Executive Compensation, Environmental Performance and Sustainable Banking: The Moderating Effect of Governance Mechanisms

Abstract

This paper contributes to the extant business strategy and the environment literature by investigating the effect of a broad corporate governance disclosure index on executive compensation and, subsequently, determines the extent to which the pay-for-sustainability sensitivity is moderated by corporate governance mechanisms. Employing data collected from 16 Sub-Saharan Africa (SSA) countries over the period from 2007 to 2018, the findings are as follows: First, we report that, better-governed banks in the SSA region pay lower compensation packages to their executives. Second, we find that executive pay increases sustainable banking disclosures in the SSA countries. Finally, we detect that the association between executive pay and sustainable banking performance is significantly moderated by corporate governance mechanisms, revealing that the pay-for-sustainability sensitivity is mainly positive, and improves in banks with high corporate governance quality. This implies that the pay-for-sustainability sensitivity is contingent on the quality of the bank's internal governance mechanisms.. Our findings have key implications for banking practitioners, environmental activists, regulators and policy-makers.

Keywords: *Corporate governance, executive compensation, sustainable banking disclosure and SSA combined CG code.*

1 INTRODUCTION

This paper examines interrelationships among broad corporate governance (CG) mechanisms, executive compensation (EC) and sustainable banking disclosures (*SBD*) in Sub-Saharan Africa (SSA) banks. To do this, we distinctively explore the moderating effect of broad corporate governance disclosure index (*CGI)* on the pay-for-sustainability sensitivity (*PSS*). The empirical investigation is mainly informed by theoretical insights drawn from optimal contracting theory (*OCT*) and managerial power hypothesis (*MPH*) (Ntim et al., 2015; Conyon, 2014; Edmans & Gabaix, 2009; Bebchuk et al., 2002).

Global efforts aimed at protecting the environment, promoting economic viability and social equity through the design and the implementation of corporate sustainable policies have been intensified over the past 20 years (Haque & Ntim, 2020; Brooks & Schopohl, 2020). With growing economic challenges associated with issues such as climate change and social inclusion, there is a heightened interest on identifying how banks make long-term decisions that explain these topical global concerns (Emerton & Jones, 2019). Notably, the economic issues and recent global crisis have increased the debate on the importance of corporate environmental agenda toward sustainable banking (Kartadjumena & Rodgers, 2019). In response to these challenges, national governments and supra-national bodies are displaying growing concern in attending to these risks by instituting a number of sustainability policies (Baboukardos, 2018). For instance, The UN has outlined 17 broad Sustainable Development Goals (SDGs) for 2030.

From a theoretical perspective, the *PSS* banking studies are reinforced by two sharply opposing incentive alignment theories with deep roots in rational agency theory namely *MPH* and *OCT* (Elmagrhi et al., 2020; Bebchuk et al., 2002). Briefly, *MPH* maintains that in banks with poor CG mechanisms, opportunistic and influential senior executives may expropriate the resources of the bank when they have power to determine their own remuneration (e.g., Kartadjumena & Rodgers, 2019; Ntim et al., 2015; Bebchuk et al., 2002). Therefore, this theory is more applicable in poor CG environment (Elmagrhi et al., 2020). Thus, *MPH* expects the *PSS* to be relatively small or weak in the banking system (Elmagrhi et al., 2020). By contrast, *OCT* views

the interaction between independent board and senior managers as efficient and should not be interrupted since it improves the value of banks by creating efficient managerial contracts (Kartadjumena & Rodgers, 2019; Ntim et al., 2015; Jensen & Murphy, 1990). Consequently, *OCT* perspective is more applicable in a banking environment where CG mechanisms are more effective (e.g., Elmagrhi et al., 2020; Kartadjumena & Rodgers, 2019). Hence, this theoretical framework predicts a strong *PSS* in the banking system.

As a consequence, several countries are progressively implementing various environmental and sustainability policies aimed at promoting sustainable business environment (Haque & Ntim, 2020; Haque & Ntim, 2018). For instance, there has been extensive CG reforms in the banking system in the past 10 years in the SSA region. Mainly, these reforms seek to encourage high standards of internal governance by improving accountability and transparency in the financial sector. In particular, the revision of CG codes in Ghana (2010), South Africa (2010), Nigeria (2011) and Kenya (2014) incorporated the expectations that compensation packages for executives may be associated with sustainable business practices such as care for the environment, social inclusion and community engagements.

Meanwhile, it has been suggested that one way by which the SDGs can be attained is to encourage senior managers of firms to implement sustainable banking initiatives (Haque, 2017). More importantly, a valuable link of enhancing the accountability of senior managers to sustainable banking is to tie improvements to their compensation (Haque & Ntim, 2020; Haque & Ntim, 2018). The aim of this approach is to focus the attention of senior managers towards sustainable banking by linking their compensation to some form of sustainable banking targets (Haque & Ntim, 2020). Accordingly, research on senior managers' motivations for engaging in sustainable initiatives is growing (Luo & Tang, 2021; Haque & Ntim, 2020; Hollindale et al., 2019). In response, a number of banks are increasingly linking sustainability related performance to EC, thereby creating a crucial catalyst to sharpen the focus of senior managers on sustainable banking issues (Al-Shaer & Zaman, 2019). However, a critical policy question is whether such sustainability-based compensation strategies, which are progressively being implemented by the board of banks, can lead to actual improvement in sustainable banking performance (Haque & Ntim, 2020; Al-Shaer & Zaman, 2019).

Empirically, studies investigating issues relating to CG, EC and sustainable banking are not only scarce (Kartadjumena & Rodgers, 2019; Esteban-Sanchez et al., 2017), but also suffer from a number of limitations. First, despite the evidence of prior studies which suggest that quality CG mechanisms can reduce managerial opportunism, including those relating to limiting excessive EC (Elmagrhi et al., 2020; Ntim et al., 2015), existing banking studies have focused exclusively on examining the effect of individual CG variables on EC (e.g., Słomka-Gołębiowska & Urbanek, 2016; Ayadi & Boujèlbène, 2013). Second, prior studies (Kartadjumena & Rodgers, 2019; Słomka-Gołębiowska & Urbanek, 2016) exploring the impact of EC on *SBD* have not investigated the potential moderating effect that *CGI* may have on the *PSS*. Thus, we seek to distinctively investigate the moderating influence of *CGI* on the *PSS*- an extension to previous banking studies that have investigated the direct relationship between individual CG variables (such as board size, independence and ownership) and EC (Liu et al., 2017; Ayadi & Boujèlbène, 2013; Elston & Goldberg, 2003). Finally, this paper employs the under-research context of SSA as there has been extensive governance reforms in the banking system in these countries over the past 10 years.

The study, consequently, seeks to extend and also to add new insights to sustainable banking literature. The study contributes to the banking literature by using a comprehensive *CGI* containing 100 key features of CG provisions in the Combined CG Code in the SSA countries. Specifically, the study contributes to the existing literature by investigating the effect of a broad *CGI* on various components of EC (i.e., *EPAY*, *NPAY* and *TPAY*) in SSA banking system. Banking studies that seek to explore the relationship between *CGI* and EC is uncommon, particularly in the SSA region. Furthermore, the study contributes to sustainable banking research by shedding light on the level to which various components of EC can influence sustainable banking in the SSA region. In particular, it focuses on post CG and sustainable banking reforms in the region which provide a unique opportunity to examine the link between EC and *SBD* in an emerging economy. More importantly, we consider not only the direct effect of CG mechanisms but also the moderating impact of *CGI* on the *PSS*. Prior studies have not explored the role of probable moderator in the relationship between EC and *SBD*. Specifically, while there is a limited research on *CGI*, EC and *SBD* in the banking system (Kartadjumena & Rodgers, 2019; Liu et al., 2017; Ayadi & Boujèlbène, 2013; Elston & Goldberg, 2003), research on the *PSS* in a single study is yet to be

sufficiently explored in a developing region's banking context. Considering that executives' incentives and CG mechanisms can act as complements and/or substitutes (Nguyen & Soobaroyen, 2020; Shahab et al., 2020; Ntim et al., 2019), the study distinctively explores whether *CGI* can moderate the *PSS*.

The rest of the paper is structured as follows: Section 2 offers a background to the study. Section 3 reviews the theoretical literature. Section 4 reviews the empirical literature and develops hypotheses. Section 5 provides the data and research methodology. Section 6 discusses the empirical results, while the conclusion of the study is provided in section 7.

2 Corporate governance and sustainable banking reforms in SSA region

The need to improve CG practices in the SSA countries increased since the late 1990s, and mainly after the occurrence of a series of key banking failures, such as the collapse of Nedbank companies in South Africa (Ntim et al., 2019). This period was discernibly characterized by poor transparency, accountability and excessive executive pay (Ntim et al., 2015). In particular, CG reforms in the region started in 1994, when the well-recognized Kings Report of South Africa was issued in response to persistent concerns about the need for enhanced transparency in financial reporting and accountability. More importantly, the countries in the region have been pursuing governance reforms concerning how banks are governed (Ntim et al., 2015).

Notably, some of the countries such as South Africa, Nigeria, Ghana, and Kenya have released their own CG codes. For example, the King Reports on CG (1994) of South Africa, as well as those relating to Ghana (2010), Kenya (2002), and Nigeria (2003). To overcome the limitations of the initial codes, as well as to reduce the widespread public concerns about excessive EC in the SSA region, revised CG codes of best practices in the region were implemented. The revised King Reports on CG (2002, 2010 and 2016) of South Africa, as well as those relating to Ghana (2018), Kenya (2002 and 2014), and Nigeria (2011 and 2018) are all inherently focused on mitigating excessive executive pay. For instance, the revised codes (hereafter referred to as the Combined Code) have detailed sections that seek to deal with executive remuneration issues in the region. One expectation of these reforms is the prospect that effective governance mechanisms can

influence EC packages in the region. The key recommendation of the reforms is that a remuneration committee should be established in all banks in the SSA region.

To improve the quality of governance in SSA, the codes focus on four main internal CG disclosures namely: (i) director and board, (ii) audit, accounting and transparency, (iii) risk management and internal control and (iv) compliance and shareholder enforcement. It must be pointed out that, other countries in the SSA region are yet to issue CG codes and have adopted that of neighbouring countries (such as Botswana, Gambia, Uganda, Tanzania, Zambia, and Zimbabwe). For instance, the King Reports on CG (1994, 2002, 2010, 2016) of South Africa are also used in other SSA countries, such as Botswana, Namibia, and Zimbabwe (Ntim, 2016). Hence, the CG and sustainable banking reforms in the SSA region offer an ideal valuable setting to conduct a research on the interrelationships among *CGI*, EC and *SBD*. It must be highlighted that, complying with the sustainable banking reforms contained in the Combined Code in the SSA region is voluntary. Therefore, the study seeks to investigate whether *CGI* matters in determining EC in SSA banks and consequently, ascertain whether *CGI* moderates the *PSS*.

3. Theoretical framework: CG, EC and SBD

Prior banking studies on CG, EC and *SBD* have employed either managerial power hypothesis (*MPH*) perspective, or optimal contrasting theory (*OCT*) view (Kartadjumena & Rodgers, 2019) in explaining the pay-for-sustainability sensitivity (*PSS*). However, individually these theories give one-dimensional perspective of governance mechanisms and hence, a deeper understanding can be obtained by taking a multi-paradigm view (Cornforth, 2002). Accordingly, some previous studies have used a combination of the two theories (Kartadjumena & Rodgers, 2019; Ntim et al., 2015).

On one hand, *MPH* posits that in banks with poor CG mechanisms, opportunistic influential senior managers may expropriate bank resources when they have power to set their own remuneration (Kartadjumena & Rodgers, 2019; Ntim et al., 2015; Shleifer & Vishny, 1997). Thus, it can be expected that *MPH* framework will be more applicable in a banking environment where CG mechanisms are weak . Proponents of this view consider EC arrangements as a product of close interpersonal relationships and negotiations between powerful senior managers, such as

CEOs, and weak board of directors (Scherer, 2020; Ntim et al., 2015; Sapp, 2008). This can lead to the creation of inefficient managerial contracts (e.g., Scherer, 2020; Kartadjumena & Rodgers, 2019). The outcome of such contract is the exacerbation of agency conflicts by increasing the disparity of interests between senior managers and stakeholders (Bebchuk &Weisbach, 2010). Because senior managers are presumed to determine their own compensation (Kartadjumena & Rodgers, 2019; Van Essen et al., 2015), *MPH* perspective expects EC not to be associated necessarily with sustainable banking activities; thus, expecting the *PSS* to be relatively small or weak.

On the other hand, *OCT* views the interaction between independent board and senior managers as efficient and should not be interrupted since it improves the value of banks by creating efficient managerial contract (Ntim et al., 2015; Jensen & Murphy, 1990). Consequently, the theory proposes that agency conflict should lessen owing to proper alignment of the interest of senior managers, shareholders and other stakeholders (Jensen & Meckling, 1976). Hence, *OCT* perspective is more applicable in a banking environment where CG mechanisms are effective (Elmagrhi et al., 2020; Kartadjumena & Rodgers, 2019).

Noticeably, because *OCT* proposes that EC stems from arms-length negotiations between a bank with independent board and executives, it can potentially be used to optimize managerial performance (Conyon, 2014; Conyon & He, 2012; Edmans & Gabaix, 2009), especially in areas such as achieving sustainable banking performance (Kartadjumena & Rodgers, 2019). In this regard, banks can achieve long-term value creation by linking EC to sustainable banking performance. This is mainly due to the assumption that senior managers have limited influence in determining their own pay (Elmagrhi et al., 2020). Because senior managers often do not have full control over their remuneration, the theory predicts that executive pay can influence senior managers to engage in sustainable banking initiatives (Kartadjumena & Rodgers, 2019; Ntim et al., 2015). Accordingly, *OCT* expects a strong positive *PSS*.

4 Hypotheses development

In this section, we outline our hypotheses in relation to the association among CG, EC and *SBD*, and consequently ascertains whether governance mechanisms have a moderating effect on the link between EC and *SBD*.

4.1 A broad CG disclosure index and executive compensation

MPH posits that in banks with poor governance mechanisms, opportunistic senior managers may expropriate the resources of the bank through excessive compensation (Elmagrhi et al., 2020). The poor CG mechanisms are characterized by banks with weak corporate boards but powerful senior managers (Ntim et al., 2015). The outcome of this is the creation of ineffective managerial contract which ultimately increases agency problems (Bebchuk & Weisbach, 2010). Thus, senior managers can manipulate the board and award themselves with excessively generous pay (Elmagrhi et al., 2020; Ntim et al., 2015).

However, *OCT* purview suggests that in a banking environment where CG mechanisms are effective, EC arrangements can be structured such that it may align senior managers and stakeholders' interests (Jensen & Meckling, 1976). Unlike *MPH*, the theory views the interaction between independent corporate boards and senior managers as effective (Elmagrhi et al., 2020; Ntim et al., 2015). Hence, proponents of the theory suggest that such arrangement should not be interrupted because it enhances the value of the bank by creating efficient managerial contracts (Ntim et al., 2015; Jensen & Murphy, 1990). Accordingly, *OCT* predicts that agency conflict should lessen due to proper alignment of the interest of senior managers and shareholders (Ntim et al., 2015). Arguably, because senior managers have less power in terms of their compensation (Edmans & Gabaix, 2009), EC can be structured in such a manner that it may influence the performance of the executives (Elmagrhi et al., 2020). Importantly, such effective managerial contracts are more likely to pay lower compensation packages to executives than in a banking setting where there is poor CG. Besides, well-governed banks will have superior financial performance than poorly-governed banks, and hence we expect that banks with high *CGI* may be in a better position to limit excessive EC. Indeed, Elmagrhi et al. (2020) and Ntim et al. (2015) provide findings that lend support to this suggestion in the non-financial sector.

This study fills the gap in the literature by focusing on the banking sector in SSA countries as well as employing a broad *CGI* and three measures of EC over a relatively longer period which will offer new insight from an emerging economy context. Accordingly, and consistent with the objectives of the considerable CG and EC reforms (e.g., Ghana, 2010, 2018; Nigeria, 2011, 2018; South Africa, 2016; Kenya, 2016) that have been implemented in the SSA region over the past two decades, we expect that in banks with good CG mechanisms, senior managers will have less power in terms of determining their own remuneration packages. This may limit excessive EC in the region's banking system as shown in *Fig 1* (*H1*). In light of these arguments and the unique SSA context, we propose our first hypothesis as follows:

Hypothesis 1: There is a negative association between corporate governance disclosure index (CGI) and the various components of executive compensation (EC) of banks in SSA region.

4.2 The effect of executive compensation on sustainable banking disclosures

From *MPH* perspective, EC arrangements can be considered as a product of close negotiations between powerful senior managers and weak boards leading to the creation of inefficient managerial contracts and the exacerbation of agency conflict (Ntim et al., 2019; Bebchuk et al., 2002). Accordingly, in the design of EC packages, the board cannot be expected to handle and bargain at arm's length with managers (Kartadjumena & Rodgers, 2019). This is largely due to the excessive managerial power. Meanwhile, it has been suggested that two main agency conflicts originate from excessive managerial power (Ntim et al., 2019). A first-tier agency conflict looks at the tendency of influential CEOs to manipulate director appointment in order to gain control in board decisions (Ntim et al., 2019), thereby facilitating excessive EC (Gomez-Mejia eta al., 1987).

A second-tier agency conflict arises because non-executive directors may reward powerful CEOs and senior managers with a disproportionately high remuneration in return for a comparable and reciprocal support from them (Ntim et al., 2019; Morse et al., 2011; Core et al., 2003). Under such arrangement, linking EC with *SBD* may not necessarily lead to improved *SBD* performance. This is because executives and non-executives are assumed to structure their own compensation in a reciprocal (give-and-take) arrangement. Thus, *MPH* claims that EC may not be

linked necessarily to *SBD*, hence may not incentivize managers to work towards achieving sustainable banking initiatives. Compensation arrangements that are excessively influenced by senior managers due to weak CG can lead to a decrease in sustainable value creation of banks (Pepper & Gore, 2015; Bebchuk & Fried, 2005), and a decoupling of the *PSS* (Emerton & Jones, 2019). Therefore, whether EC is linked with *SBD* or not, *MPH* expects a negative or weak *PSS* (Kartadjumena & Rodgers, 2019)

On the other hand, *OCT* suggests that EC results from close arrangement between strong corporate board and senior managers which leads to efficient managerial incentive contracts (Conyon, 2014; Edmans & Gabaix, 2009; Jensen & Murphy, 1990). The implication is that, in banks with good CG mechanisms, EC schemes can be structured in such a manner that it aligns managers and stakeholders' interests (He et al., 2014; Jensen & Meckling, 1976). Because senior managers do not have full control over their remuneration, *OCT* framework suggests that EC can be an effective tool for advancing progress towards sustainable banking. This is premised on the notion that because executives have minimal influence on their compensation schemes, EC can be linked to *SBD* performance. Evidently, this can direct senior managers attention towards long-term value creation such as sustainable banking. Accordingly, the theory suggests that one useful link in the chain of improving sustainable banking is to tie improvements to EC. Therefore, *OCT* predicts a strong positive relationship between EC and *SBD*, implying a strong *PSS*.

Incentive based EC in the banking system is key due to a number of reasons. First, it has been suggested that, influential senior managers may be unwilling towards pursuing *SBD* since such investments may necessitate considerable capital investments amidst unpredictable financial payback in the short-term (Haque, 2017). Second, *SBD* initiatives especially environmental activities necessitate labour intensive and highly skilled workforce to design and implement (Haque & Ntim, 2020). Examples of such initiatives include advancing non-polluting products, green finance or minimizing the danger of environmental disasters (Haque & Ntim, 2020; Berrone & Gomez-Mejia, 2008). Thus, banks may have to rely on appropriate incentives in order to attract and motivate such experts (Berrone & Gomez-Mejia, 2008). In addition, it has been suggested that, banks with generously remunerated senior managers may be exposed to public and media scrutiny (Haque & Ntim, 2020). Consequently, banks offering such attractive EC packages may be

subjected to public scrutiny to continue engaging in *SBD* linked initiatives as a way of minimizing possible undesirable media attention (Haque & Ntim, 2020).

Empirically, banking studies examining the relationship between EC and *SBD* are largely uncommon (Kartadjumena & Rodgers, 2019), and hence, this offers a fertile field for further investigation. The limited findings of prior studies are however mainly in line with *OCT* suggestion that EC can be designed to motivate senior managers to pursue higher *SBD* (e.g., D'apolito et al., 2019; Kartadjumena & Rodgers, 2019). For example, Kartadjumena and Rodgers (2019) investigate whether EC can motivate managers to pursue corporate sustainability disclosures in a sample of 39 Indonesian banks over the period 2007-2014. Their results suggest that higher EC motivates managers to engage in more climate and environmental activities. Similarly, D'apolito et al. (2019) provide evidence from 42 European banks over the period 2013-2017 that shows that, the implementation of sustainable criteria in the banks' remuneration contract is positively associated with sustainability performance.

In line with the positive prediction of *OCT* perspective and consistent with the expectation of *SBD* and EC reforms that have been pursued in the region, we predict that EC incentives can influence *SBD*. Therefore, as depicted in *Fig 1* (*H2*), the study proposes that EC may serve as an effective governance structure that can increase sustainable banking and sets the following hypothesis:

Hypothesis 2: There is a positive association between the various components of executive compensation (EC) and the sustainable banking disclosure (SBD) in the SSA banks.

Additionally, it is crucial to point out the multi-dimensional nature of *SBD* and the need to disaggregate it into individual dimensions to advance a deeper insight of the relationship. Thus, the study anticipates that the individual components of EC variables will positively impact on the different dimensions of *SBD* as captured in *Fig 2* (*H2*). As a result, the study develops the next hypothesis focusing on the probable impact of the various components of EC on the individual dimensions of *SBD* as follows:

Hypothesis 2a: The various components of executive compensation (EC) are positively associated with the individual dimensions of sustainable banking disclosure (SBD) in the SSA banks .

4.3 Moderating effect of corporate governance on pay-for-sustainability sensitivity

Theoretically, CG mechanisms may strengthen or weaken the impact of EC on *SBD* (Kartadjumena & Rodgers, 2019; Ntim et al., 2015). First, from *OCT* perspective, in banks where CG mechanisms are effective, EC incentive can be structured in such a manner that it supports the proper alignment of executives, shareholders and other stakeholders' interests (Kartadjumena & Rodgers, 2019). Accordingly, it has been suggested that compensation-based approach of CG can be influential tool that may shift corporate accountability towards *SBD* (Tauringana & Chithambo, 2015). In addition, good CG can enhance the boards' monitoring mechanisms of management behaviour such as the opportunistic behaviour of senior managers in the banking sector (Kartadjumena & Rodgers, 2019). This can improve the *PSS* (Ntim et al., 2015). In this case, *OCT* predicts that, effective CG mechanisms may have strong positive impact on the *PSS* in the banking system. Hence, the more banks adopt quality CG mechanisms, the better the *PSS*.

In contrast, *MPH* maintains that in poorly-governed banks, senior managers of banks have much influence in structuring their own compensation and may rely on this influence to expropriate shareholders wealth (Ntim et al., 2015; Bebchuk & Fried, 2003). In such poorly-governed banking environment, Ntim et al. (2015) suggest a weak association between the interaction of CG mechanisms and the *PSS*. The implication is that, within *MPH* framework, the moderating role of *CGI* on the *PSS* may be relatively weak in the banking system (Kartadjumena & Rodgers, 2019).

As shown in Fig 1 (*H3*), it is possible good CG mechanisms can increase monitoring of opportunistic behaviour of banks' senior managers and thereby limiting the tendency for excessive EC. Besides limiting excessive EC, such good CG mechanisms may play a pivotal role in aligning the interest of the senior managers with the long-term sustainability and growth of banks. Accordingly, if better CG mechanisms are associated with lower EC and greater engagement in sustainable banking, then linking EC with *SBD* targets due to better governance system should represent an enhancement tool for *SBD* (D'apolito et al., 2019; Ntim et al., 2015). Arguably, this can improve the *PSS* in the banking system.

We propose that effective CG mechanisms as measured by compliance with the Combined CG Code can influence the relationship between EC and *SBD* in the banking system in the SSA countries. Additionally, the study expects that, the *PSS* will be stronger in banks with high CG disclosure score (better-governed banks), but weaker in banks with low CG disclosure score (poorly-governed banks). Hence, the final hypothesis to be examined is:

Hypothesis 3: Corporate governance disclosure index (CGI) moderates the relationship between the various components of executive compensation (EC) and sustainable banking disclosures (SBD), with the pay-for-sustainability sensitivity (PSS) being stronger in banks with high corporate governance disclosure index score.

[Insert Fig 1 about here]

5 Research design

5.1 Data and sample

The sampled banks used for the study were drawn from 16 countries in SSA. The countries were drawn from the three main blocs (East, West and South) in the SSA region. These countries are Botswana, Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mauritius, Namibia, Nigeria, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. These countries were selected because they have a common official language which is English. This facilitates data collection by eliminating language barrier. Consistent with prior studies in the region, this helps in collection of data from the sampled banks by eliminating language barriers as the CGI and *SBD* characteristics were hand collected (e.g., Siueia et al., 2019 ; Ntim, & Soobaroyen, 2013).). Further, the choice of the countries emanates from the comparable CG reforms implemented across the countries over the past 10 years. The CG and sustainable banking disclosures were collected from the sampled bank's annual reports which were sourced from the website of the banks. Bank financial data was collected from BankScope, and supplemented with those 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 2018. In line with prior CG studies, the selected period of

the study covers both pre-and post-2010 (Sarhan et al., 2019). Noticeably, the sample timeframe spans over the pre-, during and post CG reforms period in the SSA countries. This helps in assessing whether the CG reforms have helped in improving CG standards particularly with regards to influencing EC and *SBD* in the region. Further, most of the banks' annual reports became publicly accessible on their websites in 2007. This made it possible to collect data from 2007 in all the 16 countries. The sample period ends in 2018, as it was the most recent year for which data was available for the sampled banks. Table 1 provides the final dataset which includes 220 banks with 2027 bank-year observations.

[Insert table 1 about here]

Following the convention in banking literature, the study excluded banks with missing data or whose annual reports were not published (Siueia et al., 2019). Next, and in line with previous studies, we excluded foreign-owned banks that published their annual reports worldwide as consolidated financial statements (Akande et al., 2018; Ozili, 2018). Also, the study sampled banks and specialized financial institutions whose nature and operations are similar to that of commercial banks. This was done to ensure uniformity in the sampled banks as done in previous studies in the SSA countries (Siueia et al., 2019; Akande et al., 2018).

5.2 Variables' descriptions

Table 2 summarizes all the variables. First, consistent with prior banking studies, the study distinctively developed *SBD* based on disclosures collected from the annual reports of the banks (Kartadjumena & Rodgers, 2019; Siueia et al., 2019). This is because rating agencies have limited coverage of banks in the SSA countries. Following Ntimand Soobaroyen (2013), the study maintains that a combination of quantitative and qualitative disclosures based on content analysis technique is more objective and informative. This study employs this approach to examine the narration in sustainability or CSR reports of the SSA banks. The qualitative based scores include: (i) 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 (with a score of "1"), and (ii) a description of what has been achieved or considered to be a message of assurance by the bank (beyond symbolic) with a score of "2".

We also analyse the content of six broad *SBD* dimensions made up of 135 *SBD* disclosures: (i) social investment and service quality (27), (ii) health and safety (40), (iii) ethics and human rights (12), (iv) environment (21), (v) community involvement (21) and (vi) employees (14). These *SBD* dimensions were selected based on the SDGs 2015, the 2016 Global Reporting Initiative guidance and the Combined CG codes in the region. This constitutes one of the most comprehensive datasets to be employed on *SBD* in the SSA region.

Second, following prior studies in the region, EC is measured by executive directors' pay (*EPAY*), non-executive directors pay (*NPAY*) and total pay for all directors (*TPAY*) (Ntim et al., 2019). In line with Ntim et al. (2019), *EPAY* refers to the natural logarithm of annual cash compensation to executive directors of the bank scaled by the entire number of directors who are executives in a financial year. *EPAY* includes annual salary, cash bonus and any additional stated cash payment to executive directors in a financial year. Similarly, non-executive directors' pay (*NPAY*) refers to the natural logarithm of annual cash compensation to all directors of the board who are non-executives scaled by the entire number of non-executive directors of the bank in a financial year. *NPAY* comprises of annual sitting allowance, cash bonus and any other stated cash payment made to non-executive directors in a financial year. Finally, *TPAY* represents the natural logarithm of annual cash compensation to both executive and non-executive directors of the board scaled by the sum of executive and non-executive directors of the bank in a financial year. *TPAY* includes total salary, total cash bonus, annual sitting allowance, and any other stated cash payment to all directors in a financial year.

Third, a binary CG disclosure index, covering 100 CG provisions were employed in the study. The selection of the 100 CG provisions are based on the individual country CG codes, existing literature and annual reports of the banks. Thus, the *CGI* is a collection of 100 all-inclusive set of CG provisions contained in the SSA Combined Code (Ghana, 2018, 2010; Nigeria, 2018, 2011; Kenya, 2014, 2002 and South Africa, 2016, 2010). 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). A dichotomous method was

also applied, whereby a bank was assigned '1' if a CG item was fully complied with; otherwise, '0' was awarded (Ntim & Soobaroyen, 2013).

Finally, consistent with previous studies (Boateng et al., 2019; Apergis, 2019; Sarhan et al., 2019; Zhou et al., 2019), the study also controls for firm-level variables that could be related to bank's outcome such as firm size, capitalization, liquidity, leverage, age and audit firm size, research and development; and country-level variables such as GDP, governance quality and inflation (Sarhan et al., 2019; Zhou et al., 2019; Akande et al., 2018). We include country dummies (*CDU*) for the sixteen countries and year dummies (*YDU*) for the financial years from 2007 to 2018. Details of the variables are provided in Table 2.

[Insert table 2 about here]

5.3 Econometric models

Following Zhou et al. (2019) and D'apolito et al. (2019), and to address the first research question (i.e., whether bank-level CG disclosure index influences executive compensation (*H1*), the model below is proposed and tested using the ordinary least square (OLS) regression technique initially.

$$EC_{it} = \alpha_0 + \beta_1 CGI_{it} + \beta_2 FSIZ_{it} + \beta_3 LEV_{it} + \beta_4 AGE_{it} + \beta_5 CAP_{it} + \beta_6 AFS_{it} + \beta_7 R\&D_{it} + \beta_8 GDP_{it} + \beta_9 INFL_{it} + \beta_{10} GVQ_{it} + \beta_{11} YDU_{it} + \beta_{12} CDU_{it} + \varepsilon_t \quad \text{[Eqn 1]}$$

Where *CGI* is the CG disclosure index. EC denote executive compensation measures, depending on the specification, which is either *EPAY*, *NPAY* or *TPAY*. The set of variables being controlled for, namely, firm size (*FSIZ*), leverage (*LEV*), age (*AGE*), capitalization (*CAP*), audit firm size (*AFS*), research and development (*R&D*), *GDP*, governance quality (*GVQ*), inflation (*INFL*), year dummies (*YDU*) and country dummies (*CDU*). Further, this study follows D'apolito et al. (2019) and, Liu et al. (2017) and introduce the following model:

$$SBD_{it} = \alpha_0 + \beta_1 EPAY_{it} + \beta_2 NPAY_{it} + \beta_3 TPAY_{it} + \beta_4 FSIZ_{it} + \beta_5 LEV_{it} + \beta_6 AGE_{it} + \beta_7 CAP_{it} + \beta_8 AFS_{it} + \beta_9 R\&D_{it} + \beta_{10} GDP_{it} + \beta_{11} INFL_{it} + \beta_{12} GVQ_{it} + \beta_{13} YDU_{it} \beta_{14} CDU_{it} + \varepsilon_t \quad \text{[Eqn 2]}$$

Where SBD_{it} is the sustainable banking disclosure score, which depending on the specification is either the aggregate *SBD* or its six sub-indices (*ENV*, *SOC*, *HAS*, *EHR*, *CIV* and *EMP*). EC_{it} denote executive compensation measures, depending on the specification, which is either *EPAY*, *NPAY* or *TPAY*. Bank-specific control variables include *FSIZ*, *LEV*, *AGE*, *CAP*, *AFS*, *R&D*, *GDP, GVQ* and *INFL*, where ε_{it} refers to the error term.

Finally, the study hypothesizes that the *SBD* of a bank is affected jointly by its *CGI* and its *EC*. To investigate this, the study adopts D'apolito et al. (2019) study in estimating the moderating effect of *CGI* on the *PSS* as shown in Eq. (3). Specifically, to examine *H3a-H3c* (whether *CGI* moderates the *PSS*), the study creates an interaction variable by multiplying the *CGI* and EC as follows: *CGI* times *EPAY* (*CGI*EPAY*), *CGI* times *NPAY* (*CGI*NPAY*) and *CGI* times *TPAY* (*CGI*EPAY*). Similarly, the model contains the same bank-specific control variables that were included in Eq. (1). The next model is as follows:

$$\mathrm{SBD}_{it} = f\begin{pmatrix} \mathrm{CGI}_{it} \\ \mathrm{EC}_{it} \\ \mathrm{CGI}_{it} * \mathrm{EC}_{it} \end{pmatrix} + \mathrm{CONTROLS}_{it} \qquad \text{[Eqn 3]}$$

Where $CGI_{it} * EC_{it}$is the interaction variable between EC and *CGI*. All other variables remain same as specified in equation (1).

6. Empirical results and discussion

6.1 Descriptive statistics and univariate analysis

Table 3 shows the summary statistics of the variables included in the analysis. The results in the table reveal that the *SBD* index figures range from 6.11% to 61.11%, with an average figure of 34.25% and a standard deviation of 9.37. This suggests that the *SBD* data appears to be less spread (more clustered) around the mean. This disclosure is much lower than those reported in the banking sector in developed countries (Scholtens, 2009). Additionally, *ENV* figures span from 2.38 to 82.14%, with an average figure of 37.58%, whilst *SOC* with a mean of 34.76%, values span from 3.70 to 75.00%. Similarly, the results show that *HAS* figures span from 1.88 to 51.88%, with

a mean of 22.87%, whereas *EHR* has an average of 38.53 and ranges from 2.08 to 83.33%. The mean score for *CIV* and *EMP* are 39.13% and 50.31%, respectively.

The statistical summary of executive compensation measures namely, *EPAY*, *NPAY* and *TPAY* are also reported in Table 3. *TPAY* has a mean (median) of $5.67 million ($0.31 million) and ranges from $0.05 million to $151.19 million with a standard deviation of 31.13. The average *EPAY* is $2.04 million, with a minimum value of $0.01 million and a maximum value of $80.21 million. *NPAY* has a mean value of US$3.63million (median $0.07 million), with a minimum of $0.01 million and a maximum of $64.98 million. Table 3 also presents the summary information on *CGI*. The *CGI* score represents the quality of CG practices of the banks. The mean value of the *CGI* is 64.56, which suggests that majority of the banks have high *CGI* score, implying good CG in most of the banks.

Insert Table 3 about here

Table 4 provides the correlation matrix of all variables used in the regression analysis. The correlation among the independent variables are relatively low and statistically insignificant. A weak correlation of the independent variables is desirable since it suggests that multicollinearity is not a major problem (Liu et al., 2014).

Insert Table 4 about here

6.2. Multivariate results and discussion

Table 5 provides the results of the effect of CG disclosure index (*CGI*) covering 100 main components obtained from the Combined CG Code provisions on executive compensation (EC) in SSA banks as captured in Eq. (1). Prior research indicates that good internal CG mechanisms can reduce agency conflicts by enhancing managerial monitoring ability (Fama, 1980). This may prevent senior managers from misappropriating shareholders' wealth (Jensen & Meckling, 1976). In order to analyse this, the study investigates the effect of *CGI* on *EC*. The coefficients of *CGI* on *TPAY*, *EPAY* and *NPAY* (-0.007, -0.012 and-0.164) in Models 1 to 3 of Table 5 are all negative and statistically significant, respectively. Largely, the findings offer empirical support for *H1*. This evidence supports the suggestion that banks that are better-governed tend to pay substantially

lower level of compensation to their executives than banks that are poorly-governed in the SSA region.

Insert Table 5 about here

The inverse link between *CGI* and EC offers empirical support for the provisions of SSA regional codes (e.g., Ghana SEC code, 2018; Nigeria SEC code, 2018; The Kings Report, 2016; Kenya CG code, 2016). In addition, the findings offer support to prior CG research (Elmagrhi et al., 2020; Newton, 2015; Fahlenbrach, 2009). Theoretically, the evidence also offers empirical support for both *MPH* and *OCT*. The evidence suggests that under poor governance settings, senior managers of banks may dominate board decisions and award themselves with disproportionately substantial compensation packages (Elmagrhi et al., 2020; Ntim et al., 2015; Ozkan, 2007). In a weak governance banking environment, opportunistic senior managers may misappropriate the wealth of shareholders by having power in terms of setting their own compensation schemes (Cho et al., 2014; Shleifer & Vishny, 1997). However, under good CG conditions (*OCT*), senior managers of banks have minimal control in terms of setting their own compensation packages. This provides the necessary platform for the board to structure compensation packages in such a manner that it ensures EC is more closely linked with the performance of senior managers of the bank (Elmagrhi et al., 2020; Dong, 2014; Edmans & Gabaix, 2009). The implication is that, this limits excessive executive compensation in the banking system.

To further investigate the robustness of our results, the study divides the sample according to the mean value of internal CG disclosure index and re-estimate Eq. (1) in the sub-samples. Specifically, and in line with Elmagrhi et al. (2020) the study conducts this analysis in different sub-samples. This led to two groups: better-governed and poorly-governed banks. In the case of better-governed banks, the sub-sample contains banks with a *CGI* value over the average score of 64%. Similarly, for poorly-governed banks, sub-sample contains all banks with *CGI* value lower than the average score of 64%. This analysis was done to provide more informative inferences about the data (Elmagrhi et al., 2020). The results are provided in Models 4 to 9 in Table 5. Concerning better-governed banks, the coefficients of *CGI* on *TPAY* (-0.011), *EPAY* (-0.014) and *NPAY* (-0.289) are negative and statistically significant in Models 4 to 6. In addition, the findings

in Models 7 to 9 of Table 5 reveal that the coefficients of the *CGI* on *TPAY* (-0.013), *EPAY* (-0.019) and *NPAY* (-0.008) for poorly-governed banks are negative. However, the relationships are all insignificant, offering further empirical support for *H1.*

The evidence suggests that well-governed banks pay significantly lower cash compensation to executive directors, non-executive directors, and all executive directors, than poorly-governed banks in the SSA region. Importantly, the negative impact of *CGI* on EC offers empirical support for the provisions of the Combined CG Code issued in the SSA and the findings of prior CG studies in the non-financial sector (Elmagrhi et al., 2020). Theoretically, the evidence offers empirical support for both *MPH* and *OCT*, suggesting that in poor governance banking system senior managers of banks can influence the decision of the board and offer themselves with excessively generous compensation as suggested by *MPH* framework. However, in banking system with effective CG structures, senior managers do not have the power to determine their compensation as indicated by *OCT* perspective. Therefore, this can enable the board to structure efficient compensation incentives that may be consistent with the long-term sustainability of the banks (Ntim et al., 2015).

The empirical findings of EC along with bank-specific and country control variables on *SBD* are provided in Table 6. The table provides the results of seven models concerning the various components of EC (i.e., *TPAY*, *EPAY* and *NPAY*) on the aggregate *SBD* score (Model 1) and the individual dimensions of SBD (Models 2-7).

Insert Table 6 about here

First, the results in the table show that there is a positive and significant association between *EPAY* and *SBD,* which provides support for *H2*. This evidence is consistent with the theoretical prediction of *OCT* of a positive relationship between executive pay and *SBD*. The theory posits that EC packages results from arms-length arrangements between strong corporate boards and senior managers (Elmagrhi et al., 2020). Therefore, EC packages can potentially be used to enhance the performance of senior managers of banks especially in areas such as achieving corporate sustainability goals (Conyon, 2014; Edmans & Gabaix, 2009). From *OCT* perspectives, banks can achieve long-term value creation by linking EC to sustainability performance. This is

mainly due to the assumption that senior managers have less power in setting their own remuneration (Kartadjumena & Rodgers, 2019).

Observably, the findings contribute to a small, but growing findings which show that executive pay has a positive impact on *SBD* (Kartadjumena & Rodgers, 2019; Callan & Thomas, 2014). The findings lend empirical support for the recommendations of sustainable banking and CG codes in the SSA that incorporate the expectation that, EC will be linked with *SBD*. It also provides significant support for the recent call for banks to direct executive's attention towards sustainable banking by linking executive pay to progress in sustainability related performance (Wasiuzzaman & Wan Mohammad, 2020).

By contrast, *NPAY* and *TPAY* are negatively and significantly associated with *SBD* as reported by other studies in the non-financial sector (Cai et al., 2011). These findings do not provide empirical support for *H2*. Theoretically, this results confirm the argument of *MPH* that non-executive compensation packages result from close negotiations between weak executives and the board of directors. The outcome of such negotiations is the design and implementation of inefficient compensation schemes, leading to an increase in agency conflicts (Mallin et al., 2015; Cho et al., 2014). Therefore, *MPH* expects a negative link between *TPAY* and *NPAY*, and *SBD*. This is because non-executive directors in the banking system have the power to determine their own compensation (Van Essen et al., 2015). The Combined CG Code in the region recommends that pay within banks should be determined by a committee of non-executive directors. For example, based on the recommendations of the Ghana CG Code (2018), the remuneration committee in the banks are made up of non-executive directors including the chairperson. This suggests that, non-executive pay is largely determined by non-executive members in negotiation with the executives, especially the CEO. This could partly explain the negative link in the SSA banking system.

Concerning the effect of the various components of EC on the individual dimensions of *SBD*, the results are contained in Models 2 to 7 of Table 6. First, the coefficients of *EPAY* on *SOC*, *EHR*, *CIV* and *EMP* in Table 6 are all positive and statistically significant. This infers that *H2* is accepted. Theoretically, these findings support the view of *OCT* which suggests that banks can rely on

executive pay as a partial remedy to resolve agency conflict (Kartadjumena & Rodgers, 2019). The theory indicates that shareholders through the board provides an optimal compensation contract with an efficient payment scheme for senior managers to act in accordance with broader stakeholders' interests, aiming to maximise their value (Kartadjumena & Rodgers, 2019; Conyon, 2014). From *OCT* perspective, the objective of this approach is to direct the attention of senior managers of banks towards long-term value creation by linking EC to *SBD*. Therefore, *OCT* predicts a strong positive relationship between executive pay and *SBD*, due to the assumption that executives have less control in setting their own pay. However, the insignificant influence of *EPAY* on *ENV* and *HAS* do not provide support for *H2a*. The evidence is contrary to the findings of Kartadjumena and Rodgers (2019) who report that higher executive pay in Indonesian banking sector motivates managers to commit to more climate and environmental concerns.

Second, results reported in Models 2 to 7 of Table 6 indicate that *NPAY* has negative effect on all the six dimensions of *SBD*, except in Model 4 (*HAS*) where the association is insignificant. These findings are contrary to *H2a*; hence the positive link prediction is not empirically supported. These findings offer support for *MPH* perspective, which maintains that non-executive compensation arrangements as a result of tight negotiations between influential non-executive directors and weak executives that may lead to the implementation of ineffective incentive contract that increases agency conflicts (Mallin et al., 2015; Cho et al., 2014). Under such arrangement, linking EC to *SBD* may not necessarily lead to improved *SBD* performance. This is because influential non-executive directors on remuneration committee are presumed to set their own compensation packages and as such whether EC is linked to *SBD* or not *MPH* expects a negative EC-*SBD* nexus.

Finally, the results in Models 2 through to 7 of Table 6 show that *TPAY* has negative influence on all the six *SBD* dimensions, except in Model 4, where *TPAY* has a negative but insignificant relationship with *HAS*. These findings offer no empirical support for *H2a*. The findings are however consistent with *MPH* which predicts a negative relationship between total *EC* and *SBD*. It argues that agency conflict in the banking system arises because non-executive directors may reward powerful CEOs and senior managers with an excessively high pay in return for a similar and reciprocal support from the CEO and the executives (Ntim et al., 2019; Morse et al., 2011).

Essentially, under such arrangement linking EC to *SBD* may not necessarily lead to improved *SBD* performance. This is because executive and non-executive directors are assumed to set their own pay in a reciprocal (give-and-take) arrangement. Thus, in such weak CG environment, whether EC is linked to *SBD* or not (Bebchuk & Fried, 2003), *MPH* expects a negative EC-*SBD* nexus.

Table 7 provides the OLS regression results exploring the probable moderating impact of *CGI* on the EC-*SBD* nexus. The findings indicate that bank-level *CGI* has a moderating impact on the *PSS*. Specifically, the result in Model 2 of Table 7 shows that the moderation variable *CGI*EPAY* has a positive impact on *SBD*. The evidence, thus, offer empirical support for *H3* that bank level CG mechanisms positively moderate the relationship between executive pay and sustainable banking. The findings also lend support for the predictions of *OCT*. Similarly, the results in Model 3 of Table 7 indicate that *CGI*NPAY* has a positive effect on *SBD*, however the association is weak as the relationship is insignificant. This does not offer empirical support for *H3*. In contrast, Model 1 of Table 7 shows that *CGI*TPAY* has a negative but insignificant impact on *SBD* which does not provide support for *H3*. Theoretically, strong managerial monitoring associated with sustainability progress linked to EC by strong boards can incentivise managers to engage in more *SBD* (Elmagrhi et al., 2020). Further, compliance, shareholder rights and enforcement structures can mitigate agency conflicts (Ntim et al., 2015). For instance, good CG mechanisms such as greater activism by institutional investors can enhance the *PSS* (Ntim et al., 2015).

Insert Table 7 about here

Models 4 to 9 of Table 7 offer insight into the moderating effect of the *CGI* on the *PSS* in the sub-sample. In doing this, the study divides the sample based on the average score of *CGI* in line with Elmagrhi et al. (2020) and re-estimate Eq. (3) in the sub-samples. This gives rise to two groups: banks that are well-governed and banks that are poorly-governed. The findings contained in Table 7 indicate that banks with higher *CGI* value (better-governed banks) tend to have higher positive and significant (0.044) *EPAY*CGI* moderating effect on *SBD*. Similarly, the positive moderating effect of *EPAY*CGI* on *SBD* is significantly lower (0.022) in poorly-governed banks

(i.e., banks with lower *CGI* values). Consistent with *OCT*, the evidence shows that in banking system where the internal CG mechanisms are good, EC packages can be structured in such a manner that it aligns the interest of senior managers and the wider stakeholder groups (Jensen & Meckling, 1976).

However, in line with *MPH*, in poor CG banking environment, influential but opportunistic senior managers may expropriate the wealth of shareholders and stakeholders (Cho et al., 2014; Shleifer & Vishny, 1997). Within *MPH* purview, EC packages that are overly determined by senior bank managers may lead to a reduction in long-term bank value and a decoupling of *PSS* (Pepper & Gore, 2015; Bebchuk & Fried, 2005). This is because senior bank managers determine their own compensation packages, hence, linking executive pay to corporate sustainability goals may not necessarily lead to higher improvement in *SBD* in banks due to the weak CG mechanisms.

6.3 Sensitivity analysis and endogeneity check

We conduct a number of additional tests to check the robustness of the obtained results. First, to control for unobserved firm-specific heterogeneity, simultaneity, and dynamic endogeneity, we follow Nguyen et al. (2021) and Choi et al. (2013) in using a two-stage least square (*2SLS*) approach. Given that the focus of this investigation is on *CGI*, EC and *SBD*, this study attempts to identify good exogenous instrumental variables (*IVs*) for these main variables that are correlated with the assumed endogenous variables, but uncorrelated with the error term of the dependent variables (Nguyen et al., 2021). Following the findings of previous studies (Nguyen et al., 2021; Choi et al., 2013), the study treats the *CGI* and the control variables as endogenous variables. Specifically, Tables 8 provides details about the sensitivity and endogeneity checks concerning the impact of *CGI* on the various components of EC. The study found similar results in Tables 8 as were established in the main regression analysis in Tables 5. For example, results in Table 8 show that *CGI* has negative and significant impact on all the individual components of EC in Models 1 to 6 but has insignificant association with the EC measures in Models 7 to 9.

Insert Table 8 about here

Next, the seven regression results in Table 6 are repeated using *2SLS* approach, and the results are presented in Table 9. The results in Models 1 to 9 of Table 9 remain consistent with those in

Models 1 to 9 of Table 6 , suggesting that our results are robust to the presence of any potential problems that may arise from unobserved bank specific heterogeneity, simultaneity, or endogeneity issues.

Insert Table 9 about here

Also, the study performs additional analysis to investigate possible endogeneities in the moderation impact of *CGI* on the *PSS* using *2SLS* approach. Our findings in Table 10 (Models 1-9) reaffirm the main results reported in Models 1-9 of Table 7 which suggest that banks' CG mechanisms significantly increase the *PSS*.

Insert Table 10 about here

Next, we estimate a lagged effect model, which for brevity not reported, but will be available upon request. The findings of these additional analyses demonstrate that our results do not appear to be driven by any potential endogenous sample selection problems.

7 Conclusion

The design and implementation of sustainable banking initiatives that can advance progress towards sustainable banking and the attainment of the SDGs continue to attract global concerns. In response, the past 20 years have witnessed the implementation of broad initiatives by national governments, regulators, environmental activists, and public corporations towards enhancing sustainable business practices (Haque & Ntim, 2020). In the SSA region, this goal has been advanced mainly through the issue of CG and integrated sustainable business practices codes across the countries. Accordingly, regulators and banks in the region are increasingly focusing on sustainable banking initiatives and the need to align senior managers of banks with environmental and sustainability concerns. This study explores the monitoring role (CG) and alignment of executive awards (EC) on sustainable banking, by examining interrelationships among *CGI*, EC and *SBD*. This study, therefore, contributes to the extant literature on business strategy and responsible banking in developing countries in a number of ways.

First, it investigates the under research context of broad CG mechanisms in SSA banks. The results contribute to the extant literature by showing that broad *CGI* is negatively associated with executive directors pay, non-executive directors pay and total pay for all directors. Further, the findings show that, the negative impact of *CGI* on the individual components of EC is enhanced in better-governed banks (banks with high *CGI* score), but weak in poorly-governed banks (banks with low *CGI* score) in the SSA banks. Second, the study contributes to sustainable banking research by shedding light on the impact of various components of EC on sustainable banking in the SSA banks. Finally, the study distinctively provides first time insight on the crucial moderating role of corporate governance mechanisms on the pay-for-sustainability sensitivity (*PSS*) in the SSA banks.

The findings have a number of policy and regulatory implications. Firstly, the findings call for banks in the SSA countries to adopt and implement good governance disclosures as such CG mechanisms are proved to limit excessive executive compensation. Secondly, it can be inferred from the findings of the study that policy reforms in the SSA banks relating to monitoring (CG) and alignment of executive awards (EC) should be pursued jointly to ensure greater effectiveness. Thirdly, the results of the study help in understanding of responsible banking practices by uncovering new dynamics that affect *SBD* and can assist corporate executives to strategically manage *SBD* initiatives. For example, given the evidence of the positive moderating effect of *CGI* on the *PSS*, this should serve as a strong motivation for banking practitioners to adopt quality CG mechanisms as a key tool to drive the financial performance of their banks. Additionally, *SBD* score of the banks is generally low when compared with reported scores in other developing countries. Consequently, policy-makers should provide explicit guidelines on sustainable banking to improve *SBD* in the countries. It is also crucial for policy-makers to administer such sustainable banking standards as an obligatory policy in the region.

Although the results of this study are robust to alternative estimations and models, our study has some limitations, including limiting the investigation to only internal CG variables in the regions' banking system. For example, the study could not analyze the influence of external governance structures on the *PSS* mainly because such data was inaccessible in the SSA countries.

Our findings provide empirical implications for policy makers in showing the importance of corporate governance in the banking sector and more importantly in developing countries.

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Tables

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
Executive compensation	EC		Annual report
Executive directors pay	EPAY	Natural log of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) pay of all executive directors scaled by the total number of executive directors in a financial year.	Annual report
Non-executive directors pay	NPAY	Natural log of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) pay of all non-executive directors scaled by the total number of non-executive directors in a financial year.	Annual report
Total directors pay	TPAY	Natural log of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) pay of all executive and non-executive directors scaled by the total number of executive and non-executive directors in a financial year.	Annual report
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
Interaction variables	INT		Annual report
TPAY*CGI variable	INT1	TPAY*CGI denotes the interaction variable between the CGI and total executive and non-executive directors pay	Annual report
EPAY*CGI variable	INT2	EPAY*CGI denotes the interaction variable between the CGI and total executive directors pay	Annual report
NPAY*CGI variable	INT3	NPAY*CGI denotes the interaction variable between the CGI and non-executive directors pay	Annual report
Panel C: Bank control variables			
Firm size	FSIZ	Natural logarithm of total assets of the bank	Bankscope
Leverage	LEV	Ratio of total debt to total assets	Bankscope

Age	AGE	Natural log of the number of years since inception	Annual report
Liquidity	LIQ	Liquid assets divided by total assets	Bankscope
Capitalization	CAP	Equity capital divided by total assets	Bankscope
Audit firm size	AFS	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
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	GVQ	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 2027 bank years

Variable	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: SBD variables					
SBD Index (%)	34.25	33.89	9.37	6.11	61.11
ENV (%)	37.58	34.52	17.02	2.38	82.14
SOC (%)	34.76	34.26	14.29	3.70	75.00
HAS (%)	22.87	21.25	9.13	1.88	51.88
EHR (%)	38.53	35.42	16.79	2.08	83.33
CIV (%)	39.13	40.48	13.98	1.13	69.05
EMP (%)	50.31	50.00	12.70	3.57	75.00
Panel B: Compensation variables					
TPAY ($m)	5.67	0.31	31.13	0.05	151.19
EPAY ($m)	2.04	0.15	8.23	0.01	80.21
NPAY ($m)	3.63	0.07	29.93	0.01	64.98
Panel C: CGI					
CGI (%)	64.56	66.00	13.96	23.00	88.00
Panel D: Interaction variables					
TPAY*CGI	279.04	241.11	21.35	9.05	2146.80
EPAY*CGI	148.60	107.70	17.50	4.10	794.51
NPAY*CGI	126.76	101.50	14.60	6.07	805.75
Panel E: Bank control variables					
FSIZ ($m)	9.52	9.11	2.92	2.35	17.26
CAP	0.20	0.13	0.32	0.02	0.99
LEV	0.84	0.86	0.11	0.03	0.95
AGE	36.00	26.00	29.96	2.00	178
R & D ($m)	2.22	1.57	2.49	4.61	10.15
AFS	0.92	1.00	0.27	0.00	1.00
Panel F: Country control variables					
GDP	5.76	6.24	2.14	-16.42	20.13
INFL	8.74	9.66	15.67	3.04	72.73
GVQ	2.42	3.00	1.35	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, EC and SBD for the 2027 bank year observations

Variable	SBD	ENV	SOC	HAS	EHR	CIV	EMP	TPAY	EPAY	NPAY	CGI	INT1	INT2	INT3	FSIZ	LEV	CAP	AGE	AFS	R&D	GDP	INFL	GQV
SBD	1.00																						
ENV	0.08*	1.00																					
SOC	0.08*	0.03	1.00																				
HAS	0.07*	0.32*	0.05	1.00																			
EHR	0.07*	0.07	0.03	0.04*	1.00																		
CIV	0.06*	0.03	0.03*	0.05	0.04	1.00																	
EMP	0.05	0.05*	0.04	0.02*	0.03*	0.18	1.00																
TPAY	-0.05***	0.01*	-0.07**	-0.06**	-0.01	-0.11***	0.08***	1.00															
EPAY	0.01***	0.02*	0.02*	0.04**	0.01	0.08***	0.14***	0.08	1.00														
NPAY	-0.01***	-0.05**	-0.08**	-0.05**	-0.05**	-0.13***	-0.01*	0.03	0.25	1.00													
CGI	0.14***	0.07***	0.11***	0.16**	0.03***	0.12***	0.16***	-0.02**	-0.07**	-0.11**	1.00												
INT1	-0.02	-0.001	-0.03	-0.02*	-0.13*	0.061	-0.07	0.002	0.01	0.03	0.007	1.00											
INT2	0.05***	0.10**	0.07**	0.004**	0.08**	0.03*	0.006**	0.001	0.03	0.04*	0.05*	0.15	1.00										
INT3	0.01**	0.04*	0.14	0.19*	0.18*	0.07**	0.12*	0.06	0.04	0.09	0.05	0.11	0.07	1.00									
FSIZ	-0.09**	-0.01**	-0.08**	-0.09**	-0.04*	-0.17**	0.08***	0.07**	0.06**	0.16**	-0.02	0.06	0.04	0.11	1.00								
LEV	0.01	0.03	-0.03*	-0.03	0.04**	0.01	0.05**	-0.08	-0.09*	-0.05	0.11*	-0.09	0.27	0.08*	0.04	1.00							
CAP	-0.10	-0.14**	-0.03*	-0.04**	-0.12**	-0.11**	0.09***	0.10**	0.07**	0.06*	-0.05*	0.07	0.41*	-0.05	-0.10	-0.06	1.00						
AGE	0.12***	0.03	0.15***	0.10***	0.04**	0.12***	0.16***	0.17*	0.06**	0.04**	0.02	0.04	0.05	0.08*	0.14	0.01	0.08*	1.00					
AFS	0.08***	0.03*	0.08***	0.08***	0.03	0.02	0.06**	0.02	0.02	0.03*	0.03	0.33	0.08	0.21*	0.06	0.01	-0.01	-0.02*	1.00				
R&D	0.02	0.08***	0.02	0.02	0.02	0.03*	0.10***	0.04**	0.01***	0.06***	0.04*	0.06	0.09*	0.18*	0.06*	0.11	-0.10	0.20*	-0.08*	1.00			
GDP	0.05*	0.03**	0.07	0.05	0.06**	0.07*	0.12**	0.08*	0.01**	0.03*	0.01	0.02	0.04	0.07	0.14*	0.01	-0.07	0.24	0.01*	0.02	1.00		
INFL	0.08*	-0.04*	-0.05	0.03*	0.01	-0.08**	-0.03	0.04	-0.03	0.05	0.07	-0.01	-0.06	0.04*	0.01*	-0.01	0.02*	0.02	-0.02	0.03	-0.02*	1.00	
GQV	0.01**	0.03***	0.09**	0.07***	0.08**	0.03**	0.04*	-0.05*	-0.07*	-0.04**	0.01	0.07	0.10	0.05	0.02*	0.01*	-0.01	0.02	0.01	-0.02	0.02	0.01*	1.00

* Indicates statistical significance at 5% level. Notes: Please see Table 2 for variable definitions

Table 5: The effect of corporate governance disclosure index on various components on executive compensation

Type of analysis	**Main sample**			**Better-governed banks**			**Poorly-governed banks**		
Dependent Variable	TPAY	EPAY	NPAY	TPAY	EPAY	NPAY	TPAY	EPAY	NPAY
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent variables									
CGI	-0.007***	-0.012***	-0.164***	-0.011**	-0.014**	-0.289***	-0.013	-0.019	-0.008
	(0.002)	(0.003)	(0.049)	(0.004)	(0.003)	(0.002)	(0.005)	(0.013)	(0.013)
Bank-level controls									
FSIZ	0.313***	0.374***	1.605***	0.308***	0.387***	2.395***	0.298***	0.235***	0.195***
	(0.015)	(0.019)	(0.322)	(0.017)	(0.019)	(0.014)	(0.022)	(0.028)	(0.028)
LEV	-0.624*	-0.054	10.697	-0.464	-0.141	1.511	-0.821**	-0.135	-0.242
	(0.346)	(0.439)	(0.645)	(0.625)	(0.125)	(0.713)	(0.806)	(0.396)	(0.541)
AGE	0.083**	0.211***	0.717***	0.159***	0.241***	0.589**	0.161*	0.265**	0.364***
	(0.039)	(0.049)	(0.854)	(0.044)	(0.049)	(0.064)	(0.056)	(0.093)	(0.396)
CAP	0.099	0.532**	6.608*	0.064	0.463***	0.508*	0.171	1.053	0.240*
	(0.167)	(0.212)	(3.685)	(0.201)	(0.212)	(0.198)	(0.259)	(0.311)	(0.311)
AFS	0.004	0.033	1.193	0.028	0.027	1.136	0.052	0.031	0.125
	(0.069)	(0.088)	(1.540)	(0.078)	(0.088)	(1.487)	(0.102)	(0.155)	(0.155)
R&D	0.377***	0.521***	1.685***	0.355***	0.513***	2.18***	0.490***	0.685***	0.173***
	(0.016)	(0.020)	(0.349)	(0.018)	(0.020)	(0.246)	(0.024)	(0.037)	(0.036)
Country-level controls									
GDP	0.077*	0.135**	0.636	0.085**	0.084**	0.754	0.058	0.018*	0.547
	(0.049)	(0.061)	(1.083)	(0.036)	(0.037)	(0.987)	(0.027)	(0.035)	(0.845)
INFL	0.023	-0.096	0.318	0.035	-0.085	0.342	0.027	-0.071	0.267
	(0.054)	(0.067)	(1.189)	(0.037)	(0.074)	(1.241)	(0.036)	(0.054)	(0.895)
GVQ	-0.005*	-0.044*	-0.751*	-0.003*	-0.027*	-0.647*	-0.055*	-0.065*	-0.587*
	(0.024)	(0.029)	(0.527)	(0.031)	(0.041)	(0.436)	(0.061)	(0.036)	(0.341)
Constant	1.348***	-2.754***	-3.831***	2.642***	-3.781***	1.985***	3.579***	1.154*	1.105*
	(0.395)	(0.511)	(0.734)	(0.004)	(0.501)	(0.634)	(0.043)	(0.057)	(0.735)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	2027	2027	2027	1166	1166	1166	861	861	861
R-squared	0.672	0.641	0.678	0.663	0.623	0.676	0.734	0.756	0.604

*Notes: ***, * indicate statistical significance at 1%, 5% and 10% levels, respectively with standard errors reported in parentheses.*

Table 6: Effect of various components of executive compensation on sustainable banking disclosures

Dependent Variable	SBD	ENV	SOC	HAS	EHR	CIV	EMP
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
TPAY	-0.485***	-0.738**	-0.938***	-0.042	-0.268***	-0.503**	-1.078***
	(0.205)	(0.376)	(0.306)	(0.206)	(0.380)	(0.289)	(0.273)
EPAY	0.389***	0.127	0.986***	0.019	0.597**	0.355*	0.806***
	(0.159)	(0.293)	(0.238)	(0.161)	(0.296)	(0.225)	(0.213)
NPAY	-0.032***	-0.026**	-0.051***	-0.016**	-0.035**	-0.048***	-0.019**
	(0.007)	(0.013)	(0.011)	(0.007)	(0.013)	(0.010)	(0.009)
Bank-level controls							
FSIZ	-0.401**	-0.339*	-0.321*	-0.196*	-0.659***	-0.878***	-0.157*
	(0.112)	(0.204)	(0.166)	(0.112)	(0.207)	(0.157)	(0.149)
LEV	0.208***	5.701***	-6.993*	3.828*	6.527***	4.791	6.369**
	(2.385)	(4.371)	(3.556)	(2.396)	(0.418)	(0.361)	(0.179)
AGE	1.653***	0.434*	3.178***	1.265***	0.584*	2.182***	2.837***
	(0.269)	(0.493)	(0.401)	(0.270)	(0.498)	(0.379)	(0.358)
CAP	-4.011***	-9.984***	-4.298**	-1.969*	-11.363***	-9.141***	-2.433*
	(1.166)	(2.137)	(1.738)	(1.172)	(0.159)	(1.643)	(1.544)
AFS	1.674**	0.725**	2.422**	2.389***	0.584*	1.211*	1.372*
	(0.785)	(1.439)	(1.171)	(0.789)	(0.455)	(1.106)	(0.467)
R&D	0.513***	1.373***	0.458***	0.205*	0.463**	0.296*	0.653***
	(0.130)	(0.238)	(0.194)	(0.131)	(0.241)	(0.183)	(0.173)
Country-level controls							
GDP	0.384	0.974*	0.109	0.276	1.250**	0.521	1.712***
	(0.335)	(0.613)	(0.498)	(0.336)	(0.619)	(0.471)	(0.446)
INFL	0.237	-0.857	0.060	0.402	-1.299**	1.689***	-0.582
	(0.364)	(0.667)	(0.543)	(0.366)	(0.675)	(0.513)	(0.486)
GVQ	0.539***	0.458*	0.854***	0.393**	0.179	0.767***	0.724***
	(0.161)	(0.296)	(0.241)	(0.162)	(0.298)	(0.227)	(0.215)
Constant	0.774***	2.308***	5.890***	9.676***	9.838***	8.902***	8.026***
	(0.769)	(0.075)	(0.128)	(0.182)	(0.129)	(0.902)	(0.691)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of observations	2027	2027	2027	2027	2027	2027	2027
R-squared	0.545	0.511	0.685	0.577	0.605	0.521	0.564

*Notes: ***, * indicate statistical significance at 1%, 5% and 10% levels, respectively with standard errors reported in parentheses.*

Table 7: The moderating effect of CGI on the pay-for-sustainability sensitivity

Type of analysis	**Main sample**			**Better-governed banks**			**Poorly-governed banks**		
Dependent Variable	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
TPAY	0.455			1.974**			1.204*		
	(0.469)			(0.351)			(0.733)		
TPAY*CGI	0.012**			0.052***			0.006		
	(0.007)			(0.018)			(0.014)		
CGI	0.101***	0.147***	0.085***	0.329***	0.319***	0.254***	0.081*	0.148***	0.102***
	(0.021)	(0.022)	(0.016)	(0.053)	(0.052)	(0.042)	(0.046)	(0.047)	(0.041)
EPAY*CGI		0.027***			0.044***			0.022*	
		(0.006)			(0.016)			(0.012)	
EPAY		1.872***			3.289***			0.946	
		(0.401)			(1.209)			(0.635)	
NPAY*CGI			0.001			0.001			0.013
			(0.001)			(0.001)			(0.031)
NPAY			-0.038			-0.009			0.014
			(0.079)			(0.083)			(1.452)
Bank-level controls									
FSIZ	-0.404***	-0.547***	-0.436***	-0.799***	-0.780***	-0.663***	-0.249*	0.015	-0.093
	(1.922)	(0.109)	(0.100)	(0.159)	(0.158)	(0.146)	(0.159)	(0.157)	(0.148)
LEV	1.233**	0.509	1.222	6.338	6.074	5.618	3.397	4.157*	3.720
	(0.422)	(0.404)	(0.392)	(0.754)	(0.756)	(0.716)	(0.524)	(0.539)	(0.535)
AGE	1.727***	1.708***	1.692***	1.504***	1.581***	1.489***	2.028***	2.184***	2.051***
	(0.267)	(0.268)	(0.265)	(0.358)	(0.362)	(0.356)	(0.411)	(0.419)	(0.411)
CAP	-3.437**	-3.744***	-3.659***	-0.822	-1.091	-0.650***	-8.261***	-8.324***	-8.389***
	(0.162)	(0.161)	(1.156)	(1.812)	(1.824)	(1.798)	(1.508)	(1.529)	(1.517)
AFS	1.787**	1.776**	1.644**	2.387**	2.385**	2.202**	1.079	1.223	1.234
	(0.785)	(0.782)	(0.783)	(1.104)	(1.103)	(1.101)	(1.037)	(1.044)	(1.043)
R&D	0.583***	0.372***	0.521***	0.493***	0.502***	0.648***	0.583***	0.325*	0.1408
	(0.126)	(0.127)	(0.110)	(0.174)	(0.172)	(0.154)	(0.187)	(0.206)	(0.167)
Country-level controls									
GDP	0.523*	0.441	0.522*	0.324	0.329	0.428	1.021***	1.046**	1.041***
	(0.335)	(0.334)	(0.333)	(0.502)	(0.502)	(0.499)	(0.443)	(0.447)	(0.446)
INFL	-0.125	-0.042	-0.102	-1.146**	1.185**	1.276**	-0.937**	-0.930**	-0.987**
	(0.368)	(0.367)	(0.367)	(0.585)	(0.585)	(0.583)	(0.467)	(0.471)	(0.470)
GVQ	0.651***	0.609***	0.691***	0.376**	0.389*	0.440**	1.338***	1.426***	1.423***
	(0.163)	(0.163)	(0.163)	(0.210)	(0.210)	(0.209)	(0.325)	(0.327)	(0.326)
Constant	7.426***	6.491***	5.803***	11.689***	11.918***	15.281***	10.923***	7.208***	10.869***
	(0.046)	(0.055)	(0.779)	(0.791)	(0.812)	(0.415)	(0.899)	(0.984)	(0.667)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of observations	2027	2027	2027	1166	1166	1166	861	861	861

R-squared	0.553	0.639	0.564	0.512	0.684	0.504	0.435	0.261	0.221

*Notes: ***, * indicate statistical significance at 1%, 5% and 10% levels, respectively with standard errors reported in parentheses.*

Table 8: The effect of corporate governance disclosure index on various components of executive compensation using 2SLS

Type of analysis	**Main sample**			**Better-governed banks**			**Poorly-governed banks**		
Dependent Variable	TPAY	EPAY	NPAY	TPAY	EPAY	NPAY	TPAY	EPAY	NPAY
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent variables									
CGI	-0.009***	-0.011***	-0.194***	-0.013*	-0.014**	-0.725***	-0.007	-0.024	-0.028
	(0.004)	(0.005)	(0.053)	(0.006)	(0.005)	(0.006)	(0.014)	(0.016)	(0.025)
Bank-level controls									
FSIZ	0.325***	0.380***	1.656***	0.347***	0.347***	3.618***	0.308***	0.278***	0.152***
	(0.018)	(0.026)	(0.349)	(0.026)	(0.025)	(0.019)	(0.042)	(0.031)	(0.094)
LEV	-0.526*	-0.169	10.445	-1.199	-1.412	1.925	-0.418	-0.485	-0.306
	(0.389)	(0.541)	(0.718)	(0.558)	(0.204)	(0.658)	(0.582)	(0.324)	(0.618)
AGE	0.097**	0.206***	0.438*	0.187***	0.193**	0.589*	0.042*	0.228***	0.084
	(0.045)	(0.052)	(0.687)	(0.043)	(0.057)	(0.081)	(0.037)	(0.023)	(0.467)
CAP	0.064*	0.538**	7.648*	0.050	0.054	0.876	0.192	0.749	0.287
	(0.158)	(0.189)	(2.987)	(0.297)	(0.268)	(0.173)	(0.304)	(0.368)	(0.483)
AFS	0.043	0.158	0.987	0.063	0.167	1.984	0.126	0.042	0.145
	(0.056)	(0.065)	(0.943)	(0.064)	(0.091)	(1.571)	(0.120)	(0.163)	(0.137)
R&D	0.378***	0.517***	1.068***	0.369***	0.505***	3.245***	0.418***	0.645***	0.189***
	(0.023)	(0.031)	(0.297)	(0.025)	(0.027)	(0.356)	(0.031)	(0.043)	(0.068)
Country-level controls									
GDP	0.069*	0.176**	0.589	0.065**	0.071*	0.628	0.047	0.026*	0.687
	(0.035)	(0.057)	(0.987)	(0.041)	(0.056)	(0.761)	(0.035)	(0.041)	(0.691)
INFL	0.046	-0.082	0.457	0.059	-0.063	0.297	0.047	-0.076	0.357
	(0.038)	(0.071)	(1.064)	(0.037)	(0.065)	(1.304)	(0.043)	(0.054)	(0.568)
GVQ	-0.008*	-0.056*	-0.695*	-0.011*	-0.032*	-0.594*	-0.046*	-0.053*	-0.421*
	(0.033)	(0.048)	(0.446)	(0.042)	(0.054)	(0.542)	(0.059)	(0.042)	(0.485)
Constant	1.076***	-6.017***	-4.028***	1.847***	-2.174***	2.510***	1.854***	1.395*	0.984*
	(0.405)	(0.489)	(0.651)	(0.008)	(0.325)	(0.548)	(0.031)	(0.091)	(0.657)

Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	1820	1820	1820	963	963	963	720	720	720
Endogeneity (p-value)	0.030	0.801	0.642	0.108	0.206	0.450	0.774	0.871	0.621
Over identification (p-value)	0.296	0.314	0.298	0.323	0.258	0.247	0.546	0.384	0.458

*Notes: ***, * indicate statistical significance at 1%, 5% and 10% levels, respectively with standard errors reported in parentheses.*

Table 9: Impact of various components of executive compensation on sustainable banking using 2SLS regression

Dependent Variable	SBD	ENV	SOC	HAS	EHR	CIV	EMP
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
TPAY	-0.887***	-1.794***	-1.109**	-0.056	-1.413***	-0.538**	-2.117***
	(0.210)	(0.375)	(0.294)	(0.314)	(0.158)	(0.204)	(0.371)
EPAY	0.525**	0.173	1.087***	0.114	1.423***	0.315*	0.567***
	(0.161)	(0.452)	(0.357)	(0.153)	(0.157)	(0.275)	(0.243)
NPAY	-0.029***	-0.019	-0.054***	-0.017*	-0.029*	-0.043***	-0.018**
	(0.006)	(0.015)	(0.028)	(0.010)	(1.081)	(0.015)	(0.014)
Bank-level controls							
FSIZ	-0.247*	-0.143*	-0.264	-0.063*	-0.477**	-0.710***	-0.095*
	(0.111)	(0.604)	(0.163)	(0.171)	(0.315)	(3.93)	(0.162)
LEV	1.325	0.243	5.528	2.375	5.135	6.472*	7.101**
	(0.385)	(1.046)	(1.543)	(2.499)	(0.356)	(1.295)	(0.122)
AGE	1.394***	1.385*	3.765***	1.409***	0.551*	1.792***	2.765***
	(0.278)	(0.176)	(0.357)	(0.225)	(0.487)	(0.354)	(0.479)
CAP	3.941***	-4.705***	4.758***	-1.552*	-8.654***	-8.254***	-3.716**
	(1.165)	(2.589)	(1.665)	(1.467)	(0.326)	(0.645)	(1.321)
AFS	2.132**	2.674*	2.090	2.010**	1.631*	1.973*	2.730**
	(0.874)	(1.077)	(1.138)	(0.603)	(0.541)	(0.181)	(0.541)
R&D	0.445***	0.511***	0.406*	0.189	0.226*	0.256	0.476**
	(0.168)	(0.218)	(0.187)	(0.954)	(0.318)	(0.284)	(0.135)
Country-level controls							
GDP	0.387	0.424	0.253	0.432	0.954**	0.642	1.324***
	(0.416)	(0.568)	(0.456)	(0.128)	(0.513)	(0.384)	(0.482)
INFL	0.273	-0.793	-0.075	0.354	-1.354*	1.586***	0.537
	(0.436)	(0.581)	(0.369)	(0.578)	(0.536)	(0.457)	(0.364)

GVQ	0.493***	0.397*	0.548***	0.691***	0.168	0.867***	0.626***
	(0.343)	(0.430)	(0.298)	(0.365)	(0.305)	(0.327)	(0.345)
Constant	0.845**	2.789***	5.645***	7.283***	5.286***	8.936**	2.421**
	(0.769)	(0.541)	(0.135)	(0.202)	(0.149)	(0.802)	(0.586)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of observations	1820	1820	1820	1820	1820	1820	1820
Endogeneity	0.139	0.119	0.451	0.820	0.175	0.721	0.029
Over identification (p-value)	0.342	0.434	0.520	0.505	0.554	0.511	0.521

*Notes: ***, * indicate statistical significance at 1%, 5% and 10% levels, respectively with standard errors reported in parentheses.*

Table 10: The moderating effect of CGI on the pay-for-sustainability sensitivity using 2SLS

Type of analysis	**Main sample**			**Better-governed banks**			**Poorly-governed banks**		
Dependent Variable	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD	SBD
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
TPAY	0.301			0.291**			0.384		
	(0.389)			(0.354)			(0.531)		
TPAY*CGI	0.017**			0.050***			0.008		
	(0.005)			(0.021)			(0.017)		
CGI	0.016***	0.225***	0.081***	0.259***	0.315***	0.172***	0.064*	0.012***	0.010**
	(0.035)	(0.041)	(0.019)	(0.048)	(0.049)	(0.055)	(0.039)	(0.038)	(0.033)
EPAY*CGI		0.029***			0.046***			0.003*	
		(0.003)			(0.012)			(0.025)	
EPAY		1.978***			2.487***			0.754	
		(0.354)			(1.216)			(0.593)	
NPAY*CGI			0.002			0.001			0.024
			(0.003)			(0.002)			(0.036)
NPAY			-0.041			-0.019			0.019
			(0.063)			(0.075)			(1.258)
Bank-level controls									
FSIZ	-0.275***	-0.540***	-0.386***	-0.825*	-0.841***	-0.594***	-0.537*	0.025	-0.001
	(2.18)	(0.115)	(0.205)	(0.167)	(0.163)	(0.167)	(0.108)	(0.138)	(0.135)
LEV	1.552**	1.101	0.896	2.849	3.457	4.540	3.291	4.351*	2.547
	(0.398)	(0.375)	(0.410)	(0. 654)	(0.584)	(0.628)	(0.485)	(0.564)	(0.497)
AGE	1.448***	1.408**	1.331**	1.357**	1.452***	1.217***	1.053***	1.547**	2.123**
	(0.314)	(0.264)	(0.216)	(0.413)	(0.369)	(0.405)	(0.378)	(0.391)	(0.392)
CAP	-3.587**	-3.570**	-3.720***	-0. 654	-1.204	-0.387***	-8.156***	-7.425***	-5.261***
	(0.184)	(0.158)	(1.137)	(1.541)	(1.581)	(1.395)	(1.250)	(1.397)	(1.357)
AFS	2.143*	1.980**	1.589**	2.257*	2.003*	2.043**	1.022	1.367	1.193

	(0.57)	(0. 687)	(0. 654)	(1.240)	(1.245)	(1.035)	(1.074)	(1.124)	(1.005)
R&D	0.520***	0.514**	0.451***	0.357**	0.497***	0.608***	0.574**	0.401*	0.238
	(0.123)	(0.121)	(0.124)	(0.157)	(0.169)	(0.107)	(0.153)	(0.314)	(0.152)
Country-level controls									
GDP	0.487*	0.387	0.508*	0.321	0.410	0.398	1.541**	1.251**	1.274***
	(0.305)	(0.419)	(0.386)	(0.503)	(0.564)	(0.412)	(0.398)	(0.364)	(0.320)
INFL	-0.107	-0.050	-0.118	-1.245**	1.035*	1.158**	-0.843**	-0.885**	-0.851**
	(0.413)	(0.356)	(0.323)	(0. 659)	(0.497)	(0.459)	(0.387)	(0.437)	(0.432)
GVQ	0.546**	0.687***	0.702***	0.415**	0.413*	0.439**	1.574***	1.389***	1.256**
	(0.147)	(0.154)	(0.184)	(0.353)	(0.265)	(0.347)	(0.435)	(0.425)	(0.547)
Constant	4.548***	3.528***	4.711***	9.511***	8.025***	6.478***	5.451***	3.147***	5.352***
	(0.039)	(0.074)	(0.736)	(0.897)	(0.741)	(0.543)	(0.750)	(0.651)	(0.587)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of observations	1820	1820	1820	963	963	963	720	720	720
Endogeneity	0.151	0.443	0.286	0. 635	0.854	0.871	0. 615	0.367	0.502
Over identification (p-value)	0.304	0.283	0.271	0.417	0.360	0.459	0.254	0.157	0.253

*Notes: ***, * indicate statistical significance at 1%, 5% and 10% levels, respectively with standard errors reported in parentheses.*

Fig 1: Conceptual framework of hypothesis development for pay-for-sustainability sensitivity