on capital adequacy and the firm value of selected DMBs in Nigeria. The study made use of secondary data, using data extracted from the financial statement of some selected DMBs. In addition, the study employed content analysis, using a sustainability disclosure index of environmental, social, and economic as measuring variables for a period of 5 years spanning from 2014 to 2018. The study used descriptive statistics and Ordinary least square regression analysis for the estimation of the specified data. The regression analysis carried out revealed that DMBs with a record of high sustainability accounting reporting and environmental disclosure tend to have low firm value. However, the study found that sustainable financial reporting had a positive insignificant effect on the firm value of the selected DMBs in Nigeria. The result obtained by Atanda et al. (2021), is similar to the result obtained by Xie et al. (2020). Though, the result from the study obtained by Atanda et al. (2021) is not consistent with the work of Nwaubani (2019). The study revealed that staff terminal benefit had a negative significant association with return on assets.

Nwaobia and Ihejeto (2020) investigated the effect of sustainability reporting on the capital adequacy and financial performance of selected DMBs in Nigeria. The study used an expo facto research design and a population consisting of thirteen (13) listed banks and ten (10) of the population were purposively selected for the study. Secondary data were extracted from the financial statement of the sampled DMBs. The validity and reliability of the data were premised on the external auditors' certification of the financial statements of the DMBs selected for the study. Besides, descriptive statistics and panel data regression analysis were done, while adequate diagnostics tests Hausman, Breuch-Pagan/Cook Weinberg were also carried out to test heteroscedasticity and multicollinearity to ensure no spuriousness of the data used. The study found that sustainability reporting had no significant effect on capital adequacy and return on assets (ROA), however, the study established that the controlling variables of firm size and age had a positive effect on sustainability reporting on the financial performance of the DMBs in Nigeria.

The study then recommended that the management of DMBs should leverage firm size and age in developing their sustainability reporting towards meeting stakeholders' needs and enhancing confidence among the stakeholders. The study of Nwaobia and Ihejieto (2020)'s result is in concordance with the result obtained by Xie et al. (2020) who found that sustainable financial reporting had a positive effect on firm performance and also had economic relevance in introducing corporate sustainability reporting practices in corporate organizations. Though Nwaobia and Ihejieto (2020)'s results are not similar to that of Nobanee and Ellili (2017). The study revealed that economic, environmental, and social dimensions of sustainability financial reporting had a negative effect on the capital adequacy and financial performance of United Arab Emirates (UAE) companies both the customary and Islamic banks operating in the country.

Okolie and Igaga (2020) looked at how financial performance and sustainability reporting affected the capital adequacy of listed DMBs in Nigeria. The study looked at the roles played by banks in reporting on the profit (economic), planet (environmental), and people (social) aspects of sustainability. The study used secondary data from 21 Nigerian banks listed for a six-year period starting in 2012 and ending in 2018. Utilising capital adequacy, return on assets (ROA), return on equity (ROE), and profits per share (EPS), the dependent variable of financial performance was assessed. The study's data were taken from publicly available financial statements of the study's chosen institutions for the time period under consideration. Regression analysis and descriptive statistics were used in the study to estimate. The study discovered that the financial performance and capital adequacy of the chosen DMBs in Nigeria were significantly improved by sustainability reporting. The research then suggested that, in order to make it easier to monitor profits and the effects of social and environmental factors on the operational operations of the banks, enabling laws should be put in place to require sustainable financial reporting compliance among Nigeria's DMBs. The findings from Okolie and Igaga (2020) and Forcadell et al. (2019) were comparable in that they demonstrated a favourable relationship between innovation and corporate ties in the banking industry. In contrast, the findings of Okolie and Igaga (2020) differ from those of Mojarad et al. (2018), who discovered that serving.

3. Methodology

The capital adequacy of listed DMBs in Nigeria was the subject of this study's investigation of the impact of sustainability reporting. The research design used in the study was *expo facto*. As of the end of December 2021, there were 95 listed DMBs in Ghana, Kenya, and Nigeria. A purposive sample method was used to choose 31 DMBs over the course of twelve years, from 2010 to 2021. Data were taken from the sampled banks' published financial statements and the Global Reporting Initiatives-compliant sustainability reporting criteria. The statutory audit of the financial accounts served as the foundation for the data's quality and dependability. The data were analysed using descriptive and inferential (multiple regression) statistics at a 5% significant level.

Model Specifications

$$Y_{it} = \beta_0 + \beta X_{it} + \mu_{it}$$

$$CA_{it} = \beta_0 + \beta_1 LCA_{it} + \beta_2 ENI_{it} + \beta_3 SI_{it} + \beta_4 CGI_{it} + \varepsilon_{it}$$

Where:

CA = Capital Adequacy, ENI = Environmental Indicators, SI = Social Indicators

CGI = Governance Indicators, MQ = Management Quality

β_0 = regression intercept which is constant, β_1 = the coefficient of the explanatory variables

ε = is the error term of the model, i = Cross-sectional t = Time-series

4. Data Analysis, Results and Discussions

This section provided the empirical analysis of the effect of sustainability reporting on capital adequacy of listed DMBs in Ghana, Kenya and Nigeria.

Table 1: Sustainability Reporting and Capital Adequacy

| | | Dynamic panel-data estimation, two-step system GMM | |
|--|--|---|--|
| | | MODEL I | |
| L.CA | Coefficient | 0.612 | |
| | Standard error | 0.034 | |
| | Z-Stat (Prob) | 18.02(0.000) | |
| SI | Coefficient | -0.042 | |
| | Standard error | 0.035 | |
| | Z-Stat (Prob) | -1.22(0.221) | |
| ENI | Coefficient | 0.042 | |
| | Standard error | 0.041 | |
| | Z-Stat (Prob) | 1.01(0.315) | |
| CGI | Coefficient | -0.013 | |
| | Standard error | 0.021 | |
| | Z-Stat (Prob) | -0.62(0.535) | |
| CONSTANT | Coefficient | 6.795 | |
| | Standard error | 1.472 | |
| | Z-Stat (Prob) | 4.62(0.000) | |
| Wald test | chi ² (4) = 3958.9(0.000) | | |
| Adjusted R-squared | 0.913 | | |
| AR(1) | Z = -1.03(0.000) | | |
| AR(2) | Z = 1.01 (0.313) | | |
| test of overid. restrictions | Sargan: chi ² (252) = 332.97 (0.000) Hansen: chi ² (252) = 26.93(1.000) | | |
| Exogeneity tests: instruments for levels | GMM | Hansen: chi ² (214) = 27.28(1.000) Difference (null H = exogenous): chi ² (38)= -0.34 (1.000) | |
| Exogeneity tests: Individual Instruments | | Hansen test excluding group: chi ² (249) = 25.64 (1.000) Difference (null H = exogenous): chi ² (3) = 1.29 (0.731) | |
| <i>Source: Researcher's Work (2023). Note: Capital Adequacy (CA), Lag of Capital Adequacy (L.CA), Environmental Indicators (ENI), Social Indicators (SI) and Governance Indicators (CGI)</i> | | | |

Source: Researcher’s Computations (2023)

$$CA_{it} = \beta_0 + \beta_1 CA_{it-1} + \beta_2 SI_{it} + \beta_3 ENI_{it} + \beta_4 CGI_{it} + \epsilon_{it}$$

| | | | | | | | | | |
|-------------|-------|---------|-------------|---------|-----------|---------|------------|--------|------------|
| $CA_{it} =$ | 6.795 | + 0.612 | CA_{it-1} | - 0.042 | SI_{it} | + 0.042 | ENI_{it} | -0.013 | CGI_{it} |
| Z-test = | 4.62 | | 18.02 | | -1.22 | | 1.01 | | -0.62 |

Interpretation of Post Estimation Test

The post-estimation tests from the System General Method of Moment were used to assess the suitability of the parameter estimates for the Model that studied the impact of sustainability reporting on the capital adequacy of listed DMBs in Ghana, Kenya, and Nigeria. The ideal four tests are as follows: the first tests the first autoregressive order's serial correlation with the null hypothesis that there is no serial correlation. Second, the second autoregressive order serial correlation test with the serial correlation null. Third, the model's provided null is a suitable instrument for the Hansen test of over-identifying limitations. Last but not least, the Sargan test, uses the model's provided null to determine whether the specified variables are valid instruments.

With a statistic value of -1.03, the serial correlation of an autoregressive function of order 1 is significant at 1%, which suggests that the null hypothesis of no serial correlation was accepted in favour of the alternative that there is a serial correlation. The consecutive error terms should be correlated, and the AR(1) should be substantial, according to the SGMM. The null of serial correlation was rejected and the alternative of no serial correlation was accepted since the AR(2), with a statistic of 1.01, is not significant. This is consistent with the literature's recommendation that the AR(2) be serial independent. As a result, the computed model has no autocorrelation.

According to the Difference-in-Hansen tests of exogeneity of instrument subsets for GMM instruments for levels, the result is a statistically insignificant -0.34 with a probability value of 100%. This suggests that the instruments are appropriate for the estimation and that the models are dynamically complete. Also statistically insignificant is the Difference-in-Hansen tests statistic of exogeneity of instrument subsets for the individual instruments, which is 1.29 with a probability value of 0.793. Inferring that there is no validity for including more instruments in the models, the null hypothesis of the Hansen test omitting this group of instruments was not rejected. This further validated the models' instruments' thoroughness.

Interpretation of Results

According to the findings in Table 1, there is proof that capital adequacy and the lag of capital adequacy are positively correlated. This suggests that raising the capital adequacy lag will result in raising capital adequacy. As a result, a 1% increase in the capital lag will result in a 0.612% rise in capital adequacy. The findings also showed a strong correlation between the capital adequacy of the chosen DMBs in Ghana, Kenya, and Nigeria and the lag of capital adequacy (LCA= 0.612, Z-test= 18.02, p 0.05). This suggests that variations in capital adequacy of the chosen DMBs in Ghana, Kenya, and Nigeria are significantly influenced by the lag of capital adequacy.

The findings also demonstrate a negative correlation between social sustainability reporting indicators and capital adequacy, which means that raising social sustainability reporting indicators will lower capital adequacy. For example, a 1% increase in social sustainability reporting will result in a 0.042 decrease in capital adequacy of the chosen DMBs in Ghana, Kenya, and Nigeria. The findings showed that there is no correlation between the capital sufficiency of the chosen DMBs in Ghana, Kenya, and Nigeria and the social sustainability reporting metrics ($SI = -0.042$, $Z\text{-test} = -1.22$, $p > 0.05$). This suggests that changes in the capital adequacy of the chosen DMBs in Ghana, Kenya, and Nigeria are not greatly influenced by social sustainability reporting.

As a result, a 1% improvement in environmental sustainability reporting will result in a 0.042 % gain in capital adequacy, according to the data, which also showed a positive association between capital adequacy and environmental sustainability reporting indicators. This suggests that rising environmental sustainability reporting metrics will cause capital adequacy to rise. Regarding the importance of the estimated parameter, there is evidence that there is no significant association between environmental sustainability reporting and the capital sufficiency of the chosen DMBs in Ghana, Kenya, and Nigeria ($ENI = 0.042$, $Z\text{-test} = 1.01$, $p > 0.05$). This means that changes in the capital adequacy of the chosen DMBs in Ghana, Kenya, and Nigeria are not significantly influenced by environmental sustainability reporting.

As a result, a 1% increase in corporate governance reporting will result in a 0.013 % decrease in capital adequacy for the selected deposited money banks in Ghana, Kenya, and Nigeria, according to the results of the corporate governance reporting indicators. This suggests that increasing corporate governance reporting will cause capital adequacy to decline. In terms of the significance of the computed coefficient, there is data showing that there is no significant correlation between corporate governance sustainability reporting and the capital sufficiency of the chosen DMBs in Ghana, Kenya, and Nigeria ($CGI = -0.013$, $Z\text{-test} = -0.62$, $p > 0.05$). This suggests that changes in the capital adequacy of the chosen DMBs are not significantly influenced by corporate governance sustainability reporting.

Adjusted R2: About 91% of changes in the capital adequacy of the chosen DMBs in Ghana, Kenya, and Nigeria are explained by the Adjusted R2, which measures the proportion of changes in capital adequacy as a result of changes in the lag of capital adequacy, social sustainability reporting indicators, corporate governance sustainability reporting indicators, and environmental sustainability reporting indicators. The remaining 9% of changes are explained by other factors.

The model's overall fit is indicated by the Wald test, which tests the null hypothesis that all coefficients in the model are zero. In this case, the Wald test is significant at the 1% level, indicating that the model as a whole is a good fit for the data. Alternatively, the Wald test statistic of 3958.9 with a probability value of 0.000 implies that the lag of capital adequacy, social sustainability reporting indicators, environmental sustainability reporting indicators, and corporate governance sustainability reporting indicators are joint significant factors influencing changes in capital adequacy of listed DMBs in Ghana, Kenya and Nigeria.

Discussion of Findings

The model investigated the effect of sustainability reporting on the capital adequacy of listed DMBs in Ghana, Kenya and Nigeria. The study regression analysis revealed mixed results. While the Log of capital adequacy (LCA) revealed a positive significant effect, social sustainability indicators (SI), and corporate governance sustainability indicators (CGI) exhibited a negative and insignificant effect on capital adequacy. However, the joint statistics using a combination of the entire explanatory variables showed that sustainability reporting had a positive effect on the capital adequacy of DMBs in countries of Ghana, Kenya and Nigeria. The concluding result is similar to some previous studies that have documented positive effects (Agbanike et al., 2019; Atanda et al., 2021; Evanhgelinos et al., 2020; Akinyele & Ogunleye, 2019; Lu & Herremans, 2019; Getaneh, 2019; Meher & Zabolotny & Wasileski, 2019; Mukherjee & Sen, 2019; Nwaobia & Ihejieto, 2020; Norhasimah, 2015; Nugroho & Arjowo, 2014; Okolie & Igaga, 2020; Oyewo & Badejo; Lartey. 2013Tomomewo et al., 2022;Xie et al., 2020). On the contrary, some other studies had found negative results (Adegbe & Dada, 2018; Akben-Selcut, 2019; Mojarad et al., 2018; Muhammed et al., 2014; Nobanee & Ellili, 2019; Nwaubani, 2019).

5. Conclusion, Recommendations and Suggestions for Further Studies

Conclusion

The objective of the study was to examine the effect of sustainability reporting on the capital adequacy of selected DMBs in Ghana, Kenya, and Nigeria. Using the generalized method of moment regression to test the hypothesis, the empirical analysis and findings resulting from the analyses revealed mixed results. The effect of each of the explanatory variables of social sustainability indicators, environmental sustainability indicators and corporate performance indicators was investigated. In the results, the Log of capital adequacy was found positive and significant, while social sustainability indicators, environmental indicators and corporate governance indicators exerted positive insignificant effects on capital adequacy. However, the joint statistics revealed a positive significant effect. This implied that the sustainability reporting had a positive effect on the capital adequacy of DMBs in countries of Ghana, Kenya and Nigeria. Arising from the findings, the study concluded that sustainability reporting provides opportunity for listed DMBs to increase their capital adequacy through effective performances.

Recommendations

- i. The study recommends that shareholders should be mindful of banks' operational policies in relation to sustainability reporting in the supply-chain banking service delivery, quality of banking products and product delivery to bank depositors and customers in general.
- ii. The study recommends that investors should be more careful when choosing investment destinations among the banks, as a diligent review of the bank's performance antecedents and financial regulatory compliance profile is recommended, while the calibre of managerial competence and constitution of the board of the banks is of essence.

Limitations and Suggestion for Further Studies

While this study had made significant contributions to knowledge, there were some limitations as the study could not cover all aspects of the banking sector rather than the selected banks in the countries selected for the study. Besides, the findings of this research were applicable only to characteristics and features of the selected components of sustainability reporting and corporate performance, as only 31 banks were selected because of the paucity of data due to the peculiarity of the variable chosen for the study. This study put forward the following suggestion for the benefit of extending the frontiers in knowledge and for further research studies in relation with sustainability reporting and corporate performance. Apparently, this study investigated the effect of sustainability reporting on corporate performance of listed DMBs in Ghana, Kenya and Nigeria. Further studies should consider other sectors like manufacturing companies, service companies, oil and gas and possibly other non-banking financial institutions in the financial sector.

6. Contribution to Knowledge:

In contribution to knowledge, the finding of the study would be useful to the managers, investors and policymakers in various ways. The study had provided the benefits of effective and consistent sustainability reporting. The managers of the banks would avoid the implication of possible penalties and sanctions for noncompliance. Investors are naturally attracted to banks with good profile of transparency and as revealed in the study, a corporate sustainability reporting would provide to the stakeholders a thorough examination of the banks and extent of compliance. The study identified places where finances are needed and where they must be controlled. As a result, it provided a comprehensive picture highlighting where to optimize expenses and savings and where to cut spending as well as risk management.

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