Saving the environment with indigenous directors: Evidence from Africa

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Abstract

We build on and extend the literature on corporate governance and sustainability by examining whether indigenous directors (IDs, hereinafter) shape corporate environmental performance (CEP, hereinafter). Drawing insights from image motivation, resource dependence, and critical mass theories, we develop models that link IDs with CEP. Analyzing 1,372 firm‐year observations extracted from firms listed on the Johannesburg Securities Exchange (JSE, hereinafter), for the period spanning from 2015 to 2021, we provide robust evidence that IDs are positively associated with a firm's environmental performance and the association is driven primarily by non‐executive and female IDs. In additional analyses, we demonstrate that a token appointment of IDs to a firm's board would not have an impact on CEP, while the appointment of a "critical mass" of IDs promotes CEP. We also find that a higher percentage of IDs on a firm's board increases corporate financial performance (CFP, hereinafter) and reinforces the positive impact of CEP on CFP. Our findings suggest that appointing a higher proportion of IDs to a firm's board promotes both the financial as well as the environmental performance of the firm. Thus, companies could exploit the virtues of especially non‐executive and female IDs to promote corporate environmental sustainability

Keywords: board diversity; environmental performance; environmental sustainability; indigenous directors; racial representation

1. Introduction

As climate change threatens to be humanity's greatest challenge, it has become an agenda of increasing import to researchers, regulators, policymakers, and society at large (Lemma et al., 2022, Atif et al., 2021, Backman et al., 2017). Cognizant of the primary role of corporates in driving climate change (Lemma et al., 2021, Cadez et al., 2019, Dahlmann et al., 2019) and the nontrivial role corporate boards could play in informing a firm's environmental practices (Glass et al., 2016), several studies explore the interaction between board attributes and corporate environmental sustainability (e.g., Walls et al., 2012, Hussain et al., 2018, Liao et al., 2015). Nonetheless, no prior study has explored whether appointing directors with ancestry from indigenous communities to firms' board of directors (BODs, hereinafter) would have any ramifications on CEP. This is a significant omission considering that resources worth billions of dollars are extracted from "Indigenous Territories" every year (Pelosi and Adamson, 2016), the ubiquitous conflict between indigenous peoples and those in charge of environmental governance (Von der Porten and de Loë, 2013), and the ever-increasing call for BoDs to have adequate representations of the communities within which a firm operates (Brammer et al., 2007, Carter et al., 2003). The present study attempts to fill this void by examining whether the appointment of indigenous directors to firms' BoDs would impact CEP, using the South African context.

The extant literature provides conflicting predictions about the relationship between indigenous directors (IDs, hereinafter) and CEP. The resource dependence theory suggests that a company with higher proportion of IDs on its BoDs is likely to be a better custodian of the environment since such directors would provide the firm with access to traditional ecological knowledge, cultural values, and the unique perspectives and priorities of indigenous peoples regarding the environment (Hillman et al., 2002, Pfeffer and Salancik, 2003). In addition, IDs can

facilitate engagement and collaboration between corporations and indigenous communities, which according to prior studies (Rinaldi et al., 2014) can lead to better understanding of environmental concerns and help foster mutually beneficial partnerships that promote environmental stewardship. Likewise, image motivation theory (Ariely et al., 2009) suggests IDs advocate for the recognition of environmental rights of indigenous communities in corporate decision-making processes as so doing would enhance the image or reputation of IDs within the indigenous communities.

On the other hand, the appointment of IDs to a board could be just a perfunctory gesture of inclusiveness towards indigenous peoples (Kanter, 1977) meant to manage the firm's image and reputation, especially in the light of increasing calls for diverse and inclusive governance. In circumstances where the board is highly skewed in favor of non-indigenous directors, IDs could be only token members appointed for purely symbolic purposes. Directors appointed for token purposes would experience pressure from the dominant culture, while increasing the number of directors from an underrepresented group may lead to coalitions and alliances that could influence decisions (Kanter, 1977). Critical mass theory (Block, 1973, Kanter, 1977, Terjesen et al., 2009) suggests that the efficacy of IDs in influencing CEP would depend on the extent representation they have on a firm's BODs. Thus, a critical mass of indigenous directors would be required before any material difference in the firm's environmental performance can be observed (Torchia et al., 2011). In sum, whether indigenous directors would have a meaningful impact on corporate environmental practices, especially within the unique context of South Africa where indigenous peoples constitute more than three-quarters of the population, remains an empirical matter.

The motivation for our study arises from three sources. First, recent years have witnessed an increasing call for involving indigenous peoples in corporate decision-making (Cochran et al., 2014, Roosvall and Tegelberg, 2013). In this regard, the corporate governance code in South

Africa (King IV), recommends that a company's governing body be racially diverse (IoDSA, 2016). We examine whether the appointment of IDs to corporate boards would shape CEP, using the South African setting. Second, although South Africa boasts of comprehensive environmental laws and policies (Baker et al., 2014, Never, 2012), its environmental record is wanting. In this study, we seek to explore whether the appointment of IDs to corporate BODs would improve CEP, and thus, contribute to South Africa's environmental performance. Third, prior studies (Pelosi and Adamson, 2016) which explore the impact of involvement of indigenous peoples on corporate outcomes are carried out in contexts in which indigenous peoples are minorities. We extend the literature by exploring the relationship between IDs and CEP, using a context in which indigenous peoples constitute most of the population.

Consistent with predictions based on image motivation and resource dependence theories, we find robust evidence that IDs are positively associated with a firm's environmental performance and that the association is muted for executive-IDs while it ismore pronounced for female-IDs. Furthermore, in concurrence with the propositions in critical mass theory, we demonstrate that the appointment of less than three IDs to a firm's BODs has no influence on CEP, while a firm's environmental performance responds positively to the appointment of three or more IDs to the board. These results persist even after we address time invariant industry and year fixed effects and potential concerns for endogeneity. In additional analyses, we document that higher percentage of IDs only increases CFP but also reinforces the association between CEP and CFP. Our findings suggest that higher percentage of IDs on a firm's BoDs promotes both the financial as well as environmental performance of the firm. Thus, companies could exploit the virtues of especially non-executive and female indigenous directors to promote corporate environmental sustainability.

Our study makes three distinct contributions to the literature. First, it extends the literature on the interaction between attributes of boards of directors and corporate environmental/sustainability performance (e.g., Walls et al., 2012, Dixon-Fowler et al., 2017, Naciti, 2019, Hussain et al., 2018) by examining how the representation of indigenous people in corporate decision-making at the board level would shape corporate environmental practice. As the present study is the first, to our knowledge, to investigate the relationship between IDs and CEP, it introduces a new determinant of CEP to the literature. Second, our findings would inform the growing debate on indigenous peoples' involvement in corporate decision-making and corporate social responsibility (see, for instance, Schepis, 2020), using a unique setting in which the indigenous communities account for most of the population in the country. Third, present study also extends the literature on the interaction between CEP and CFP as it explores the moderating role of IDs on the association between the former two. Thus, the present study demonstrates that the association between CEP and CFP is nonlinear, at least to the extent that IDs moderate the relationship. The remainder of the paper is made up of four sections. The theory and hypothesis are presented in Section 2, while we present the research methods in Section 3. We present and discuss the empirical findings in Section 4. The conclusion and policy implications are presented in Section 5.

2. The institutional setting

As the second largest and the most industrialized economy in Africa, South Africa presents some distinctive institutional and macroeconomic characteristics (Lemma et al., 2019b, Vaughn and Ryan, 2006) that have unique ramifications for the interplay among businesses, the environment and society (Lemma et al., 2019a). In terms of the regulative institutions underpinning corporate environmental practices in South Africa, the country's 1996 Constitution

declares that the environment is a "public good" that should be guarded to ensure clean and safe living environment for citizens (de Villiers, 1999). Several legislations (including the National Environmental Management Act 107 of 1998, the Mineral and Petroleum Resources Act 28 of 2002, the National Water Act 36 of 1998, Regulation 28 of the Pension Funds Act 24 of 1956, the Insolvency Act 24 of 1936, and Companies Act 71 of 2008) further provide operationalized guidance on the expected corporate environmental conduct (Negash and Lemma, 2020).

The normative institutions informing corporate environmental practices are partly founded on the international financial reporting standards (IFRS), which South Africa adopted in 2005, and the iterative editions of King's corporate governance code. Although there are no specific accounting standards that are dedicated for ensuring corporate environmental accountability, international accounting standards (IAS) such as IAS 1, IAS #37, IAS #8, IAS #20, IAS #41, and IFRS #13 provide broad guidance on how to account and report issues associated with corporate environmental liabilities (Negash and Lemma, 2020). In a related vein, the principles outlined in King's code suggest that companies operating in South Africa need to cater for a broader swath of stakeholders' interests including social and environmental concerns (Andreasson, 2011, Ntim et al., 2012, Rossouw, 2005, West, 2006). The code endorsed companies' use of the global reporting initiative's (GRI) guidelines for environmental and social reporting (IDoSA, 2016).

Despite the mosaic of regulative and normative institutions decorating the institutional setting for corporate environmental accountability in South Africa, the environmental performance of South African companies has been far from what is desired. In this regard, the 2022 environmental performance index (EPI) ranks South Africa as 116th out of 180 countries included in the ranking table.[1] Furthermore, prior studies suggest that companies on the JSE do not

[1] More detailed information on environmental performance index (EPI) can be found at https://epi.yale.edu/epi-results/2022/component/epi

necessarily follow the recommendations in King's reports (Mthanti and Ojah, 2017, West, 2009). South Africa's unexciting corporate environmental performance in partly attributable to the weak and conflicting interests, poor coordination and enforcement, and corruption among the key actors in government, major political parties, government parastatals, and businesses (Fig, 2005, Hönke and Kranz, 2013, Leonard, 2017). Critics also highlight the adverse role of ambiguities in the relevant accounting standards in corporate environmental accounting and reporting (Hines, 1989).

Indigenous peoples constitute *circa* 5% of the global population; in contrast, more than 80% of the South Africa population are indigenous black communities. With a view to redress the socioeconomic inequality and the underrepresentation of the indigenous black community in corporate structures including board rooms, the South African government enacted the Broad-based Black Economics Empowerment (BBBEE) Act of 2003 (Horwitz and Jain, 2011). Furthermore, the latest edition of the corporate governance code (King IV) in South Africa, *albeit* on an "apply and explain" basis, recommends that the composition of a company's governing body be racially diverse, among other things (IoDSA, 2016). Although the available evidence documents that corporate South Africa has seen a substantial rise in the number of indigenous directors since the enactment of the BBBEE Act, we know very little regarding whether the increase in IDs has brought about and any change in corporate environmental responsibility. The present study exploits the unique institutional setting of South Africa to examine whether the appointment of IDs would foster corporate environmental performance.

3. Background literature and hypotheses development

Extant literature is replete with studies that explore whether and how the representation of different sections of society on corporate boards underpins firms' environmental practices (Zou et al., 2015, Lu and Herremans, 2019, Glass et al., 2016). For instance, Glass et al. (2016) show that

firms with gender diverse boards are more effective than other firms at pursuing environmentally friendly strategies. Likewise, based on examination of firms operating in China, Zou et al. (2015) provide evidence that the proportion of female directors has a positive effect on corporate environmental performance. In a related vein, Lu and Herremans (2019) provide evidence that the association between board gender diversity and corporate environmental performance is primarily driven by the interaction in environmentally sensitive industries. Amidst the ubiquitous conflict between indigenous communities and those in charge of environmental governance (Von der Porten and de Loë, 2013) there have been rising calls for corporate boards to have adequate representations from such communities (Brammer et al., 2007, Carter et al., 2003). Nonetheless, no prior study has explored whether appointing individuals who trace their ancestry to indigenous communities on board of directors would have any meaningful impact on corporate environmental practices. The present study attempts to fill this void by examining whether the appointment of IDs to a firm's BoDs would have any impact on the environmental performance of the firm, using the South African context.

Indigenous peoples are credited to be custodians of traditional knowledge and practices which are considered as more sustainable than modern practices (Recio and Hestad, 2022). Resource dependence theory suggests that appointing board of directors who trace their ancestry to indigenous peoples—that is, IDs—would provide a firm with access to human capital that otherwise would not have been available to the firm (Hillman et al., 2002, Pfeffer and Salancik, 2003). IDs would serve the firm as a source of information on traditional ecological knowledge, cultural values, the unique perspectives and priorities of indigenous peoples regarding the environment. Considering that many of corporate environmental controversies involve indigenous communities (Von der Porten and de Loë, 2013), it is important that companies establish a direct

channel whereby indigenous peoples have access to its board of directors and board members also have free and unfettered access to communities whose immediate environment is affected by the operations of the company (Martin, 2013). In this regard, IDs can serve as key personnel who facilitate engagement and collaboration between corporations and indigenous communities, which according to prior studies (Rinaldi et al., 2014) can lead to better understanding of environmental concerns and help foster mutually beneficial partnerships that promote environmental stewardship. Thus, resource dependence theory suggests that the appointment of IDs to the BoDs of firms would foster corporate environmental sustainability.

At the same time, the currency of IDs is ostensibly the continuity of "good" social standing with the community or peoples they represent. In this regard, image motivation theory suggests that IDs would be motivated, at least partly, by how they are perceived in their ancestral communities. Thus, we contend that IDs would try to signal traits defined as "good" based the indigenous communities' norms and values, with a view to gain social approval of their behavior (Ariely et al., 2009). For instance, IDs may advocate for the recognition of indigenous rights in corporate decisions such that corporate activities would respect indigenous rights and the environment, which in turn can shore up the director's image, reputation, and standing with indigenous communities. In politically charged environment of many emerging economies, strong image and reputation with local communities would be a great asset for indigenous directors to advance their political career too (Hung, 2011). For example, an ID who is associated with a firm installing solar panels in an indigenous community could be seen as a person who cares for the community and good candidate for political office such as Member of Parliament or Minister of State. Overall, image motivation theory suggests that IDs will pursue a pro-environment behavior

as so doing would align with the desire for image or reputation building (Firoozi and Keddie, 2022). Thus, our first hypothesis (in the alternative form) is as follows:

Hypothesis 1: Indigenous directors are positively associated corporate environmental performance.

On the other hand, it can be argued that the appointment of IDs may not necessarily affect the environmental practices of a firm. The appointment of IDs to a board could be just a perfunctory gesture of inclusiveness towards indigenous peoples (Kanter, 1977) meant to manage the firm's image and reputation, especially in the light of increasing calls for diverse and inclusive governance (Bennouri et al., 2020). Consistent with this, indeed, some studies document evidence of insignificant or negative associations between diversity at the board level and corporate environmental outcomes (Lu and Herremans, 2019). Likewise, Issa and Fang (2019), using data drawn from Saudi Arabia, the U.A.E., and Qatar, demonstrate that board gender diversity has an insignificant impact on a firm's CSR practices. In circumstances where the board is highly skewed in favor of non-indigenous directors, IDs are only token members, and their appointment is purely symbolic. This alternative proposition could actually be true in view of the importance of black directors in helping firms secure government contracts in South Africa due to the requirements under BBBEE (Gyapong et al., 2016).

Due to the historical apartheid system, most corporate boards are dominated by white South Africans who constitute less than 10% of the country (Gyapong et al., 2016, Ntim, 2016). Consequently, in the post-apartheid period, there have been several actions and policies to increase indigenous people on corporate boards, including the BBBEE Act of 2003. Nevertheless, these polices are likely to result in tokenism where firms appoint token indigenous directors as symbolic gestures. In this regard, arguments by Kristie (2011) suggest that the majority on the board of

directors is likely to consider directors in the minority as bringing auxiliary traits to the board instead of individuals with competence, which will reduce the latter's effectiveness. Thus, directors in the minority would experience pressure from the dominating directors' culture, while increasing their numbers may lead to coalitions and alliances affecting decision making (Kanter, 1977). Kanter (1993) argues that negative perception from the dominating group would create a stressful environment for the minority group in discharging their responsibilities as board members.

In line with the foregoing arguments, Kristie (2011) argues that one representation from a minority group is token, two gives the minority a presence, but three members give them a voice to contribute to a board's activities and decisions. In the same vein, both *critical mass* (Block, 1973, Kanter, 1977) and *token status* (Kanter, 1993) theories suggest that numbers are very important for a particular group's participation in board decisions and activities. That is, the influence of IDs will vary when they increase to the point where they are no longer considered as a token (Atif et al., 2021). Both Torchia et al. (2011) and Bear et al. (2010) contend that having more people of your kind increases confidence resulting in activity participation at board meetings. Thus, a critical mass of IDs would be required before any material difference in the firm's environmental performance can be observed (Torchia et al., 2011). These arguments suggest that numbers are important in reaping the full benefits of indigenous directors. Hence, we hypothesis that:

Hypothesis 2 A positive association between IDs and CEP would be observed only after the count of the former reaches a critical mass.

4. Research methodology

4.1 Data source and sample construction

The financial data required for the study was sourced from IRESS database while data on corporate environmental performance was obtained from the FTSE Russell database. We hand-collect data on IDs from the annual reports. We began our sample construction with 294 unique firms (2,058 firm-year observations) listed on the JSE, covering the period spanning from 2015 to 2021. We eliminated firm-year observations with missing values (i.e., 665 firm-year observations) and the final dataset comprised a panel dataset drawn from 199 unique firms (1,393 firm-year observations) listed on the Johannesburg Securities Exchange (JSE). Table 1 describes the data by year and industry. It shows that most of the observations were drawn from Financials (30.2%), consumable services (20.1%), and basic materials (19.60%) industries.

------- *Insert Table 1 about here* -------

4.2 Model specification and variable measurement

The study seeks to examine whether the appointment of IDs to corporate boards would shape a firm's environmental performance. To this end, we develop a model that links indigenous directors (*INDIGENOUS*) with a firm's environmental performance (*E_PERF*), while controlling for firm-level factors and industry and year fixed-effects. The regression model is expressed as follows:

$$E\_PERF_{it} = a + \beta_1(INDIGENOUS)_{it} + \delta_2(CONTROLS)_{it} + \varepsilon_{it} \quad \ldots\ldots \quad \text{Eq. (1)}$$

Where *E_PERF* captures the environmental performance of a firm in a given year and is proxied by the Environment (E) performance score provided by the FTSE Russell database, which captures the quality of a company's management of issues associated with climate change, biodiversity, water security, pollution and resources, and environmental supply chain (Dimson et al., 2020). Our

use of the disaggregated environmental performance score is appropriate considering that the present study's focus is on corporate environmental performance.

4.2.1 The research variable

Our variable of research interest is indigenous directors (*INDIGENOUS)* and is proxied by the proportion of black directors relative to the size of the board in the main analyses. Taking a cue from prior studies (Gyapong et al., 2016), we conceptualize individuals with African, Indian, and Colored heritage as indigenous directors. For testing critical mass and token status theories (Hypothesis 2), we use dummy variables set to 1 if a firm's board of directors has one, two, three, four, or five black directors. Our use of proportional measure in the first instance and dummy variables in the second instance is consistent with the practice in prior studies (Gyapong et al., 2016, Liu et al., 2014, Ahmed et al., 2017).

4.2.2 The control variables

The extant literature provides evidence that several factors underpin corporate environmental performance (Zou et al., 2015, Lu and Herremans, 2019, Glass et al., 2016, De Villiers et al., 2011). Board size is typically considered as an indicator of a firm's access to a pool of expertise needed to deal with complex issues such as the environment (Katmon et al., 2019). Thus, to account for the role of board size on a firm's environmental performance, consistent with De Villiers et al. (2011), we subsume board size (*B_SIZE*), computed as the number of directors on a firm's board of directors, in our model. As a proxy for the ability to discharge its monitoring responsibility, board independence is considered to be a determinant of corporate environmental practices (De Villiers et al., 2011). In line with prior studies (see, for instance, Reguera-Alvarado and Bravo, 2017), we measure board independence (*B_INDEP*) as the number of independent directors and include it in our model. An emerging strand of studies show that the presence of

environmental committee at the board-level informs the firm's environmental performance (Bui et al., 2020, Biswas et al., 2018). As such, we account for the impact of the presence or absence of board level environmental committee (*COMMITTEE*) by including a dummy variable set to 1 if a firm's board has a committee dedicated to environmental or sustainability issues, and 0 otherwise.

Competitive directors' compensation can attract experienced and knowledgeable board members who understand the importance of environmental issues. Furthermore, well-compensated directors are more likely to invest time and effort in understanding environmental risks, setting environmental goals, and holding management accountable for environmental performance. Therefore, we include directors' compensation (*D_ COMPENS)*, computed as the natural logarithm of directors' total emoluments (Lemma et al., 2020b), in the regression model. Profitable firms are more likely to accommodate larger environmental compliance costs (De Villiers et al., 2011) and thus are associated with higher environmental performance (McKendall et al., 1999). Following the lead in other studies (Elijido-Ten, 2017, Tavakolifar et al., 2021), we use a firm's return on assets (ROA) to proxy its profitability (*PROFIT*) and include it in our model to account for the impact of firm-level profitability on corporate environmental practices. We compute ROA as the ratio of earnings before interest and taxes to total assets (Lemma and Negash, 2013, Lu and Herremans, 2019).

Larger firms are deemed to have better capacity to treat environmental issues as distinct management priority and manage it effectively (McKendall et al., 1999, Al-Tuwaijri et al., 2004, Clarkson et al., 2008). In addition, due to the higher political costs they are likely to incur in the event of environmental controversies, larger firms are likely to have better environmental performance (Lemma et al., 2022). We control for the effect of firm size (*F_SIZE*), using the natural logarithm of total assets, as a proxy (Lemma et al., 2020a). Liquidity constraints may limit

investment in activities that directly or indirectly shape corporate environmental performance (Earnhart and Lizal, 2006). Thus, we control for firm-level liquidity (*LIQUID*) by including the liquidity ratio of the firm, which is computed as the ratio of current assets to total assets (Lemma and Negash, 2016). Following Homroy and Slechten (2019) who control for the capital structure of a firm in modelling corporate environmental performance, we include leverage ratio (*LEVER*) which is computed as the ratio of total liabilities to total assets (Lemma, 2012), in our regression model. Finally, with a view to accounting for the effects of unobserved heterogeneity, we include year (*YEAR_FE*) and industry (*INDUSTRY_FE*) fixed effects.

5. Results and discussion

5.1 Preliminary results

Table 2 presents the descriptive statistics, which includes the mean, standard deviation, 25^{th} percentile, median, 75^{th} percentile, minimum and maximum values, and the range of the variables included in the regression model. The mean of the indigenous directors (*INDIGENOUS*) variable is 0.310, suggesting that about 30 percent of directors are indigenous directors; the minority white population still holds about 70 percent of all the directorships in our sample firms. This result shows that the representation of indigenous communities in corporate boards has improved since Gyapong et al. (2016) reported 15.4 percent for a similar metric. Nonetheless, a standard deviation of 0.167 and a range of 0.833 suggest that there still is a considerable variation in the proportion of IDs across the sample firms. Table 2 also shows that the average corporate environmental performance (*E_PERF*) score for our sample firms is *circa* 2.77. Furthermore, we observe significant variations in the *E_PERF* score as revealed in its standard deviation of 1.406. We note from the results in Table 2 that about a quarter of the firms in our sample (25.1%) had board-level environmental/sustainability committee, which is higher compared to the 15 percent

reported for S&P 500 firms in Bui et al. (2020). The table also reports the mean (median) statistics of each variable by sector.

------- *Insert Table 2 about here* -------

We present the pairwise Pearson (bottom-half) as well as Spearman (top-half) correlation coefficients along with their levels of significance in Table 3. The correlation matrices indicate a positively significant (at the 1 percent level) correlation between the proportion of indigenous directors (*INDIGENOUS*) and corporate environmental performance (*E_PERF*). This provides tentative support to Hypothesis 1. As is to be expected, we observe statistically significant correlations among several variables. The maximum observed correlation coefficient is 0.39. Also, we carry out the variable inflation factor (VIF) analyses which returned a maximum VIF score of 2.47, which is considerably below the standard threshold of 10 (Kutner et al., 2005). Thus, multicollinearity among the variables is not a challenge in our model.

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5.2 Main results

5.2.1 Testing for Hypothesis 1

Our primary objective is to examine whether indigenous directors are associated with corporate environmental performance. To this end, we begin the analysis by regressing corporate environmental performance (*E_PERF*) only on indigenous directors (*INDIGENOUS*), the results of which are presented in Column 1. Then, we augment the model with time-variant control variables that have been identified in Section 3.4 (Column 2). Finally, since corporate environmental performance is documented to have variations across business cycles and industries

(Tawiah et al., 2022, Alam et al., 2019), we further augment the model to include year- and industry fixed effects (Column 3).[2] Overall, the models are well specified; that is, the F-static of each of the models is significant at 1% level, with R-squared values spanning from 0.034 to 0.398. Table 4 presents a summary of regression results obtained by using the ordinary least squares (OLS) procedure. To address concerns regarding potential heteroskedasticity challenges in our models, we estimate robust standard errors in our models.

------- *Insert Table 4 about here* -------

Across all the three models, we observe a positively significant (at 1 percent level) associations between indigenous directors (*INDEGINOUS*) and corporate environmental performance (*E_PERF*). These results are consistent with Hypothesis 1 and suggest that increase in the proportion of indigenous directors is positively and significantly associated with increases in corporate environmental performance; indigenous directors foster corporate environmental performance. The effect of indigenous directors on corporate environmental performance is economically meaningful too: *ceteris paribus*, a one standard deviation increase in the proportion of indigenous directors is associated with a 0.086 standard deviation increase in corporate environmental performance.[3]

Our finding is in line with the resource dependence (Hillman et al., 2002, Pfeffer and Salancik, 2003) based conjecture that IDs would serve as a source of information on traditional

[2] For the sake of brevity, we would rely on the results under Column 3 (of Table 4) for the purpose of interpreting the results.

[3] The economic significance (E_s^s) of the impact of indigenous directors (*INDIGENOUS*) on corporate environmental performance (*E_PERF*) was computed based on the results reported in Column 3 (of Table 3) as Column 3 presents results based on the most comprehensive model. Specifically, we calculate the absolute value of regression coefficient (β) times standard error of the independent variable (σ_x) divided by the standard error of the dependent variable $\sigma_y$as follows:

$$\left|\frac{\beta * \sigma_x}{\sigma_y}\right| = \left|\frac{0.728.* 0.167}{1.406}\right| = 0.086.$$

ecological knowledge, cultural values, the unique perspectives and priorities of indigenous peoples regarding the environment. It is also consistent with the contention that indigenous directors can serve as a liaison who would facilitate engagement and collaboration between corporations and indigenous communities (Rinaldi et al., 2014), which can help the firm obtain a better understanding of environmental concerns, and thus, engage in improved environmental practices. Finally, our finding is in sync with image motivation theory inspired argument that indigenous directors will pursue a pro-environment behavior as so doing would align with the desire for image or reputation building (Firoozi and Keddie, 2022, Ariely et al., 2009).

We note that the positive association that we observe between the proportion of indigenous directors and corporate environmental performance is consistent with prior studies which examine the interaction between the resource provisioning role of board of directors and corporate environmental performance. In this vein, in a study that focused on the publicly traded firms in the U.S., De Villiers et al. (2011) demonstrate that environmental performance is higher in firms that have larger boards, larger representation of active CEOs on the board, and more legal experts on the board. Similarly, in a study that focused on European listed firms, Orazalin and Baydauletov (2020) document evidence that board gender diversity is positively associated with environmental performance, supporting the notion that board gender diversity promotes sustainable development. Still, Liu (2018) report that that firms with greater board gender diversity are less often sued for environmental infringements.

In terms of the control variables, consistent with the contention that a board level committee which is dedicated to environmental issues would foster corporate environmental performance (Bui et al., 2020, Biswas et al., 2018), we note a positively significant (at the 1% level) association between the presence of environmental committee or its equivalent

(*COMMITTEE*) and corporate environmental performance (*E_PERF*). The positively significant (at the 5% level) association that we observe between board independence (*B_INDEP*) and corporate environmental performance (*E_PERF*) is in line with the argument that more independent boards have better ability to discharge their environmental risk oversight role (De Villiers et al., 2011), In agreement with the argument that higher compensations for directors would attract more directors who are more experienced, committed, and knowledgeable about environmental issues, we observe a positively significant (at the 1% level) relationship between directors' compensation (*COMPENSATION*) and a firm's environmental performance (*E_PERF*). Finally, we find a positively significant association between financial constraints and corporate environmental performance (*E_PERF*).

5.2.2 Testing for Hypothesis 2

The hitherto analyses establishes the relationship between indigenous directors and a firm's environmental performance; nonetheless, it does not tell the minimum number of indigenous directors required to steer a positive influence on corporate environmental performance. To gain insights regarding the "critical mass" of indigenous directors required to achieve a positive impact on corporate environmental performance, we introduce five dummy variables that capture participation of a specific number of indigenous directors on the board (Ahmed et al., 2017, Gyapong et al., 2016, Lemma et al., 2022). The dummy variables (i.e, *INDIG_0, INDIG _1, INDIG_2, INDIG_3, INDIG_4,* and *INDIG_5*) are meant to identify the "critical mass" at which the predicted positive association between indigenous directors and corporate environmental performance begins to manifest. We run separate regression for each of the five dummy variables to avoid dummy variable trap. Table 5 reports a summary of results of estimating the "critical mass" models.

------- *Insert Table 5 about here* -------

The results show that the presence of one or two indigenous directors on the board of a firm would not have a significant influence on the firm's environmental performance. However, appointing three or more indigenous directors to a firm's board of directors would have a positive and significant effect on the firm's environmental performance. These results are consistent with the arguments based on critical mass theory (Kanter, 1977, Kristie, 2011), which suggests that it would take three or more indigenous directors to bring about a meaningful effect on the environmental performance of a firm. A token appoint of one or two indigenous directors to corporate boards does not appear to steer a firm's environmental performance. These findings are also in line with recent empirical work by Gyapong et al. (2016), Lemma et al. (2022) and Ntim (2016), who found that one or two female/ethnic director is a token who is likely to be marginalized by the dominating majority.

5.3 Robustness checks

5.3.1 Addressing endogeneity

Although OLS with fixed-effects model that we employed in our main analysis is expected to mitigate the effect of omitted variable bias and control for year fluctuations (Hausman, 1989), there are possible bias issues relating to reverse causality contemporary. To address this concern, we carry out the instrumental variable two-stage least squares (IV-2SLS) regression which is robust to endogeneity challenges. Taking a cue from prior studies in the African settings (Gyapong et al., 2016, Ntim, 2016, Tawiah et al., 2022), we use the industry average of indigenous directors to instrument the possible endogenous variable. Our instrument satisfies both the pre- and post-estimations conditions including the validity test which shows Wald test of 16.38 and F-statistic

of 61.89. The results are presented in Column 1 of Table 6. The coefficient of indigenous directors is positive (2.808) and significant (at the 1% level) confirming that the positive association that we found earlier between the proportion of IDs and CEP is not biased by endogeneity related issues.

------- *Insert Table 6 about here* -------

5.3.2 Addressing the lagged effects

In the second set of robustness, we consider the lagged effects of both the dependent and independent variables. Arguably, a firm's current year environmental performance is likely to be driven by its prior year environmental performance. Thus, we augment our baseline model with one-year lagged score of a firm's environmental performance as a control variable. The results are presented in Column 2 of Table 6. The coefficient of the indigenous directors (*INDIGENOUS*) variable remains positively (0.134) significant (at the 5% level), even after controlling for the lagged effect of the dependent variable.

Prior studies argue that new directors may need time to adjust to boardroom functions and politics before they can impact firm outcomes (Liu et al., 2014). Thus, we replace the contemporaneous measure of indigenous directors (*INDIGENOUS*) with its one–year lagged score ($INDIGENOUS_{t-1}$). The results are presented in Column 3 Table 6. The coefficient of the lagged indigenous director ($INDIGENOUS_{t-1}$) is positive (0.083) and statistically significant (at the 5% level) confirming our earlier observation that the proportion of indigenous directors is positively associated with a firm's environmental performance.

5.4 Additional analyses

In this section, we examine whether the attributes of indigenous directors have repercussions on their ability to steer positive influence on a firm's environmental practices. To

draw such granular insights, we probe the data in terms of the independence and gender of indigenous directors and check whether these attributes have impact on corporate environmental performance.

5.4.1 Independence of indigenous directors

Prior studies suggest that classifying directors into executive and non-executive is very important in terms of firm outcomes. This is because each class of directors has different responsibilities and are appointed based on different sets of attributes. While executive directors are appointed for specific technical and professional experience, non-executive directors are largely appointed with emphasis on connections and broader business experience (Misangyi and Acharya, 2014). Regarding their duties, executive directors are charged with the day-to-day operations of the firm, with financial performance being a key performance indicator. Non-executive directors, on the other hand, are responsible for monitoring, advising, and connecting executive directors to external resources. Hence non-executive directors are more likely to relate much and well with the local community than executive directors. Further, non-executive directors are not under high pressure to generate profit for the firm. In most cases, non-executive directors are appointed to protect the public's interest. These unique differences between executive and non-executive directors necessitate further analyses on whether indigenous executive and non-executive directors impact a firm's environmental performance differently.

To this end, we introduce two variables measuring indigenous executive (non-executive) directors as proportion of total board size. We first test the impact of each type of indigenous directors in separate regressions and then pool them together in another regression. A summary of the results is presented in Tables 7 (columns 1-3). The results indicate that the coefficients of the executive indigenous director (*E_INDIGENOUS*) variable is positive (in both columns 1 and 3)

but insignificant. In contrast, the coefficient of non-executive indigenous director (*N_INDIGENOUS*) is positive (in both columns 2 and 3) and significant at the 1% level (see columns 2 and 3). These results suggest that it is the non-executive indigenous directors who are driving the positive association that we observe between indigenous directors (*INDIGENOUS*) and corporate environmental performance (*E_PERF*). The findings are consistent with the argument that non-executive/independent directors are largely engaged in protecting the public's interest (Zahra and Stanton, 1988, Naciti, 2019, Post et al., 2015). This finding is consistent with the established literature on the interaction between broader concept of board independence and corporate environmental responsibility (Post et al., 2011, De Villiers et al., 2011).

------- *Insert Table 7 about here* -------

5.4.2 The gender of indigenous directors

Prior environmental sustainability studies provide evidence that female directors, compared to their male counterparts, have pronounced positive effect on a firm's environmental sustainability actions (Atif et al., 2021, Elmagrhi et al., 2019). Thus, we test whether the results of a positive association between indigenous directors and corporate environmental performance are driven by the gender of the directors. Consistent with the measurement of indigenous directors, we measure indigenous female directors (*F_INDIGENOUS*) as a proportion of total board size. Similarly, we measure indigenous male directors (*M_INDIGENOUS*) as a proportion of total board size. A summary of the results is presented in Table 7 (columns 4-6). The coefficient of indigenous female directors (*F_INDIGENOUS*) as well as indigenous male directors (*M_INDIGENOUS*) is positive and significant; nonetheless, the coefficient of the female indigenous director (*F_INDIGENOUS*) is greater and at a higher significance level than is the case with indigenous male director (*M_INDIGENOUS*). The results suggest that while both male and female indigenous

directors drive corporate environmental sustainability, the relationship is much stronger for the latter. These results are consistent with prior studies (Atif et al., 2021, Lemma et al., 2022) that female directors play a more pronounced role in corporate environmental sustainability.

5.4.3 Indigenous directors and corporate financial performance

To this point, we have established that indigenous directors increase the firm's environmental performance. But corporate financial performance remains the most important metric. Thus, we test the value relevance, or lack thereof, of appointing indigenous directors to corporate boards. Consistent with prior studies (Gyapong et al., 2016), we use Tobin's Q to measure financial performance, which captures the market's valuation of a firm, and thus, is less susceptible to earnings management. In addition to assessing the main effect of indigenous directors on corporate financial performance, we examine whether indigenous directors mitigate or reinforce the effect of corporate environmental performance on firm value. Thus, we create an interaction term (*INDIGENOUS*E_PERF*) between the corporate environmental performance (*E_PERF*) and indigenous directors (*INDIGENOUS*) variables and regress it on financial performance (*F_PERF*).[4] A summary of the results are presented in Table 8. The coefficient of the interaction term (*INDIGENOUS*E_PERF*) is positive (0.049) and significant at the 1% level. The results suggest that appointing indigenous directors to a firm's board reinforces the positive association between the firm's environmental performance (*E_PERF*) and its financial performance (*F_PERF*). Thus, the firms can amplify the positive association between environmental performance (*E_PERF*) and financial performance (*F_PERF*) by appointing indigenous directors..

[4] To simplify the interpretation, we measure indigenous director as a dummy variable set to 1 if a firm has one or more indigenous directors, and 0 otherwise.

------- *Insert Table 8 about here* -------

6 Conclusions and implications

Recent years have witnessed growing interest in understanding the role of board representation of marginalized groups on corporate environmental practices (Lemma et al., 2022, Lu and Herremans, 2019, Liu, 2018, Orazalin and Baydauletov, 2020). The present study builds on and extends this budding literature by examining the interplay between representation of indigenous peoples in corporate boards and firms' environmental practices. Analyzing data drawn from publicly traded companies in South Africa, we provide evidence that involvement of indigenous peoples in a firm as directors fosters the firm's environmental performance, especially in firms with a "critical mass" of indigenous directors. We also demonstrate that the observed association between indigenous directors and corporate environmental performance more pronounced when the former are non-executive or female directors. We further document that indigenous directors amplify the positive effects of a firm's environmental performance on its financial performance.

Our findings suggest that appointing indigenous directors, especially non-executive and female ones, to a firm's board of directors promotes both the financial as well as environmental performance of the firm. These findings have implications for researchers, policymakers and regulators, firms, and advocacy groups. Our finding imply that future research that seeks to examine drivers of corporate environmental performance should account for the role of indigenous directors. Likewise, future studies that aim to investigate the interaction between corporate environmental and financial performance should control for the effect of the proportion of indigenous directors. As mentioned elsewhere, South Africa is among the highest greenhouse gas emitters in the world and number one in Africa (Negash and Lemma, 2020, Ulrich et al., 2022).

Therefore, understanding how governance through indigenous directors could aid in addressing environmental challenges peculiar to emerging economies such as South Africa can help policymakers and companies implement effective policies to address them. The study offers valuable insights for investors and companies regarding the value implications of appointing indigenous directors to the board of directors of a firm. Furthermore, advocacy groups with interest on racial equality and environmental sustainability could highlight the corporate environmental and financial performance benefits of appointing indigenous directors in advocating for racially inclusive and environmentally sustainable practices.

Nevertheless, ours is a single country study; thus, it does not allow examination of the role of macroeconomic and/or institutional variables on the interaction between indigenous directors and corporate environmental performance. Thus, future studies that investigate whether and how macroeconomic and institutional factors underpin the relationship between indigenous directors and corporate environmental practices would add additional insights to the literature. The present study examined gender and independence attributes of IDs in driving the observed association between the proportion of IDs and CEP. Nonetheless, future studies that would consider other than gender and independence (e.g., environmental expertise, education, political connection, etc.) would have the potential to shed additional light to our understanding of drivers of corporate environmental sustainability.

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Table 1: Sample composition by year and industry

Year	Basic Materials	Consumable goods	Consumable services	Financials	Health care	Industrials	Totals
2015	39	26	40	60	7	27	**199**
2016	39	26	40	60	7	27	**199**
2017	39	26	40	60	7	27	**199**
2018	39	26	40	60	7	27	**199**
2019	39	26	40	60	7	27	**199**
2020	39	26	40	60	7	27	**199**
2021	39	26	40	60	7	27	**199**
	273	**182**	**280**	**420**	**49**	**189**	**1393**

Table 2 Summary statistics

Panel A: The table presents descriptive statistics for the whole sample.

VARIABLES	Mean	Std. Deviation	p25	p50	p75	max	min	Range
INDIGENOUS	0.31	0.167	0.22	0.391	0.444	0.845	0.000	0.833
E_PERF	2.773	1.406	1.800	3.000	3.900	6.002	0.141	4.855
COMMITTEE	0.251	0.433	0.000	0.000	1.000	1.000	0.000	1.000
LEVER	0.445	0.319	0.165	0.414	0.658	1.112	0.089	1.010
LIQUID	1.571	2.183	0.83	1.206	1.761	6.452	0.054	5.195
F_SIZE	0.285	0.269	0.023	0.223	0.474	1.235	0.010	0.953
PROFIT	6.513	74.11	0.33	4.38	9.5	40.345	-24.85	65.195
B_SIZE	11.42	3.626	9	11	14	19	5	12
B_INDEP	8.238	2.965	6	8	10	13	3	16
D_COMPENS	4.543	0.687	4.415	4.603	4.875	6.245	1.321	5.178

Panel B: The table presents the mean (median) statistics of variables in the study by sector.

VARIABLES	Basic Materials	Consumable goods	Health Care	Financials	Industrials	Consumable services
INDIGENOUS	0.215 (0.205)	0.340 (0.412)	0.291 (0.312)	0.380 (0.412)	0.300 (0.352)	0.282 (0.364)
E_PERF	2.104 (1.891)	3.125 (3.871)	3.181 (2.961)	3.321 (2.851)	2.654 (2.987)	2.668 (3.200)
COMMITTEE	0.265 (0.346)	0.345 (0.457)	0.243 (0.000)	0.182 (0.082)	0.251 (0.000)	0.342 (0.000)
LEVER	0.651 (0.546)	0.532 (0.458)	0.321 (0.475)	0.383 (0.365)	0.415 (0.465)	0.486 (0.545)
LIQUID	1.318 (1.126)	1.632 (1.348)	1.498 (1.115)	1.752 (1.825)	1.511 (1.116)	1.876 (1.682)
F_SIZE	0.432 (0.348)	0.246 (0.233)	0.219 (0.216)	0.465 (0.556)	0.265 (0.246)	0.278 (0.214)
PROFIT	9.412 (12.489)	5.969 (3.931)	8.231 (4.961)	6.232 (4.452)	6.345 (3.867)	8.428 (5.265)
B_SIZE	7.500 (7.000)	11.000 (9.000)	9.568 (9.00)	12.500 (11.00)	13.000 (12.000)	10.540 (8.000)
B_INDEP	6.000 (5.000)	8.000 (7.500)	7.891 (7.500)	10.220 (8.000)	10.000 (9.000)	7.500 (5.000)
D_COMPENS	5.123 (4.835)	4.326 (4.448)	4.241 (4.513)	4.854 (4.721)	4.123 (3.964)	4.328 (4.456)

Note: *E_PERF* denotes the environmental performance of a firm in a given year as measured by the Environment (E) performance component of the Environmental, Social, and Governance (ESG) performance score provided in the FTSE Russell database. *INDIGENOUS* computed as the proportion of black directors relative to the size of the board in the main analyses. *COMMITTEE* denotes a dummy variable set to 1 if a firm's board has a committee dedicated to environmental or sustainability issues, and 0 otherwise. *LEVER* computed as the ratio of total liabilities to total assets. *LIQUID* captures the liquidity position of a firm, which is computed as the ratio of current assets to total assets. *F_SIZE* is proxied using the natural logarithm of total assets. *PROFIT* is proxied by a firm's return on assets (ROA), which is the ratio of earnings before interest and taxes to total assets. *B_SIZE* is computed as the number of directors on a firm's board of directors. *B_INDEP* computed as the number of independent directors in the board of directors of a firm. *D_ COMPENS* is computed as the natural logarithm of directors' total emoluments.

Table 3 Correlations matrix: The table presents the Pearson (the top half) as well as Spearman (the bottom half) pairwise correlation coefficients and their corresponding significance levels for each variable considered in the study. Correlation coefficients that are significantly different from zero at 10%, 5%, and 1% are marked with *, **, ***, respectively.

	1	2	3	4	5	6	7	8	9	VIF
E_PERF	1									
INDIGENOUS	0.25***	1								
B_INDEP	0.09***	0.08**	1							2.34
B_SIZE	0.09***	0.1***	0.61***	1						2.47
COMMITTEE	0.37***	0.21***	0.02	0.01	1					1.94
D_COMPENS	0.25***	0.39***	0.11***	0.12***	-0.08***	1				1.67
PROFIT	004	0.04	-0.03	-0.03	0.05	0	1			1.48
LEVER	0.09***	0.01	0.12***	0.09***	-0.1***	0.07**	-0.09***	1		1.31
LIQUID	0.02	0.08***	-0.03	-0.03	0.05*	0.001	0.001	-0.07**	1	1.81
F_SIZE	0.13***	0.05*	-0.04	-0.02	-0.04*	-0.001	-0.001	-0.2***	-0.03	1.11
E_PERF	1									
INDIGENOUS	0.21***	1								
B_ INDEP	0.07***	0.07**	1							2.34
B_SIZE	0.07***	0.10***	0.63***	1						2.47
COMMITTEE	0.37***	0.16***	0.1	0.004	1					1.94
D_COMPENS	0.12***	0.33***	0.12***	0.13***	-0.18***	1				1.67
PROFIT	0.09***	-0.13***	-0.07***	-0.43	0.013	-0.06**	1			1.48
LEVER	0.08***	0.01	0.05*	0.001	-0.10***	0.11***	-0.35***	1		1.31
LIQUID	0.03	0.06**	-0.06**	-0.06**	0.18***	-0.045*	0.05*	-0.14***	1	1.81
F_SIZE	-0.13***	-0.04*	-0.01	-0.19	-0.04	-0.03	0.18***	-0.21***	0.011	1.11

Note: *E_PERF* denotes the environmental performance of a firm in a given year as measured by the Environment (E) performance component of the Environmental, Social, and Governance (ESG) performance score provided in the FTSE Russell database. *INDIGENOUS* computed as the proportion of black directors relative to the size of the board in the main analyses. *COMMITTEE* denotes a dummy variable set to 1 if a firm's board has a committee dedicated to environmental or sustainability issues, and 0 otherwise. *LEVER* computed as the ratio of total liabilities to total assets. *LIQUID* captures the liquidity position of a firm, which is computed as the ratio of current assets to total assets. *F_SIZE* is proxied using the natural logarithm of total assets. *PROFIT* is proxied by a firm's return on assets (ROA), which is the ratio of earnings before interest and taxes to total assets. *B_SIZE* is computed as the number of directors on a firm's board of directors. *B_INDEP* computed as the number of independent directors in the board of directors of a firm. *D_ COMPENS* is computed as the natural logarithm of directors' total emoluments. **VIF** denotes variable inflation factor (VIF) scores.

Table 4 Baseline results: OLS estimation results of regressing environmental performance (*E_PERF*) on indigenous directors (*INDIGENOUS*) and control variables (*CONTROLS*). We report robust standard errors in parenthesis, *, **, and ***, respectively, denote estimates that are significantly different from zero at the 10%, 5%, and 1% levels.

	(1)	(2)	(3)
VARIABLES	***E_PERF***	***E_PERF***	***E_PERF***
INDIGENOUS	2.086***	0.840***	0.728***
	(4.284)	(2.796)	(2.881)
B_INDEP		0.104**	0.030**
		(2.470)	(2.184)
B_SIZE		-0.088***	-0.009
		(-2.674)	(-0.345)
COMMITTEE		0.742***	1.052***
		(3.102)	(8.424)
D_COMPENS		0.479***	0.471***
		(3.960)	(4.808)
PROFIT		-0.000**	-0.000
		(-2.356)	(-0.715)
LEVER		0.009*	0.032**
		(1.683)	(2.265)
LIQUID		0.008	0.011
		(0.378)	(0.620)
F_SIZE		-0.091	-0.305
		(-0.283)	(-1.448)
Constant	2.040***	0.235	-0.408
	(11.926)	(0.430)	(-0.917)
Industry effect	No	No	Yes
Year effect	No	No	Yes
Observations	1,383	1,372	1,372
R-squared	0.034	0.077	0.398
F – Statistics	18.35***	16.04***	17.57***
Number of firms	199	199	199

Note: *E_PERF* denotes the environmental performance of a firm in a given year as measured by the Environment (E) performance component of the Environmental, Social, and Governance (ESG) performance score provided in the FTSE Russell database. *INDIGENOUS* computed as the proportion of black directors relative to the size of the board in the main analyses. *COMMITTEE* denotes a dummy variable set to 1 if a firm's board has a committee dedicated to environmental or sustainability issues, and 0 otherwise. *LEVER* computed as the ratio of total liabilities to total assets. *LIQUID* captures the liquidity position of a firm, which is computed as the ratio of current assets to total assets. *F_SIZE* is proxied using the natural logarithm of total assets. *PROFIT* is proxied by a firm's return on assets (ROA), which is the ratio of earnings before interest and taxes to total assets. *B_SIZE* is computed as the number of directors on a firm's board of directors. *B_INDEP* computed as the number of independent directors in the board of directors of a firm. *D_ COMPENS* is computed as the natural logarithm of directors' total emoluments.

Table 5 Results for testing Hypothesis 2: The table presents regression estimates where *INDIGENOUS* is replaced with dummy variables capturing whether a critical mass of indigenous directors is present. Robust standard errors are reported in parentheses. *, **, and ***, respectively, represent coefficients that are different from zero at the 10%, 5%, and 1% significance levels.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	***E_PERF***	***E_PERF***	***E_PERF***	***E_PERF***	***E_PERF***	***E_PERF***
INDIG_0	0.840					
	(0.808)					
INDIG_1		0.467				
		(1.005)				
INDIG_2			0.284			
			(1.284)			
INDIG_3				0.144*		
				(1.725)		
INDIG_4					0.118**	
					(2.401)	
INDIG_5						0.229***
						(3.881)
B_INDEP	0.067**	0.070**	0.072**	0.073**	0.070*	0.077**
	(1.986)	(2.053)	(2.039)	(2.049)	(1.942)	(2.196)
B_SIZE	0.899***	0.858***	0.842***	0.874***	0.867***	0.852***
	(4.120)	(3.904)	(3.736)	(3.912)	(3.915)	(3.758)
COMMITTEE	1.279***	0.516***	0.495***	0.497***	0.494***	0.475***
	(5.966)	(4.694)	(4.182)	(4.164)	(4.106)	(4.137)
D_COMPENS	0.000	0.000	0.000	0.000	0.000	0.000
	(0.420)	(0.050)	(0.015)	(0.160)	(0.116)	(0.049)
PROFIT	0.017	0.017	0.015	0.018	0.017	0.018
	(0.953)	(0.969)	(0.841)	(1.062)	(0.954)	(1.050)
LEVER	0.013	0.014	0.013	0.013	0.013	0.014
	(0.671)	(0.688)	(0.648)	(0.631)	(0.632)	(0.664)
F_SIZE	-0.030	-0.040	-0.044	-0.058	-0.069	-0.019
	(-0.106)	(-0.138)	(-0.150)	(-0.200)	(-0.236)	(-0.063)
Constant	-3.553***	-0.148	0.031	-0.043	-0.066	-0.056
	(-3.670)	(-0.279)	(0.055)	(-0.077)	(-0.115)	(-0.102)
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,372	1,372	1,372	1,372	1,372	1,372
	11.47***	18.77***	17.86***	17.77***	17.77***	17.95***
R-squared	0.152	0.126	0.124	0.121	0.121	0.125
Number of firms	199	199	199	199	199	199

Note: *E_PERF* denotes the environmental performance of a firm in a given year as measured by the Environment (E) performance component of the Environmental, Social, and Governance (ESG) performance score provided in the FTSE Russell database. *INDIG_0* is an indicator variable equal to 1 if there is an indigenous director on the board, and 0 otherwise. *INDIG_1* is an indicator variable equal to 1 if there is only one indigenous director on the board, and 0 otherwise. *INDIG_2* is an indicator variable equal to 1 if there are only two indigenous directors on the board, and 0 otherwise. *INDIG_3* is an indicator variable equal to 1 if there are only three indigenous directors on the board, and 0 otherwise. *INDIG_4* is an indicator variable equal to 1 if there are only four indigenous directors on the board, and 0 otherwise. *INDIG_5* is an indicator variable equal to 1 if there are only five indigenous directors on the board, and 0 otherwise. *COMMITTEE* denotes a dummy variable set to 1 if a firm's board has a committee dedicated to environmental or sustainability issues, and 0 otherwise. *LEVER* computed as the ratio of total liabilities to total assets. *LIQUID* captures the liquidity position of a firm, which is computed as the ratio of current assets to total assets. *F_SIZE* is proxied using the natural logarithm of total assets. *PROFIT* is proxied by a firm's return on assets (ROA), which is the ratio of earnings before interest and taxes to total assets. *B_SIZE* is computed as the number of directors on a firm's board of directors. *B_INDEP* computed as the number of independent directors in the board of directors of a firm. *D_ COMPENS* is computed as the natural logarithm of directors' total emoluments.

Table 6 Robustness check: The table presents estimation results of instrumental variable two-stage least squares (IV-2SLS) regression. Robust standard errors are reported in parentheses. *, **, and ***, respectively, represent coefficients that are different from zero at the 10%, 5%, and 1% significance levels.

	(1)	(2)	(3)
VARIABLES	***E_PERF***	***E_PERF***	***E_PERF***
INDIGENOUS	2.806***	0.134**	
	(3.463)	(2.298)	
E_PERF_{t-1}		0.241***	
		(5.349)	
$INDIGENOUS_{t-1}$			0.083**
			(2.140)
B_INDEP	0.019**	0.062*	0.090**
	(2.493)	(1.757)	(2.139)
B_SIZE	0.034	-0.061*	-0.076**
	(1.140)	(-1.737)	(-2.250)
COMMITTEE	1.008***	0.736***	0.854***
	(7.425)	(3.501)	(3.828)
D_COMPENS	0.310***	0.437***	0.492***
	(3.022)	(3.669)	(3.922)
PROFIT	-0.000***	0.001	-0.001
	(-2.699)	(0.509)	(-0.405)
LEVER	0.036**	0.004	0.013
	(2.030)	(0.273)	(0.759)
LIQUID	-0.004	0.023*	0.018
	(-0.223)	(1.693)	(1.162)
F_SIZE	-0.450**	-0.068	-0.070
	(-2.088)	(-0.225)	(-0.222)
Constant	-0.448	0.097	0.344
	(-1.116)	(0.175)	(0.537)
Industry effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
Observations	1,372	1,171	1,181
R-squared	0.222	0.161	0.101
Number of firms	199	199	199
Wald test 5%	16.38		
Validity test (F-statistics)	61.898***	18.75***	15.90***

Note: *E_PERF* denotes the environmental performance of a firm in a given year as measured by the Environment (E) performance component of the Environmental, Social, and Governance (ESG) performance score provided in the FTSE Russell database. E_PERF_{t-1} is one-year lagged value of *E_PERF*. *INDIGENOUS* computed as the proportion of black directors relative to the size of the board in the main analyses. $INDIGENOUS_{t-1}$ is one-year lagged value of *INDIGENOUS*. *COMMITTEE* denotes a dummy variable set to 1 if a firm's board has a committee dedicated to environmental or sustainability issues, and 0 otherwise. *LEVER* computed as the ratio of total liabilities to total assets. *LIQUID* captures the liquidity position of a firm, which is computed as the ratio of current assets to total assets. *F_SIZE* is proxied using the natural logarithm of total assets. *PROFIT* is proxied by a firm's return on assets (ROA), which is the ratio of earnings before interest and taxes to total assets. *B_SIZE* is computed as the number of directors on a firm's board of directors. *B_INDEP* computed as the number of independent directors in the board of directors of a firm. *D_ COMPENS* is computed as the natural logarithm of directors' total emoluments.

Table 7 Attributes of indigenous directors: The table presents estimation results of regression corporate environmental performance (*E*_PERF) on attributes of indigenous directors and the control variables. Robust standard errors are reported in parentheses. *, **, and ***, respectively, represent coefficients that are different from zero at the 10%, 5%, and 1% significance levels.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	***E_PERF***	***E_PERF***	***E_PERF***	***E_PERF***	***E_PERF***	***E_PERF***
INDIG_EXEC	0.173		0.094			
	(0.371)		(0.199)			
INDIG_NEXEC		0.714**	0.700**			
		(2.328)	(2.271)			
INDIG_FD				1.384***		1.722***
				(5.782)		(5.939)
INDIG_MD					0.484**	0.910**
					(1.97)	(2.468)
B_INDEP	0.078*	0.075*	0.075	0.049	0.062	0.050
	(1.683)	(1.664)	(1.639)	(1.089)	(1.370)	(1.101)
B_SIZE	-0.066*	-0.063*	-0.063*	-0.044	-0.056	-0.030
	(-1.803)	(-1.754)	(-1.729)	(-1.269)	(-1.543)	(-0.882)
COMMITTEE	0.871***	0.812***	0.818***	0.916***	0.922***	0.826***
	(3.928)	(3.479)	(3.477)	(4.743)	(4.353)	(4.006)
D_COMPENS	0.575***	0.537***	0.540***	1.177***	0.562***	1.111***
	(3.856)	(3.573)	(3.555)	(5.976)	(3.948)	(5.631)
PROFIT	0.000	0.000	0.000	0.000	0.000	-0.000
	(0.164)	(0.043)	(0.074)	(0.922)	(0.779)	(-0.092)
LEVER	0.016	0.018	0.018	0.016	0.016	0.016
	(0.934)	(1.015)	(0.997)	(0.914)	(0.915)	(0.942)
LIQUID	0.013	0.013	0.014	0.009	0.013	0.009
	(0.679)	(0.661)	(0.677)	(0.505)	(0.668)	(0.491)
F_SIZE	-0.060	-0.062	-0.065	-0.059	-0.057	-0.056
	(-0.204)	(-0.212)	(-0.223)	(-0.227)	(-0.197)	(-0.218)
Constant	-0.395	-0.456	-0.458	-3.915***	-0.272	-4.119***
	(-0.573)	(-0.663)	(-0.664)	(-4.317)	(-0.401)	(-4.534)
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,367	1,367	1,367	1,362	1,370	1,362
F-statistics	17.52***	17.36***	16.93***	14.97***	17.58***	14.85***
R-squared	0.115	0.117	0.117	0.183	0.124	0.188
Number of firms	199	199	199	199	199	199

Note: *E_PERF* denotes the environmental performance of a firm in a given year as measured by the Environment (E) performance component of the Environmental, Social, and Governance (ESG) performance score provided in the FTSE Russell database. *INDIG_EXEC* computed as the proportion of black executive directors relative to the size of the board in the main analyses. *INDIG_NEXEC* computed as the proportion of black non-executive directors relative to the size of the board in the main analyses. *INDIG_FD* computed as the proportion of black female executive directors relative to the size of the board in the main analyses. *INDIG_MD* computed as the proportion of black male directors relative to the size of the board in the main analyses. *COMMITTEE* denotes a dummy variable set to 1 if a firm's board has a committee dedicated to environmental or sustainability issues, and 0 otherwise. *LEVER* computed as the ratio of total liabilities to total assets. *LIQUID* captures the liquidity position of a firm, which is computed as the ratio of current assets to total assets. *F_SIZE* is proxied using the natural logarithm of total assets. *PROFIT* is proxied by a firm's return on assets (ROA), which is the ratio of earnings before interest and taxes to total assets. *B_SIZE* is computed as the number of directors on a firm's board of directors. *B_INDEP* computed as the number of independent directors in the board of directors of a firm. *D_ COMPENS* is computed as the natural logarithm of directors' total emoluments.

Table 8 The moderating role of indigenous directors on the association between corporate environmental and financial performance: The table presents estimation results of regressing financial performance of a firm (*F_PERF*) on its environmental performance (*E_PERF*), indigenous directors (*INDIGENOUS*), the interaction term (*INDIGENOUS*E_PERF*), and control variables (*CONTROLS*). Robust standard errors are reported in parentheses. *, **, and ***, respectively, represent coefficients that are different from zero at the 10%, 5%, and 1% significance levels.

	(1)	(2)	(3)
VARIABLES	***F_PERF***	***F_PERF***	***F_PERF***
*INDIGENOUS*E_PERF*			0.049***
			(2.962)
E_PERF	0.034*		0.008*
	(1.717)		(1.914)
INDIGENOUS		0.323*	0.058**
		(1.822)	(1.965)
B_INDEP	0.200**	0.214**	0.100**
	(2.247)	(2.318)	(2.406)
B_SIZE	0.130	0.136	0.102***
	(1.280)	(1.361)	(2.694)
COMMITTEE	-1.092*	-0.892	-0.051
	(-1.859)	(-1.428)	(-0.357)
D_COMPENS	0.519	0.393	0.228
	(1.375)	(1.391)	(1.476)
PROFIT	0.039	0.044	0.075***
	(0.482)	(0.543)	(4.684)
LEVER	-0.047***	-0.048***	-0.002
	(-2.663)	(-2.809)	(-0.081)
LIQUID	0.463	0.404	-0.146
	(0.674)	(0.595)	(-0.597)
F_SIZE	0.133	0.709	0.199
	(0.082)	(0.585)	(0.263)
Industry effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
Observations	1,372	1,382	349
F-statistics	16.9***	16.90***	17.30***
R-squared	0.024	0.022	0.106
Number of firms	199	199	199

Note: *F_PERF* denotes the financial performance of a firm in a given year and is proxied by the firm's Tobin's Q. *E_PERF* denotes the environmental performance of a firm in a given year as measured by the Environment (E) performance component of the Environmental, Social, and Governance (ESG) performance score provided in the FTSE Russell database. *INDIGENOUS* computed as the proportion of black directors relative to the size of the board in the main analyses. *COMMITTEE* denotes a dummy variable set to 1 if a firm's board has a committee dedicated to environmental or sustainability issues, and 0 otherwise. *LEVER* computed as the ratio of total liabilities to total assets. *LIQUID* captures the liquidity position of a firm, which is computed as the ratio of current assets to total assets. *F_SIZE* is proxied using the natural logarithm of total assets. *PROFIT* is proxied by a firm's return on assets (ROA), which is the ratio of earnings before interest and taxes to total assets. *B_SIZE* is computed as the number of directors on a firm's board of directors. *B_INDEP* computed as the number of independent directors in the board of directors of a firm. *D_ COMPENS* is computed as the natural logarithm of directors' total emoluments.