Bank Ownership Structures and Sustainable Banking Initiatives: The Moderating Effect of Governance Mechanism

Abstract

Bank regulators in the Sub-Saharan Africa (SSA) region are increasingly focusing on effective bank ownership structures (BOS) as a key corporate governance (CG) mechanism to drive sustainable banking disclosures (SBD). However, it is unclear whether BOS can lead to an enhancement in SBD. Understanding these key associations can help policymakers and banks design sustainable strategies to promote SBD. In this study, we fill this gap by investigating the impact of BOS on SBD and determining the extent to which broad CG disclosure moderates this relationship. We conduct a dynamic two-step system generalized method of moments model over an extensive dataset. We demonstrate that the relationship between BOS and SBD is contingent on the quality of the CG mechanisms. Bank ownership by institutions and foreign investors (government) positively (negatively) impacts SBD. Also, there is a negative but insignificant relationship between director ownership and SBD. Finally, the relationship between BOS and SBD is positively moderated by the extent of CG disclosure. This moderating effect improves for banks with quality CG mechanisms. We identify CG disclosure as the possible channel through which BOS and SBD are interlinked. Our findings call for banks to adopt and implement good governance disclosures to improve SBD.

Keywords: Bank ownership structures; Corporate governance; Sustainable banking initiatives; Environmental policy; Stakeholder engagement

1. Introduction

Corporate governance (CG) encompasses the ability of shareholders (usually influential owners) to influence top managers to achieve corporate objectives. Various scholars have progressively studied the beneficial implications of ownership structures of banks on sustainable decisions (Lopatta et al., 2017; Oh et al., 2011). Nevertheless, the existing literature has rarely investigated the moderating role of internal governance mechanisms on the link between bank ownership and sustainable board decisions.

This paper investigates the relationships between bank ownership structures (BOS) and sustainable banking disclosures (SBD) in Sub-Saharan Africa (SSA) banks. We argue that banks' engagement in SBD is driven primarily by the quality of their internal governance mechanisms. Consequently, we distinctively explore the moderating effect of the broad corporate governance disclosure index (CGI) on the BOS-SBD nexus. We further examine the extent to which various BOS impact the individual dimensions of SBD. Our study is motivated by the theoretical insights drawn from agency theory (Ntim & Soobaroyen, 2013a), stakeholder theory (Jones, 1995), resource-dependence theory (Pfeffer & Salancik, 1978; Branco & Rodrigues, 2006), and neo-institutional theory (NIT) (Haque & Ntim, 2020; Shahab et al., 2020).

Over the past two decades, there has been an increase in global efforts to safeguard the environment, foster economic viability, and advance social inclusion by creating and adopting corporate sustainable policies (Adu et al., 2022a; Haque & Ntim, 2020). Such global concerns have become particularly important for banks, especially after the 2008-2009 global financial crisis, as the long-term decisions of banks are usually conditioned by growing economic challenges, such as climate change, and social inclusion (Adu et al., 2022b; Alessi et al., 2021), stressing the need for corporate environmental plans for sustainable business (Adu et al., 2022b)[1]. Many central banks and financial regulators have encouraged banks to evaluate their

[1] Accordingly, national governments and supra-national organizations are becoming increasingly concerned about addressing these risks by implementing sustainability regulations (Baboukardos, 2018) For instance, the Sustainable Development Goals (SDGs) are a set of 17 overarching objectives set by the UN for 2030. The sheer scope of attaining the SDGs necessitates significant capital expenditures (Adu et al., 2022b). Accordingly, national governments and supra-national organizations are becoming increasingly concerned about addressing these risks by implementing sustainability regulations (Baboukardos, 2018)

role in sustainability and climate-related risks (Agliardi & Agliardi, 2021; Monasterolo et al., 2021; Lamperti et al., 2021). Banks' stakeholders increasingly demand responsible banking behavior, such as green technologies, green products, green finance, and green strategies (Adu et al., 2022b; Basse Mama & Mandaroux, 2022).

Consequently, several countries are gradually enacting various climate action policies to foster a sustainable economic environment (Haque & Ntim, 2020). For instance, over the last decade, countries in the SSA region have undertaken significant CG reforms in the banking system to boost the financial sector's accountability, transparency, and internal governance standards. In particular, the revision of CG codes in Ghana (2010), South Africa (2010), Nigeria (2011), and Kenya (2014) incorporated the expectations that quality CG mechanisms may be associated with SBD, such as care for the environment, social inclusion, community involvement, and stakeholder engagement (Adu et al., 2022b). Regrettably, prior studies have not examined this relationship.

Theoretically, the agency theory perspective (Ntim et al., 2013) elucidates that increased commitment to transparency and accountability through sustainable board decisions minimizes agency problems and improves sustainable banking ventures (Adu, 2022a). Concurrently, stakeholder theory maintains that sustainable board decisions, such as SBD, may reflect improved business ethics, trust, and cooperation. It could, in turn, mitigate agency conflicts, and associated costs, among corporate executives and all types of banks' stakeholders, especially shareholders (Lopatta et al., 2017; Jones, 1995). The theory also suggests that SBD ventures can serve as a channel to win over powerful corporate stakeholders who may be crucial to a corporation's ability to conduct economically sustainable operations, such as regulators, investors, the government, and employees (Ntim et al., 2013; Donaldson & Preston, 1995; Freeman & Reed, 1983). From the perspective of resource-dependence, higher commitment to sustainable board decisions such as SBD can increase access to essential resources, such as financing, by reducing capital and political costs through improved business image and reputation (Ntim et al., 2013; Pfeffer & Salancik, 1978; Branco & Rodrigues, 2006). Additionally, the neo-institutional perspective (Scott, 2001; Haque & Ntim, 2020) explains that institutional forces, including cognitive, normative, and coercive powers, influence banks to strive to gain efficiency and legitimacy by complying with sustainable guidelines and engaging in sustainable decisions

such as SBD. In the context of banks, shareholders may play a crucial role by ensuring that corporate executives effectively design and implement sustainable business policies while adhering to institutional norms and pressures (Adu et al., 2022b; Ntim et al., 2013).

Admittedly, previous research has focused on investigating banks' ownership structures' effect on sustainable corporate decisions and, to an extent, SBD (Lopatta et al., 2017; Block & Wagner, 2014; Oh et al., 2011). However, these studies appear to suffer from some limitations. First, prior research suggests that the quality of CG mechanisms can improve sustainable corporate decisions, including those relating to involvement in sustainable initiatives (Adu, 2022a). However, existing banking studies have focused on investigating the impact of individual CG variables (such as board independence and board size) on CSR (Bose et al., 2018; Jizi et al., 2014). Meanwhile, scholars maintain that CG is a complex concept to operationalize. Hence, using single indicators such as board independence may not be valid indicators for the multifaceted construct of CG that the researchers seek to assess (Adu, 2022a; Elmagrhietal., 2020). In support, Larcker et al. (2007) maintain that there can be potential measurement errors related to using individual CG indicators, thereby leading to inconsistent regression coefficients. To address this possible error in measurement associated with the use of individual CG indicators, scholars call for the benefit of broad CG indices that may capture comprehensive CG provisions (Adu, 2022a; Zhou & Chen, 2021; Elmagrhietal., 2020). Subsequently, a growing number of scholars have recently employed broad CG indices to capture the complex concept of CG (e.g., Adu, 2022a; Elmagrhietal., 2020). We respond to such calls by employing a broad CG index in the banking sector in SSA countries.

Second, prior studies (e.g., Cheng et al., 2022; Block & Wagner, 2014; Oh et al., 2014) exploring the effect of CG mechanisms on sustainable corporate initiatives have not explored the possible moderating effect of CG mechanisms on this relationship. This substantially limits our understanding of why and how CG mechanisms might moderate this relationship. This is regrettable because understanding these key interrelationships can help the board and policymakers to implement governance structures that will have a meaningful impact on SBD. For example, prior research has mainly investigated how various ownership structures, such as family ownership, affect the social dimension of SBD (Block & Wagner, 2014), while others have

also examined the impact of common institutional ownership on CSR (Cheng et al., 2022). Other related studies have explored the effects of institutional, managerial, and foreign ownership on corporate social responsibility (CSR) (Oh et al., 2014). Hence, we distinctively examine the moderating impact of broad CG mechanisms on the association between BOS and SBD. Finally, the study employs the under-researched context of SSA as there have been extensive governance reforms in the banking system in these countries over the past decade (Adu et al., 2022b).

Crucially, financial sector liberalization was widely considered a critical catalyst for boosting economic growth, and most SSA countries viewed it as a remedy for addressing capital accumulation, allocation, and other developmental issues (Adu, 2022b). Beginning in the mid-1980s, this argument fueled the implementation of key regulatory reforms in favour of financial sector liberalization in the region (Adu, 2022b). The outcome of the financial sector reforms in the region is a substantial change in the ownership structure of banks in the region. Similarly, countries in the region have undertaken key CG and integrated sustainability reforms over the past two decades.

More importantly, following these key reforms in the region, academics and banking practitioners maintain that it is critical for regulators and policymakers in the SSA region seeking greater integration of sustainability in the banking system to empirically examine the impact of bank ownership structures on sustainable banking decisions (Kim & Jo, 2022; Adu, 2022a). This study contributes to the literature on sustainable banking strategy, ownership structures, and CG in three ways. First, by focusing on weak institutional settings in the SSA region, we seek to broaden our understanding of the impact of key BOS on SBD after banking and CG reforms in the context of developing economies. We delve deeper to offer new insights into the effect of BOS on six dimensions of SBD in the region. In doing so, we respond to the call for moving CG discipline forward in an SSA context (Adu et al., 2022b; Adu, 2022a; Kim & Jo, 2022).

Second, to the best of our knowledge, our study is one of the early studies that begin to contribute to the moderation impact of CG mechanisms on BOS-SBD sensitivity literature through the lens of a multi-theoretical framework. Specifically, we consider both the direct effect of BOS on SBD and the moderating impact of broad CGI on the BOS-SBD nexus. Previous research has

not investigated the role of probable moderators in the relationship between BOS and SBD. Specifically, while there is limited research on CGI, BOS, and SBD in the banking system (Block & Wagner, 2014; Oh et al., 2014), research on the effect of CGI on the BOS-SBD relationship in a single study remains uncommon. Considering that BOS and CG mechanisms can act as complements and/or substitutes (Shahab et al., 2020), the study distinctively explores whether CGI can moderate the BOS-SBD sensitivity metric.

Finally, the study investigates BOS and SBD in the emerging context, and develops and theorizes the effect of broad CGI on the BOS-SBD in two samples. The study distinctively divides the sample into better-governed and poorly-governed banks to offer new insights. We argue that BOS's positive effect on SBD will be reinforced in banks with high CG mechanisms (better-governed banks). This implies that committing to higher levels of SBD is the one credible channel through which better-governed banks can distinguish themselves in a competitive banking system (Ntim et al., 2013). This study is among the first to conduct this investigation in better-governed and poorly-governed banks. The insights from our study highlight the importance of CG mechanisms in the banking sector and connect our findings to prior research that finds a positive effect of BOS on SBD. Thus, we contribute to our understanding of under-researched domains of CGI impact on this relationship and guiding not only managers but also policy makers in the SSA region.

Our findings, firstly, call for banks to adopt and implement good governance disclosures to improve SBD. Secondly, regulators must implement a collective approach when introducing regulations around monitoring and shareholders' interests' alignment for the SSA banks. Finally, our findings provide a better understanding to bank managers and regulators regarding responsible banking behavior by uncovering the factors affecting SBD, thereby helping them better manage SBD investments strategically.

The rest of the paper is structured as follows: Section 2 offers a background to the study. Section 3 reviews the theoretical and empirical literature, and develops hypotheses. Section 4 provides the data and research methodology. Section 5 discusses the empirical results, while the study's conclusion is provided in section 6.

2. Background: Corporate governance and sustainable banking reforms in the SSA context

The choice of the SSA region for the study emanates from the fact that relative to developed economies, the region has a weak institutional framework (Adu, 2022b). In addition, the countries have highly bureaucratic and corrupt governments with low levels of ‘‘voice and accountability’’ as well as weak regulation (Adu, 2022b). Besides, implementation of the Basel accords remains uneven across the region, with higher standards adopted in only a few countries (e.g., South Africa). The situation is complicated due to the lack of financial safety nets in the region (Adu et al., 2022b). Therefore, in an event of bank failures, they cannot cover 80% of deposits as evidenced in the recent banking crisis in the region (e.g., Ghana, 2018, Kenya, 2016, and Nigeria, 2009).

Many global banking failures in the 1990s and 2000s highlighted the need for quality internal governance, transparency, accountability, and responsible banking (Ntim et al., 2013; Mallin, 2002). Subsequently, several countries have undertaken CG reforms (Nguyen et al., 2020). It is worth noting that such CG reforms, mainly those carried out in Anglo-Saxon countries, have primarily concentrated on financial considerations (Ntim & Soobaroyen, 2013b). However, the CG reforms implemented in the SSA region have mainly focused on non-financial and financial aspects of CG, including integrated sustainable business initiatives (Adu, 2022a; Ntim et al., 2013). We reason that this produces a natural and unique environment for studying the interrelationship among CG, BOS, and SBD.

Since the late 1990s, and particularly following many significant financial failures, such as the collapse of Nedbank firms in South Africa, the need to enhance CG standards in the SSA countries has intensified (Adu et al., 2022b; Ntim & Soobaroyen, 2013b). Weak CG mechanisms, including poor accountability, transparency, and environmental risk management, were characteristics during that time (Adu, 2022b; Ntim et al., 2013). The well-known Kings Report of South Africa, published in 1994 in response to recurrent concerns about the need for greater openness in financial reporting and accountability, marked the beginning of the region's CG reforms.

Manifestly, many countries in SSA have published their specific CG codes, including South Africa, Nigeria, Botswana, and Kenya. For example, the King Report on CG (1994) of South Africa,

as well as those relating to Kenya (2002), Nigeria (2003), and Ghana (2010), were all issued to improve financial reporting (Adu, 2022a). Revised CG codes have been published in the region to address the initial codes' limitations and incorporate international best practices. The revised King Reports (2002, 2010, and 2016) of South Africa, as well as those relating to Nigeria (2011 and 2018), Kenya (2002 and 2014), and Ghana (2018 and 2022), are all inherently focused on promoting corporate sustainable initiatives (Adu, 2022a). For example, the revised codes (hereafter referred to as the Combined Code) have extensive sections on sustainability. Concerning SBD application and reporting, the Combined Code has key provisions concerning (i) environmental engagements, (ii) social inclusion, (iii) health and safety, (iv) ethics and human rights, (v) community involvement, and (vi) employee disclosures. A fundamental expectation of the Combined Code is the prospect that effective CG mechanisms can improve the ownership structures of banks and the involvement of banks in sustainable business initiatives.

More importantly, to improve the quality of CG in the SSA region, the Combined Code focuses on four critical CG disclosures, namely: (i) director and board, (ii) audit, accounting, and transparency, (iii) risk management and internal control and (iv) compliance and shareholder enforcement. In summary, the SSA region has arguably and distinctively pursued a combination of CG and SBD reforms compared with other Anglo-American countries. Yet, crucial issues still exist around whether a voluntary compliance regime like the Combined Code can effectively enhance CG and SBD standards in the region. Within this context, our study investigates the relationship between BOS and SBD and, consequently, ascertains whether CGI moderates this relationship.

3. Theory and review of the literature

3.1 Theoretical framework

Although interest in SBD has increased over the past ten years among academics and businesses (Adu et al., 2022b; Xing et al., 2021; Ntim et al., 2013; Nandy & Lodh, 2012), a comprehensive and unified theoretical framework for examining and explaining corporate reasons for engaging in it has not yet been developed (Adu, 2022a). Existing studies often draw on various social-based theories, including stakeholder and legitimacy theory, and economic-

based theories, such as agency theory and resource dependence theory (Lopatta et al., 2017; Oh et al., 2011). While socio- and economic-based theories have been mainly employed to explain banks' motivations for engaging in SBD (Adu, 2022a; Dam & Scholtens, 2012), they have shown a limited ability to thoroughly explain the various drivers of SBD initiatives (Adu et al., 2022a; Ntim et al., 2013). As the preceding suggests, there is an apparent weakness in each theoretical perspective's ability to explain SBD. Given the diversity in banks' motivations for SBD, we argue that a multi-theoretical framework[2] will be the most suitable theoretical framework to simultaneously capture the direct and indirect complex and multi-dimensional associations among CGI, BOS, and SBD, which intrinsically involves several institutions and stakeholders who have conflicting interests.

First, agency theory (AT) calls for the design of enterprising contracts and effective monitoring mechanisms to safeguard the interests of shareholders (Ntim & Soobaroyen, 2013a). In this setting, AT suggests that CG mechanisms influence corporate sustainable initiatives (Adu, 2022a). In brief, AT expects CG mechanisms to impact SBD positively. In addition, the theory contends that a net decline in agency costs (effective monitoring) from establishing good CG mechanisms by influential bank owners can lead to an increase in SBD (Ntim & Soobaroyen, 2013a). The agency theory perspective provides a vital channel through which CGI can moderate BOS-SBD sensitivity. It argues that CG mechanisms can be considered a strong dimension or pillar of SBD (Adu, 2022a). The inference is that, in better-governed banks, corporate executives may pursue SBD as a credible way of minimizing conflict with bank owners who may be keen on the long-term sustainable value creation of their investments (Adu et al., 2022b; Ntim & Soobaroyen, 2013a). This implies that, in better-governed banks, corporate executives tend to focus on sustainable corporate decisions as a win-win strategy, demonstrating that CGI may have a moderating impact on the BOS-SBD nexus.

[2] However, we are aware that there could be issues with incompatibility when many theories are combined (Reverte, 2009). In light of the expectation that a multi-theoretical framework will concentrate on key concepts that are shared by all theories (Ntim et al., 2013), theories such as agency, stakeholder, resource dependence, and neo-institutional theory were chosen due to the similarities in their fundamental arguments. Additionally, we reason that it is appropriate to adopt a multi-theoretical framework because SBD is diverse in nature and encompasses both shareholders, investors, regulators, governments, environmentalist and other stakeholders. As a result, some theories may be more useful in explaining specific SBD than others.

Second, and closely related to AT, resource-dependence theory (RDT) maintains that banks that engage in high levels of sustainable corporate decisions in the form of increased SBD may gain a unique competitive advantage through access to vital resources, including deposits (Pfeffer & Salancik, 1978; Branco & Rodrigues, 2006). This theory, therefore, encourages banks to undertake SBD. Admittedly, it is costly to engage in SBD, at least in the short-term (Barnett & Salomon, 2006). However, benefits of SBD investments may accrue to the bank in the form of a flow of critical resources such as contracts, human capital, corporate image, and reputation (Adu, 2022a; Ntim et al., 2013; Branco & Rodrigues, 2006), as well as a cheaper cost of capital and deposit (Mallin, 2002).

Third, stakeholder theory (SHT) stresses the need for banks to manage complex and conflicting relationships with their stakeholders. This theory maintains that banks can reduce transaction and agency costs by engaging in sustainable initiatives that affect diverse stakeholders, including shareholders (Dam & Scholtens, 2012; Jones, 199; Freeman, 1984). The initiatives may affect the stakeholder if the initiatives have a positive contribution to the goals and aims of that stakeholder. For instance, a bank owned mainly by unions may improve health and safety standards above what is legally required (Dam & Scholtens, 2012). When a bank's sustainable initiatives are interpreted as a sign of operating responsibly, there may also be an indirect influence (Dam & Scholtens, 2012). This may strengthen the relationship between the bank and its various stakeholders. Noticeably, both approaches lessen issues with agency conflicts (Dam & Scholtens, 2012). Hence, SBD can serve as a way of "neutralizing" agency concerns as it can be employed as a technique for resolving conflicts (Harjoto & Jo, 2011). The theory expects a beneficial relationship between CGI, BOS, and SBD in this case.

Finally, the neo-institutional theory (NIT) posits that banks could achieve societal acceptance by voluntarily embracing and/or adhering to established institutional standards, rules, and norms (Scott, 2001; DiMaggio & Powell, 1983). For example, adhering to the sustainability principles outlined in the Combined Code may enhance legitimacy by improving the banks' reputation and further economic efficiency by providing access to vital resources. In this setting, SSA banks may adhere to SBD policies established by their national authorities. Additionally, banks may comply with international requirements (such as the SDGs and the Global Reporting Initiatives) or learn

from peers' best practices (Haque & Ntim, 2020). For instance, adhering to SDGs may increase banks' legitimacy by boosting their reputation and economic efficiency because of access to vital resources. Critical resources in the banking sector include access to funding or deposits through establishing connections and securing the backing of numerous influential stakeholders. Banks can accomplish this in this regard by putting SBD strategies into practice (Adu et al., 2022b). Hence, it can be reasoned that banks can gain social acceptance and legitimize their operations by undertaking SBD. Based on the overlaps or interdependencies among the four theories, we maintain that a combined theoretical framework will provide a more prosperous basis for understanding and explaining the motivations for SBD in the SSA banking setting.

3.2 Literature Review and Hypothesis Development

3.2.1. Sustainable banking disclosures: Bank ownership mechanisms

Institutional ownership relates to the stock market investments of institutional investors (Dam & Scholtens, 2012). Agency theoretical perspective maintains that owing to their substantial ownership stakes, institutional owners have extra incentive to effectively monitor banking disclosures (Ntim et al., 2013b). Institutional owners play a crucial role in bank governance through external monitoring (Bose et al., 2017). In this context, bank executives will be expected to provide more disclosures, including SBD, to satisfy institutional shareholders as influential bank stakeholders (SHT) (Adu, 2022a; Ntim et al., 2013), as well as to win their support to legitimize (NIT) or guarantee their continued stewardship of the bank and its resources (RDT) (Ntim et al., 2013; Chen & Roberts, 2010).

Since institutional shareholders invest primarily on behalf of ultimate owners like insurance companies, pension funds, and employees, they might be seen as delegated monitors (AT and SHT) (Ntim et al., 2013). Since the primary goal of these investments is to increase shareholder value, institutional shareholders are often very interested in quality CG and sustainable corporate decision concerns (Dam & Scholtens, 2012). In this case, institutional owners are more likely to engage in the bank's strategic decisions, such as investment and sustainable value creation projects, than small investors because they frequently own a sizeable amount of a bank's shares that cannot be quickly sold (Adu et al., 2022b; Ntim et al., 2013).

Synthesizing literature reveals that several studies have investigated the relationship between institutional ownership and CSR (Cheng et al., 2022; Dam & Scholtens, 2012; Ntim & Soobaroyen, 2013a; Oh et al., 2011). For example, Oh et al. (2011) report a positive relationship between institutional ownership and CSR. Likewise, Ntim and Soobaroyen (2013a) observe that institutional ownership leads to high CSR disclosures. Other authors (Dam & Scholtens, 2012) find that institutional investors have no significant impact on CSR. By contrast, Cheng et al. (2022) document that common institutional ownership is negatively associated with the level of CSR. Additionally, Bose et al. (2017) observe a positive association between the philanthropy constituent of CSR and institutional ownership of banks. Furthermore, Bose et al. (2018) find that institutional ownership positively affects the level of green banking disclosure. However, previous studies examining the relationship between institutional ownership and SBD are uncommon. In this setting, Bose et al. (2018) and Bose et al. (2017) are rare exceptions, with the two investigations observing that institutional ownership is positively related to SBD's environmental and philanthropic dimensions, respectively.

Therefore, institutional ownership is expected to play a significant role in driving SBD, as in the SSA banking context, due to its widespread institutional ownership, mainly manifested in pyramidal structures and complex cross-shareholdings (Ntim et al., 2013). This implies that institutional investors are more likely to be essential drivers of SBD. More importantly, based on the notion that the Combined Code encourages institutional shareholders to seek to improve SBD actively, we state our first hypothesis as follows:

H1: There is a positive relationship between institutional ownership and the extent of sustainable banking disclosures.

Government ownership refers to stock investments by state institutions. Across the globe, various governments seek to enhance the quality of sustainable business decisions (Dam & Scholtens, 2012). Based on the recommendations of the Combined Code relating to SBD (Adu, 2022a; Ntim et al., 2013), this study expects that SSA banks with substantial government stakes will actively work to secure the support of the various governments as influential stakeholders (SHT) (Ntim et al., 2013; Gray et al., 1995; Freeman & Reed, 1983) by complying with the

Combined Code standards (NIT) (Hague & Ntim, 2020; DiMaggio & Powell, 1983) through either symbolic and/or substantive SBD that can lead to legitimization (NIT) of their operations (Suchman, 1995; Ashforth & Gibbs, 1990). Notably, this can ensure that the banks gain access to vital resources (RDT) (Branco & Rodrigues, 2006; Pfeffer & Salancik, 1978). For example, NIT posits that government has coercive powers to scrutinize and regulate CSR actions in banks with substantial ownership (Jain & Jamali, 2016).

Although AT contends that improved SBD can assist in resolving agency issues between bank executives and the government as a powerful shareholder (Jensen & Meckling, 1976), other researchers contend that government ownership exacerbates agency issues by undermining the efficacy of internal managerial oversight, including disclosure procedures (Ntim et al., 2013; Jia et al., 2009). The implication is that strong political ties linked with substantial levels of government ownership can lead bank executives to pursue self-centered political goals that may have a detrimental effect on the sustainable corporate outcome and, to an extent SBD.

Notwithstanding, banking reforms through the privatization of state banks in the SSA region have reduced government stakes to a relatively low level but with the strategic intention of promoting CG, CSR, employment, and growth (Ntim et al., 2013; Ntim & Soobaroyen, 2013b). A number of these political and economic objectives frequently clash directly with the aim of private investors to maximize profits (Ntim et al., 2013). Meanwhile, prior research maintains that the higher level of such conflicts among influential stakeholders (SHT), such as private investors and government, the greater the necessity for resolution through improved disclosure, including SBD (Ntim et al., 2013; Dam & Scholtens, 2012).

In line with the conflicting theoretical suggestions, prior research findings are mixed. For instance, whereas Dam & Scholtens (2012) document that government ownership is associated with poor CSR performance, Ntim & Soobaroyen (2013a) and Khan et al. (2013) report that government ownership is positively associated with CSR. By contrast, Van der Zee (2012) observes that most sovereign wealth funds do not account for CSR issues.

The SSA countries' governments have relatively low ownership in the banking sector. The various governments hold strategic ownership stakes in the banking sector with an explicit

interest in promoting CG, responsible banking, and disclosures, including SBD (Ntim et al., 2013), despite the mixed findings and given the specific role of the provisions of the Combined Code, our second hypothesis is that:

H2:There is a positive relationship between government ownership and the extent of sustainable banking disclosures.

Foreign investors may influence internal corporate practices (Jeon et al., 2011). Based on NIT, firms seek legitimacy in addition to 'economic efficiency (Scott, 2001). For instance, foreign investors habitually deploy social engagement (SHT) to build a competitive advantage (McGuinness et al., 2017). Meanwhile, it has been suggested that the presence of foreign investors can lead to the establishment of quality CG mechanisms, including sustainable board decisions, which can encourage banks to undertake CSR initiatives (Oh et al., 2011). Concurrently, Huafang and Jianguo (2007) observe that US and European investors frequently pressure foreign companies to engage in CSR investments according to their CSR expertise and experience. Other scholars also observe that foreign investors tend to pressure domestic firms with substantial investments to adopt and implement “clean” technology (McGuinness et al., 2017). This suggests that foreign owners can offer a more direct and effective channel for engaging in SBD activities (McGuinness et al., 2017).

Some prior studies empirically document that foreign ownership positively impacts CSR performance (McGuinness et al., 2017; Oh et al., 2011). In particular, Oh et al. (2011) find that foreign investors are associated with increased CSR ratings.

Given the arguments above, we state our third hypothesis as follows:

H3: There is a positive relationship between foreign ownership and the extent of sustainable banking disclosures.

Director ownership refers to the percentage of ordinary and deemed shares held by executive directors (Eng & Mak, 2003). The effect of director ownership on SBD can be explained from two theoretical perspectives (Jain & Jamali, 2016). From a theoretical perspective, bank director ownership can inspire directors to forgo short-term profits in favor of long-term sustainable value

creation such as SBD activities (Johnson & Greening, 1999; Hansen & Hill, 1991). In particular, directors with shares in banks tend to have extra incentive to articulate, represent and help align bank executive's interests with that of shareholders (Jain & Jamali, 2016; Walsh & Seward, 1990) and other stakeholders (SHT), which can have a beneficial impact on SBD.

Alternatively, director ownership can activate directors' economic self-interest with a detrimental impact on SBD (Jain & Jamali, 2016). According to theories based on managerial entrenchment, director ownership can improve managerial discretion in decision-making (Hayward & Hambrick, 1997). Directors are expected to uphold their moral obligations usually (Quinn & Jones, 1995); however, entrenchment is typically seen to promote socially irresponsible conduct (Jain & Jamali, 2016). In support, McGuinness et al. (2017) assert that entrenched director ownership militates against CSR commitment, leading to lower SBD. Director ownership may also be driven by the desire to keep the bank operating at all costs, which may lead to a preference for conventional production methods and a lack of financial support for resource-saving technologies (Dam & Scholtens, 2012), with a detrimental impact on SBD. In particular, Ghazali (2007) argues that managers of banks with substantial director ownership may not engage in a high level of socially responsible activities because the costs of investing in these activities far outweigh their potential benefits.

Prior studies find support for such claims as they observe a negative relationship between director ownership and the extent of corporate disclosures (Ghazali, 2007; Eng & Mak, 2003). For example, Haji (2013) and Ghazali (2007) find that firms with directors who have a substantial share disclose significantly less CSR information. Similarly, Oh et al. (2011) find that shareholding by top managers is negatively associated with the CSR rating of firms, while outside director ownership does not influence CSR ratings. For the SSA banking context, banking regulators encourage insider owners to abide by the provisions in the Combined Code to enhance corporate disclosure, including SBD. Therefore, our fourth hypothesis is that:

H4:There is a positive relationship between director ownership and the extent of sustainable banking disclosures.

3.2.2 Corporate governance: bank ownership mechanisms and sustainable banking disclosures

Agency theory suggests that CG mechanisms can potentially strengthen or weaken the impact of BOS on SBD (Ntim & Soobaroyen, 2013a). Emerging empirical insights imply that although the stock market value effective CG and sustainable corporate disclosures, CG disclosures are valued much higher than SBD (Adu, 2022a; Ntim & Soobaroyen, 2013a). This suggests that any possible benefits of BOS on SBD may come from the positive impact of CG mechanisms on BOS, and as a result, an increase in SBD may be driven more by CG mechanisms than by BOS. More crucially, earlier research provides a crucial channel through which CGI might strengthen the link between BOS and SBD. According to findings from earlier studies, CG mechanisms act as solid pillars, dimensions, and/or complements of SBD (Adu, 2022a; Ntim & Soobaroyen, 2013a). This idea implies that a good CG mechanism can be extended to include SBD. This demonstrates that bank executives may seek to raise their SBD investments as a crucial strategy for avoiding conflicts with stakeholders (SHT) in well-governed banks (i.e., banks with high levels of CGDI) (Adu, 2022a). Due to the decrease in conflicts of interest with the various stakeholders, particularly powerful shareholders, through efficient, good CG mechanisms, BOS will in this setting have an increased beneficial influence on SBD (Adu et al.,2022b; Ntim & Soobaroyen, 2013a).

By contrast, fewer SBD investments are likely to be undertaken in banks with weak governance (i.e., banks exhibiting low levels of accountability, transparency, corruption, fraud, and managerial violation), which might exacerbate conflicts among the bank's larger stakeholders such as powerful owners of the bank (Adu, 2022a; Jo & Harjoto, 2012). Frequent labor strikes, consumer boycotts, and more regulatory or governmental action may result from this (Ntim & Soobaroyen, 2013a), with a detrimental impact on SBD.

However, prior studies (Cheng et al., 2022; Dam & Scholtens, 2012; Ghazali, 2007) only examine the direct influence of BOS on SBD without considering the potential moderating effect of CG mechanisms on this relationship. Accordingly, we suggest that the relationship between BOS and SBD in the SSA region can be influenced by effective CG mechanisms as determined by compliance with the Combined CG Code. We also expect that the BOS-SBD nexus will be more

substantial in banks with high CGI scores (better-governed banks) and lower in banks with low CGI scores (poorly-governed banks). Hence, the final hypothesis to be investigated is as follows:

Hypothesis 5: Corporate governance disclosure index (CGI) moderates the relationship between the various components of bank ownership structures (BOS) and sustainable banking disclosures (SBD), with the connection being stronger in banks with high corporate governance disclosure index scores.

4 Research design

4.1. Data considerations

Our sample is based on all banks in 16 Sub-Saharan Africa (SSA) countries. These countries are Botswana, Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mauritius, Namibia, Nigeria, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. The decision on the countries was influenced by the similar CG and banking reforms carried out in each nation over the past ten years. Nevertheless, the 16 SSA countries have the most matured banking and capital markets in the region. For instance, the total GDP of the selected countries stood at US$2,885.78 billion as of 2018 as compared to the GDP of the entire SSA of US$4,200.85 billion and accounted for over 70% of the total GDP in the region (Adu, 2022a). We also chose these countries because they all share English as their official language. Due to the hand-collection nature of the CGI and SBD variables, this helps data collection by removing the language barrier (e.g., Adu, 2022a; Ntim, & Soobaroyen, 2013a). The sampled banks' annual reports, obtained from the institutions' websites, were used to compile the CG and sustainable banking disclosures. Bank financial information was gathered from BankScope and supplemented with information from annual reports where necessary. The country-level data, including GDP and governance quality, were collected from the website of the World Bank, while inflation came from the International Monetary Fund's website.

The study sample period starts in 2007 and ends in 2020. The sample timeframe spans the pre-, during, and post-CG reforms periods in the SSA countries. This helps assess whether the CG reforms have helped improve CG standards, particularly regarding influencing BOS and SBD in the countries. The sample period ends in 2020, the most recent year for which data was available

for the sampled banks during the study period. Table 1 provides the final dataset, which includes 220 banks with 2590 bank-year observations.

[Insert table 1 about here]

We excluded banks with missing data or whose annual reports were not published in line with prior banking literature (Adu, 2022a). Next, consistent with existing studies, we removed foreign-owned banks that released their annual reports as consolidated financial statements globally (Adu et al., 2022b). Additionally, specialized financial institutions with characteristics and practices comparable to those of commercial banks were included in the study's sample. As in earlier research in the SSA countries, this was done to establish uniformity in the sampled banks (Adu, 2022a).

4.2 Definition of variables and model specification

We classify the variables into four main types, with full definitions provided in Table 2. First, in line with prior research, we develop the SBD index based on disclosures taken from the banks' annual reports (Adu et al., 2022b). This is due to the limited coverage that rating agencies have for banks in the SSA region. The study affirms that a combination of quantitative and qualitative disclosures based on a content analysis technique is more objective and illuminating, in line with Adu et al. (2022b). We employ this approach to analyze six broad areas as set out in the Combined integrated sustainability guidelines in the SSA countries. In addition, these SBD parameters were chosen in accordance with the recommendations in the 2016 Global Reporting Initiatives. Specifically, the six comprehensive sustainable business practices parameters include 135 sustainability disclosures: (i) environment (21), (ii) health and safety (40), (iii) ethics and human rights (12), (iv) social (27), (v) community involvement (21) and (vi) employees (14).

As presented in Appendix 1, we follow a well-established line of scoring of sustainability disclosures (Adu et al., 2022b; Ntim & Soobaroyen, 2013a) to construct SBD based on qualitative and quantitative scores. The qualitative-based scores include (i) rhetorical or general (including occasions of ritualistic and repeated) statements considered to be mainly symbolic with no indication of actual activities/actions on the ground (with a score of ‘1’) and (ii) a narrative of what has been attained or deemed to be a message of assurance by the bank (beyond symbolic)

with a score of‘2’ (Adu, 2022a). Next, our first quantitative-based score is employed to determine whether the qualitative statement provided in (ii) above is supported by quantitative or monetary numbers (with a score of ‘3’). This is considered to be substantive as the banks offer accounts of the measure of initiatives completed. Our final quantitative score is based on information provided in the first quantitative measure (with a score of ‘4’). If the first quantitative score above is supported by clear valuations of performance (compared to the previous year) or actions (when even they are a ‘negative’ event), which allows evaluation between banks employing external reporting assurance/benchmarks that are deemed to be all-inclusive. Examples include external assurance of the sustainability report by the BIG4 audit firms. The total score is then expressed as a percentage, ranging from a minimum (0%) to a maximum (100%) (Appendix 1 contains detailed information on the SBDs and how they were classified and coded[3]).

To check the reliability of the SBD, we adopt two manual scoring approaches as applied by Adu (2022a). Essentially, our second round of scoring was done to check the reliability of the scores in the first round. We were thus able to correct discrepancies in the first set of scoring. Regarding the reproducibility of the SBD, for each sustainability disclosure, we maintain a detailed spreadsheet with the page number(s) of the score of our study and where to locate them in the annual reports as applied by prior studies (Adu, 2022a; Ntim et al., 2013). Evidently, this method makes it easy to replicate our scoring of the SBD by other researchers. More importantly, the validity of the SBD is achieved through the six broad, integrated sustainability disclosures as specified in the Combined integrated sustainability provisions in the SSA region as applied by prior scholars (Adu et al., 2022b; Adu, 2022a).

Second, prior research on the effect of internal governance focuses on single CG arising from board size, independence, and the number of meetings (Bose et al., 2018; Jizi et al., 2014). Observably, these indicators cannot fully capture the overall quality of CG (Adu, 2022a; Zhou et al., 2021). In particular, Zhou et al. (2021) maintain scholars may encounter a multicollinearity

[3] A single coder conducted the content analysis for this study. However, to ensure consistency, reliability, and validity, an initial sample of 32 annual reports (2 from each country) were coded independently by two coders. In the first stage of piloting or pre-testing, each coder coded 16 annual reports. No major differences emerged, and minor differences were discussed and agreed, with no differences emerging in the subsequent (second stage) pre-testing of the coding instrument on the remaining 16 annual reports between the two coders.

issue when individual governance indicators are used. Recent studies address this limitation by applying a broad CG index in place of the single indicators mentioned above (Adu, 2022a; Zhou et al., 2021; Schweizer et al., 2017). Accordingly, in our study, we follow Zhou et al. (2021) and compute CGI. We employ a binary CG disclosure index covering 100 CG provisions. The 100 CG provisions are selected based on the Combined Code, existing literature, and banks' annual reports. Specifically, the provisions cover four extensive areas: (i) directors and board disclosures (43); (ii) accounting, auditing, and transparency disclosures (22); (iii) risk management, internal audit, and control disclosures (13); and (iv) compliance, shareholder rights, and enforcement disclosures (22). We apply a dichotomous approach where a bank is awarded a score of'1'if a CG item is disclosed; otherwise, '0' is assigned. This is in line with prior studies that employ either national or international codes of CG in computing the broa.d CG indices (e.g., Adu et al., 2022b; Zhou et al., 2021). The total score is then expressed as a percentage, ranging from a minimum (0%) to a maximum (100%) (Appendix 2 contains examples of CG disclosures and how they were categorized and coded).

Third, we added several control variables to control for possible omitted variables bias (Ntim et al., 2013). Following well-established literature (Adu et al., 2022b; Cheng et al., 2022; Ntim & Soobaroyen, 2013a), we control for the presence of sustainability committees (SCOM), firm size (FSIZE), leverage (LEV), age (AGE), capitalization (CAP), audit firm size (BIG4), research and development (R&D), return on assets (ROA) and return on equity (ROE). Finally, consistent with previous studies (Adu, 2022a), we also control country-level variables such as GDP, governance quality (GOVQ), and inflation (INFL). We also include country dummies (CDU) for the sixteen countries and year dummies (YDU) for the financial years from 2007 to 2020. Table 2 presents the abbreviations and definitions of the variables.

[Insert table 2 about here]

4.3 Econometric models

As with all CG studies, the results of this study may be subjected to several endogeneity problems. For example, our results may be affected by omitted firm-level variables. This endogeneity can be addressed using firm fixed effects in the estimations (Zhou et al., 2019). Firm

fixed effects can control for firm-specific features (including image, culture, or the type of firm) that may be omitted in any estimations (Adu, 2022a; Haque and Ntim, 2020; Zhou et al., 2019). Accordingly, we conduct a dynamic two-step system generalized method of moments (GMM) to minimize the potential impact of omitted sample bias and dynamic endogeneity in our results (Blundell & Bond, 1998; Arellano & Bond, 1991). In particular, Blundell and Bond (1998) maintain that a dynamic two-step system GMM can fix these two types of endogeneity. We estimate all equations by employing a dynamic two-step system GMM, as proposed by Blundell and Bond (1998). More precisely, we use an instrumental variable (IV) GMM estimator to address the potential endogeneity bias. Prior studies observe ownership to be impacted by directors who are appointed by shareholders (Adu, 2022a; Adu et al., 2022b). We use two approaches. First, motivated by previous literature (Benlemlih et al., 2022; Ntim & Soobaroyen, 2013a; Ntim & Soobaroyen, 2013b; Ajinkya et al., 2005), we use the percentage of directors appointed by institutional, foreign, government, and director shareholders as instruments for institutional ownership, foreign ownership, government ownership, and director ownership, respectively. The intuition behind this is that the directors who are appointed by institutional, foreign, government, and director ownership would be significantly correlated with IOWN, GOWN, FOWN, and DOWN, respectively, but would not have any impact on SBD.

Second, following prior literature (Ntim et al., 2013), we use a dummy variable that takes the value of 1 if there is a director on the board who is appointed by the institutional, foreign, government, and director ownership of the bank, and 0 otherwise is employed. We maintain that it is theoretically unlikely that SBD would be determined by these instruments, and thus should serve as valid instruments in our GMM models. Data on directors who are appointed by the institutional, foreign, government, and director shareholders in the SSA banks is manually collected from the annual reports of the banks.

In all our GMM estimations, the Hansen J statistic of over-identifying limitations, and the Arellano-Bond test of serial autocorrelation absence, are used to assess the instruments' validity. Precisely, to determine the association between BOS and SBD, we use the following model below and tested using the GMM technique initially.

$$SBD_{it} = \alpha_0 + \beta_1 BOS_{it} + \beta_2 CONTROL_{it} + \beta_3 YDU_{it} + \beta_4 CDU_{it} + \varepsilon_t \quad (1)$$

where SBD denotes sustainable banking disclosure measures, depending on the specification, which is either SBD, ENV, SOC, HAS, EHR, CIV, or EMP.

Finally, we hypothesis that the SBD of a bank is affected jointly by its CGI and its BOS. To examine this, we follow Haque and Ntim (2020) in estimating the moderating effect of CGI on the link between BOS-SBD as shown in Eq. (2). Specifically, to investigate H5 (whether CGI moderates the BOS-SBD link), we create an interaction variable by multiplying the CGI and BOS as follows: CGI times BOS (CGI*BOS). Likewise, the model contains the same control variables that were included in Eq. (1). The next model is as follows:

$$SBD_{it}SBD_{it} = \alpha_0 + \beta_1 BOS_{it} + \beta_2 BOS_{it} * CGI_{it} + \beta_3 CGI_{it} + \beta_4 CONTROL_{it} + \beta_5 YDU_{it} + \beta_6 CDU_{it} + \varepsilon_t \quad (2)$$

where $CGI_{it} * BOS_{it}$ is the interaction variable between BOS and CGI. All other variables remain the same as specified in equation (1). All variables are defined in Table 2.

5. Empirical results and discussion

5.1 Descriptive statistics and univariate analysis

Panel A of Table 3 summarizes descriptive statistics of the sustainable banking disclosures (SBD) measure and the six individual dimensions of SBD. The descriptive statistics reveal some intriguing conclusions. First, the results in the table suggest that the disclosures differ to a significant extent. For example, the results show that the SBD index figures range from 6.08% to 62.37%, with a mean of 35.88% and a standard deviation of 10.43. The disclosure is relatively low compared to those documented in developed countries' banking sectors. For instance, Scholtens (2009) observe 68% and 67% for European and 67% for US banks, respectively. However, it is greater than that of Platonova et al. (2018), who report an SBD of 49.56% in the Gulf Cooperation Council banks.

In addition, ENV data ranges from 2.38 to 83.57%, with an average of 39.20%, while SOC figures have a mean of 36.47% and range from 3.70 to 76.42%. The ENV and SOC disclosures align

with findings from prior studies (e.g., Adu, 2022a; Ntim & Soobaroyen, 2013a). The results show that HAS statistics range from 1.67 to 53.78%, with a mean of 25.06%. This evidence is lower than in earlier investigations (e.g., Ntim & Soobaroyen, 2013a). The EHR ranges from 2.08 to 84.42%, with an average of 39.45%, while CIV and EMP both have mean scores of 41.78% and 52.43%, respectively. The EHR statistic is comparable to Ntim and Soobaroyen's (2013a) findings, which showed that a sample of South African businesses has an EHR of 44. 69%.

Next, and concerning the focus on bank ownership structures, the results in Panel B show that IOWN has widespread variation ranging from 10.47% to 100%, with an average of 76.98%. The evidence suggests that institutional investors hold substantial stakes in the banks. Concerning GOWN, FOWN, and DOWN, the results in the table report an average of 5.28%, 19.98%, and 5.29%, respectively. The evidence in the table also shows that some banks in the region were 100% owned by the government. Overall, bank ownership figures are mainly in line with findings reported in the banking system of the SSA countries (e.g., Andrianova et al., 2008).

Additionally, Table 3 provides an overview of the broad CGI. The CGI score is an indicator of how well the banks are governed. The average CGI score is 65.31%, which indicates that most banks have high CGI scores, implying good CG mechanisms in most banks. This evidence is lower than the evidence of Ntim and Soobaroyen (2013a).

Insert Table 3 about here

The correlation matrix for the variables used in the regression analysis is shown in Table 4. The correlation between the independent variables is statistically insignificant and is generally low. It is preferable when the independent variables have a low correlation because this indicates that our models do not suffer from multicollinearity (Liu et al., 2014).

Insert Table 4 about here

5.2. Multivariate results and discussion

The findings of the GMM estimation analysis on the influence of BOS on SBD are presented in Table 5. We rely on an instrumental variable regression approach to account for endogeneity in all the GMM models as explained in section 4.3. Overall, the results imply that ownership

structures are essential in explaining differences in SBD. To begin with, the coefficient on IOWN in Models 1 and 2 of Table 5 is positive and statistically significant, suggesting that SSA banks with high IOWN and FOWN are more likely to make significantly greater SBD. The positive relationship between IOWN and SBD is consistent with the assumption that institutional investors reduce agency conflicts by acting as alternative CG mechanisms, hence supporting AT. In this setting, there is a greater need for corporate executives to undertake highly sustainable banking disclosures to legitimize their actions/decisions to the owners of the bank (i.e., offering support to NIT). This result provides empirical support for H1, and prior studies (Bose et al., 2017; Ntim & Soobaroyen., 2013a; Oh et al., 2011), which document that IOWN has a positive impact on SBD.

Similarly, the positive connection between FOWN and SBD is in line with the theoretical prediction that the presence of foreign investors leads to the establishment of transparent CG and subsequently encourages banks to undertake SBD. The evidence provides empirical support to H3. In addition, it offers empirical support to our multi-theoretical framework that incorporates insights from NIT, SHT, and RDT. A crucial theoretical implication of our evidence is that foreign investors (mainly foreign banks) in the SSA region are powerful stakeholders (SHT) for banks with high FOWN. Hence, banks engage in high levels of SBD to signal their congruence with foreign investors' values, norms, initiatives, and guidelines (NIT), enabling the banks to access vital resources, such as external funding and advanced technology (RDT). This seems to be the case in the SSA banking system, where foreign investors are influential stakeholders with strategic investments and exhibit a strong interest in sustainable initiatives (Adu, 2022a; Ntim et al., 2013; Ntim & Soobaroyen, 2013a).

By contrast, the negative relationship between GOWN and SBD does not offer empirical support for H2 or the findings of prior research (Ntim & Soobaroyen, 2013a; Khan et al., 2013), which report that GOWN has a positive effect on SBD. However, the findings support previous studies documenting a negative relationship between GOWN and SBD (Dam & Scholtens, 2012; Van der Zee, 2012). Our results corroborate the argument that government ownership exacerbates agency issues by undermining the efficacy of internal managerial oversight, including disclosure procedures (Ntim et al., 2013; Jia et al., 2009). The implication is that strong political ties linked with substantial levels of government ownership can lead bank executives to pursue

self-centered political goals that may have a detrimental effect on the sustainable corporate outcome and, to an extent, SBD.

By contrast, the results in Model 4 of Table 5 reveal that DOWN has a negative but statistically insignificant relationship with SBD and fails to offer empirical support for H4 or to the findings of prior studies such as Haji (2013), Ghazali (2007) and Eng and Mak (2003).

In a set of additional analyses, we assess the relationship between the various components of BOS and the individual SBD dimensions. We re-estimate Equation 1 by replacing the SBD with ENVD, SOC, HAS, EHR, CIV, or EMP scores one at a time, and the results are reported in Models 5-12 of Table 5 and Models 1-16 of Table 6, respectively. Likewise, the apparent sensitivity of the evidence in Table 5 and 6 implies that the BOS-SBD association differ based on the individual dimensions of SBD investigated. First, the results in Table 5 show that IOWN and FOWN are positively and significantly associated with ENV and SOC dimensions of SBD, thereby providing further empirical support to H1 and H3, respectively. The findings are consistent with our predictions that institutional investors care about the environment and push banks in which they invest to increase their environmental initiatives (Benlemlih et al., 2022).

Insert Table 5 about here

Similarly, Table 6 demonstrates that IOWN and FOWN have a positive and significant impact on HAS, EHR, CIV, and EMP, as predicted by H1 and H3. However, the positive relationship between FOWN and CIV is weak. The findings lend empirical support to the recommendations of the Combined Code in the SSA region that incorporates the expectation that IOWN and FOWN will be associated with increased SBD. In addition, the findings confirm the multi-theoretical (SHT, RDT, and NIT), which predict that powerful institutional and foreign investors can pressure bank executives to undertake environmental, social, ethical, and human rights, community, health and safety, and employee disclosures. These findings also offer empirical support to prior studies (Cheng et al., 2022; Dam & Scholtens, 2012; Ntim & Soobaroyen, 2013a; Oh et al., 2011).

By contrast, Table 5 shows that GOWN has a negative and significant relationship with SBD, ENV, and SOC in Models 3, 7, and 11, respectively. In addition, our GMM estimation results in Table 6 reveal that GOWN is negatively and significantly associated with HAS, EHR, CIV, and EMP

in Models 3, 7, 11, and 15. However, its association with EMP is insignificant. These findings do not offer empirical support for H2 and prior studies that establish a positive relationship between GOWN and CSR (e.g., Van der Zee, 2012). Observably, the findings contribute to a small but growing result showing that GOWN is associated with poor performance in CSR (Ntim & Soobaroyen, 2013a; Khan et al., 2013). Our evidence appears to support the argument that strong political ties linked with substantial levels of GOWN can lead bank executives to pursue self-centered political goals that may exert detrimental effects on sustainable corporate outcomes such as ENV, SOC, HAS, EHR, CIV, and EMP disclosures.

Similarly, the results in Model 12 of Table 5 reveal that DOWN is negatively and significantly associated with SOC. However, DOWN has a weak inverse relationship with both SBD and ENV in Models 4 and 8 of Table 5. Also, the results in Table 6 show that DOWN has a negative and significant connection with EHR, CIV, and EMP in Models 8, 12, and 16, respectively. The study observes a negative but insignificant association between DOWN and HAS in Model 4 of Table 6. Together, these findings suggest that H4 is not empirically supported. The negative effect of DOWN on the individual dimensions of SBD is consistent with the agency theory's prediction that DOWN militates against CSR commitment, leading to lower SOC, EHR, CIV, and EMP disclosures. It also lends support to the argument that DOWN may be driven by the desire to keep the bank operating at all costs, which may lead to a preference for conventional methods of production and a lack of financial support for resource-saving technologies (Dam & Scholtens, 2012) with detrimental impact on sustainable corporate investments. We argue that in their quest to make a short-term profit, directors who are shareholders are more likely to put pressure on managers to invest in low SOC, CIV, EHR, and EMP projects to increase the banks' financial performance. This is also in line with previous studies (e.g., Haji, 2013; Ghazali, 2007; Eng & Mak, 2003) suggesting that as DOWN increases, bank managers may be under intense pressure to decrease their long-term investments by lowering their sustainable initiatives in their investment decisions. For instance, our evidence corroborates Haji (2013) and Ghazali's (2007) investigations that observe that firms with directors with a substantial proportion of shares disclose significantly less CSR information.

Insert Table 6 about here

Moving on to our final hypothesis, we have argued that due to the crucial role of CG mechanisms in the SSA banking sector, the corporate governance disclosure index (CGI) may moderate the relationship between BOS and SBD. To empirically test this, we include an interaction term between the CGI and BOS variables (IOWN*CGI, FOWN*CGI, GOWN*CGI, and DOWN*CGI) by estimating Equation 2. Table 7 provides the GMM estimation results exploring the possible moderating impact of CGI on the BOS-SBD link. Generally, the findings suggest that bank-level CGI has a positive moderating effect on the BOS-SBD nexus. Specifically, the results in Models 1-4 in Table 7 show that the moderation variables IOWN*CGI, GOWN*CGI, FOWN*CGI, and DOWN*CGI have a positive and significant impact on SBD, respectively. This evidence provides strong empirical support to H5 that CG mechanisms positively moderate the link between BOS and SBD. The findings suggest that the relationship between BOS and SBD is contingent on the quality of the internal governance mechanisms of the SSA banks. Theoretically, effective managerial monitoring associated with powerful ownership structures can encourage sustainable corporate investments (Ntim & Soobaroyen, 2013a). For instance, compliance with shareholder rights and enforcement mechanisms can limit agency problems (Adu, 2022a). In this context, good CG mechanisms, such as greater activism by influential pro-sustainable owners, can enhance banks' engagement in sustainable banking initiatives with a beneficial impact on SBD (Adu, 2022a).

Delving deeper, Models 5-8 and 9-12 of Table 7 provides insight into the moderating effect of CGI on the BOS-SBD in the sub-sample based on the mean CGI value. We follow Adu et al. (2022b) and conduct this investigation in the two sub-samples; better-governed and poorly-governed banks. In this setting, the better-governed banks sub-sample contains banks with a CGI score greater than the average score of 65.31%. Similarly, the sub-sample for poorly-governed banks consists of all banks with CGI values below the average score of 65.31%. This analysis was carried out to draw more informative inferences regarding the data (Elmagrhi et al., 2020). The results in Models 5-8 in Table 7 indicate that banks with higher CGI scores (better-governed banks) have a greater positive and significant moderating impact on SBD than banks with lower CGI scores (poorly-governed banks) in Models 9-12 of Table 7. Overall, these findings are consistent with H5 that CGI positively moderates the link between BOS and SBD, with the

relationship being stronger in banks with high CGI. The results theoretically support NIT's predictions, highlighting BOS's effectiveness and legitimacy effects on SBD. The implication is that influential owners can pressure managers to engage in sustainability projects in better-governed banks, which helps legitimize the banks' actions. Based on the efficiency NIT perspective, our findings suggest that influential shareholders might encourage managers to undertake more long-term value-creation investments in better-governed banks, which can improve corporate efficiency and SBD. Thus, CGI can serve as a vital catalyst for the link between BOS-SBD by reducing conflict of interest among the various stakeholders of the SSA banks.

Insert Table 7 about here

5.3 Sensitivity analysis and endogeneity check

We address the endogeneity concerns by conducting additional investigations to check the robustness of our results. To control for unobserved firm-specific heterogeneity, simultaneity, and dynamic endogeneity, we follow Adu et al.(2022b) to apply a two-stage least square (2SLS) approach. Given that this investigation focuses on CGI, BOS, and SBD, we attempt to identify good exogenous instrumental variables (IVs) for these main variables that are correlated with the assumed endogenous variables (IOWN, FOWN, GOWN, and DOWN) but uncorrelated with the error term of the dependent variables (Adu, 2022a). We apply the 2SLS approach with directors appointed by institutional, foreign, government, and director shareholders on the board of directors as exogenous instruments.

Table 8 provides the 2SLS estimation results regarding the effect of the BOS on SBD. We find similar results in Table 8 as were documented in the GMM analysis in Table 5. For example, the results in the table show that IOWN and FOWN have a positive and significant impact on SBD.

Insert Table 8 about here

In addition, the 16 GMM results in Table 6 are repeated using the 2SLS method, and the results are presented in Table 9. The results in Models 1-16 of Table 9 align with those reported in Models 1-16 of Table 6. For example, IOWN has a positive impact on HAS, EHR, CIV, and EMP.

Insert Table 9 about here

The results of the 2SLS estimation on the moderating effect of CGI on the BOS-SBD relationship are reported in Table 10. Once again, the coefficients on the interaction variables IOWN*CGI, GOWN*CGI, FOWN*CGI, and DOWN*CGI are positive and significant, indicating that our initial results are robust to endogeneity issues. These findings indicate that banks' CG mechanisms significantly enhance the BOS-SBD link.

Insert Table 10 about here

The findings of these additional analyses demonstrate that our results do not appear to be driven by any potential endogenous sample selection problems.

6 Discussion

We investigate whether different owners have distinct influences on the bank's SBD, and ascertain whether CG disclosure has a moderating effect on this relationship. We observe that, as hypothesized, influential institutional and foreign owners support the bank's SBD activities. Our evidence corroborates the findings of prior research (Ntim & Soobaroyen, 2013a; Dam & Scholtens, 2012) as highlighted in Table 11. This indicates that institutional and foreign investors may have a stronger appetite for implementing sustainable banking initiatives that are generally long-term projects, for example, moving from fossil fuels to renewable energy sources (Benlemlih et al., 2022). For instance, institutional owners in the SSA banks are mainly pension funds, insurance companies, and banks. The positive impact of institutional and foreign ownership on SBD offers empirical support for the provisions of the SSA Combined Code. This evidence is however different from studies that document a negative relationship between institutional ownership and CSR (e.g., Cheng et al., 2022). Our results show that ownership by the government does not lead to active engagement in SBD, providing empirical support to prior studies (Ntim & Soobaroyen, 2013a). The results of the study indicate that ownership by directors of the banks has no influence on SBD in the SSA region.

Finally, we provide evidence that shows that a combination of CGI and BOS has a stronger positive effect on SBD than BOS alone, with the moderating effect improving in banks with high CGI scores. This suggests that the relationship between BOS and SBD is contingent on the quality of the banks' CG quality, implying that CGI reinforces the BOS-SBD relationship. In this case, banks

can leverage good CG mechanisms as a crucial driver of SBD performance. This is a crucial observation because, as previously established, in the last decade, SSA countries have been making more efforts toward achieving sustainable business practices through responsible and transparent governance structures.

Insert Table 11 about here

7 Conclusion

National governments, regulators, environmental activists, and public corporations began to scrutinize CG mechanisms more closely than they had ever done in the wake of the governance scandals at the turn of the century. This led to a wide range of CG reforms intended to increase the accountability of corporate boards. In the SSA region, many CG codes have been issued to guarantee the rights and obligations of corporate owners. For instance, the SSA codes lay out the fundamentals of effective stewardship by investors. For example, regulators of banks in the region are increasingly focusing on effective bank ownership structures (BOS) as a crucial CG mechanism to drive sustainable banking disclosures (SBD). Yet, it is unclear whether BOS reforms and strategies, which regulators are progressively implementing in the countries, can lead to an enhancement in SBD. This is regrettable because understanding these key associations can help policymakers and banks to design sustainable strategies that have a meaningful effect on SBD. We fill this gap by examining the role of BOS in promoting SBD investments in the SSA region.

Our findings prove that high BOS, as measured by institutional and foreign ownership, is associated with high levels of SBD. In contrast, substantial government ownership levels are associated with low levels of SBD in the region, whereas director ownership has no impact on SBD. Departing from the previous research, we also identify the possible channel through which BOS and SBD link, and the moderating role of the broad corporate governance disclosure index (CGI) on this relationship.

We contribute to the literature in several ways. First, most previous research examines the effect of corporate ownership on CSR (e.g., Cheng et al., 2022; Ntim & Soobaroyen, 2013a). Notably, little attention has been paid to how BOS impacts SBD. Meanwhile, ownership plays a crucial role in the SSA banking system; thus, we investigate how bank owners can promote

sustainable investments. Second, previous research that investigates ownership structure's role relies on aggregate CSR indicators or only examines the direct relationship. To better understand the link between BOS and SBD, we delve deeper and offer insights into the impact of BOS on the various dimensions of SBD. Third, distinct from prior research that examines the direct relationship between corporate ownership and CSR, we identify and test possible moderators of the link between BOS and SBD. We observe that broad CGI positively moderates this relationship. Finally, we also provide evidence that the moderation impact of CGI on the link between BOS and SBD is contingent on the quality of the internal governance mechanisms of the bank.

Besides our empirical and theoretical contributions, we also offer crucial policy implications. First, we call for banks to adopt and implement good governance disclosures as such CG mechanisms are proven to improve SBD. Second, our evidence suggests that policy changes in the SSA banks related to monitoring (CG) and aligning shareholders' interests (BOS) should be made collectively to ensure higher effectiveness. Third, our findings help understand responsible banking behavior by uncovering new dynamics that impact SBD and can help bank managers and regulators to strategically manage SBD investments. Based on our results of the positive moderating effect of CGI on the link between BOS and SBD, this should serve as a strong motivation for banking practitioners to adopt quality CG mechanisms and BOS as a critical tool to drive SBD. For instance, world leaders and policymakers reaffirmed their commitment to taking decisive action to counter global warming and avert 2° scenarios at the recent COP26 meeting in Glasgow. Indeed, because institutional investors are eager to take action in support of climate and responsible banking investments, they should be considered when developing and implementing sustainability-related initiatives (Benlemlih et al., 2022).

Our study has some limitations. Our research focused on internal CG mechanisms due to data restrictions. Still, future studies may improve their analysis by examining how external CG mechanisms, like regulation and media, influence SBD practices. While our sample is limited to SSA banks, future research can adopt our multi-theoretical framework within a developed cross-country context, ensuring a more explicit generalization of the results. The final limitation of the study is that the data is limited to SSA banks and thus, the findings should be interpreted within

this context. For example, the findings may or may not compare with that of developed economies with different climate-related policies and institutional settings.

Reference

Adu, D. A. (2022a). Sustainable banking initiatives, environmental disclosure and financial performance: the moderating impact of corporate governance mechanisms. Business Strategy and the Environment,31(5), 2365-2399.

Adu, D. A. (2022b). Competition and bank risk-taking in Sub-Saharan Africa countries. SN Business and Economics, 2(7), 80.

Adu, D. A., Flynn, A., & Grey, C. (2022a). Executive compensation and sustainable business practices: the moderating role of sustainability-based compensation. Business Strategy and the Environment, 31(3), 698-736.

Adu, D. A., Al-Najjar, B., & Sitthipongpanich, T. (2022b). Executive compensation, environmental performance, and sustainable banking: the moderating effect of governance mechanisms. Business Strategy and the Environment, 31(4), 1439-1463.

Agliardi, E., & Agliardi, R. (2021). Pricing climate-related risks in the bond market. Journal of Financial Stability, 54, 100868.

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. Journal of Accounting Research, 43(3), 343-376.

Alessi, L., Ossola, E., & Panzica, R. (2021). What greenium matters in the stock market? The role of greenhouse gas emissions and environmental disclosures. Journal of Financial Stability, 54, 100869.

Andrianova, S., Demetriades, P., & Shortland, A. (2008). Government ownership of banks, institutions, and financial development. Journal of Development Economics, 85(1-2), 218-252.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The Review of Economic Studies,58(2), 277-297.

Ashforth, B.E., & Gibbs, B.W. (1990). The double-edge of organizational legitimation. Organization Science, 1, 177-193.

Baboukardos, D. (2018). The valuation relevance of environmental performance revisited: The moderating role of environmental provisions. British Accounting Review, 50, 32-47.

Barnett, M. L., & Salomon, R. M. (2006). Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance. Strategic Management Journal, 27 (11), 1101-1122.

Basse Mama, H., & Mandaroux, R. (2022). Do investors care about carbon emissions under the European Environmental Policy? Business Strategy and the Environment, 31(1), 268-283.

Benlemlih, M., Arif, M., & Nadeem, M. (2022). Institutional Ownership and Greenhouse Gas Emissions: A Comparative Study of the UK and the USA. British Journal of Management.

Block, J. H., & Wagner, M. (2014). The effect of family ownership on different dimensions of corporate social responsibility: Evidence from large US firms. Business Strategy and the Environment, 23(7), 475-492.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics,87(1), 115-143.

Bose, S., Khan, H. Z., Rashid, A., & Islam, S. (2018). What drives green banking disclosure? An institutional and corporate governance perspective. Asia Pacific Journal of Management, 35(2), 501-527.

Bose, S., Khan, H. Z., Rashid, A., & Islam, S. (2018). What drives green banking disclosure? An institutional and corporate governance perspective. Asia Pacific Journal of Management, 35(2), 501-527.

Bose, S., Podder, J., & Biswas, K. (2017). Philanthropic giving, market-based performance and institutional ownership: Evidence from an emerging economy. The British Accounting Review, 49(4), 429-444.

Branco, M.C., & Rodrigues, L.L. (2006). Corporate social responsibility and resource-based perspectives. Journal of Business Ethics, 69, 111-132.

Chen, J.C., & Roberts, R.W. (2010). Toward a more coherent understanding of the organization-society relationship: a theoretical consideration for social and environmental accounting research. Journal of Business Ethics, 97, 651-665.

Cheng, X., Wang, H. H., & Wang, X. (2022). Common institutional ownership and corporate social responsibility. Journal of Banking and Finance, 136, 106218.

Dam, L., & Scholtens, B. (2012). Does ownership type matter for corporate social responsibility? Corporate Governance: An International Review, 20(3), 233-252.

Donaldson, T., & Preston, L.E. (1995). The stakeholder theory of the corporation: Concepts, evidence and implications. Academy of Management Review, 20, 65-91.

Elmagrhi, M. H., Ntim, C. G., Wang, Y., Abdou, H. A., & Zalata, A. M.(2020). Corporate governance disclosure index-executive pay nexus: The moderating effect of governance mechanisms. European Management Review,17(1), 121-152.

Enache, L., & Hussainey, K. (2020). The substitutive relation between voluntary disclosure and corporate governance in their effects on firm performance. Review of Quantitative Finance and Accounting, 54(2), 413-445.

Eng, L. L., & Mak, Y. T. (2003). Corporate governance and voluntary disclosure. Journal of Accounting and Public Policy, 22(4), 325-345.

Flammer, C., Toffel, M. W., & Viswanathan, K. (2021). Shareholder activism and firms' voluntary disclosure of climate change risks. Strategic Management Journal, 42(10), 1850-1879.

Freeman, R.E., & Reed, D.L. (1983). Stockholders and stakeholders: A new perspective on corporate governance. California Management Review, 25, 88-106.

Ghazali, N. A. M. (2007). Ownership structure and corporate social responsibility disclosure: some Malaysian evidence. Corporate Governance: The international journal of business in society. 7 3, 251-266.

Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: A review of the literature & a longitudinal study of UK disclosure. Accounting, Auditing and Accountability Journal, 8, 47-77.

Haji, A. A. (2013). Corporate social responsibility disclosures over time: evidence from Malaysia. Managerial Auditing Journal. 28, (7) 647-676.

Haque, F., & Ntim, C. G. (2020). Executive compensation, sustainable compensation policy, carbon performance and market value. British Journal of Management, 31(3), 525-546.

Harjoto, M. A. & Jo, H. (2011). Corporate governance and CSR nexus. Journal of Business Ethics, 100: 45- 67.

Harjoto, M., Jo, H., & Kim, Y. (2017). Is institutional ownership related to corporate social responsibility? The nonlinear relation and its implication for stock return volatility. Journal of Business Ethics, 146(1), 77-109.

Hayward, M. L. & Hambrick, D. C. 1997. Explaining the premiums paid for large acquisitions: Evidence of CEO hubris, Administrative Science Quarterly, 42: 103– 27.

Huafang, X. and Jianguo, Y. (2007), Ownership structure, board composition and corporate voluntary disclosure: evidence from listed companies in China, Managerial Auditing Journal, 22, (6): 604-619.

Jain, T., & Jamali, D. (2016). Looking inside the black box: The effect of corporate governance on corporate social responsibility. Corporate governance: an international review, 24(3), 253-273.

Jeon, J. Q., Lee, C., & Moffett, C. M. (2011). Effects of foreign ownership on payout policy: Evidence from the Korean market. Journal of Financial Markets, 14(2), 344-375.

Jia, C., Ding, S., Li, Y., & Wu, Z. (2009). Fraud, enforcement action, and the role of corporate governance: Evidence from China. Journal of Business Ethics, 90: 561-576.

Jizi, M. I., Salama, A., Dixon, R., & Stratling, R. (2014). Corporate governance and corporate social responsibility disclosure: Evidence from the US banking sector. Journal of business ethics, 125(4), 601-615.

Jo, H., & Harjoto, M. A. (2012). The causal effect of corporate governance on corporate social responsibility. Journal of Business Ethics,106 (1),53–72

Johnson, R. A. & Greening, D. W. (1999). The effects of corporate governance and institutional ownership types on corporate social performance, Academy of Management Journal, 42: 564–76.

Jones, T. M. (1995). Instrumental stakeholder theory: a synthesis of ethics and economics, Academy of Management Review, 20: 404– 437.

Kim, J., & Jo, H. (2022). Controlling owner type, state capitalism, and corporate social responsibility in Africa. Corporate Governance: An International Review, 30(6), 765-782.

Khan, A., Muttakin, M. B., & Siddiqui, J. (2013). Corporate governance and corporate social responsibility disclosures: Evidence from an emerging economy. Journal of business ethics, 114(2), 207-223.

Khan, H. Z., Bose, S., Sheehy, B., & Quazi, A. (2021). Green banking disclosure, firm value and the moderating role of a contextual factor: Evidence from a distinctive regulatory setting. Business Strategy and the Environment, 30(8), 3651-3670.

Lamperti, F., Bosetti, V., Roventini, A., Tavoni, M., & Treibich, T. (2021). Three green financial policies to address climate risks. Journal of Financial Stability, 54, 100875.

Larcker, D. F., Richardson, S. A., & Tuna, I. (2007). Corporate governance, accounting outcomes, and organizational performance. AccountingReview,82(4), 963-1008.

Liu, Y., Wei, Z., & Xie, F. (2014). Do women directors improve firm performance in China? Journal of Corporate Finance,28, 169-184.

Lopatta, K., Jaeschke, R., Canitz, F., & Kaspereit, T. (2017). International evidence on the relationship between insider and bank ownership and CSR performance. Corporate Governance: An International Review, 25(1), 41-57.

Mallin, C. (2002). The relationship between corporate governance, transparency and financial disclosure. Corporate Governance: An International Review, 10, 253-255.

McGuinness, P. B., Vieito, J. P., & Wang, M. (2017). The role of board gender and foreign ownership in the CSR performance of Chinese listed firms. Journal of Corporate Finance, 42, 75-99.

Monasterolo, I., Battiston, S. Dafermos, Y. (2021). Climate risks and financial stability, Journal of Financial Stability, 54, 100867.

Nandy, M., & Lodh, S. (2012). Do banks value the eco-friendliness of firms in their corporate lending decision? Some empirical evidence. International Review of Financial Analysis, 25, 83-93.

Nguyen, T. H. H., Ntim, C. G., & Malagila, J. K. (2020). Women on corporate boards and corporate financial and non-financial performance: A systematic literature review and future research agenda. International Review of Financial Analysis, 71, 101554.

Ntim, C. G., & Soobaroyen, T. (2013a). Corporate governance and performance in socially responsible corporations: New empirical insights from a Neo-Institutional framework. Corporate Governance: An International Review, 21(5), 468-494.

Ntim, C. G., & Soobaroyen, T. (2013b). Black economic empowerment disclosures by South African listed corporations: The influence of ownership and board characteristics. Journal of business ethics, 116(1), 121-138.

Ntim, C. G., Lindop, S., & Thomas, D. A. (2013). Corporate governance and risk reporting in South Africa: A study of corporate risk disclosures in the pre-and post-2007/2008 global financial crisis periods. International Review of Financial Analysis, 30, 363-383.

Oh, W. Y., Chang, Y. K., & Martynov, A. (2011). The effect of ownership structure on corporate social responsibility: Empirical evidence from Korea. Journal of business ethics, 104(2), 283-297.

Pfeffer, J., & Salancik, G.R. (1978). The external control of organizations: A resource dependence perspective. New York: Harper and Row.

Platonova, E., Asutay, M., Dixon, R., & Mohammad, S. (2018). The impact of corporate social responsibility disclosure on financial performance: Evidence from the GCC Islamic banking sector. Journal of Business Ethics,151(2), 451- 471.

Quinn, D. P. & Jones, T. M. 1995. An agent morality view of business policy, Academy of Management Review, 20: 22– 42.

Reverte, C. (2009). Determinants of corporate social responsibility disclosure ratings by Spanish listed firms. Journal of Business Ethics, 88, 351-366.

Scholtens, B. (2009). Corporate social responsibility in the international banking industry. Journal of Business Ethics,86(2), 159-175.

Scott, W. R. (2001). Institutions and organizations (2nd ed.) Sage.

Shahab, Y., Ntim, C. G., Ullah, F., Yugang, C., & Ye, Z. (2020). CEO power and stock price crash risk in China: Do female directors' critical mass and ownership structure matter? International Review of Financial Analysis, 68, 101457.

Sharmeen, K., Hasan, R., & Miah, M. D. (2019). Underpinning the benefits of green banking: a comparative study between Islamic and conventional banks in Bangladesh. Thunderbird International Business Review, 61(5), 735-744.

Suchman, M.C. (1995). Managing legitimacy: Strategic and institutional approaches. Academy of Management Review, 20, 571-606.

Van der Zee, E. L. (2012). In between two societal actors: The responsibilities of SWFs towards human rights and climate change. European Company Law, 9.

Walsh, J. P. & Seward, J. K. (1990). On the efficiency of internal and external corporate control mechanisms, Academy of Management Review, 15: 421- 58.

Xing, C., Zhang, Y., & Tripe, D. (2021). Green credit policy and corporate access to bank loans in China: The role of environmental disclosure and green innovation. International Review of Financial Analysis, 77, 101838.

Zhou, M., Li, K., & Chen, Z. (2021). Corporate governance quality and financial leverage: Evidence from China. International Review of Financial Analysis, 73, 101652.

Table 1: Composition of the sample by countries

Country	Bank Population	Sample	Representation (%)
Botswana	10	10	100
Gambia	12	8	67
Ghana	24	24	100
Kenya	41	30	73
Lesotho	4	4	100
Liberia	9	6	67
Malawi	9	5	56
Mauritius	21	15	71
Namibia	8	5	63
Nigeria	20	19	95
Sierra Leone	12	4	33
South Africa	21	20	95
Tanzania	38	25	66
Uganda	25	20	80
Zambia	17	13	76
Zimbabwe	13	12	92
Total	**284**	**220**	**77**

Notes: Population and Sample refer to count, and representation refers to sample as a percentage of population.

Table 2: Variables definitions

Variable	Abbreviation	Description	Source
Panel A Dependent variables			
Sustainable banking disclosure	SBD	A SBD index covering six broad areas as set out by 2016 GRI's reporting guidance on SBD; Environmental score (ENV) 21 disclosures; Social investment and service quality (SOC) 27 disclosures; health and safety (HAS) 40 disclosures; community involvement (21); ethics and human rights (EHR) 12 disclosures; and employee (EMP) disclosures 14. Each disclosure ranges from 0 to 4 (where 0-no disclosure; 1-general or rhetorical disclosures; 2-narrative of what has been achieved; 3-quantitative or monetary data disclosure; 4-quantitative or monetary disclosure supported by explicit assessment of performance or events. The results are scaled to a value between 0 and 100%.	Annual report
Environmental score	ENV	An environmental disclosure score , measured as the ratio of disclosure points over the maximum score (21) a bank can score.	Annual report
Social investment & service quality score	SOC	A social investment and service quality disclosure score , measured as the ratio of disclosure points over the maximum score (27) a bank can attain.	Annual report
Health and safety score	HAS	A health and safety disclosure score , measured as the ratio of disclosure points over the maximum score (40) a bank can attain.	Annual report
Ethics and human rights score	EHR	An ethics and human rights disclosure score , measured as the ratio of disclosure points over the maximum score (12) a bank can attain.	Annual report
Community involvement score	CIV	A community involvement disclosure score , measured as the ratio of disclosure points over the maximum score (21) a bank can attain.	Annual report
Employee score	EMP	An employee disclosure score , measured as the ratio of disclosure points over the maximum score (14) a bank can attain.	Annual report
Bank ownership structures	BOS		
Institutional ownership	IOWN	The percentage of shared owned by institutions in the banks	Annual report
Government ownership	GOWN	The percentage of shares held by government	Annual report
Foreign ownership	FOWN	The percentage of shares held by foreign investors	Annual report
Director ownership	DOWN	The percentage of shares held by the directors of the bank	
Panel B independent variable			
CG disclosure index	CGI	CG index containing 100 provisions derived from the commonwealth CG code, individual country CG codes and annual report of the sampled banks. The CG provision take a value of 1 if is disclosed in the annual report, otherwise 0 and scaled to a value between 0% and 100%.	Annual report
Panel C: Bank control variables			
Presence of sustainability committee	SCOM	1 if sustainability committee is present, 0 otherwise	Annual report
Firm size	FSIZE	Natural logarithm of total assets of the bank	Bankscope/Annual report
Leverage	LEV	Ratio of total debt to total assets	Bankscope/Annual report
Age	AGE	Natural log of the number of years since inception	Annual report
Capitalization	CAP	Equity capital divided by total assets	Bankscope/Annual report
Audit firm size	BIG4	1 if a bank is audited by the big four audit firm (PricewaterCoopers, Deloitte & Touche, Ernest & Young and KPMG), 0 otherwise.	Annual report
Research and development	R&D	Natural logarithm of research and development cost of the bank scaled by total assets	Bankscope/Annual report
Return on assets	ROA	Percentage of operating profit to total assets	Bankscope/Annual report

Return on equity	ROE	Ratio of net income to shareholder's equity.	Bankscope/Annual report
Panel D: Country Control variables			
Gross domestic product	GDP	Natural log of GDP relates to changes in national income	World Bank
Inflation	INFL	Natural log of annual rate of inflation as a percentage of GDP	IMF
Governance quality	GOVQ	World bank governance indicators voice and accountability, transparency, political stability and, government effectiveness, regulatory quality and control of corruption.	World Bank

Notes: This table provides the definitions of the main variables employed in the analysis.

Table 3: Descriptive Statistics of all variables for all the 2,590 bank years

Variable	Obs	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: SBD variables						
SBD Index (%)	2,590	35.88	32.65	10.43	6.08	62.37
ENV (%)	2,580	39.20	33.44	17.46	2.38	83.57
SOC (%)	2,590	36.47	35.32	14.89	3.70	76.42
HAS (%)	2,590	25.06	21.87	9.90	1.67	53.78
EHR (%)	2,535	39.45	34.68	17.54	2.08	84.42
CIV (%)	2,584	41.78	41.20	12.86	1.10	72.38
EMP (%)	2,579	52.43	50.89	13.65	3.54	76.54
Panel B: Bank ownership						
IOWN (%)	2,569	76.98	90.74	18.46	10.47	100.00
GOWN (%)	1,901	5.28	35.85	20.01	0.00	100.00
FOWN (%)	882	19.98	20.76	7.05	0.00	42.37
DOWN (%)	1,728	5.29	0.05	12.20	0.00	83.25
Panel C: CGI						
CGI (%)	2,590	65.31	66.54	14.07	23.00	90.35
Panel D: Bank control variables						
SCOM	1,327	0.55	0.58	0.38	0.00	1.00
FSIZE ($m)	2,590	12.95	9.85	3.58	2.32	28.85
CAP	2,590	0.22	0.15	0.38	0.05	0.97
LEV	2,578	0.88	0.89	0.16	0.07	0.98
AGE	2,590	38.00	27.00	30.32	2.00	180
R&D ($m)	2,590	2.48	1.59	2.55	4.78	12.84
BIG4	2,432	0.93	1.00	0.28	0.00	1.00
Panel F: Country control variables						
GDP	2,590	6.84	6.55	2.48	-16.42	25.18
INFL	2,590	8.98	10.03	16.57	3.08	72.73
GOVQ	2,590	2.44	3.05	1.48	0.00	4.00

This tables provides the summary statistics of all the variables used in the regression analysis. Notes: Please see Table 2 for variable definitions.

Table 4: Pearson's correlation matrices of the variables for CGI, BOS and SBD for the 2590 bank year observations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
SBD (1)	1.00																					
ENV (2)	0.09*	1.00																				
SOC (3)	0.06*	0.04	1.00																			
HAS (4)	0.08*	0.31*	0.04	1.00																		
HER (5)	0.08*	0.07	0.05	0.08*	1.00																	
CIV (6)	0.05*	0.04	0.05*	0.06	0.03	1.00																
EMP (7)	0.07	0.04*	0.03	0.01*	0.05*	0.18	1.00															
IOWN (8)	0.03*	0.02*	0.05*	0.03*	0.04*	0.13*	0.07*	1.00														
GOWN (9)	-0.03*	-0.01*	-0.06*	-0.08*	-0.07	-0.02*	-0.17*	-0.08	1.00													
FOWN(10)	0.09*	0.08*	0.04*	0.09*	0.01	0.18*	0.06*	0.08*	-0.03	1.00												
DOWN (11)	-0.05	-0.01*	-0.04*	-0.18	-0.02	-0.08*	0.05	-0.07	0.01	-0.09*	1.00											
CGI (12)	0.15*	0.07*	0.12*	0.17*	0.03*	0.14*	0.17*	0.03*	0.08**	0.13*	0.07*	1.00										
SCOM (13)	0.05*	0.02*	0.04*	0.03*	0.07*	0.13*	0.09	0.08*	0.05*	0.07*	0.09	0.022*	1.00									
FSIZE (14)	-0.07*	-0.03*	-0.09*	-0.08*	-0.05*	-0.18**	0.05*	0.03	0.04	0.13*	0.18	-0.03	0.07	1.00								
LEV (15)	0.02	0.05	-0.02*	-0.05	0.02*	0.02	0.06**	-0.09	-0.07*	-0.04	0.02*	0.12*	0.17	0.06	1.00							
CAP (16)	-0.11	-0.15*	-0.06*	-0.05*	-0.14*	-0.12*	0.07*	0.12**	0.06*	0.09*	0.08	-0.07*	-0.02	-0.12	-0.09	1.00						
AGE (17)	0.14*	0.04	0.15*	0.11*	0.04*	0.13*	0.18*	0.17*	0.04*	0.08*	0.02	0.05	0.08	0.13	0.05	0.10*	1.00					
BIG4 (18)	0.09*	0.05*	0.07*	0.09*	0.04	0.03	0.05**	-0.04	0.05*	-0.06	0.01	0.04	0.11	0.08	0.04	-0.03	-0.05*	1.00				
R&D (19)	0.03	0.07*	0.03	0.03	0.03	0.02*	0.11***	0.05**	0.02***	0.09*	-0.08	0.03*	0.09*	0.06*	0.13	-0.13	0.23*	-0.09*	1.00			
GDP (20)	0.07*	0.05*	0.06	0.06	0.04*	0.07*	0.13**	0.06*	0.08**	0.05*	0.01*	0.03	0.22	0.15*	0.04	-0.08	0.25	0.03*	0.05	1.00		
INFL (21)	-0.09*	-0.06*	-0.04	0.02*	0.02	-0.06*	-0.05	0.04	-0.04	0.08	0.03	0.04	0.07	0.03*	-0.06	0.05*	0.04	-0.04	0.04	-0.05*	1.00	
GOVQ (22)	0.03*	0.04*	0.08*	0.07*	0.09*	0.04*	0.04*	-0.03*	-0.09*	-0.11**	0.07	0.02	0.08*	0.04*	0.03*	-0.04	0.05	0.03	-0.05	0.06	0.03*	1.00

Notes: The figures indicate the Pearson's correlation coefficients. ***, ** and * indicate that the correlation is respectively significant at 1%, 5% and 10% levels

Table 5: GMM estimation of effect of various components of bank ownership structures on the individual sustainable banking disclosures

Dep. variables Models	SBD (1)	SBD (2)	SBD (3)	SBD (4)	ENV (5)	ENV (6)	ENV (7)	ENV (8)	SOC (9)	SOC (10)	SOC (11)	SOC (12)
Indep. variables												
IOWN	0.003***				0.005**				0.003**			
	(3.80)				(2.84)				(3.70)			
FOWN		0.005***				0.027**				0.018**		
		(4.42)				(2.45)				(1.98)		
GOWN			-0.551**				-0.421***				-0.604***	
			(-2.53)				(-2.36)				(-2.78)	
DOWN				-0.018				-0.280				-0.675*
				(-0.23)				(-0.87)				(-1.94)
Bank-level controls												
SCOM	0.641**	0.549*	0.249	0.418*	0.663**	0.200*	0.789**	0.056*	0.398***	0.550**	0.649***	0.710***
	(2.52)	(1.87)	(1.53)	(1.71)	(2.38)	(1.71)	(2.46)	(1.88)	(3.40)	(2.21)	(2.94)	(3.22)
FSIZE	-0.173	-0.148*	-0.129*	-0.049**	-0.307*	-0.182*	-0.150*	-0.074*	-0.167*	-0.220*	-0.026*	-0.096
	(-1.35)	(-1.92)	(-1.70)	(-2.46)	(-1.92)	(-1.88)	(-1.91)	(-1.65)	(-1.84)	(-1.95)	(-1.73)	(-1.31)
LEV	-1.27	-5.524***	-3.757**	-2.762**	-4.250**	-8.775**	-5.741**	-7.543*	-5.891*	-9.737*	-3.772*	-0.674
	(-0.36)	(3.16)	(2.32)	(-2.54)	(-2.43)	(-1.97)	(-2.43)	(-1.68)	(-1.71)	(-1.80)	(-1.83)	(-1.36)
AGE	1.663***	2.972**	2.959*	3.424***	3.730***	3.149*	2.020***	2.701*	1.933**	1.581	1.344*	1.935
	(3.76)	(2.21)	(1.86)	(2.99)	(3.15)	(1.68)	(3.54)	(1.89)	(2.30)	(0.70)	(1.93)	(0.75)
CAP	-5.579**	-2.796**	-4.311**	-2.961***	-2.030***	-8.180**	-4.530***	-1.127*	-2.080**	-4.396*	-3.601	-2.407
	(-2.77)	(-2.05)	(-2.34)	(-2.78)	(-3.29)	(-2.45)	(-3.50)	(-1.92)	(-2.49)	(-1.81)	(-1.27)	(-1.36)
BIG4	-0.754	-0.648	-1.250	-0.918	1.353	1.004	0.062*	1.030*	0.794*	0.233	-0.446	-2.795
	(-0.70)	(-0.84)	(-1.15)	(-0.84)	(1.14)	(1.64)	(1.73)	(1.88)	(1.82)	(1.30)	(-0.23)	(-1.18)
R&D	0.103***	0.061***	0.106**	0.097**	0.431**	0.322*	0.407***	0.095***	0.365***	0.501***	0.836***	0.954***
	(4.69)	(5.66)	(2.44)	(2.02)	(1.98)	(1.73)	(2.98)	(3.54)	(3.70)	(3.47)	(2.95)	(3.34)
ROA	-0.541	-0.672	-0.540	-0.283	-0.618*	-7.370*	-8.360	-0.742	-0.276***	-4.160**	2.996***	4.776***
	(-0.08)	(-0.14)	(-0.11)	(-0.45)	(-1.78)	(-1.82)	(-1.54)	(-0.38)	(-2.85)	(-3.68)	(3.41)	(3.72)
ROE	0.343	3.155	4.445*	3.893	2.772	1.550*	3.803	6.881*	2.738**	1.661***	0.883***	1.416***
	(0.14)	(1.13)	(1.95)	(0.42)	(0.15)	(1.69)	(1.56)	(1.72)	(2.40)	(3.47)	(3.55)	(2.87)
Country-level controls												
GDP	0.150	0.717	0.533	0.532	0.996*	0.952*	0.873*	0.202*	0.164*	0.806	0.328	0.177
	(0.26)	(1.08)	(1.47)	(1.23)	(1.68)	(1.80)	(1.87)	(1.70)	(1.77)	(1.04)	(0.67)	(0.75)
INFL	-0.187	-0.630	-0.140	-0.208	-0.904	-3.422*	-1.022*	-2.462*	-0.716	-1.869	-0.220	-0.295
	(-0.51)	(-0.59)	(-1.11)	(-1.36)	(-0.86)	(-1.75)	(-1.77)	(-1.97)	(-1.52)	(-1.56)	(-1.48)	(-1.34)
GOVQ	0.966***	0.919**	0.523***	0.356**	0.231**	0.673**	0.485**	0.077**	0.478***	0.665***	0.235***	0.259***
	(3.91)	(2.71)	(2.87)	(2.49)	(2.22)	(2.14)	(2.10)	(2.23)	(3.88)	(3.03)	(2.87)	(2.68)
Constant	-3.101**	-4.461***	-3.844***	-4.440***	-4.772***	-3.871***	-7.497***	4.727***	4.770***	5.913***	4.607***	7.213***
	(-2.66)	(-3.41)	(-3.35)	(-2.65)	(-3.71)	(-2.72)	(-4.33)	(4.06)	(4.24)	(4.29)	(5.21)	(4.85)
Year & country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR1 (Prob)	0.021	0.003	0.001	0.024	0.001	0.004	0.002	0.087	0.009	0.003	0.070	0.005
No. of obs.	2590	2590	2590	2590	2580	2580	2580	2580	2590	2590	2590	2590
AR2 (Prob)	0.452	0.348	0.254	0.307	0.270	0.377	0.453	0.349	0.432	0.188	0.546	0.276

Hansen J (Prob)	0.587	0.632	0.580	0.631	0.493	0.530	0.764	0.560	0.789	0.678	0.765	0.459			

Note: This table is based on a generalized method of moments (GMM) panel data estimator, as proposed by Arellano and Bond (1991) and Blundell and Bond (1998). All the variables used are fully defined in Table 2. t-statistics estimated using robust standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

Table 6: GMM estimation of effect of various components of bank ownership structures on the individual sustainable banking disclosures

Dep. variables	HAS	HAS	HAS	HAS	EHR	EHR	EHR	EHR	CIV	CIV	CIV	CIV	EMP	EMP	EMP	EMP
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Indep. variables																
IOWN	0.003**				0.007**				0.004**				0.002*			
	(2.51)				(2.49)				(2.36)				(1.75)			
FOWN		0.002**				0.006**				0.027				0.012**		
		(2.40)				(1.98)				(1.00)				(2.57)		
GOWN			-0.159*				-1.480***				-0.383***				-0.301	
			(-1.72)				(-2.85)				(-2.99)				(-1.10)	
DOWN				-1.676				-1.130**				-0.252***				-0.237***
				(-0.56)				(-2.19)				(-3.62)				(-2.84)
Bank-level controls																
SCOM	0.512***	0.454**	0.043***	0.704***	0.151**	0.564**	0.334***	0.749***	0.220*	0.123*	0.323**	0.048*	0.342*	0.417*	0.228*	0.252*
	(3.42)	(1.97)	(3.21)	(2.88)	(2.07)	(2.33)	(2.73)	(2.88)	(1.78)	(1.72)	(2.07)	(1.78)	(1.82)	(1.77)	(1.80)	(1.70)
FSIZE	-0.172*	-0.136	-0.005**	-0.496*	-0.074**	-0.056**	-0.117***	-0.446**	-0.119**	-0.428**	-0.118***	-0.010***	-0.044*	-0.113**	-0.113**	-0.125*
	(-1.82)	(-1.22)	(-2.40)	(-1.73)	(-2.20)	(-2.13)	(-3.33)	(-1.97)	(-2.43)	(-2.04)	(-3.22)	(-3.04)	(-1.74)	(-2.42)	(2.31)	(-1.83)
LEV	-4.908**	-3.196**	-4.703***	-1.122*	-6.947**	-3.135*	-5.682**	-5.015***	-4.245***	-2.321***	-3.582***	-6.354***	-2.827**	-1.602**	-4.044**	-5.268**
	(-1.99)	(-2.57)	(-2.94)	(-1.77)	(-2.50)	(-1.89)	(-2.43)	(-3.04)	(-2.88)	(-2.83)	(-3.30)	(-3.54)	(-2.31)	(2.81)	(2.49)	(-3.70)
AGE	2.007***	0.881***	1.183***	1.772*	1.671*	0.644*	3.769**	0.691***	0.481**	2.676***	0.180***	0.194***	0.040***	2.700***	0.457***	0.874***
	(4.77)	(2.93)	(3.84)	(1.82)	(1.73)	(1.69)	(2.07)	(2.88)	(2.40)	(2.91)	(3.52)	(3.11)	(4.54)	(6.98)	(4.31)	(3.73)
CAP	-2.176**	-1.099**	-2.915***	-4.389***	-3.275***	-8.547***	-8.812***	-2.455***	-2.752***	-6.843***	-3.614***	-2.137***	-0.549*	-2.255*	-1.777	-1.133*
	(-1.87)	(-2.43)	(-2.99)	(-3.24)	(-3.64)	(-3.66)	(-3.69)	(-3.24)	(-3.71)	(-3.21)	(-3.33)	(-3.87)	(-1.82)	(-4.32)	(-0.84)	(-1.72)
BIG4	0.384**	0.631	0.516***	0.895**	2.189*	4.334**	3.002***	5.825**	0.171*	0.420	0.085*	0.656*	0.403	0.038*	0.216*	0.991
	(2.13)	(0.89)	(2.76)	(2.33)	(1.65)	(2.53)	(2.71)	(2.54)	(1.74)	(1.22)	(1.83)	(1.75)	(1.38)	(1.82)	(1.78)	(1.21)
R&D	0.722*	0.068*	0.518***	0.338**	0.380**	0.037*	0.323**	0.630***	0.190*	0.223*	0.067**	0.241*	1.129***	0.612***	0.841***	0.875***
	(1.83)	(1.74)	(2.73)	(1.98)	(2.11)	(1.80)	(2.55)	(3.27)	(1.79)	(1.90)	(2.37)	(1.83)	(4.36)	(3.72)	(4.36)	(2.99)
ROA	-1.237*	-4.458	-1.445**	-3.506**	-2.202**	-1.197*	-1.383*	-2.906**	-1.840**	-3.441**	-3.926**	-2.578*	-8.905*	-4.527*	-9.270	-7.919*
	(-1.75)	(-1.19)	(-2.18)	(-2.10)	(-2.14)	(-1.72)	(-1.74)	(-2.08)	(-2.51)	(-2.12)	(-2.01)	(-1.82)	(-1.73)	(-4.82)	(1.17)	(-1.82)
ROE	-2.217	-0.687	1.924	2.026	1.425**	2.291	2.084**	4.976***	2.870	3.557	4.080	5.171	0.098**	4.518**	0.581**	1.675*
	(-1.53)	(-0.29)	(0.29)	(0.54)	(1.82)	(0.33)	(2.34)	(3.08)	(1.49)	(0.88)	(1.49)	(1.56)	(2.21)	(2.37)	(2.55)	(1.81)
Country-level controls																
GDP	0.288	0.297	0.310	0.589	0.565**	1.165**	0.904**	0.464**	0.141*	0.602**	0.147	0.103**	0.663***	1.236***	0.759***	0.700***
	(1.15)	(0.37)	(1.15)	(0.64)	(2.49)	(2.02)	(2.31)	(2.22)	(1.71)	(1.92)	(1.06)	(1.92)	(3.54)	(3.71)	(4.30)	(3.78)
INFL	0.043	0.153	0.122	1.062	1.120**	-1.996**	-0.115*	0.701***	1.232***	4.734*	0.476***	0.245***	-0.529	-1.672	-0.197	-0.011
	(1.07)	(0.24)	(0.87)	(0.45)	(2.23)	(-2.13)	(-1.92)	(3.54)	(2.88)	(1.72)	(3.17)	(3.57)	(-1.19)	(-1.37)	(0.48)	(-0.57)
GOVQ	0.017**	0.118*	0.057***	0.259**	0.861**	0.536**	0.597***	0.537***	0.329***	1.934***	0.221***	0.187***	0.126***	0.954***	0.200***	0.230***
	(1.90)	(1.73)	(2.86)	(2.54)	(3.17)	(2.49)	(3.33)	(3.82)	(4.82)	(3.21)	(3.52)	(3.84)	(4.32)	(3.43)	(5.75)	(3.02)
Constant	6.1495***	-4.475***	-4.301***	5.794**	-6.422***	-8.886***	-7.584***	2.413***	7.168***	-3.211***	-2.476***	3.048***	6.933***	3.935***	9.928***	4.449***
	(2.71)	(-4.03)	(-2.95)	(2.41)	(-5.39)	(-4.71)	(-4.76)	(3.48)	(4.32)	(-3.99)	(-4.74)	(5.14)	(4.82)	(4.32)	(3.43)	(3.88)

Year & country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	2590	2590	2590	2590	2,535	2,535	2,535	2,535	2,584	2,584	2,584	2,584	2,579	2,579	2,579	2,579
AR1 (Prob)	0.008	0.015	0.002	0.001	0.012	0.009	0.004	0.022	0.005	0.005	0.011	0.003	0.004	0.006	0.001	0.008
AR2 (Prob)	0.176	0.348	0.378	0.678	0.435	0.356	0.538	0.489	0.320	0.458	0.580	0.356	0.578	0.373	0.476	0.343
Hansen J (Prob)	0.398	0.652	0.567	0.743	0.654	0.587	0.653	0.742	0.654	0.525	0.654	0.542	0.753	0.640	0.542	0.567

Note: This table is based on a generalized method of moments (GMM) panel data estimator, as proposed by Arellano and Bond (1991) and Blundell and Bond (1998). All the variables used are fully defined in Table 2. t-statistics estimated using robust standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

Table 7: GMM estimation of moderating effect of CGI on the link between bank ownership structures and sustainable banking disclosure

Type of analysis	Main sample				Bette-governed banks				Poorly-governed banks			
Dep. variable	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD
Models	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Indep. variables												
IOWN	0.009*				0.234*				0.012*			
	(1.68)				(1.72)				(1.84)			
IOWN*CGI	0.032***				0.354***				0.017*			
	(3.51)				(3.21)				(1.63)			
CGI	0.054***	0.450***	0.259***	0.043***	0.346***	0.466***	0.193***	0.044***	0.094***	0.976***	0.053***	0.146***
	(3.42)	(2.90)	(3.24)	(3.36)	(2.87)	(3.99)	(3.50)	(3.68)	(3.93)	(3.08)	(2.72)	(4.51)
FOWN*CGI		0.007***				0.082***				0.004*		
		(3.52)				(2.85)				(1.72)		
FOWN		0.396				0.010***				0.568		
		(1.33)				(5.74)				(1.24)		
GOWN*CGI			0.008*				0.025**				0.002*	
			(1.73)				(2.48)				(1.73)	
GOWN			-0.063*				-0.056*				-0.048*	
			(-1.78)				(-1.89)				(-1.83)	
DOWN*CGI				0.048***				0.061***				0.011*
				(2.85)				(2.82)				(1.74)
DOWN				-0.062*				-0.046*				-0.031*
				(-1.73)				(-1.83)				(-1.92)
Bank-level controls												
SCOM	0.012*	0.898*	0.007*	0.008**	0.032**	0.785*	0.043*	0.059**	0.044	0.404	0.910*	0.052*
	(1.90)	(1.77)	(1.69)	(1.98)	(2.43)	(1.73)	(1.84)	(2.43)	(1.15)	(1.54)	(1.78)	(1.81)
FSIZE	-0.071*	-0.032*	-0.073*	-0.049*	-0.630***	-0.014***	-0.034**	-0.033**	-0.235*	-0.402	-0.208	-0.093*
	(-1.79)	(-1.83)	(-1.90)	(-1.68)	(-3.21)	(-3.61)	(-2.27)	(-2.14)	(-1.58)	(-1.45)	(-1.54)	(-1.85)
LEV	-8.979**	-9.164**	-3.832***	3.979**	-1.469**	-5.965**	-2.812**	4.117*	-1.982***	-3.630***	-3.678***	-3.681***
	(-2.04)	(-2.48)	(-3.36)	(2.05)	(-2.42)	(-2.55)	(-2.81)	(1.79)	(-3.36)	(-2.73)	(-5.37)	(-2.99)
AGE	0.844***	0.299***	0.710***	0.652***	0.513***	0.465***	0.894***	0.941***	0.433	0.055	0.566	0.912
	(2.99)	(3.10)	(3.41)	(4.67)	(3.95)	(4.02)	(3.66)	(3.93)	(1.57)	(1.54)	(1.48)	(1.53)

CAP	-2.248**	-3.580***	-2.716***	-2.563***	-2.753***	-2.989***	-1.143***	-1.029***	-2.254***	-3.764***	-3.093***	-2.686***
	(-2.31)	(-3.25)	(-3.71)	(-3.11)	(-2.85)	(-3.33)	(-4.25)	(-2.82)	(-2.97)	(-2.68)	(-6.25)	(-5.02)
BIG4	0.705**	0.742**	0.779**	0.766	0.447***	0.902**	0.438***	0.930**	0.737	0.580	0.301	0.375
	(2.49)	(2.35)	(2.20)	(1.08)	(3.36)	(3.17)	(3.44)	(2.31)	(1.22)	(1.54)	(1.39)	(1.48)
R&D	0.657***	0.178***	0.739***	0.718***	0.903***	0.281***	0.871***	0.836**	0.575***	0.779**	0.467**	0.704**
	(3.91)	(5.34)	(3.73)	(3.40)	(3.21)	(3.52)	(2.73)	(1.98)	(2.87)	(2.22)	(2.14)	(2.08)
ROA	-0.534*	-0.605***	-2.369**	-2.928**	-0.550***	-0.444**	-1.468***	-2.987**	-0.904***	-0.998***	-0.435***	-2.754***
	(-1.82)	(-3.69)	(-3.43)	(-2.24)	(-4.57)	(-2.30)	(-4.87)	(-2.05)	(-3.07)	(-3.70)	(-4.48)	(-4.03)
ROE	2.815	1.585*	1.543**	1.598**	2.775*	1.858**	2.706***	2.794***	2.053	2.724	1.557	2.747
	(1.20)	(1.92)	(2.14)	(2.54)	(1.82)	(2.57)	(3.52)	(3.11)	(1.16)	(1.52)	(0.87)	(1.20)
Country-level controls												
GDP	0.548*	0.978*	0.327	0.334	0.582*	0.257	0.353***	0.315*	0.174***	0.963**	0.376	0.653**
	(1.67)	(1.87)	(1.14)	(1.40)	(1.72)	(1.06)	(3.08)	(1.67)	(2.89)	(2.41)	(1.05)	(2.55)
INFL	-0.206	-0.383	-0.104	-0.084	-0.711*	-0.207**	-0.227**	-0.079**	-0.345*	-0.438*	-0.379*	-0.728*
	(-1.16)	(-1.64)	(-1.38)	(-1.23)	(-1.85)	(-2.25)	(-2.41)	(-2.03)	(-1.84)	(-1.75)	(-1.83)	(-1.72)
GOVQ	0.398***	0.843***	0.254***	0.275**	0.215**	0.318**	0.321***	0.182**	0.195***	0.306***	0.449***	0.799***
	(3.07)	(3.32)	(2.83)	(2.33)	(2.24)	(2.47)	(3.05)	(2.54)	(3.30)	(2.76)	(4.51)	(2.73)
Constant	6.085***	-8.093***	7.482***	2.097***	-5.765**	-5.921***	-5.830***	3.857***	4.632***	-7.484***	-8.533***	-3.537*
	(3.64)	(-3.20)	(2.87)	(3.02)	(-2.57)	(-3.33)	(-5.84)	(3.58)	(5.25)	(-4.48)	(-2.68)	(-1.83)
Year & country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	2590	2590	2590	2590	1542	1542	1542	1542	1048	1048	1048	1048
AR1 (Prob)	0.007	0.038	0.023	0.009	0.013	0.006	0.003	0.002	0.008	0.005	0.002	0.017
AR2 (Prob)	0.356	0.541	0.372	0.643	0.467	0.385	0.546	0.432	0.547	0.328	0.543	0.378
Hansen J (Prob)	0.654	0.705	0.654	0.765	0.362	0.653	0.323	0.659	0.704	0.455	0.630	0.540

Note: This table is based on a generalized method of moments (GMM) panel data estimator, as proposed by Arellano and Bond (1991) and Blundell and Bond (1998). All the variables used are fully defined in Table 2. t-statistics estimated using robust standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

Table 8: The effect of various components of bank ownership structures on the individual sustainable banking disclosures-addressing endogeneity, 2SLS

Dep. variable	SBD	SBD	SBD	SBD	ENV	ENV	ENV	ENV	SOC	SOC	SOC	SOC
Models	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Indep. variables												
IOWN	0.010**				0.006***				0.022***			
	(2.54)				(3.50)				(2.78)			
FOWN		0.050***				0.033**				0.019**		
		(4.43)				(2.47)				(2.33)		
GOWN			-0.169***				-0.598***				-0.120***	
			(-2.70)				(-3.72)				(-3.48)	
DOWN				-1.322				-4.699				-0.576**
				(-1.15)				(-1.48)				(-2.03)
Bank-level controls												
SCOM	0.406*	0.366*	0.250**	0.404	0.609**	1.191*	0.545**	3.765*	0.015***	0.571*	0.259**	0.088***
	(1.72)	(1.84)	(2.25)	(1.57)	(2.50)	(1.75)	(2.43)	(1.85)	(3.54)	(1.72)	(2.55)	(3.54)
FSIZE	-0.092**	-0.085**	-0.128***	-0.404**	-0.008*	-0.185*	-0.253*	-1.634	-0.041*	-0.220*	-0.169*	-0.326
	(-2.43)	(-2.38)	(-3.25)	(-2.47)	(-1.82)	(-1.76)	(-1.84)	(-1.42)	(-2.03)	(-1.84)	(-1.72)	(-1.45)
LEV	3.418*	2.336**	0.709***	-2.762***	3.382**	-3.721*	-3.925**	-8.413*	-1.048*	-9.843*	-4.733	-6.595
	(1.82)	(2.33)	(2.72)	(-3.52)	(2.48)	(-1.85)	(-2.54)	(-1.74)	(-1.84)	(-1.70)	(-0.87)	(-1.59)
AGE	2.304**	1.989***	0.959**	3.424***	0.012***	3.163**	1.732***	7.026*	4.830**	1.519*	3.473***	3.832*
	(2.07)	(2.95)	(2.11)	(3.06)	(3.46)	(2.30)	(3.21)	(1.82)	(2.27)	(1.83)	(3.14)	(1.75)
CAP	-2.753***	-2.812**	-4.298***	-1.816***	-8.257***	-8.171*	-3.465***	-8.259*	-4.709*	-4.524**	-5.603***	-6.568*
	(-3.46)	(-2.48)	(-2.89)	(-3.67)	(-4.32)	(-1.84)	(-3.73)	(-1.71)	(-1.94)	(-2.10)	(-2.87)	(-1.84)
BIG4	0.578*	0.653*	1.233**	2.346*	1.381*	0.638*	2.983**	6.942*	0.503**	-0.274	-0.422	-0.618
	(1.76)	(1.92)	(2.37)	(1.84)	(1.78)	(1.86)	(2.48)	(1.83)	(2.55)	(-1.15)	(-1.38)	(1.44)
R&D	0.023*	0.057**	0.107**	1.097**	0.448**	0.024*	0.344***	0.860***	0.034**	0.502***	0.278***	0.699**
	(1.82)	(2.14)	(2.53)	(1.98)	(2.42)	(1.75)	(2.97)	(3.22)	(2.49)	(3.72)	(2.83)	(3.22)
ROA	-0.291	-0.618	-0.563	-0.283	-0.330*	-0.295*	-0.479	-0.555	-1.054***	-1.544**	1.887**	1.324***
	(-1.15)	(-1.22)	(-1.16)	(-1.43)	(-1.75)	(-1.91)	(-1.54)	(-1.49)	(-3.02)	(-2.51)	(2.09)	(2.85)
ROE	3.898*	3.155**	4.452***	1.893*	1.084**	1.040*	1.111**	-3.422*	1.803**	1.741**	4.275***	1.431**
	(1.85)	(2.07)	(2.89)	(1.77)	(2.29)	(1.72)	(2.38)	(-1.83)	(1.97)	(2.20)	(3.44)	(2.40)
Country-level controls												
GDP	0.893	0.726	0.530	1.067	0.728	2.608	1.177*	4.505	1.050	0.871	0.011	-0.647
	(1.18)	(1.08)	(1.51)	(1.34)	(1.17)	(1.42)	(1.81)	(1.50)	(1.43)	(1.57)	(1.28)	(-1.54)
INFL	1.040	0.653	0.140	1.050	-1.618**	2.316*	-1.035*	-2.193	-2.204	-1.893	-0.026	-0.371
	(1.15)	(1.57)	(1.27)	(0.97)	(-2.32)	(1.95)	(-1.88)	(-1.11)	(-1.53)	(-0.98)	(-1.39)	(-1.38)
GOVQ	1.269**	0.960*	0.523**	0.393**	0.024*	3.397**	0.490**	0.039**	2.776***	0.734***	0.909***	0.847***

	(2.32)	(1.85)	(2.44)	(2.38)	(1.70)	(2.54)	(2.55)	(3.22)	(2.99)	(4.03)	(3.85)	(3.54)
Constant	-2.124***	-2.363***	-3.690***	4.448**	-5.086***	-5.012**	9.334***	6.900***	6.325***	5.397***	2.878***	2.165***
	(-3.72)	(-3.10)	(-3.66)	(3.95)	(-4.03)	(-2.73)	(4.51)	(3.88)	(2.76)	(3.84)	(3.02)	(2.94)
Year & country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of observations	2590	2590	2590	2590	2580	2580	2580	2580	2590	2590	2590	2590
F-value	47.28	28.77	53.88	22.44	59.60	45.90	39.22	65.09	47.50	53.35	26.46	64.45

Notes: All the variables used are fully defined in Table 2. t-statistics estimated using robust standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

Table 9: The effect of various components of bank ownership structures on the individual sustainable banking disclosures- addressing endogeneity, 2SLS

Dep. variables	HAS	HAS	HAS	HAS	EHR	EHR	EHR	EHR	CIV	CIV	CIV	CIV	EMP	EMP	EMP	EMP
Models	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Indep. variables																
IOWN	0.007**				0.011**				0.014**				0.007**			
	(2.08)				(2.55)				(2.82)				(2.20)			
FOWN		0.002**				0.006***				0.034				0.010**		
		(2.47)				(2.99)				(1.64)				(2.36)		
GOWN			-0.0492***				-0.552***				-0.137***				-0.539**	
			(-3.72)				(-2.95)				(-2.86)				(-2.69)	
DOWN				-2.116				-2.238*				-6.397**				-0.362**
				(-1.54)				(-1.72)				(-2.58)				(-2.06)
Bank-level controls																
SCOM	0.572**	0.456**	0.474**	0.900**	0.800**	0.564**	0.523***	2.121***	0.181*	0.500**	0.013**	0.170*	0.678**	0.433*	0.449*	-0.341*
	(1.97)	(2.44)	(2.33)	(2.95)	(2.76)	(1.97)	(3.25)	(3.18)	(1.74)	(2.52)	(2.43)	(1.73)	(2.24)	(1.75)	(1.65)	(-1.73)
FSIZE	-0.171*	-0.136	-0.168***	-0.889*	-0.128**	-0.056**	-0.305***	-0.698**	-0.336**	-0.457***	-0.225***	-1.964***	-0.143*	-0.221**	-0.041*	-0.044*
	(-1.82)	(-1.52)	(-2.80)	(-1.95)	(-2.52)	(-2.02)	(-3.37)	(-2.22)	(-2.36)	(-2.85)	(-3.36)	(-2.86)	(-1.68)	(-2.36)	(-1.85)	(-1.70)
LEV	-0.910**	-3.196**	-2.775***	-3.3458*	-7.697***	-3.135*	-3.729**	-1.670***	-9.849**	-4.731***	-5.967***	-2.521***	-1.135**	-5.552**	-7.115*	-9.110**
	(-2.11)	(-2.47)	(-3.22)	(-1.83)	(-3.48)	(-1.75)	(-2.58)	(-2.36)	(-2.31)	(-3.40)	(-2.89)	(-3.05)	(-2.49)	(-2.08)	(-1.82)	(-2.55)
AGE	1.572**	0.881**	0.857***	1.916*	0.738*	0.644*	2.192***	2.965***	3.172**	4.711**	2.439***	1.857***	3.672***	2.275***	1.066**	2.548***
	(2.25)	(2.35)	(3.44)	(1.80)	(1.72)	(1.87)	(4.09)	(2.96)	(2.21)	(1.98)	(3.34)	(3.19)	(3.73)	(2.89)	(2.06)	(3.47)
CAP	-1.048**	-1.099**	-1.530***	-8.517***	-8.459***	-8.547***	-3.384***	-0.691**	-7.475***	-7.541***	-6.379***	-4.839***	-1.093*	-1.161*	-5.880***	-2.417*
	(-2.44)	(-1.95)	(-4.28)	(-2.85)	(-2.89)	(-2.69)	(-3.18)	(-2.31)	(-3.93)	(-3.07)	(-3.93)	(-3.03)	(-1.71)	(-184)	(-3.07)	(-1.82)
BIG4	0.468	0.631	0.736**	1.961*	4.009**	4.334***	5.804***	6.924***	-0.717	-1.072	-0.818*	-0.301*	0.461	0.789*	2.154*	0.170
	(1.19)	(1.58)	(2.72)	(1.78)	(2.05)	(3.07)	(2.82)	(2.86)	(-1.24)	(-1.18)	(-1.73)	(-1.82)	(1.60)	(1.77)	(1.75)	(1.43)
R&D	0.025*	0.068*	0.040***	1.520**	0.155**	0.037**	0.071**	1.618***	0.467*	0.724*	0.294**	4.429*	0.290***	0.491***	0.339**	0.104***
	(1.85)	(1.77)	(2.73)	(2.07)	(2.47)	(3.01)	(2.22)	(3.35)	(1.73)	(1.81)	(3.34)	(1.72)	(2.75)	(3.04)	(2.34)	(3.36)
ROA	-4.090	-4.458	-4.347*	-0.448**	-9.519**	-10.197*	-9.584*	-6.893***	-1.091**	-1.104*	-0.231**	-4.792*	-5.070*	-5.661*	-4.982	-8.188*
	(-1.57)	(-0.89)	(-1.72)	(-2.49)	(-2.35)	(-1.75)	(-1.68)	(-3.00)	(-2.57)	(-1.70)	(-2.45)	(-1.84)	(-1.68)	(-1.82)	(-1.45)	(-1.84)
ROE	1.169*	-0.687	-0.474*	-0.379	6.045**	2.291	7.766	8.129**	1.814	6.467	-3.476	-3.779	5.571**	1.718**	1.838**	7.466*
	(1.83)	(-1.34)	(-1.70)	(-1.57)	(2.14)	(1.37)	(1.18)	(1.95)	(1.18)	(1.53)	(-1.24)	(-0.98)	(2.23)	(2.47)	(2.49)	(1.87)
Country-level controls																
GDP	0.693	0.297	0.402	0.871	1.963**	1.165**	1.620**	1.168**	0.171*	1.125	0.574	-0.030	2.161***	1.346***	1.972**	2.235***
	(1.02)	(1.49)	(1.54)	(1.48)	(2.34)	(2.42)	(2.36)	(2.22)	(1.84)	(1.43)	(1.55)	(-1.48)	(3.70)	(2.90)	(2.34)	(3.01)

INFL	1.007	0.153	0.342***	-1.102*	-0.285**	-1.996	-1.399***	0.139***	3.217*	-5.130***	1.684***	6.063*	-1.101	-0.627	-0.331	-0.089
	(1.42)	(1.28)	(4.48)	(-1.81)	(-2.58)	(-1.54)	(-3.02)	(3.34)	(1.82)	(-3.34)	(3.14)	(1.77)	(-1.45)	(-1.11)	(-1.33)	(-1.20)
GOVQ	0.843**	0.118*	0.294***	0.484**	0.923**	0.536**	0.006***	0.217***	1.968***	3.691***	0.681***	0.083***	1.298***	0.188***	0.657**	0.689***
	(3.58)	(1.85)	(3.33)	(2.52)	(2.41)	(2.81)	(3.34)	(3.02)	(3.34)	(3.14)	(2.82)	(2.41)	(2.71)	(3.24)	(2.24)	(2.75)
Constant	-6.339**	-4.475***	-8.811***	-6.184**	-6.649***	-8.886***	-10.640***	-13.451***	-9.197**	-4.787***	-4.811***	7.872***	8.534***	12.388***	-3.168**	2.607***
	(-4.82)	(-3.55)	(-3.72)	(-4.57)	(-3.77)	(-2.72)	(-2.86)	(-3.18)	(-2.53)	(-2.82)	(-3.85)	(3.20)	(3.37)	(4.22)	(-2.53)	(3.36)
Year & country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of obs.	2590	2590	2590	2590	2,535	2,535	2,535	2,535	2,584	2,584	2,584	2,584	2,579	2,579	2,579	2,579
F-value	16.38	29.90	30.15	28.48	36.35	27.03	36.11	48.13	35.32	27.03	37.92	48.13	35.32	47.09	19.93	48.13

Notes: All the variables used are fully defined in Table 2. t-statistics estimated using robust standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

Table 10: The moderating effect of CGI on the link between bank ownership structures and sustainable banking disclosures- addressing endogeneity, 2SLS

Type of analysis	Main sample				Bette-governed banks				Poorly-governed banks			
Dependent Variable	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD
Models	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Independent variables												
IOWN	0.051*				0.252*				0.027			
	(1.72)				(1.73)				(1.06)			
IOWN*CGI	0.008***				0.038***				0.003*			
	(3.85)				(3.69)				(1.61)			
CGI	0.090***	0.205***	0.027**	0.585***	0.567***	0.194**	0.223**	0.134***	0.087***	0.086***	0.084***	0.227***
	(2.88)	(3.19)	(2.10)	(3.64)	(3.33)	(2.37)	(2.03)	(3.36)	(3.35)	(2.72)	(3.35)	(2.88)
FOWN*CGI		0.007***				0.204***				0.003*		
		(3.70)				(3.71)				(1.79)		
FOWN		0.083				0.053				0.021		
		(1.27)				(1.37)				(1.48)		
GOWN*CGI			0.005**				0.041***				0.002*	
			(1.98)				(3.40)				(1.87)	
GOWN			-0.382				-0.102				-0.056	
			(-0.74)				(-1.11)				(-0.97)	
DOWN*CGI				0.320***				0.761***				0.026*
				(2.89)				(2.85)				(1.84)
DOWN				-1.351				-0.981				-1.417
				(-1.55)				(-1.35)				(-1.25)
Bank-level controls												
SCOM	0.817*	0.023*	0.273*	0.044**	0.543**	0.191*	0.249**	0.562**	0.071	0.163	0.355*	0.335*
	(1.75)	(1.70)	(1.85)	(2.87)	(2.34)	(1.72)	(2.34)	(3.36)	(1.25)	(1.67)	(1.84)	(1.72)
FSIZE	-0.069**	-0.249*	-0.015*	-0.500*	-0.476***	-0.268***	-0.030**	-0.127**	-0.299	-0.040*	-0.054	-0.143*
	(-2.15)	(-1.83)	(-178)	(-1.82)	(-2.92)	(-3.20)	(-2.40)	(-2.37)	(-1.47)	(-1.82)	(-1.57)	(-1.81)

LEV	-5.289**	-1.200**	-0.176***	-6.675**	-4.115**	-1.642**	-1.861**	-0.282*	-1.731**	-4.342**	-4.372***	-2.495***
	(-2.25)	(-1.99)	(-3.83)	(2.10)	(-3.32)	(-2.03)	(-2.48)	(-1.74)	(-2.08)	(-2.34)	(-3.01)	(-2.89)
AGE	1.684***	2.830***	2.026***	1.924***	0.891**	1.927***	1.783***	2.383***	2.728	1.485	2.265	1.641
	(3.85)	(4.05)	(2.99)	(3.51)	(2.55)	(2.87)	(3.21)	(3.17)	(1.58)	(1.37)	(1.54)	(1.10)
CAP	-1.403**	-1.446***	-2.046***	-1.414***	-2.553***	-1.571***	-1.100***	-2.437**	-1.929**	-1.315***	-6.629***	-7.645***
	(-2.33)	(-3.34)	(-3.09)	(-3.07)	(-3.75)	(-3.04)	(-2.82)	(-2.08)	(-2.37)	(-3.44)	(-2.90)	(-3.22)
BIG4	0.392**	0.953**	0.556**	0.403	-4.081***	3.173**	3.615***	2.769**	0.486*	0.392	0.094	0.007
	(2.49)	(2.12)	(2.41)	(1.16)	(-3.02)	(3.40)	(3.22)	(2.39)	(1.67)	(1.55)	(1.33)	(1.27)
R&D	0.105***	0.014***	0.134***	1.868***	0.562**	0.403***	0.063***	0.545**	0.119***	0.276**	0.196**	0.066**
	(3.05)	(3.18)	(3.27)	(3.29)	(2.13)	(3.21)	(3.00)	(2.27)	(3.42)	(2.11)	(2.07)	(2.40)
ROA	-2.553*	-6.237	-0.167	-1.114*	-1.601*	-5.195**	-1.703***	-1.547**	-2.781**	-4.146**	-5.120**	-3.393***
	(-1.73)	(-1.61)	(-1.54)	(-1.80)	(-1.64)	(-2.34)	(-3.61)	(-2.37)	(-2.54)	(-2.48)	(-2.30)	(-2.99)
ROE	3.423	2.002*	0.273	2.573**	0.774***	2.374**	3.104***	2.210***	3.781	1.519	1.505	0.102
	(1.54)	(1.70)	(1.18)	(2.31)	(2.83)	(2.42)	(3.30)	(3.33)	(1.59)	(1.38)	(1.43)	(1.57)
Country-level controls												
GDP	2.819	0.871*	0.524*	0.964	1.040	0.180	0.416***	0.210*	1.820***	0.722**	1.055**	0.665**
	(1.45)	(1.68)	(1.84)	(1.47)	(1.32)	(1.48)	(2.85)	(1.71)	(3.34)	(2.18)	(2.01)	(2.43)
INFL	-0.560	-1.932	-0.049	-0.202	0.790**	-0.725	-1.187***	-1.016**	-0.072*	-0.277*	-0.746*	-0.076*
	(-1.26)	(-1.15)	(-0.98)	(-1.29)	(2.20)	(-2.34)	(-3.49)	(-2.37)	(-1.85)	(-1.72)	(-1.80)	(-1.75)
GOVQ	3.078***	0.389***	0.580***	0.509**	0.877**	1.174**	0.178***	0.337**	1.567***	0.482***	1.218***	1.137***
	(3.37)	(3.42)	(3.72)	(2.13)	(2.42)	(2.42)	(3.22)	(2.45)	(3.45)	(3.24)	(3.36)	(2.87)
Constant	-7.682***	-4.368***	-7.735***	-4.078***	-2.452**	-7.266***	-8.456***	-7.569***	5.887***	-3.487**	3.136***	2.494*
	(-3.05)	(-2.82)	(-2.95)	(-3.47)	(-2.36)	(-3.21)	(-2.85)	(-3.54)	(4.23)	(-3.54)	(3.14)	(1.82)
Year & country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of obs.	2590	2590	2590	2590	1542	1542	1542	1542	1048	1048	1048	1048
F-value	43.5	33.41	40.28	31.42	41.49	35.60	24.52	37.64	38.25	30.58	42.98	38.42

Notes: All the variables used are fully defined in Table 2. t-statistics estimated using robust standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

Table 11: Comparison with previous research

Study	Method	Results and findings
Cheng et al. (2022)	Fixed-effects regression model	There is a negative relationship between institutional ownership and the level of CSR.
McGuinness et al. (2017)	Lag panel regression model	Foreign ownership has positive impact on CSR performance
Ntim & Soobaroyen (2013a)	Fixed-effects regression model	The study observed that institutional ownership is associated with increased CSR, whilst government ownership is linked with decreased CSR.
Haji (2013)	Multiple regression analyses	Firms in which directors have a substantial proportion of shares disclose significantly less CSR information.
Dam & Scholtens (2012)	Ordinary least squares	Institutional and government ownership have no influence on CSR.
Oh et al. (2011)	Ordinary least squares	Find that foreign investors are associated with an increase in CSR ratings. The study also observe that shareholding by top managers is negatively associated with CSR rating of firms, while outside director ownership has no influence of CSR ratings.
Ghazali (2007)	Multiple regression analysis	Find that firms in which directors have a substantial proportion of shares disclose significantly less CSR information.
This study	Dynamic two-step system GMM and 2SLS	We find that ownership by institutional and foreign investors is associated with increased SBD. By contrast, government ownership is negatively associated with SBD, whereas the holdings by directors of the banks appear to be neutral in this relationship. We also find that a combination of CGI and BOS has a stronger positive effect on SBD than BOS alone, with the moderating effect improving in banks with high CGI score, implying that CGI positively influences the BOS-SBD nexus.

Appendix 1: Sustainable banking disclosure scoring method

Sustainable banking disclosures (SBD) index			
SBD theme/type	**SBD item: information on or reference to**	**Range of scores**	**Total score per theme**
	Social disclosures		
(i)Social investment and service quality	1. Supports to students	0-4	108
	2. Education policy	0-4	
	3. Support for educational infrastructure	0-4	
	4. Support for educational campaign and girl child education	0-4	
	5. Support for training of teachers	0-4	
	6. Housing policy	0-4	
	7. Support for affordable and community housing projects	0-4	
	8. Power and energy policy	0-4	
	9. Support for rural electrification project	0-4	
	10. Investment in renewable energy	0-4	
	11. Investment in potable water projects	0-4	
	12. Investment in water treatment and conservation	0-4	
	13. Road construction policy	0-4	
	14. Investment in road construction and street lightning projects	0-4	
	15. Internship offers to students with or without cash allowance	0-4	
	16. Sponsoring of local, national and international sports events	0-4	
	17. Donation to people affected by natural disaster	0-4	
	18. Social empowerment initiatives	0-4	
	19. Donation to club associations	0-4	
	20. Policy on social products	0-4	
	21. Sponsoring of tournaments	0-4	
	22. Policy in relation to customer feedback	0-4	
	23. Strategies for future investments in social products and servives	0-4	
	24. Organization of customer loyalty promotions	0-4	
	25. Customer appreciation events	0-4	
	26. Donation to frail and difficult-to-reach customers	0-4	
	27. Cash donation or support to customers in need	0-4	
	Health and safety disclosures		
(ii) Health and safety	28. Health and safety policy	0-4	
	29. Health education	0-4	
	30. Involvement in blood donation initiatives	0-4	
	31. Adoption and enforcement of public health and safety measures	0-4	
	32. Medical health screening for employees	0-4	
	33. Donation in support of costly surgery	0-4	
	34. Policy on physical health and fitness of employees	0-4	
	35. Organization of health programs for employees	0-4	
	36. Policy on mental health	0-4	
	37. Safety in the workplace	0-4	
	38. Producdt and safety	0-4	
	39. Cash donation to children's hospital to support operation	0-4	
	40. Donation to the aged/children with hearing impairment	0-4	

	41.	Donation of vehicles to hospitals to support operation	0-4	160
	42.	Contribution to national health fund	0-4	
	43.	Participation with international medical charity organization	0-4	
	44.	Donation in support of children with autism disorder	0-4	
	45.	Medical products/health support schemes	0-4	
	46.	Donation/support to the media	0-4	
	47.	Contibution towards elimination of avoidable blindness	0-4	
	48.	Financial support to employees in costly surgical operation	0-4	
	49.	The banks' overall HIV/AIDS policy	0-4	
	50.	Disclosure of total allocated budget to HIV/AIDS programs	0-4	
	51.	Healthcare provision for HIV/AIDS patients	0-4	
	52.	Workplace-related HIV/AIDS programs and interventions	0-4	
	53.	Finanacial support for HIV/AIDS patients	0-4	
	54.	Healthcare provision available to employee family members	0-4	
	55.	Policy on prevention of malaria	0-4	
	56.	Donation in support of malaria treatment	0-4	
	57.	Policy on ebola	0-4	
	58.	Donation nd budgetary support of local/national ebola campaigns	0-4	
	59.	Suppport to ebola patients	0-4	
	60.	Health screening and supply of free medication	0-4	
	61.	Donation of cash in support of costly medical equipmen	0-4	
	62.	Participation in local/national breast awareness cancer campaign	0-4	
	63.	Donation to national and mutual health insurance schemes	0-4	
	64.	Support to cholera and hepatitis awareness campaigns	0-4	
	65.	Support to accident victims	0-4	
	66.	Offering health assistance to underprivileged children/disabled	0-4	
	67.	Donation to hospitals in support of treating eye patient(s)	0-4	
		Ethics and human rights disclosures		
(iii) Ethics and human rights	68.	Bribery and corruption policy	0-4	48
	69.	Disclosure of cash donations to political parties	0-4	
	70.	Labour unions/human rights policies	0-4	
	71.	Policy on working hours	0-4	
	72.	Labour rights	0-4	
	73.	Indigenous people relations	0-4	
	74.	Fair business practice	0-4	
	75.	Code of business ethics	0-4	
	76.	Right to embark on strike	0-4	
	77.	Right to form labour unions	0-4	
	78.	Policy on gender and ethnic minorities	0-4	
	79.	Whistle blowing policy	0-4	
		Environment disclosures		
iv) Environemnt	80.	Product innovation	0-4	
	81.	Reduced environmental cost	0-4	
	82.	Overall bank's policies with regards to environmental issues	0-4	
	83.	Comprehensive environmental management systems	0-4	
	84.	Energy saving strategies in place to address environmental issues	0-4	
	85.	Protecting natural resources	0-4	
	86.	Ativities relating to aesthetics, sustainability among others	0-4	

	87. Support for projects designed to protect the environment	0-4	
	88. Support in a form of cash for environmentally friendly projects	0-4	
	89. Contribution to the fight against illegal mining	0-4	84
	90. Environmental reporting	0-4	
	91. Environmental certification	0-4	
	92. Support of recreational activities	0-4	
	93. Donation towards land reclamation and restoration	0-4	
	94. Recipient of local or international awards for CSR	0-4	
	95. Implementation and promotion of environmental awareness	0-4	
	96. Support for skills acquisition and training on conservation	0-4	
	97. Policy on the banks 'support and strategies for the oil and gas	0-4	
	98. Policy on climate change	0-4	
	99. Policy on greenhouse gas emission	0-4	
	100. Clean energy policy	0-4	
	Community involvement disclosures		
v) Community involvement	101. Participation in tree planting exercise	0-4	
	102. Community service	0-4	
	103. Volunteer programs	0-4	
	104. Distribution of new and used cloths to the aged and less privileged	0-4	
	105. Donation to care and orphanage homes	0-4	
	106. Donation to security agencies	0-4	
	107. Employment generation	0-4	
	108. Donation to prison inmate	0-4	
	109. Donation of raw materials or cash to local communities	0-4	84
	110. Sponsorship for arts and culture	0-4	
	111. Donation in support of families of victims of terrorist attacks	0-4	
	112. Donation and support to religious bodies during festive occasions	0-4	
	113. Cash donation to NGOs charities	0-4	
	114. Financial assistance to refugees from neighboring countries	0-4	
	115. Donation to ministries' relief fund for fire victims	0-4	
	116. Financial assistance to chiefs in aid of special projects	0-4	
	117. Assessment of the negative impact of bank's products and services	0-4	
	118. Involvement in community based campaigns	0-4	
	119. Engagement of National service personnel	0-4	
	120. Policy in support of Agriculture	0-4	
	121. Involvement in national or local clean up exercise	0-4	
	Employees disclosures		
	122. Implementation of policies regarding the issue of staff training	0-4	
	123. Implementation of employee welfare needs within the bank	0-4	
	124. Day-care, maternity and paternity leave policy	0-4	
	125. Staff engagement programs	0-4	
	126. Number of employees	0-4	
	127. Career development programs	0-4	
	128. Employee benefits	0-4	56
	129. Employee value added statements	0-4	
	130. Employee recruitment issues	0-4	
	131. Staff pension commitments and gratuity	0-4	
	132. Compensation plan for employees	0-4	

	133. Cost of employees safety measures	0-4	
	134. Employee classification by function	0-4	
	135. Facilities for employees children and/or dependents	0-4	
Total	**135 SBD items**		**540**
Scoring procedure			
0: No disclosure			
1: General or rhetorical (including instances of ritualistic and repeated) statements: deemed to be purely symbolic with no evidence of actual actions/activities on the ground.			
2: Narrative explanation of what has actually been done or implemented: deemed to be a message of commitment (beyond symbolic).			
3: Information provided in (2) above supported by quantitative/monetary data: deemed to be substantive by providing evidence of the scale of activities or actions			
4: Information provided in (3) above supported by explicit assessments of performance (relative to last period) or events (even if they are "bad" news), and which allows comparison between companies using external reporting models/benchmarks/assurance: deemed to be comprehensive.			

Appendix 2: Corporate governance disclosure index scoring method

Corporate governance disclosures (CG) index			
CG theme	**CG item: information on or reference to**	**Range of scores**	**Total score per theme**
	Director and board disclosures		
(i) Director and board	1. In case the roles of chairperson and MD/ CEO are split is disclosed	0-1	43
	2. Whether the chairperson of the board is an independent, non-executive director	0-1	
	3. If majority of non-executive directors (NEDs) constitute the board of the bank	0-1	
	4. Does the board meet at least four times in a year	0-1	
	5. Does the bank disclose records of individual directors' meetings	0-1	
	6. Whether the responsibilities of the board of directors is disclosed	0-1	
	7. Classification of board of directors into executive, NED, and independent	0-1	
	8. Disclosure of the performance of the chairperson	0-1	
	9. Disclosure of the effectiveness and performance of the CEO/MD	0-1	
	10. Disclosure of the board's performance and effectiveness.	0-1	
	11. Disclosure of directors' biography, experience and responsibilities	0-1	
	12. Disclosure of a narrative with regards to a policy on the issue of diversity of the board	0-1	
	13. Disclosure of the position of a company secretary filled by a competent person	0-1	
	14. Disclosure of the performance of the company's secretary	0-1	
	15. As to whether directors have access to free independent professional legal advice	0-1	
	16. Narrative relating to induction, training and personal development of directors.	0-1	
	17. Whether the size of the board in terms of number is disclosed	0-1	
	18. Disclosure of the performance of individual board members	0-1	
	19. Narrative on board charter, leadership duties and roles	0-1	
	20. Disclosure of policy on staggered appointment and rotation of directors	0-1	
	21. Disclosure of policy on multiple and alternate directorship of board members	0-1	
	22. Disclosure on board independence, skills, experience and knowledge of the bank	0-1	
	23. If the bank has established remuneration committee	0-1	
	24. If the remuneration committee is made up of independent NEDs	0-1	
	25. If the chairperson of the remuneration committee is an independent NED	0-1	
	26. Disclosure of the remit of the remuneration committee	0-1	
	27. Disclosure of the performance of the remuneration committee	0-1	
	28. Disclosure of the membership of the remuneration committee	0-1	
	29. If the remuneration committee meets at least four times in a year	0-1	
	30. Disclosure of the establishment of nomination committee	0-1	
	31. If the nomination committee is made up of majority of independent NEDs is disclosed	0-1	
	32. As to whether the remit of the nomination committee and performance is disclosed.	0-1	
	33. Whether the nomination committee chairperson is an independent member is disclosed	0-1	
	34. Wether the membership of the nomination committee of the board is disclosed	0-1	
	35. Disclosure meeting attendance records of members of the nomination committee	0-1	
	36. As to whether nomination committee meets at least four times in a year is disclosed	0-1	
	37. Disclosure relating to the issue of technological failure and breakdown	0-1	
	38. Whether share ownership by directors and officers is less than 50% of the total bank shareholdings	0-1	
	39. Whether the performance of all board sub committees' performance and effectiveness is disclosed	0-1	
	40. Whether there is a board statement on the going-concern status of the bank is disclosed	0-1	
	41. Whether directors who hold directorships in other companies is disclosed	0-1	

	42. Whether directors made statements regarding internal controls is disclosed	0-1	
	43. Whether a narrative s relating to directors review of internal controls privately with auditors	0-1	
	Accounting, auditing and transparency disclosures		
(ii) Accounting, auditing and transparency	44. Disclosure of the performance and evaluation of the audit committee	0-1	22
	45. As to whether an audit committee has been established	0-1	
	46. As to if the audit committee is made up of at least three independent NEDs	0-1	
	47. As to whether the chairperson of the audit committee is an independent NED	0-1	
	48. Disclosure of the remit of the audit committee	0-1	
	49. Disclosure of the membership of the audit committee	0-1	
	50. Disclosure of the audit committee members meeting attendance record	0-1	
	51. At least one member of the audit committee has relevant financial training and experience	0-1	
	52. Disclosure of the performance of the individual members of the audit committee	0-1	
	53. Disclosure of director's remuneration, interests, and share options	0-1	
	54. Disclosure of directors' philosophy and procedure	0-1	
	55. Disclosure of a policy on timely and balanced information concerning the bank	0-1	
	56. Disclosure of evaluation of risk management and governance of internal control and audit system	0-1	
	57. Disclosure of a policy on risk management and governance strategy	0-1	
	58. As to whether the audit committee meets at least four times in a year	0-1	
	59. Disclosure of related party transactions or offers such as subsidiaries	0-1	
	60. Policy to inhibits insider share trade before announcement of price sensitive information	0-1	
	61. Existence of policies for appointing and disengaging external auditors	0-1	
	62. Disclosure of annual financial performance of the bank	0-1	
	63. Disclosure of policy on staggered appointment and rotation of directors	0-1	
	64. Disclosure relating to the review of corporate operations	0-1	
	65. Whether a narration relating to audit committees full access to information is disclosed	0-1	
	Risk management, internal audit and control disclosures		
(iii) Risk management, internal audit and control disclosures	66. As to if a risk management committee has been established	0-1	13
	67. Disclosure of the remit of the risk committee	0-1	
	68. As to whether there is a disclosure of risk committee members' meeting attendance	0-1	
	69. Disclosure of the membership of the risk committee	0-1	
	70. As to whether risk management committee meets at least four times a year	0-1	
	71. Disclosure of future systematic and non- systematic risk	0-1	
	72. Disclosure of an existing internal systems	0-1	
	73. Disclosure of how current and future evaluated bank risk will be managed	0-1	
	74. Disclosure on issues relating to IT	0-1	
	75. Disclosure on issues with regards to management and governance	0-1	
	76. Disclosure relating to risk management, governance strategy and policy	0-1	
	77. Disclosure on issues with regards to internal control and audit systems	0-1	
	78. If the risk management committee membership is made up of executives and independent directors	0-1	
	Compliance, shareholder rights and enforcement disclosures		
iv) Compliance, shareholder rights and enforcement	79. Disclosure of the existence of one-share-one vote policy	0-1	
	80. Disclosure of on how the bank encourages shareholder activism (proxy vote)	0-1	
	81. Positive statements with regards to compliance with national CG code	0-1	
	82. Disclosure on shareholder right to attend and also vote at annual general meetings	0-1	
	83. Disclosure of how the bank is contributing to the development of financial journalism	0-1	
	84. Disclosure of shareholders 'right to have their views on pay	0-1	
	85. Disclosure of the issue of general compliance	0-6	

	86. Disclosure of the existence of right of shareholders to call extraordinary meetings	0-1	
	87. Disclosure of right of shareholders to have timely information regards to AGM	0-1	
	88. Disclosure of shareholders right to receive annual report, other relevant communications	0-1	22
	89. Shareholders 'right to receive dividends and residual income out of liquidation	0-1	
	90. Disclosure of a narrative with respect to equal treatment of all shareholders	0-1	
	91. Disclosure of the use of modern ways of communication	0-1	
	92. Narrative with regards to shareholders' right to transfer and registration of share ownership	0-1	
	93. Disclosure of provisions of corporate governance	0-1	
	94. Whether a narrative that indicates that the the board is accountable to shareholders is disclosed	0-1	
	95. Whether governance committee is established is disclosed	0-1	
	96. Narrative that states that all shareholders have equal access information about the bank is disclosed	0-1	
	97. Narrative indicating that voting responsibility increases with size of shareholding is disclosed	0-1	
	98. Whether there is disclosure of policy to ensure no block persons have unfettered power	0-1	
	99. Narrative relating to communication among shareholders and other stakeholders is disclosed	0-1	
	100. Narrative relating to policy on how the bank should relate with internal and external stakeholders	0-1	