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Sustainability in context: SDG disclosure across African stock exchanges

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Abstract

Purpose – The sustainable development goals (SDGs) provide a comprehensive framework for transitioning to sustainable development. African companies play a crucial role in this process because the continent lags significantly in achieving the SDGs. This study examines the extent of SDG-related disclosure by African companies and the role of institutional factors, financial stakeholders and legitimacy concerns in shaping this disclosure.

Design/methodology/approach – The study analyses 6,534 annual reports from 964 companies across 16 African countries from 2015 to 2023. The authors assess SDG-related disclosure from the frequency of SDG-related keywords in the reports using computer-assisted textual analysis.

Findings – African companies most frequently report on topics related to SDG3 (good healthcare and well-being), SDG8 (decent work and economic growth), SDG9 (industry, innovation and infrastructure) and SDG16 (peace, justice and strong institutions). SDG disclosure remains relatively stable from 2015 to 2020, with a notable increase thereafter. The authors find that debt providers are generally associated with lower SDG disclosure levels, whereas other determinants' influence varies by countries. Institutional quality and development assistance are linked to lower SDG disclosure in South Africa and countries with strong institutions but increase disclosure where institutions are weak, suggesting a greater impact in less developed settings. Cross-listing reduces SDG disclosure in South Africa, likely due to a de facto reporting mandate, but increases it elsewhere, underscoring the role of international market pressure in African countries other than South Africa. Finally, affiliation with environmentally sensitive industries is associated with higher disclosure only in weak institutional settings, reflecting the importance of legitimacy pressures where formal institutions are lacking.

Research limitations/implications – The findings highlight the role of the institutional environment and financial stakeholders in African countries and emphasise the need to differentiate between different African countries.

Practical implications – Policymakers and regulators can use these insights to tailor sustainability reporting guidelines to regional contexts, and corporations can leverage the findings to align their reporting with stakeholder expectations and global sustainability goals.

Originality/value – To the best of the authors' knowledge, this study is the first to provide large-scale empirical evidence on SDG disclosures by African companies. The study offers novel insights into how

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institutional quality, financial stakeholders and legitimacy pressures shape SDG-related disclosure, thereby accounting for the diversity of African contexts.

Keywords Corporate sustainability reporting, Sustainable development goals, Africa, Textual analysis

Paper type Research paper

1. Introduction

The sustainable development goals (SDGs), adopted in 2015 by the United Nations, represent a universal call to action to end poverty, protect the planet and ensure prosperity for all (United Nations, 2015). These goals set a comprehensive and ambitious agenda for global sustainable development. All societal actors, including corporations, are asked to contribute to achieving the SDGs. One of the key principles of the SDGs is their applicability to all countries regardless of their level of economic development: these goals aim to bridge the gap between developed and developing nations and recognise the shared responsibility for achieving sustainable development worldwide (United Nations, 2015).

Bebbington and Unerman (2018) explored the role of accounting in supporting the achievement of the SDGs. They argued that "the technologies of accounting, target setting and reporting are required within the UN SDG architecture of 'meta-governance'" (p. 12). While a growing body of research has begun to address SDG disclosures in African contexts, the literature remains emergent, fragmented and often limited in geographic scope. In a recent review, Awuah *et al.* (2024) note that only two of 65 studies (Erin and Bamigboye, 2022; Gerged and Almontaser, 2021) focused explicitly on African companies. Although several studies have since examined SDG reporting in African countries (e.g. Erin *et al.*, 2022; Haywood and Boihang, 2021; Giron *et al.*, 2021; Lauwo *et al.*, 2022; Tilt *et al.*, 2021), most studies remain concentrated on single-country settings, typically Nigeria, South Africa or Tanzania, and narrowly defined organisational types, such as listed firms.

Recent studies highlight persistent limitations in African-focused accounting research. Waweru *et al.* (2023) observe that although African research has grown, it remains concentrated in a few more-developed economies and is underrepresented in top-tier journals. Similarly, Moses and Hopper (2022) find that much of the literature focuses on market-based topics in a narrow range of countries. Moses *et al.* (2022) further report uneven progress on environmental SDGs across developing economies, thus reinforcing the need for broader, cross-country analyses. These findings underscore the relevance of African contexts to global sustainability discourse and the pressing need for more inclusive empirical evidence on corporate SDG reporting.

Critical reviews of the literature have highlighted persistent gaps. For example, Igwe *et al.* (2023) emphasise that African-focused sustainability research concentrates largely on reporting determinants, with limited attention to reporting outcomes, assurance or comparative cross-country analysis. Similarly, Tilt *et al.* (2021) identify substantial variation in reporting practices across Sub-Saharan Africa and call for more systematic and wide-ranging studies to inform regional policy and institutional development. These gaps are particularly concerning given the continent's high vulnerability to climate change and socio-economic inequalities, areas directly targeted by the SDGs. Although the SDGs represent a global framework, the realities of African countries, marked by diverse regulatory environments, socio-political dynamics and institutional capacities, require locally grounded, evidence-based research to inform both practice and policy. Denedo and Ejiogu (2022) advocate research that reflects the African present and identity and emphasise the

need to interrogate how unique national and regional challenges shape sustainability narratives and practices.

This study provides large-scale empirical evidence on SDG-related topics in the annual reports of companies listed on the largest African stock exchanges. Moving beyond single-country or sector-specific analyses, we offer a continent-wide view that enables comparative insights and highlights structural patterns in SDG-related corporate reporting. In doing so, we fill the geographical and methodological gaps in the literature and contribute to a more inclusive understanding of SDG reporting in emerging economies. This study applies institutional theory (DiMaggio and Powell, 1983; Scott, 2008) to examine how country-level structures influence SDG disclosure across African contexts, ranging from robust regulatory environments, such as South Africa's, to weaker institutional settings elsewhere. Firms respond to their environments by aligning with local expectations. Complementary perspectives from legitimacy theory (Suchman, 1995; Patten, 2002) and stakeholder theory (Freeman, 1984; Mitchell *et al*., 1997) help explain how SDG disclosures maintain legitimacy and meet stakeholder demands. Together, these frameworks delineate the strategic role of disclosure in navigating institutional and stakeholder pressures.

Our analysis comprises 6,534 annual reports from 964 companies across 16 African countries between 2015 and 2023. We use computer-assisted textual analysis to assess SDG-related disclosure from the frequency of SDG-related keywords in the reports. First, we investigate which SDGs are most frequently disclosed by African firms and how the volume and focus of SDG disclosures have evolved. The findings show that African companies most frequently report on topics related to SDG3 (good healthcare and well-being), SDG8 (decent work and economic growth), SDG9 (industry, innovation and infrastructure) and SDG17 (partnership for the goals). This thematic focus differs from that found in studies that examine other geographical regions (e.g. Hummel and Szekely, 2022; Rosati and Faria, 2019), which suggests a distinct African disclosure pattern. The thematic focus in African reporting partially aligns with findings from a recent study of 80 listed African companies by Erin and Bamigboye (2022). The prominence of goals related to employment, health and infrastructure may indicate the urgency of addressing fundamental social and economic challenges on the continent, and the emphasis on partnerships highlights the importance of development assistance for African companies. When examining the development of SDG disclosure over time, we observe relatively stable levels of SDG disclosure between 2015 and 2020, followed by a significant increase from 2020 onwards. This rise may be linked to the rising global visibility of the SDG agenda.

Second, we examine how country-level institutional factors, financial stakeholders and development assistance and legitimacy concerns shape SDG disclosure among African companies. We include six World Bank governance indicators as institutional factors: corruption control, government effectiveness, political stability, regulatory quality, rule of law and voice and accountability. We use financial leverage and cross-listing status as proxies for the influence of financial stakeholders. As a proxy for the role of development assistance, we use the amount of net official development assistance received per capita. We use affiliation with an environmentally sensitive industry, such as energy, utility or basic materials as a proxy for legitimacy concerns because prior studies show that these industries are particularly prone to legitimacy pressure (e.g. Cho and Patten, 2007). Our findings do not provide evidence of a significant association between institutional quality and SDG disclosure except for voice and accountability, which is positively associated with SDG disclosure. Financial leverage is negatively related to SDG-related disclosure, thus indicating that a stronger influence of financial stakeholders is linked to lower SDG disclosures. This finding contrasts with studies conducted in non-African settings, which report a positive

relationship between financial stakeholders' influence and sustainability disclosure (e.g. Hummel and Szekely, 2022). One possible explanation is that financial stakeholders may prioritise short-term financial performance in many African countries or perceive SDG-related efforts as peripheral, particularly in environments with weaker institutional enforcement. Development assistance is also negatively associated with SDG disclosure, indicating that it may crowd out firm-level SDG engagement. Our results for affiliation with an environmentally sensitive industry align with prior studies' evidence by indicating higher SDG disclosures among companies in environmentally sensitive industries.

To gain more nuanced insights, we split the sample into three clusters based on the strength of country-level institutions. We distinguish between South Africa, the only country with a *de facto* sustainability reporting mandate in place [1], countries with relatively strong institutions (Botswana, Ghana, Mauritius, Namibia, Rwanda and Seychelles) and countries with relatively weak institutions (Egypt, Eswatini, Kenya, Malawi, Nigeria, Tanzania, Uganda, Zambia and Zimbabwe). This sample split provides nuanced insights into the role of institutional quality for SDG disclosure. Notably, institutional quality is negatively associated with SDG disclosure in South Africa and countries with strong institutions but positively associated in countries with weak institutions, likely indicating that institutional improvements have a greater impact in weaker institutional environments. Similarly, development assistance is positively related to SDG disclosure in countries with weak institutions, suggesting that firms align their reporting practices with donor expectations in these countries. We also find the negative association between cross-listing status and SDG disclosure to be restricted to South Africa; the association is positive in the other countries. This may reflect the unique regulatory environment in South Africa, where sustainability reporting is *de facto* mandated by the stock exchange. In other countries, cross-listing exposes firms to international norms and investor expectations, which incentivises greater SDG transparency.

The study contributes to the literature in several ways. First, this study is the first to provide large-scale empirical evidence on SDG disclosure among African companies. The findings provide insights into the SDGs most frequently disclosed by companies in these regions and the progression of SDG disclosure practices over time. Although such large-scale empirical evidence on accounting and reporting practices in African companies is generally scarce (Tawiah and Boolaky, 2020; Ndemewah and Hiebl, 2022), the use of textual analysis to assess SDG disclosure limits our ability to distinguish between high-quality SDG disclosure and potential greenwashing. Second, by showing how the effects of institutional quality, development assistance and cross-listing vary across African countries, the study advances institutional theory concerning SDG disclosure in Africa. Our results show that the role of institutional factors is not uniform across African countries but is highly context dependent. Consequently, the study highlights the value of geographically diverse studies of institutional theory in SDG disclosure research. Third, a particularly striking finding is the consistently negative association between debt holders and SDG disclosure, which suggests that debt providers may prioritise financial returns over SDG-related efforts. This finding is concerning given the important role of the financial sector in financing the transition to sustainable development explicitly mentioned in Art. 1c of the Paris Agreement. Conversely, the positive association between access to international capital markets and SDG disclosure in all African countries except for South Africa suggests the potential of global financial integration to stimulate sustainability actions. The study offers a unique and timely perspective on the journey towards sustainable development for African companies. As societies navigate the path to achieving the SDGs, the role of corporations in these regions is increasingly significant, making this research a timely contribution to the global discourse on

sustainable development. The study's findings can inform future research, policy initiatives and business practices.

2. Theory and related literature

2.1 Theoretical foundation

This study is grounded primarily in institutional theory, which provides a comprehensive framework for understanding how corporate reporting practices, including disclosures on the SDGs, are shaped by their broader sociopolitical and regulatory environments (DiMaggio and Powell, 1983; Matten and Moon, 2008). Institutional theory suggests that organisations conform to external expectations for efficiency or profit and attain legitimacy by aligning with their environments' formal and informal "rules of the game" (North, 1990; Scott, 2008).

Within this framework, organisations face three types of institutional pressures: coercive from laws, listing requirements and regulatory frameworks; mimetic, copying peer practices in the face of uncertainty; and normative, arising from professional and societal norms. These pressures are especially relevant in Africa, where the strength and structure of institutional environments vary widely across countries. For example, in countries such as South Africa, coercive pressures such as the King IV Code for Corporate Governance (IoDSA, 2016), which *de facto* mandates integrated reporting for listed companies, contribute to higher levels of sustainability reporting (Maroun, 2019; Ahmed, 2023). By contrast, in countries with weaker regulatory enforcement, normative pressures from civil society, international agencies and investor groups become more influential (Erin *et al.*, 2022; Lauwo *et al.*, 2022). However, institutional theory alone may not fully capture firms' underlying motivations and strategic behaviour regarding sustainability reporting. We incorporate stakeholder and legitimacy theories as complementary perspectives to provide a more nuanced explanation.

Stakeholder theory emphasises the roles of shareholders, regulators, employees, customers, local communities, nongovernmental organisations (NGOs) and other stakeholders in influencing corporate reporting (Freeman, 1984; Mitchell *et al.*, 1997). According to this theory, organisations must address the information needs and interests of those stakeholders who can affect or are affected by their operations. Therefore, SDG reporting functions not only as a response to institutional structures but also as a means of managing stakeholder relationships and expectations (Gray *et al.*, 1995; Unerman and Bennett, 2004).

Legitimacy theory (Suchman, 1995; Patten, 2002) further enriches this analysis by suggesting that organisations engage in disclosure practices to demonstrate their alignment with socially constructed norms and values. Legitimacy is not static: it must be maintained, repaired or enhanced in response to societal expectations and changes in organisational behaviour. Thus, SDG disclosures can serve a legitimacy-seeking strategy, especially when firms operate in environments where social or environmental concerns are salient. In Africa, where issues such as poverty, inequality, health and education are pervasive, firms may disclose SDG-related information to show responsiveness to stakeholder concerns and to maintain social acceptance (Cho *et al.*, 2015; Tilt *et al.*, 2021).

Integrating these three theories offers a more holistic understanding of SDG disclosures in Africa. Institutional theory explains how national systems, regulations and norms shape disclosure practices. Stakeholder theory provides insight into the strategic management of diverse interests and power dynamics across internal and external constituencies. Legitimacy theory captures how firms signal alignment with societal values to sustain credibility and trust. Together, these approaches enable us to move beyond narrow compliance- or imitation-based explanations and to explore how African companies balance institutional constraints,

legitimacy concerns and stakeholder pressures in their sustainability reporting. This multitheoretical approach is particularly relevant when examining emerging economies, where institutional voids, stakeholder activism and legitimacy challenges often intersect. It also strengthens the study's theoretical contribution by demonstrating how established theories can be adapted to reflect the realities of African business systems, regulatory capacities and development priorities.

2.2 Related literature and research questions

Most empirical studies on SDG reporting in Africa are limited in scope: they often focus on single countries (e.g. Haywood and Boihang, 2021; Ahmed, 2023), specific industries (Gerged and Almontaser, 2021) or relatively short periods of one to three years (Erin and Bamigboye, 2022; Erin *et al.*, 2022; Tilt *et al.*, 2021). Evidence from these studies supports our reasoning that institutional, legitimacy and stakeholder theories can partially explain SDG disclosure among African companies.

For instance, Tilt *et al.* (2021) examine sustainability reporting in Sub-Saharan Africa for 1,641 companies using data from the GRI database. Only 17% of the companies produced some form of sustainability reporting in at least one of the years 2014–2016. The authors identify socio-economic status and listing status as key institutional factors in explaining differences in sustainability reporting between countries. In a second step of their analyses, Tilt *et al.* (2021) focus on SDG-related disclosure in 78 stand-alone sustainability reports over the 2014–2016 period. Their results show an upward trend in SDG-related disclosure, though at an overall low level. Erin and Bamigboye (2022) also examine SDG reporting across African countries. They use content analysis to examine SDG reporting among the top ten listed companies in Botswana, Egypt, Ghana, Kenya, Morocco, Nigeria, South Africa and Uganda from 2016 to 2018. Although SDG-related disclosure is at a very low level overall, South African firms had the highest disclosure levels by far. The most frequently reported information concerned SDG 8 (decent work and economic growth), SDG 10 (reduced inequalities), SDG 3 (good healthcare and well-being) and SDG 13 (climate action). These goals differ from those identified in studies on European or US companies (e.g. Hummel and Szekely, 2022; Lee, 2023), a finding that emphasises the need for studies that particularly account for the African context. Both Tilt *et al.* (2021) and Erin and Bamigboye (2022) conclude that the successful adoption of SDG-related policies and reporting depends strongly on the strength of the country-level institutions. Erin *et al.* (2022) examined SDG reporting between 2016 and 2018 among the top 50 listed companies in Nigeria and conclude similarly. They identify the lack of regulatory frameworks as the primary reason for Nigerian companies' poor SDG reporting.

Other studies investigate SDG disclosure in single-country settings. Haywood and Boihang (2021) use content analysis to examine SDG disclosure among the top 100 listed companies in South Africa. They found that, on average, 17% of the sustainability reports and 56% of the integrated reports mention the SDGs, with an upward trend for both report types between 2016 and 2018. From these findings, the authors conclude that SDG reporting is unexpectedly low in spite of the *de facto* mandatory sustainability reporting requirements in South Africa. Moreover, SDG disclosure was particularly prevalent among companies in the mining sector, which could reflect legitimising reporting behaviour. Ahmed (2023) also focuses on listed firms in South Africa. His study examines the 2019–2021 period and reveals that corporate governance mechanisms, in particular, board size, board independence and risk management committee independence, positively impact the level of integrated reporting. Based on a literature review, Ahmed (2023) concludes that the level of integrated reporting plays an important role in achieving the SDGs. Gerged and Almontaser (2021)

examine SDG reporting among 11 major Libyan oil companies. They analyse Web posts from 2015 and 2016 as the primary disclosure medium and measure SDG disclosure by word counts. The results show that improvements in nation-level SDG performance translate into more SDG reporting among Libyan oil companies, which suggests that effective regulatory agencies are important drivers of SDG achievements and reporting. Lauwo *et al.* (2022) examine the implementation of the SDGs in Tanzania. They show that the local context in Tanzania, particularly the political environment and government, significantly hampers a metagovernance approach to SDG implementation. The authors conclude that this "can have severe implications in realising the SDGs in Tanzania" (p. 1452).

Taken together, the insights from these few studies on SDG reporting practices among African companies suggest that the continent's unique sociopolitical, economic and cultural characteristics play an important role in shaping African firms' accounting and reporting practices. Specifically, institutional factors (Erin and Bamigboye, 2022; Erin *et al.*, 2022; Gerged and Almontaser, 2021), legitimacy concerns (Gerged and Almontaser, 2021; Haywood and Boihang, 2021) and stakeholder relations (Tilt *et al.*, 2021) are important determinants of SDG disclosure among African companies. Although these factors have also been identified in studies on non-African settings, our brief literature review highlights that they cannot be easily translated into African settings due to certain particularities. For instance, Alawattage and Azure (2022) found evidence that accounting practice, the accounting profession and accounting reforms have not been able to operate as a progressive element of the political-economic and social development of Africa. Also, the psychocognitive, ideological and procedural conditions that underpin the various accounting manifestations of "African underdevelopment" remain problematic, especially corruption, accounting malpractices and scandals, financial indiscipline in public finance and failures to implement good governance and accounting practices and standards. These specifics and particularities highlight the need to better understand the extent to which African companies reflect societal expectations in their disclosures.

In responding to the lack of longitudinal evidence on SDG disclosure across multiple African countries, we are first interested in SDG reporting among African companies over time. Such evidence is needed to understand how SDG disclosure practices have evolved. We thus formulate our first research question as follows:

RQ1. How have the extent and focus of SDG reporting by African companies evolved?

Combining institutional, stakeholder and legitimacy theories provides a robust framework for understanding the drivers of SDG-related disclosure in the African context. Institutional theory (DiMaggio and Powell, 1983; Scott, 2008) focuses on how formal and informal rules such as governance effectiveness, regulatory quality and rule of law shape organisational behaviour through coercive, normative and mimetic pressures. These country-level characteristics reflect the strength of institutions that influence the expectations placed on firms and the degree of compliance or conformity required. Stakeholder theory (Freeman, 1984; Mitchell *et al.*, 1997) adds an important relational perspective by highlighting how diverse stakeholders including investors, governments, NGOs and international agencies influence corporate decisions through their expectations, salience and power. By contrast, legitimacy theory (Suchman, 1995; Patten, 2002) explains how firms seek to gain or maintain societal approval by aligning their disclosure practices with prevailing norms and values. In weaker institutional settings, legitimacy concerns become even more salient as firms attempt to compensate for institutional voids through symbolic or substantive disclosure. These theoretical lenses are interrelated but do not overlap. Whereas institutional theory helps explain why pressures to disclose arise through national-level structures,

stakeholder theory explains who exerts those pressures and legitimacy theory explains how firms respond to those pressures to maintain legitimacy. Together, they allow us to investigate how institutional quality, stakeholder salience and legitimacy jointly shape sustainability disclosure across African countries.

Looking at institutional, stakeholder and legitimacy theories, our second research question addresses how country-level institutional characteristics, such as governance effectiveness, voice, accountability, the quality of public services, stakeholder relations and legitimacy concerns relate to sustainability disclosure practices. Addressing these gaps is critical, particularly given Africa's high vulnerability to socio-economic and environmental challenges and its strategic importance to achieving the SDGs. Although prior research has explored some of these aspects individually, none of the studies has examined them in combination. We thus formulate our second research question:

RQ2. How are country-level institutional factors, stakeholder relations and legitimacy concerns related to SDG reporting by African firms?

Finally, we are interested in whether the role of country-level institutional factors, legitimacy concerns and stakeholder relations differ across African countries. Prior studies suggest considerable heterogeneity in disclosure practices across the continent. For instance, Erin and Bamigboye (2022) found that South African companies provide the most comprehensive SDG disclosure in all the African countries they studied. This may reflect South Africa's relatively advanced institutional framework and broader regional differences in regulatory environments, governance quality and societal expectations. Among the eight African countries included in the study of Erin and Bamigboye (2022), South Africa is the only country with a *de facto* sustainability reporting mandate in place. These differences suggest examining country-level variation within Africa. We therefore formulate our third research question:

RQ3. Does the role of country-level institutional factors, stakeholder relations and legitimacy concerns for SDG reporting by African firms differ across African countries?

3. Research design

3.1 Sample selection

Our sample consists of firms listed on African stock exchanges [2]. Panel A of Table 1 provides an overview of the sample selection process. We started with 964 unique African firms and collected the firms' annual reports for the 2015–2023 reporting period. We focus on annual reports for two reasons. Firstly, research has shown that in African settings, the annual report is often the most comprehensive and accessible form of corporate communication (Haywood and Boihang, 2021; Erin and Bamigboye, 2022). The primary document submitted to regulators and stakeholders reflects the company's formal position on financial and nonfinancial matters, including sustainability-related priorities. Secondly, stand-alone CSR or sustainability reports remain uncommon in most African countries, with such practices primarily concentrated in South Africa and among multinational subsidiaries (Tilt *et al.*, 2021; Igwe *et al.*, 2023). This is consistent with findings that many African stock exchanges lack explicit requirements or incentives for sustainability reporting beyond the annual report format.

Our initial sample of 8,676 firm-year observations is reduced by 2,142 firm-year observations due to reports that could not be obtained in English or could not be processed in

Table 1. Sample selection and description

Panel A: Sample selection		*n*
The initial population of firm-year observations for nine reporting years		8,676
Less: observations for which annual reports cannot be obtained or processed in textual analysis		−2,142
The final sample of annual reports		6,534
Panel B: Sample composition by stock exchange	*n*	%
Botswana Stock Exchange	284	4.35
Dar-es-Salaam Stock Exchange	190	2.91
Egyptian Stock Exchange	128	1.96
Ghana Stock Exchange	273	4.18
Johannesburg Stock Exchange	2,310	35.35
Lusaka Stock Exchange	165	2.53
Malawi Stock Exchange	120	1.84
Mauritius Stock Exchange	668	10.22
Nairobi Stock Exchange	476	7.28
Namibian Stock Exchange	355	5.43
Nigerian Stock Exchange	800	12.24
Rwandan Stock Exchange	67	1.03
Seychelles Stock Exchange	115	1.76
Swaziland Stock Exchange	24	0.37
Uganda Stock Exchange	133	2.04
Zimbabwe Stock Exchange	426	6.52
Total	*6,534*	*100.00*
Panel C: Sample composition by industry		
Basic materials	543	8.31
Consumer discretionary	718	10.99
Consumer staples	712	10.90
Energy	207	33.17
Financials	1,641	25.11
Health care	118	1.81
Industrials	716	10.96
Real estate	521	7.97
Technology	135	2.07
Telecommunications	135	2.07
Utilities	40	0.61
Missing	1,048	16.04
Total	*6,534*	*100.00*
Panel D: Sample composition by reporting year		
2015	661	10.12
2016	687	10.51
2017	735	11.25
2018	860	13.16
2019	844	12.92
2020	789	12.08
2021	674	10.32
2022	626	9.58
2023	658	10.07
Total	*6,534*	*100.00*

Note(s): This table provides information on the sample selection process (Panel A) and the sample composition by stock exchange (Panel B), industry (Panel C) and reporting year (Panel D). Industry grouping is based on industry classification benchmark (icb) two-digit code

textual analysis. We focus on English-language reports because our textual analysis method can only process texts in English: a limitation acknowledged in studies using similar techniques (e.g. Lin *et al.*, 2024; Lang and Stice-Lawrence, 2015). We recognise that this language constraint may introduce a selection bias into our sample. Our final sample of reports from African firms comprises 6,534 observations.

Panel B of Table 1 provides an overview of our final sample by stock exchange. The largest group of sample companies in Africa is listed on the Johannesburg Stock Exchange (35%), followed by the Nigerian Stock Exchange (12%) and the Mauritius Stock Exchange (10%). This distribution reflects the size and economic power of these countries. Panel C of Table 1 provides the sample distribution by industry classification with the two-digit industry classification benchmark (*icb*). Reports from companies in the financial sector constitute the largest group (25%), followed by consumer products and industrial (each 11%). Panel D of Table 1 provides an overview of the sample distribution by year and indicates a relatively stable distribution of observations over the sample period.

3.2 Empirical model and variables

To examine our first research question, *RQ1*, we rely on descriptive statistics to investigate the prevalence of SDG disclosure and its temporal development among our sample firms. We are particularly interested in which SDGs disclosed information primarily relates to and how SDG disclosure has developed. Concerning our second research question (*RQ2*), we follow prior research (Hummel and Szekely, 2022) and estimate the following empirical model:

$$\text{SDG\_discl}_{i,t} = \beta_0 + \beta_1 \text{inst}_{i,t} + \beta_2 \text{leverage}_{i,t} + \beta_3 \text{crosslisting}_{i,t} + \beta_4 \text{oda}_{i,t} + \beta_5 \text{esi}_i + \text{Controls} \quad (1)$$

The variables are summarised in Appendix and described in more detail below. SDG_discl proxies for our SDG-related disclosure variables. We use textual analysis to assess SDG-related disclosure in companies' annual reports. Specifically, we use Python and the nltk package. Textual analysis generally refers to the "notion of parsing text for patterns" (Loughran and McDonald, 2016, p. 1187). With the rise in computing power, computer-assisted textual analysis has gained increasing attention in various fields of academic research, including finance and accounting research (for an overview, see Loughran and McDonald, 2016) and sustainability and SDG disclosure research (Hummel *et al.*, 2024; Hummel and Szekely, 2022). Before the textual analysis, we apply standard preprocessing methods to enhance the texts' comparability [3]. For each SDG, we retrieve the number of SDG-related search terms, including single words and bigrams, using a vocabulary provided by Hummel and Szekely (2022). We summarise the occurrences of these words for each SDG and scale the sum by the number of total words in the report (SDG#_discl) multiplied by 100. For instance, SDG1_discl gives the frequency of words and bigrams related to SDG1 per 100 words in the report. This measure captures mentions of topics related to specific SDGs but not explicit mention of the SDGs themselves. We primarily use SDG#_discl to assess the overall prevalence of SDG topics in companies' annual reports and their development over time, as addressed in *RQ1*.

For *RQ2*, we construct a variable SDG_discl by summing all SDG-related words and dividing them by the number of total words in the report multiplied by 100 to assess the overall presence of all SDG-related topics. Such dictionary-based approaches are commonly used in the literature, for instance, by Cannon *et al.* (2020) for CSR-related disclosures and Loughran *et al.* (2009) for ethics-related disclosures. Table 2 provides an overview of the search terms used to assess disclosure related to each SDG. We acknowledge that our SDG

Table 2. List of search terms for each SDG

SDG	SDG topic	Search terms
SDG1	No poverty	poverty, (low, income), (poor, customer), (poor, people), (poor, person)
SDG2	Zero hunger	hunger, hungry, famine, malnutrition, undernourish*, (food, security), (affordable, food), (food, safety), (food, price)
SDG3	Good health care and well-being	health, (mortality, rate)
SDG4	Quality education	education, (literacy, skill), (skilled, workforce), (skill, workforce)
SDG5	Gender equality	(gender, equality), (gender, discrimination), (gender, parity), woman, women, (gender, pay), (equal, pay), (equal, remuneration), (workplace, harassment), (female leader), (female, manager), (equal, opportunity)
SDG6	Clean water and sanitation	(clean, water), (water, scarcity), sanitation, (water, efficiency), (water, access), (water, ecosystem), (water, biodiversity), (fresh, water), (water, pollution), (water, withdrawal)
SDG7	Affordable and clean energy	(clean, energy), (solar, power), (wind, power), (thermal, power), (renewable, energy), (electricity, access), (electricity, reliability), (energy, efficiency)
SDG8	Decent work and economic growth	unemployed, unemployment, (forced, labour), (forced, labour), (compulsory, labour), (compulsory, labour), (child, labour), (child, labour), slavery, (decent, work), (job, creation), (labour, standard), employment, (economic, inclusion), (skilled, workforce)
SDG9	Industry, innovation and infrastructure	innovation, (technological, progress), research, entrepreneurship, infrastructure, development, (technological, legacy), (environmental, investment), (sustainable, investment)
SDG10	Reduced inequalities	(income, inequality), (racial, discrimination), inclusion, (religious, discrimination), (sexual, discrimination), (global, wealth), (economic, inequality), diversity, (equal, opportunity), (economic, inclusion), (equal, remuneration)
SDG11	Sustainable cities and communities	(sustainable, city), (sustainable, community), slum, (healthy, city), (healthy, community), (affordable, housing), (sustainable, building)
SDG12	Responsible consumption and production	recycle, (sustainable, consumption), (sustainable, consume), (responsible, consume), (responsible, consumption), (resource, efficiency), (resource, efficient), (food, waste), (sustainable, sourcing), (material, recycling), (product, label), (product, labelling)
SDG13	Climate action	(climate, change), (greenhouse, gas) CO_2, (carbon, emission), (global, warm), (global, warming), (low, carbon), (sustainable, energy), (renewable, energy), GHG, (energy, efficiency)
SDG14	Life below water	(marine, biodiversity), (coastal, biodiversity), (fish, stock), (marine, pollution), (marine, ecosystem), (coastal, ecosystem), (coastal, habitat), spill, (water, discharge)
SDG15	Life on land	Deforestation, (natural, habit), species, biodiversity, (biological, diversity), ecosystem, (aichi, target), (genetic, diversity), (forest, degradation), (land, remediation), (fiber, sourcing), (natural, habit)
SDG16	Peace, justice and strong institutions	Peace, justice, violence, crime, (human, right), security, torture, corruption, bribery, law
SDG17	Partnerships for the goals	(development, assistance), (global, partnership)

Note(s): This table provides the search terms used to measure the prevalence of SDG topics in firms' annual reports. Bigrams are indicated by parentheses [e.g. (low, income)], *denotes a wildcard (e.g. undernourish*) for variations of the word (e.g. undernourishment)

disclosure measurement possesses some limitations: our method captures SDG-related disclosure by the frequency of relevant keywords and bigrams but does not account for explicit mentions of SDGs or firm-level SDG engagement. Moreover, our disclosure measure does not allow SDG disclosure quality for be assessed.

We examine several variables to explore the role of institutional factors, stakeholder relations and legitimacy concerns. A detailed description of the variables is provided in Appendix. For institutional factors, we draw on prior literature (Mittelbach-Hörmanseder

et al., 2021; Cahan *et al.*, 2016; Rosati and Faria, 2019) and examine the six governance indicators provided by the World Bank database, the World Bank Worldwide Governance Indicators (WGI). These governance indicators include corruption control (*inst_cc*), government effectiveness (*inst_ge*), political stability (*inst_ps*), regulatory quality (*inst_rq*), rule of law (*inst_rl*) and voice and accountability (*inst_va*) [4]. For stakeholder relations, we focus on the role of financial stakeholders and international aid and assistance providers. We use financial leverage (*leverage*) and cross-listing status (*crosslisting*) as proxies for the influence of financial stakeholders to capture exposure to financial scrutiny and international capital market expectations. As a proxy for the role of development assistance, we use the amount of net official development assistance received per capita (*oda*). We argue that *oda* is a proxy for the broader presence and influence of international development actors within a country. These actors can pressure firms to engage with and report on the SDGs even if firms do not directly receive aid. For legitimacy concerns, we use affiliation with an environmentally sensitive industry (e.g. energy, utility, basic materials) as a proxy (*esi*) because prior studies indicate that firms in these sectors are particularly exposed to legitimacy pressures (Cho and Patten, 2007; Stolowy and Paugam, 2018; Hummel and Szekely, 2022). We argue that the need to maintain or restore legitimacy is particularly pronounced for firms in such industries due to heightened public scrutiny, reputational risk and exposure to societal expectations.

For our third research question (*RQ3*), we split the sample into three clusters according to the strength of the country-level institutions. The first cluster consists of companies in South Africa, where sustainability reporting is not legally mandated but has become *de facto* mandatory. This results from the Johannesburg Stock Exchange's "apply and explain" requirement for integrated reporting, guided by the King IV Report on Corporate Governance (IoDSA, 2016). Although King IV is a voluntary governance code rather than legislation, it explicitly calls for the inclusion of sustainability information as an element of nonfinancial disclosure within the integrated report. As a result, nearly all JSE-listed firms publish integrated reports that incorporate sustainability information. Thus, sustainability reporting is *de facto* mandatory (Maroun, 2019). Moreover, South Africa has by far the largest number of observations in our data set, which could bias the clustering results. We therefore treat South Africa separately. To group the remaining countries into two clusters, we calculate the mean value of all six institutional factors over each country's sample period. We then distinguish between countries with relatively strong institutions, as indicated by an average institutional country score equal to or above zero, and countries with relatively weak institutions, as indicated by an average institutional country score below zero. Because the value of zero represents the global average, our two groups thus distinguish between countries with strong institutions at or above the global average and countries with weak institutions below the global average. The group with strong institutions comprises Botswana, Ghana, Mauritius, Namibia, Rwanda and Seychelles. The group with weak institutions comprises the remaining sample countries. The clustering allows us to explore how variations in institutional quality affect SDG-related disclosure across different regulatory and governance contexts.

We select our control variables following Hummel *et al.* (2024) and Stolowy and Paugam (2018). We control for firm size, financial performance and report length [5]. In contrast to Hummel *et al.* (2024), we do not control for whether the reports comply with the GRI Standards because we do not expect this variable to influence SDG-related disclosures in firms' annual reports. We also do not control for a company's sustainability performance because this variable is not available for many African firms. Furthermore, we include year and industry fixed effects and clustered standard errors for the country where each firm is

located. To limit the influence of outliers, we winsorise the variable's size, financial performance and leverage at the top and bottom 1%. We use ordinary least-squares regression models with robust standard errors to estimate the models.

4. Results of quantitative analysis

4.1 Development of sustainable development goals disclosure over time

Figure 1 presents SDG-related disclosure over time for the 17 SDGs separately (i.e. *SDG1_discl* to *SDG17_discl*). The figure illustrates that African companies most frequently report information related to SDG9 (industry, innovation and infrastructure), followed by SDG16 (peace, justice and strong institutions), SDG3 (good healthcare and well-being) and SDG8 (decent work and economic growth). This finding is partly consistent with the study of Erin and Bamigboye (2022), who identify SDG8, SDG10, SDG3 and SDG13 as the most frequently disclosed SDGs, which supports the validity of our measurement approach. However, whereas Erin and Bamigboye (2022) examine which SDGs companies explicitly prioritise, our focus lies on general SDG-related disclosures regardless of whether the SDGs are explicitly mentioned. Regarding the development over time, the figure illustrates a steady increase over time of disclosure related to most goals, which is also consistent with Erin and Bamigboye's (2022) findings. Notably, for SDG4, SDG8, SDG9 and SDG16, there is a significant decline in disclosure during the pandemic, particularly in the reporting year 2020.

Figure 2 shows the development of overall SDG-related disclosure (*SDG_discl*) over time both for the full sample and separately by cluster. Consistent with prior studies (e.g. Erin and Bamigboye, 2022), South Africa exhibits the highest levels of SDG-related disclosure, likely due to that country's *de facto* sustainability reporting mandate. The figure also reveals that in cross-sectional comparison, companies operating in countries with strong institutions provide more SDG disclosure than those in countries with weak institutions. This general cross-sectional evidence is consistent with Erin and Bamigboye (2022), Erin *et al.* (2022) and Tilt *et al.* (2021), all of which suggest that stronger country-level institutions would stimulate the voluntary adoption of SDG-related policies and reporting practices. Notably, the decrease in SDG disclosure observed in the reporting year 2020 is primarily concentrated among companies in countries with weak institutions, which suggests that these companies

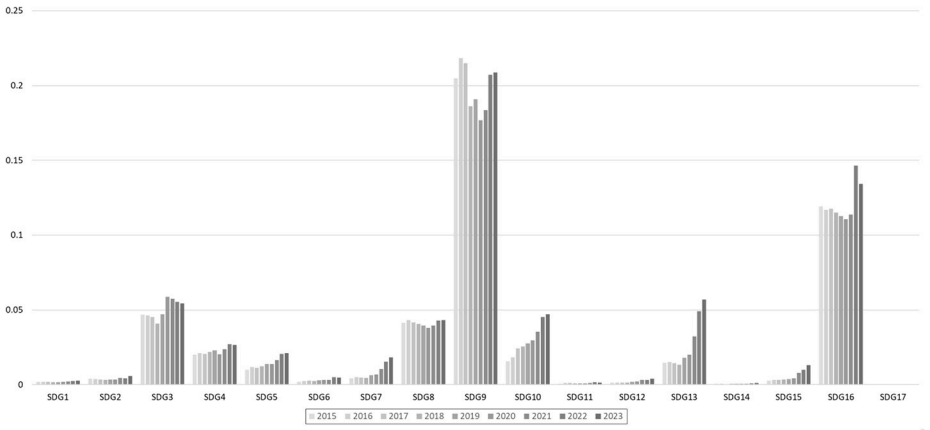

Figure 1. Development of SDG disclosure over time by each SDG

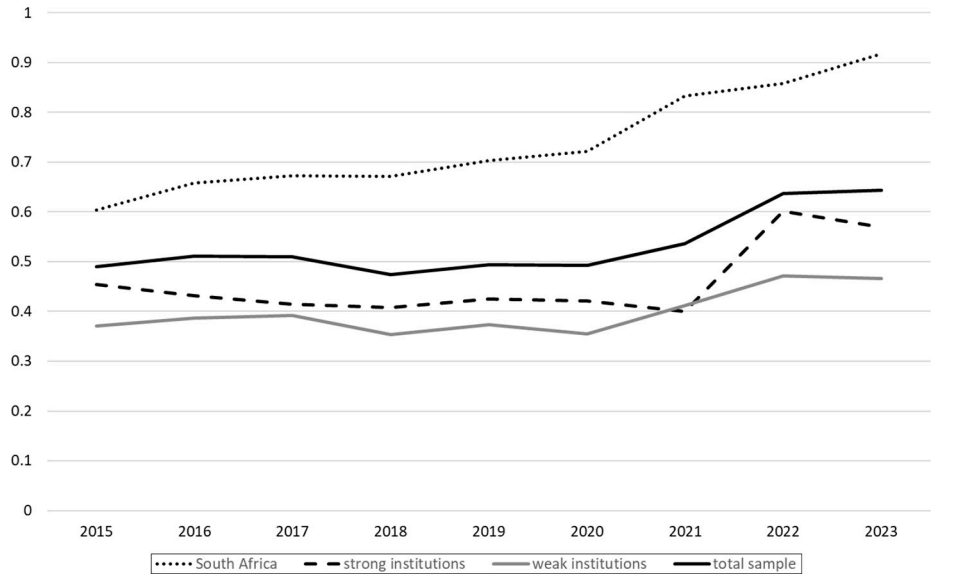

Figure 2. Development of SDG disclosure over time by the three clusters

were more severely affected by the pandemic, possibly due to limited resilience or institutional support.

Figure 3 presents the average disclosure related to each SDG for the three clusters. Apart from SDG16 (peace, justice and strong institutions), South African companies provide the most comprehensive disclosure across all SDGs. Similarly, firms in countries with strong institutions report more extensively on the SDGs than those with weak institutions. However,

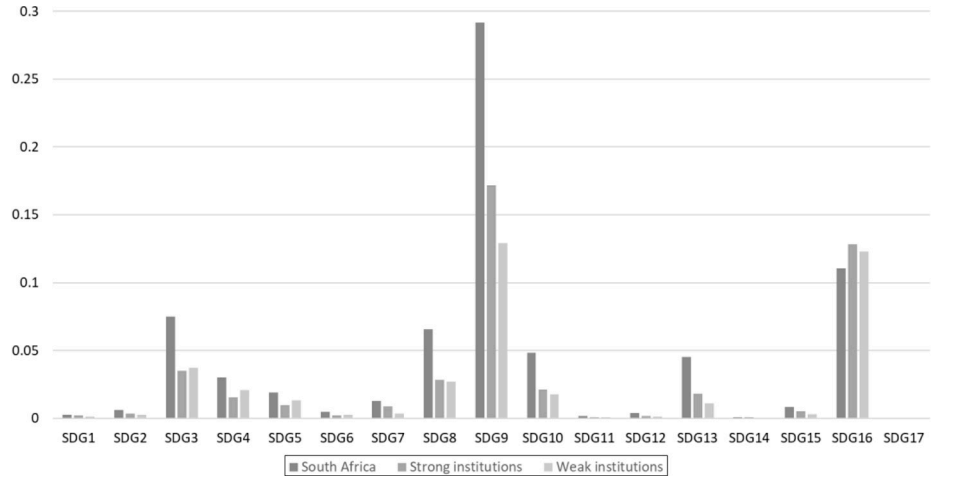

Figure 3. SDG disclosure by clusters

this pattern does not hold for SDG3 (good healthcare and well-being), SDG4 (quality education) or SDG5 (gender equality).

4.2 Descriptive statistics

Panel A of Table 3 provides the summary statistics of the regression variables. The mean value of *SDG_discl* indicates that, on average, 0.5% of the annual report is dedicated to SDG-related content, with a minimum of 0% and a maximum of 4.5%. This wide range indicates broad variation in SDG disclosure across firms. The negative mean values of the institutional variables (except for *inst_va*) suggest that institutional quality in African countries tends to be below the world's average. For the stakeholder variables, the mean value of financial leverage is 0.22, which is relatively low compared to other studies. *crosslisting* is, on average, 0.197, indicating that almost 20% of the sample firms are listed on more than one stock exchange. The dependence on development aid and assistance equals US$42 per capita on average. For our legitimacy variable, *esi*, 12% of the sample companies belong to environmentally sensitive industries, which exposes them to environmental legitimacy concerns. For the control variables, firm size is on average USD 6,775,634 (log-transformation of total assets), profitability (*roa*) is on average about 6%, and the average report length is 28,259 words (log-transformation of word count), which suggests that reports from African companies tend to be shorter than the global average (e.g. Dyer *et al.*, 2017).

Table 4 presents the Pearson correlation statistics of the regression variables. All institutional variables correlate positively and significantly with SDG_discl, indicating that SDG-related disclosure is higher in countries with stronger institutions. *Leverage* is

Table 3. Summary statistics of the regression variables

Variables	mean	sd	min.	max.	count
Dependent variable					
SDG_discl	0.5276	0.3613	0.0000	4.4776	6,534
Institutional variables					
inst_cc	−0.2996	0.5968	−1.3378	1.6288	6,534
inst_ge	−0.1929	0.6179	−1.3424	1.1266	6,534
inst_ps	−0.3702	0.8420	−2.0975	1.0953	6,534
inst_rq	−0.1803	0.6598	−1.6949	1.1811	6,534
inst_rl	−0.1783	0.5486	−1.3954	0.8869	6,534
inst_va	0.1595	0.6576	−1.5051	0.8262	6,534
Stakeholder variables					
leverage	0.2176	0.2085	0.0000	1.0928	6,534
crosslisting	0.1970	0.3977	0.0000	1.0000	6,534
oda	42.3574	42.7049	0.3193	264.70	6,534
Legitimacy variables					
esi	0.1209	0.3260	0.0000	1.0000	6,534
Control variables					
firmsize	13.2189	2.3476	7.9470	18.8273	6,534
profitability	0.0628	0.1334	−0.4515	0.6927	6,534
length	10.0357	0.8109	0.6931	13.7121	6,534

Note(s): This table presents descriptive statistics of the regression variables for total samples of reports of African companies

Table 4. Pearson correlation statistics

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) SDG_discl	1.0000						
(2) inst_cc	0.1167 (0.0000)	1.0000					
(3) inst_ge	0.1385 (0.0000)	0.8852 (0.0000)	1.0000				
(4) inst_ps	0.0492 (0.0001)	0.8439 (0.0000)	0.8191 (0.0000)	1.0000			
(5) inst_rq	0.1129 (0.0000)	0.8291 (0.0000)	0.9584 (0.0000)	0.7799 (0.0000)	1.0000		
(6) inst_rl	0.1281 (0.0000)	0.8737 (0.0000)	0.9314 (0.0000)	0.8180 (0.0000)	0.9409 (0.0000)	1.0000	
(7) inst_va	0.2839 (0.0000)	0.7317 (0.0000)	0.7874 (0.0000)	0.5926 (0.0000)	0.7804 (0.0000)	0.7753 (0.0000)	1.0000
(8) leverage	−0.0639 (0.0000)	−0.0511 (0.0000)	−0.0626 (0.0000)	−0.0347 (0.0050)	−0.0711 (0.0000)	−0.0925 (0.0000)	−0.0793 (0.0000)
(9) crosslisting	0.0349 (0.0047)	0.1077 (0.0000)	0.0533 (0.0000)	0.1333 (0.0000)	0.0382 (0.0020)	0.0955 (0.0000)	0.0335 (0.0067)
(10) oda	−0.1796 (0.0000)	0.3061 (0.0000)	0.2562 (0.0000)	0.3910 (0.0000)	0.2332 (0.0000)	0.3034 (0.0000)	−0.0319 (0.0100)
(11) esi	0.1261 (0.0000)	0.0872 (0.0000)	0.0599 (0.0000)	0.0496 (0.0001)	0.0655 (0.0000)	0.0666 (0.0000)	0.1356 (0.0000)
(12) firmsize	0.2232 (0.0000)	−0.0030 (0.8067)	−0.0360 (0.0036)	0.0343 (0.0055)	−0.1062 (0.0000)	−0.0748 (0.0000)	−0.0371 (0.0027)
(13) profitability	0.0452 (0.0003)	−0.0170 (0.1693)	−0.0359 (0.0037)	−0.0214 (0.0836)	−0.0388 (0.0017)	−0.0051 (0.6803)	−0.0183 (0.1390)
(14) length	0.2400 (0.0000)	0.0237 (0.0558)	0.0682 (0.0000)	0.0334 (0.0069)	0.0804 (0.0000)	0.0568 (0.0000)	0.1519 (0.0000)

Note(s): This table presents bivariate Pearson correlation coefficients and *p*-values (in parentheses) for a two-tailed test of statistical significance

(*continued*)

Table 4. Continued

Variables	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) SDG_discl							
(2) inst_cc							
(3) inst_ge							
(4) inst_ps							
(5) inst_rq							
(6) inst_rl							
(7) inst_va							
(8) leverage	1.0000						
(9) crosslisting	−0.0680 (0.0000)	1.0000					
(10) oda	0.0379 (0.0022)	0.0606 (0.0000)	1.0000				
(11) esi	−0.0203 (0.1008)	0.1409 (0.0000)	−0.0837 (0.0000)	1.0000			
(12) firmsize	0.0227 (0.0662)	0.2631 (0.0000)	0.0358 (0.0038)	−0.0827 (0.0000)	1.0000		
(13) profitability	−0.1130 (0.0000)	−0.0733 (0.0000)	−0.0256 (0.0387)	−0.0885 (0.0000)	−0.0503 (0.0000)	1.0000	
(14) length	−0.0121 (0.3262)	0.1350 (0.0000)	−0.1121 (0.0000)	0.0303 (0.0144)	0.3084 (0.0000)	−0.0103 (0.4059)	1.0000

significantly negatively related to *SDG_discl*, whereas *crosslisting* is significantly positively related to *SDG_discl*, thus suggesting that stronger debtholders' influence is negatively associated with SDG-related disclosure. In contrast, a stronger presence in international capital markets relates positively to SDG-related disclosure. For *oda*, we obtain a negative coefficient, which could indicate that firms in countries that receive higher amounts of development and aid assistance provide less SDG-related disclosure. Consistent with other studies (Cho and Patten, 2007), *esi* is positively associated with SDG-related disclosure, indicating that firms compensate for legitimacy concerns by higher disclosure levels. The control variables are also consistent with the literature. Furthermore, the correlation statistics reveal strong positive and significant correlations among the institutional quality variables. Therefore, they cannot be included in the same regression model due to multicollinearity.

4.3 Results from the regression analyses

Next, we run OLS regressions to examine *RQ2* and *RQ3*. Table 5 displays the results. Each column corresponds to one of the six institutional quality variables: corruption control (*inst_cc*), government effectiveness (*inst_ge*), political stability (*inst_ps*), regulatory quality (*inst_rq*), rule of law (*inst_rl*) and voice and accountability (*inst_va*).

Panel A presents the results for the full sample. At an aggregate level, the results suggest that institutional quality is generally not significantly associated with SDG-related disclosure, except with voice and accountability, which shows a positive and significant coefficient. This finding contrasts with prior studies (e.g. Rosati and Faria, 2019), which report positive relationships between institutional quality and SDG disclosure. The finding is also in contrast to recent studies in the African context, which all identify the lack of institutional quality as a major barrier to firms engaging in SDG-related disclosures (e.g. Tilt *et al.*, 2021; Erin and Bamigboye, 2022; Erin *et al.*, 2022). For financial stakeholders, we find a negative coefficient for *leverage*, suggesting that firms with higher debt levels provide less SDG-related disclosure. This may reflect the short-term financial focus of debtholders, who appear to prioritise short-term financial returns over longer-term sustainability objectives. We find no significant coefficient for *crosslisting*, which indicates that access to international capital markets is not related to SDG disclosure at the aggregate level. Remarkably, international development assistance (*oda*) is negatively associated with SDG-related disclosure, albeit at a low significance level. This may reflect a substitution effect, by which external development funding reduces the perceived need or pressure for voluntary SDG-related efforts. Legitimacy concerns, proxied by *esi*, are positively associated with SDG-related disclosure, albeit not in all regressions. The finding aligns with that of Cho and Patten (2007). Firms in such industries face heightened legitimacy concerns and respond to these concerns by providing SDG-related disclosure. The control variables (not reported) show positive and significant coefficients for *size* and *profitability*, which suggest that larger and more profitable firms provide more SDG-related disclosure. These findings are broadly consistent with the literature on sustainability and SDG disclosure (e.g. Patten, 2002).

Panels B–D of Table 5 address research question *RQ3* and present regression results separately for the three African clusters to provide a more nuanced view of the relationships. Panel B presents results for South Africa. Here, we obtain negative coefficients for corruption control, government effectiveness, political stability and regulatory quality and positive coefficients for rule of law, voice and accountability. This pattern suggests that South African firms respond to a decrease in country-level institutional quality by increasing their SDG-related disclosures. *Leverage* is insignificant, whereas *crosslisting* is negatively associated with SDG disclosure, unlike in the other groups. This could reflect the *de facto* mandatory sustainability reporting requirements for listed companies in South Africa, which

Table 5. Results from the regression analyses

Variables	(1) inst_cc	(2) inst_ge	(3) inst_ps	(4) inst_rq	(5) inst_rl	(6) inst_va
Panel A: Full sample						
institutional	0.0796 (1.3384)	0.0845 (1.3324)	0.0479 (0.9947)	0.0675 (1.0839)	0.0908 (1.2461)	0.1138** (2.7997)
leverage	−0.0856** (−2.5139)	−0.0819** (−2.2813)	−0.0893** (−2.8131)	−0.0831** (−2.2767)	−0.0792* (−2.0763)	−0.0726* (−1.9827)
crosslisting	−0.0803 (−1.3303)	−0.0726 (−1.1685)	−0.0829 (−1.4076)	−0.0730 (−1.1641)	−0.0789 (−1.2889)	−0.0683 (−1.1106)
oda	−0.0014* (−1.9410)	−0.0014* (−1.9846)	−0.0014 (−1.7289)	−0.0014* (−1.8899)	−0.0015* (−1.8977)	−0.0011** (−2.6615)
esi	0.0382 (1.5486)	0.0456* (1.8840)	0.0404 (1.6233)	0.0449* (1.9014)	0.0434 (1.7497)	0.0357 (1.4236)
Obs.	6,534	6,534	6,534	6,534	6,534	6,534
Controls	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
R^2	0.2323	0.2347	0.2277	0.2300	0.2323	0.2547
Panel B: South Africa						
institutional	−0.4458*** (−5.7668)	−0.6752*** (−9.7940)	−0.3709*** (−9.5847)	−0.7524*** (−9.5424)	0.4302*** (7.2055)	1.4946*** (9.9716)
leverage	−0.0421 (−1.0554)	−0.0503 (−1.2833)	−0.0523 (−1.3405)	−0.0536 (−1.3709)	−0.0390 (−0.9872)	−0.0591 (−1.5232)
crosslisting	−0.1916*** (−10.0757)	−0.1921*** (−10.2695)	−0.1926*** (−10.3063)	−0.1907*** (−10.1740)	−0.1937*** (−10.2739)	−0.1908*** (−10.2512)
oda	−0.0112*** (−4.6857)	−0.0098*** (−4.3326)	−0.0058** (−2.3794)	0.0070** (2.1576)	−0.0225*** (−9.4657)	−0.0118*** (−5.2653)
esi	0.0182 (0.7299)	0.0204 (0.8360)	0.0205 (0.8349)	0.0209 (0.8541)	0.0182 (0.7312)	0.0220 (0.8965)
Obs.	2,310	2,310	2,310	2,310	2,310	2,310
Controls	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO	NO
R^2	0.2373	0.2621	0.2569	0.2581	0.2436	0.2590
Panel C: Strong institutional environment						
institutional	−0.2037*** (−7.6910)	−0.0995*** (−5.7330)	−0.1419*** (−6.4786)	−0.0764*** (−5.5141)	−0.1356*** (−4.8731)	0.0135 (0.6715)
leverage	−0.0871* (−1.8146)	−0.1085** (−2.2138)	−0.1074** (−2.1957)	−0.1159** (−2.3782)	−0.1148** (−2.3654)	−0.0871* (−1.8146)
crosslisting	0.0659*** (3.2129)	0.0330 (1.5670)	0.0468** (2.2518)	0.0291 (1.3828)	0.0408* (1.9293)	0.0659*** (3.2129)
oda	−0.0001 (−0.8158)	−0.0003* (−1.8942)	−0.0004*** (−2.9031)	−0.0004** (−2.5751)	−0.0003* (−1.9526)	−0.0001 (−0.8158)
esi	−0.0092 (−0.2026)	−0.0366 (−0.7911)	−0.0228 (−0.4957)	−0.0348 (−0.7581)	−0.0335 (−0.7272)	−0.0092 (−0.2026)
Obs.	1,762	1,762	1,762	1,762	1,762	1,762
Controls	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
R^2	0.1843	0.1612	0.1682	0.1598	0.1586	0.1495

(*continued*)

Table 5. Continued

Variables	(1) inst_cc	(2) inst_ge	(3) inst_ps	(4) inst_rq	(5) inst_rl	(6) inst_va
Panel D: Weak institutional environment						
institutional	0.0396** (2.0716)	0.1259*** (6.1843)	0.0388*** (3.2506)	0.0809*** (5.4953)	0.0546*** (3.0470)	−0.0261* (−1.6533)
leverage	−0.0544*** (−2.7963)	−0.0373* (−1.9166)	−0.0543*** (−2.8014)	−0.0402** (−2.0618)	−0.0474** (−2.4078)	−0.0648*** (−3.3691)
crosslisting	0.0376** (2.3799)	0.0425*** (2.7021)	0.0315** (1.9820)	0.0346** (2.1738)	0.0363** (2.2896)	0.0360** (2.2606)
oda	0.0010*** (3.6971)	0.0004 (1.3650)	0.0004 (0.9457)	0.0007*** (2.6922)	0.0009*** (3.2425)	0.0013*** (5.3952)
esi	0.0418** (2.0513)	0.0440** (2.1153)	0.0407** (2.0169)	0.0396* (1.9264)	0.0425** (2.0721)	0.0466** (2.2731)
Obs.	2,462	2,462	2,462	2,462	2,462	2,462
Controls	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
R^2	0.2058	0.2201	0.2081	0.2139	0.2077	0.2055

Note(s): This table reports ordinary least squares coefficient estimates and t-statistics (in parentheses) based on robust standard errors. ***, ** and * represent significance levels of 0.10 [or 10%], 0.05 [or 5%] and 0.01 [or 1%], respectively. The dependent variable is *SDG_discl*. The variable *institutional* is a placeholder indicating that each column presents results for one of the six institutional variables (inst_cc, inst_ge, inst_ps, inst_rq, inst_rl and inst_va). Regressions are estimated using the full sample (Panel A) and using the sub-samples of firms from South Africa (Panel B), firms in countries with strong institutions (Panel C) and firms in countries with weak institutions (Panel D)

may exceed those of international stock exchanges and reduce the additional disclosure incentives from international listing.

Furthermore, international development assistance is also negatively associated with SDG-related disclosure. Notably, legitimacy concerns, proxied by *esi*, are not significant in the South African context. This finding could again be due to the *de facto* mandatory reporting requirements, which standardise sustainability disclosure practices and reduce the influence of legitimacy-driven disclosure responses.

Panel C presents results for countries with relatively strong institutions. These findings are similar to those for South Africa in their negative associations between institutional quality and development assistance with SDG-related disclosure. However, they differ in the role of financial stakeholders. We observe a negative coefficient for *leverage*, which suggests that debtholders in these countries do not prioritise or demand SDG-related disclosure, possibly due to a focus on financial aspects rather than nonfinancial ones. In contrast, *crosslisting* is positively associated with SDG-related disclosure, suggesting that international capital markets expose firms to higher disclosure expectations without a domestic sustainability reporting mandate. International investors and stock exchanges may exert normative pressure or impose guidelines that encourage or require sustainability and SDG-related disclosure and thereby incentivise firms to enhance their SDG-related reporting.

Panel D reports the results for countries with weak institutional environments. For these countries, we observe positive and significant coefficients for all institutional factors except voice and accountability and for *oda*. This suggests that in weak institutional settings, improvements in institutional quality encourage firms to increase their SDG-related disclosures. One potential explanation is that in these countries, improvements in institutional quality reflect broader societal shifts towards sustainability-related priorities that then prompt firms to respond accordingly. Another possible explanation is that countries with low institutional quality cannot ensure a stable business environment.

Moreover, both *crosslisting* and international development assistance are positively associated with SDG disclosure, a result which suggests that international influence from capital markets and development aid is particularly influential in weak institutional contexts. Unlike the substitution effect seen in other clusters, *oda* appears to complement disclosure efforts rather than substitute them. Finally, affiliation with environmentally sensitive industries is positively associated with SDG disclosure, as is consistent with legitimacy theory expectations. This finding supports the argument that legitimacy concerns are more salient for environmentally sensitive industries, particularly in countries with weak country-level institutional structures.

Our results reveal that *leverage* is significantly negatively related to SDG-related disclosure across all specifications. This suggests that banks and other debt capital providers in African markets generally do not value or encourage SDG-related transparency. However, other determinants vary by cluster. Notably, institutional quality and development assistance are negatively associated with SDG disclosure in South Africa and countries with strong institutions but positively associated in countries with weak institutions, which indicates that institutional improvements have a greater impact in weaker institutional environments. *Crosslisting* is negatively related to SDG disclosure in South Africa, likely due to the *de facto* sustainability reporting mandate, but it is positively associated in other clusters, highlighting the influence of international markets in the absence of sustainability reporting mandates. Finally, *esi* is positively associated with SDG disclosure only in countries with weak institutions, indicating the role of legitimacy pressures where formal institutional quality is weak.

These findings also have broader implications for the ongoing global debate on sustainability reporting convergence. The variation in SDG disclosure practices across African institutional contexts demonstrates the difficulty of achieving uniform reporting standards in regions marked by institutional heterogeneity, weak enforcement mechanisms and resource constraints (Ahmed, 2023; Lauwo *et al.*, 2022; Tilt *et al.*, 2021). Although voluntary disclosure is a valuable entry point, its fragmented and uneven application across African stock exchanges suggests that harmonisation efforts must go beyond technical standard-setting. Recent initiatives such as the IFRS Foundation's establishment of the International Sustainability Standards Board and the IFRS Sustainability Disclosure Standards (IFRS S1 and S2) release are critical steps towards global alignment. The differences observed in our results are consistent with findings from a recent study on introducing these standards and confirm the strong demand for global sustainability reporting frameworks among African stakeholders (Hummel and Bauernhofer, 2025).

Nevertheless, our findings also reveal that successful implementation depends on local adaptation, capacity-building and engagement with institutional realities at the national level. Without such adaptation, global frameworks risk reinforcing existing disclosure gaps rather than addressing them. This study contributes to theory and practice by demonstrating empirically how institutional pressures shape SDG reporting and by informing current policy discussions about the feasibility and design of globally harmonised sustainability reporting regimes.

4.4 Robustness checks

We perform several additional analyses to validate our measurement approach and test the robustness of our results. Firstly, we address the concern that our measure of SDG disclosure does not allow us to distinguish between symbolic and substantive disclosure. To this end, we conduct two additional tests. In the first analysis, we introduce the variable SDG_binary, which takes the value of 1 if a firm explicitly references the SDGs in its annual report and zero otherwise. We argue that SDG_binary is a reasonable proxy for a firm's intentional engagement with the SDGs, because firms that explicitly mention the SDGs in their reports are likely signalling a deliberate commitment. We re-ran our regressions including SDG_binary as an additional control variable. Although the main regression results remain robust, SDG_binary is positively and significantly associated with SDG disclosure across all model specifications. This suggests that firms that explicitly refer to the SDGs provide more extensive SDG-related disclosures.

In the second analysis, we examine the relationship between a firm's sustainability performance and SDG disclosure. According to theory and prior literature (Patten, 2002; Cho and Patten, 2007), a positive association indicates more substantive disclosure, whereas a negative association may suggest merely symbolic disclosure. We use the ESG performance score from LSEG Datastream as a proxy for a firm's sustainability performance. Due to data limitations, we cannot include this variable in multivariate regressions. However, a univariate analysis shows a positive and significant correlation between sustainability performance and SDG disclosure, thus indicating that firms with stronger sustainability performance tend to disclose more SDG-related content. This finding supports the interpretation that our disclosure measures at least partly capture substantive disclosure.

Next, we address the concern that firms that report in compliance with the GRI Standards exhibit higher sustainability disclosure levels. Consequently, failing to control for GRI compliance could lead to omitted variable bias. Due to data limitations, we are unable to retrieve GRI compliance data from traditional databases for our sample of African

companies. To overcome this limitation, we construct a proxy variable (GRI) using textual analysis in which *gri* equals "1" if the report contains the word "GRI" or the ngram "global reporting initiative", and zero otherwise. Even if this proxy does not fully capture a firm's GRI compliance, it allows us to include the entire sample in the analysis. We then re-estimated our regressions, including gri as an additional control variable. The results remain robust and thus suggest that differences in firms' GRI compliance do not drive our main findings.

Finally, we test the robustness of the results with respect to the imputation of missing values. In our baseline sample, we replace missing values on assets, EBIT, and debt in a stepwise procedure. This imputation approach might limit the generalisability and validity of our findings. We therefore re-run the regressions using the sample without imputation of missing values, which reduces the sample size to $n = 4{,}937$ observations. Despite this substantial reduction in sample size, the results remain largely unchanged, particularly for the institutional variables. The only notable difference appears in the subsample of countries with strong institutions, where the coefficients for *leverage* and *oda* are no longer statistically significant. This robustness test leaves us confident that the imputation of missing values does not substantially impact our findings.

5. Conclusion

This study provides the first large-scale empirical analysis of SDG-related disclosure across 16 African stock exchanges over the 2015–2023 period. Using computer-assisted textual analysis on 6,534 annual reports, we show that African companies most frequently disclose information about SDG 3 (good health and well-being), SDG 8 (decent work and economic growth), SDG 9 (industry, innovation and infrastructure) and SDG 17 (partnerships for the goals). These disclosure patterns reflect Africa's pressing socio-economic challenges, particularly in health, employment and infrastructure and confirm the role of development partnerships in shaping corporate sustainability agendas (Erin and Bamigboye, 2022; Lauwo *et al.*, 2022). The disclosure patterns also align closely with Africa's national and continental development priorities. For instance, SDG 3 (good health and well-being) and SDG 8 (decent work and economic growth) correspond directly to the African Union's Agenda 2063, which specifies inclusive growth, job creation and access to quality health care as key pillars of socio-economic transformation. Likewise, SDG 9 (industry, innovation and infrastructure) reflects the Agenda's call for infrastructural development and technological advancement to support regional integration and economic competitiveness. The prominence of SDG 17 (partnerships for the goals) further resonates with Agenda 2063's emphasis on collaboration among African states and international partners to achieve sustainable development. These results suggest that SDG-related disclosures, while varying in quantity, are at least partially responsive to continental development agendas. The results also signal the relevance of aligning corporate sustainability reporting with African policy frameworks.

SDG-related disclosures remained relatively stable until 2020 and then increased notably, possibly influenced by the SDGs' rising global prominence and mounting stakeholder expectations. Our findings illustrate how institutional and organisational factors exert differentiated effects across the continent. Debt providers appear to place limited emphasis on SDG-related transparency, as evidenced by the consistent negative association between financial leverage and disclosure, and thus raise concerns about the alignment between financial market actors and sustainable development imperatives (e.g. Cho and Patten, 2007). Conversely, institutional quality and development assistance promote disclosure in countries with weaker institutions but show no effect or negative associations in stronger institutional

environments, such as South Africa. These dynamics reflect the nuanced role of institutional pressures in shaping corporate disclosure and are consistent with institutional theory's notion of context-specific coercive and normative forces (DiMaggio and Powell, 1983; Scott, 2008).

The national differences may be further understood through the lens of political economy and stakeholder dynamics. In countries with weaker institutional environments, companies may be more responsive to international development agencies, donor expectations and civil society actors due to the absence of robust regulatory frameworks (Lauwo *et al.*, 2022). By contrast, in stronger institutional settings, firms may perceive SDG reporting as integral to established compliance routines, which may reduce the perceived need for voluntary elaboration. Furthermore, variation in board characteristics such as director independence, international experience and gender diversity may also influence firms' sensitivity to SDG topics (Erin and Olojede, 2024; Igwe *et al.*, 2023). Civic pressure and media scrutiny may amplify these effects by shaping stakeholder expectations differently across regions, particularly in countries with greater press freedom and activist engagement.

Our analysis further supports legitimacy theory (Suchman, 1995) by showing that firms in environmentally sensitive industries, particularly in weak institutional environments, tend to disclose more on SDG topics, likely to maintain or enhance organisational legitimacy. Similarly, stakeholder theory (Freeman, 1984; Mitchell *et al.*, 1997) helps explain the variation in disclosure linked to cross-listing: firms operating in countries without strong domestic regulation may respond to international stakeholder expectations through enhanced reporting, whereas South African firms, already subject to *de facto* mandatory requirements, show no such effect. These findings confirm the utility of a multitheoretical approach in understanding sustainability reporting practices in Africa, as also recommended by Tilt *et al.* (2021) and Erin *et al.* (2022).

The practical implications of this research are substantial. For corporate managers, the findings illustrate the strategic role of SDG disclosure in enhancing organisational legitimacy and responding to both national development goals and international market expectations. Particularly in countries with weaker institutional support, firms can use disclosure as a proactive tool to engage stakeholders and attract impact-focused capital. For policymakers, the results indicate the need to develop regionally adapted sustainability reporting frameworks that reflect local institutional realities. Rather than relying solely on global standards, national regulators such as the Securities and Exchange Commission in Nigeria and the Financial Reporting Council could support SDG alignment by issuing tailored disclosure guidance, integrating SDGs into corporate governance codes and offering voluntary templates for reporting. South Africa's King IV framework provides a promising example of sustainability embedded into governance practices. In addition, regional bodies such as the Pan-African Federation of Accountants (PAFA) and the African Union Development Agency (AUDA-NEPAD) could facilitate capacity-building and policy coordination across borders. Such targeted engagement can foster a more enabling regulatory environment and promote consistent, meaningful SDG communication throughout the continent.

Overall, this study fills a significant gap in the literature by offering robust, cross-country evidence on SDG disclosure in Africa, an area long underrepresented in academic discourse (Waweru *et al.*, 2023; Moses and Hopper, 2022). By setting our findings within institutional, stakeholder and legitimacy frameworks, we contribute to a nuanced understanding of how African firms navigate sustainability reporting amidst diverse regulatory and development landscapes. As African economies continue to engage with global sustainability goals, this

research provides a timely and policy-relevant contribution to the discourse on corporate responsibility in emerging markets.

This study has several limitations that should be considered when interpreting its findings and practical implications. First, although computer-assisted textual analysis enables large-scale empirical investigation, it inherently restricts the depth of analysis. Our measurement of SDG-related disclosure is confined to predefined, topic-specific vocabularies and does not assess the tone, quality or contextual nuance of disclosures. Furthermore, the analysis does not distinguish between symbolic and substantive reporting – an important consideration in determining whether companies are meaningfully engaging with the SDGs or merely fulfilling surface-level expectations. Second, the study relies exclusively on annual reports published in English and thus excludes firms reporting in other major languages used across the African continent, such as French, Arabic and Portuguese. This language constraint may limit the sample's representativeness and reduce our findings' generalisability. Third, working with data from African contexts presents notable challenges in its availability and consistency. To mitigate data gaps, we used mean replacement for missing control variables. This approach allowed us to preserve sample size, but it may compromise the precision of coefficient estimates and increase the risk of attenuation bias. Although robustness checks without mean replacement yielded similar results, the limited availability of high-quality financial and sustainability data in many African countries constrains the scope of variables in our regression models. In particular, the absence of consistent data on sustainability performance or GRI compliance restricts our ability to control for important firm-level determinants of disclosure. Given these constraints, the practical implications of our findings should be interpreted with caution. The study offers valuable insights into emerging patterns of SDG disclosure across African stock exchanges; however, the broader applicability of these insights may be limited by sample coverage, linguistic exclusion and methodological scope.

These limitations suggest several promising avenues for future research. Longitudinal studies could examine how SDG disclosure evolves as institutional contexts change and new regulatory frameworks emerge. Moreover, future studies could incorporate qualitative methods such as case studies or interviews to explore the motivations, processes and constraints behind firms' SDG reporting practices. This would enable a more nuanced understanding of the balance between substantive engagement and symbolic compliance. Finally, future research could assess the credibility and impact of SDG disclosures by developing more refined measures of reporting quality and aligning these with sustainability performance outcomes.

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Notes

[1.] We refer to the reporting requirement in South Africa as a *de facto sustainability reporting mandate*, as all companies listed on the Johannesburg Stock Exchange are required to provide an integrated report that combines financial and non-financial information or to explain why

they do not. Although the disclosure is subject to an "apply-or-explain" clause and is therefore not mandatory in a strict legal sense, nearly all JSE-listed firms publish integrated reports in practice. Similar "comply-or-explain" clauses can also be found in other sustainability reporting regimes, such as the European Union's Non-Financial Reporting Directive (2014/95/EU).

[2.] We excluded stock exchanges with fewer than 20 firm-year observations from the analysis to ensure sufficient data coverage for each included country. This threshold was applied to enhance the reliability of our insights by region. However, we acknowledge that this may limit the representation of smaller exchanges and thus the generalisability of our findings.

[3.] These pre-processing procedures include the elimination of line breaks, tabulators, unicode-wide characters and blanks that occur several times in sequence. We then split the text into single words (tokens) and eliminate all single characters and stop words. Stop words are words that appear frequently throughout a text but convey only minimal meaning (for instance, "a", "the" and "of"). For the identification of stop words, we rely on a list provided by Loughran and McDonald (2016). Finally, we lemmatise the tokens using the wordnet-lemmatiser.

[4.] The WGI use a scale where zero represents the yearly average for the world as a whole, see Kaufmann and Kraay (2024, p. 19). A value below zero therefore represents an institutional quality that is below the average of the world in the given year.

[5.] We address missing values on total assets, total debt and EBIT using a two-step procedure. In the first step, missing values are replaced with the preceding or following values for the same firm. In the second step, any remaining missing values are imputed using the firm-specific mean for the respective variable. Firms with missing values on the industry classification are grouped into a single category and included in the analyses.

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Appendix

Table A1. Variable descriptions

Variable	Measurement	Source
Dependent variable		
SDG#_discl	Disclosure related to each SDG#, measured as the number of hits for the respective search terms (see Table 2), scaled by the total word count of the annual report. For ease of interpretation, the resulting value is multiplied by 100	Textual analysis
SDG_discl	Sum of SDG1_discl to SDG17_discl	Textual analysis
Institutional variables		
inst_cc	Control of Corruption, capturing perceptions of the extent to which public power is exercised for private gain, including petty and grand forms of corruption. The score ranges from about −2.5 (worst)to about +2.5 (best)	Worldbank
inst_ge	Government Effectiveness, capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation and the credibility of the government's commitment to such policies. The score ranges from about −2.5 (worst)to about +2.5 (best)	Worldbank
inst_ps	Political Stability and Absence of Violence/Terrorism, capturing perceptions of the extent to which, The score ranges from about −2.5 (worst)to about +2.5 (best)	Worldbank
inst_rq	Regulatory Quality, capturing perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. The score ranges from about −2.5 (worst)to about +2.5 (best)	Worldbank
inst_rl	Rule of Law, capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the policy and the courts, as well as the likelihood of crime and violence. The score ranges from about −2.5 (worst)to about +2.5 (best)	Worldbank
inst_va	Voice and Accountability, capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and a free media. The score ranges from about −2.5 (worst)to about +2.5 (best)	Worldbank
region	Categorical variable, distinguishing three regions. South Africa (=0), regions with strong institutions (=1) and regions with weak institutions (=2). The region with strong institutions comprises Botswana, Ghana, Mauritius, Namibia, Rwanda and Seychelles. The region with weak institutions comprises Egypt, Swaziland, Kenya, Malawi, Nigeria, Tanzania, Uganda, Zambia and Zimbabwe	
Stakeholder variables		
leverage	Firm leverage, measured as total debt divided by total assets	LSEG
crosslisting	Dummy variable, equals 1 if the firm is cross-listed and 0 otherwise	LSEG
oda	Development assistance, measured as the net official development assistance and official aid in USD per capita received in a respective year	Worldbank
Legitimacy-related variables		
esi	Dummy variable equals 1 if the firm belongs to an environmentally sensitive industry (basic material, energy or utilities) and 0 otherwise	LSEG
Control variables		
firmsize	Firm size, measured as natural logarithm of the firm's total assets	LSEG
profitability	Financial performance of the firm, measured as earnings before interest and taxes (EBIT), scaled by total assets	LSEG
length	Length of the annual report, measured as the number of words	Textual analysis

Note(s): This table provides an overview of the variables used in the analysis, including their descriptions and data sources.