

Are benevolent directors more environmentally responsible?

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Abstract

Purpose – This research examines the relationship between board of director benevolence and corporate environmental performance (CEP). We also investigate how CEO benevolence moderates this relationship.

Design/methodology/approach – Drawing from benevolent leadership, upper-echelon and enlightened stakeholder theories, we hypothesize a positive association between board benevolence and CEP. Director benevolence is measured by involvement in not-for-profit leadership positions simultaneously with their corporate directorships. Our sample is drawn from Australian listed firms from 2010 to 2019, and benevolence data is hand-collected from annual report director biographies.

Findings – We find that boards with more benevolent directors are associated with higher CEP. This relationship is stronger in firms managed by benevolent CEOs. Our results are consistent across several robustness tests, including matched samples, two-stage least squares (2SLS) and firm fixed effect regressions.

Research limitations/implications – Our findings have implications for regulatory bodies and environmental protection advocates in understanding the drivers of corporate environmental performance and are insightful for firms in structuring top leadership to enhance environmental initiatives.

Originality/value – While prior research reveals connections between board characteristics and CEP, our research examines a moral characteristic of directors, an overlooked dimension. Our results show the importance of benevolent directors in enhancing CEP.

Keywords Benevolence, Benevolent directors, Corporate environmental performance, Board of directors, CEO

Paper type Research paper

1. Introduction

This paper investigates the relationship between board of director benevolence and corporate environmental performance (CEP). When firms exhibit high levels of environmental performance, prior literature attributes this to the personal characteristics of the firms' directors and CEOs, such as the demographic attributes of experience and expertise, networks, and inherent personality traits (Bonsu *et al.*, 2023). Personal characteristics, such as CEO overconfidence, narcissism, and hubris influence the firm's strategic decisions on sustainability performance (Lin *et al.*, 2022). Instead of examining traits such as

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overconfidence that focus on individualism, we conjecture that traits associated with a more pro-social attitude to society and community play a role in explaining firms' environmental performance.

We measure director benevolence based on the involvement of directors and executives in not-for-profit (NFP) leadership positions while holding corporate directorships. Serving on NFPs represents an acknowledgment of a moral social obligation by these leaders; thus, suggesting their potential to influence aspects of corporate ethics, such as environmental performance. However, the action of serving in NFP leadership positions (benevolence) simultaneously with corporate leadership is under-examined (Weerasinghe *et al.*, 2024). We view the associations between benevolence and CEP through upper-echelon and enlightened stakeholder theoretical lenses, hypothesizing a positive link. Using a sample of Australian firms from 2010 to 2019, director and CEO NFP position data are hand-collected from corporate annual reports and verified through public information sources such as the Australian Business Number (ABN) register. CEP is a composite measure of three environmental-related categories: emission reduction, product innovation, and resource reduction.

Environmental performance remains a contemporary global issue despite The United Nations' efforts to mitigate environmental harms by introducing global Sustainable Development Goals (SDGs) in 2015. Researchers argue that corporates have failed to deliver consistent results in terms of SDGs, including CEP, and highlight the importance of investigating the drivers or barriers to enhancing CEP (Ameer and Khan, 2022). Poor environmental performance of firms generates adverse consequences for society and for firms in terms of attracting more considerable fines (de Villiers *et al.*, 2022). Unfortunately for world citizens, there are many examples of environmental misconduct by firms in the international context. We highlight one example, the Brazilian dam collapses from 2015 to 2019 as the Australian company BHP operated the mine (ABC News, 2021). BHP's dam collapse is considered the worst environmental disaster in Brazilian history, killing more than 19 people and releasing 60 million cubic metres of waste through rivers, eventually reaching the Atlantic Ocean (ABC News, 2021). This event indicates the severity of environmental issues for society in general and firms in attracting hefty fines, negative reputation, idiosyncratic risks (inherent risks attached to assets), and disinvestment (Alrazi *et al.*, 2015; de Villiers *et al.*, 2022). Thus, researchers, regulators, investors, and corporate leaders continue to explore ways to reduce corporate environmental impacts.

Research provides evidence on various drivers of CEP, including the influence of numerous CEO and board characteristics on CEP (de Villiers *et al.*, 2011, 2022; Dixon-Fowler *et al.*, 2017). Previous experience of directors with environmental issues positively influences CEP (Dixon-Fowler *et al.*, 2017). Walls *et al.* (2012) examined the influence of corporate governance characteristics (ownership, board, and management) on CEP and environmental concerns, finding firm leverage, board independence, and CEO pay are positively connected to CEP, while capital intensity and board gender diversity indicate negative associations with environmental concerns. The presence of a board environmental committee indicated a positive influence on CEP. Australian studies indicate similar findings. Biswas *et al.* (2018) find positive associations between board independence, gender diversity, and the presence of a sustainability committee and CEP. de Villiers *et al.* (2022) provide evidence that the presence and characteristics of the risk management committee are positively associated with CEP. They find board risk management committee characteristics such as tenure, experience, and qualifications positively influence CEP. Another recent Australian study finds the positive influence of the presence of a sustainability committee and its effectiveness on CEP (Lin *et al.*, 2022).

This body of literature generally supports a link between firm, board/committee, and CEO-level determinants of CEP. However, to our knowledge, no prior research has examined board composition through director involvement in NFP sector leadership positions in influencing CEP. Research has primarily focused on board composition in

terms of independence, diversity (age, gender, culture), education, experience, and multiple directorships (de Villiers *et al.*, 2022; Liao *et al.*, 2015). We argue that director benevolence is a distinct personal virtue and a significant board characteristic influencing CEP. In examining the more virtuous traits of business leaders (e.g. stock donations) from a governance perspective, we recognise the “woke capitalism” (Rhodes, 2021) contra argument along the lines that directors seek out these positions to atone for other personal or corporate misconduct, so is virtue-signalling, not true virtue.

The Australian context is appropriate for the study for three main reasons. First, Australia is moving towards mandatory sustainability reporting for large firms and financial institutions, commencing in January 2025. The mandatory regime prioritizes climate-related financial disclosures, which may be subject to future adjustments for further mandatory sustainability disclosures (ASIC, 2024). Australian regulators recognise that disclosing and managing climate-related risks is a key responsibility of directors (Armour, 2021) and this responsibility is greater with new mandatory disclosures. Thus, it is insightful to examine the role of directors’ moral characteristics in influencing the current status of firms’ environmental initiatives, leading to mandatory disclosures in 2025.

Second, as reported by the most recent [OECD Environmental Performance Review Report \(2019\)](#), Australia is one of the ten largest carbon polluters of OECD countries in the world (OECD, 2019). Further, the report highlights that Australian bio-diversity is poor and worsening and poses challenges for threatened species due to influences of urban development, climate change, extractive industries, and coastal activities (OECD, 2019). Thus, OECD urges Australia to make reforms in implementing a national integrated energy and climate policy framework for 2030, increase investment in bio-diversity conservations, and monitor water management (OECD, 2019).

Finally, the Australian government, regulators, and market operators (e.g. Australian Securities Exchange – ASX) are working to reduce corporate environmental damages by introducing legislative provisions and recommendations. For instance, [ASX Corporate Governance Council \(2019, p. 27\)](#) recommendation 7.4 includes, “A listed entity should disclose whether it has any material exposure to environmental or social risks and, if it does, how it manages or intends to manage those risks”. Other regulators, such as the ASIC and the Parliamentary Joint Committee on Corporations and Financial Services advocate for higher corporate responsibility in environmental matters (Lin *et al.*, 2022). Thus, the Australian setting provides a relevant and timely context to examine whether board benevolence influences CEP.

Drawing from upper-echelon, benevolent leadership, and enlightened stakeholder theories, we propose a positive link between board benevolence and CEP. Further, we examine whether CEO benevolence moderates the board benevolence-CEP association (Figure 1). We find a positive relationship between board benevolence and CEP using a sample of ASX 300 firms from 2010 to 2019. This association is strengthened in firms that are managed by benevolent CEOs. The results are rigorously tested for endogeneity concerns with matched samples created through propensity score matching and entropy balancing methods, and two-stage least squares (2SLS) and firm fixed effect regressions. The results suggest that directors who serve across the corporate and NFP sectors bring more environmentally supportive decision-making to corporate leadership, reflecting a stakeholder-oriented approach.

This study contributes to the literature in multiple ways. Our research extends our understanding of board and committee composition and CEP. Prior research shows that board and committee composition, in terms of size, diversity, expertise, and experience are important in determining CEP (Biswas *et al.*, 2018; de Villiers *et al.*, 2011, 2022; Hollindale *et al.*, 2019). This line of literature predominantly examines board composition based on directors’ demographic and technical characteristics. We extend this understanding by documenting the importance of considering directors’ moral characteristics, such as benevolence. We contribute to upper-echelon literature by examining the associations between corporate

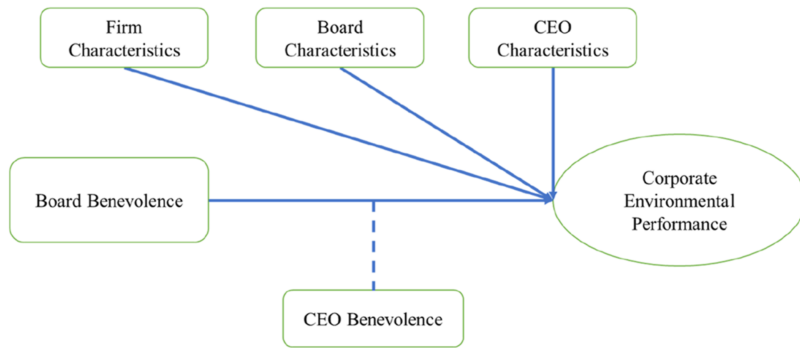


Figure 1. Conceptual model of the research. Source: Authors' own work

leaders' numerous characteristics and corporate ethical outcomes, such as environmental, social, and carbon performance (Borghesi *et al.*, 2014; Elsayih *et al.*, 2021; Feng *et al.*, 2023; Weerasinghe *et al.*, 2024). Adding to the limited literature examining moral characteristics (Feng *et al.*, 2023; Mishra, 2021; Weerasinghe *et al.*, 2024), our benevolence construct represents an alternative way to view corporate leaders' characteristics through a moral lens, opening a path for future research. Our findings also resonate with the enlightened stakeholder view (Queen, 2015) in recognising that benevolent directors are better positioned to understand the importance of serving shareholders and diverse stakeholders equally, reflecting the multiple perspectives on the benefits and beneficiaries of improved environment performance. Lastly, the results concerning the positive moderating role of CEO benevolence on the association between board benevolence and CEP contribute to the literature examining CEO-board dynamics in strategic decision-making (Elsayih *et al.*, 2021; Hossain *et al.*, 2023; Walls *et al.*, 2012).

We note three implications for practice from our results. First, the results will be insightful for firms in structuring top leadership and pursuing ways to enhance environmental initiatives. The findings are useful and timely for Australian firms leading to mandatory sustainability reporting effective from January 2025 for large businesses and financial institutions (ASIC, 2024) [1]. We show that firms can enhance environmental performance when benevolent directors are on boards. In addition, benevolent CEOs facilitate this positive impact of benevolent directors on environmental performance. Second, the results will be useful for regulatory bodies and environmental protection advocates in understanding the drivers of corporate environmental initiatives. Australia ranks 23rd globally in the Environmental Performance Index 2024, scoring poorly in climate change mitigation and waste management (Block *et al.*, 2024). Undoubtedly, corporate carbon emissions and other pollution largely contribute to Australia's lower rank in environmental performance. In pursuing enhanced environmental performance, the country's corporate sector, regulators, and other advocates should recognise the drivers of better performance. Our results indicate that corporate environmental performance is higher in firms managed and governed by benevolent leaders, amongst other firm and governance characteristics. Lastly, our results will be of interest to green investors who can evaluate and predict firms' environmental performance by observing the top leadership characteristics and behaviours.

2. Literature review and hypothesis development

Research indicates myriad benefits associated with environmental performance, such as greater access to resources, reduced employee turnover, reduced operating costs, market

opportunities, meeting societal expectations, and less risk of environmental damages (de Villiers *et al.*, 2011). Environmental performance is commonly measured using indexes developed through Global Reporting Initiative (GRI) guidelines or indexes in databases such as KLD and EIKON. The most common indicators of environmental performance include emissions, efficient resource use, renewable resources, preventing pollution, and product innovation (Clarkson *et al.*, 2011; de Villiers *et al.*, 2022).

Prior research indicates significant associations between board composition/ characteristics and CEP. One research stream provides evidence of board characteristics such as independence, size, diversity, expertise, and experience with CEP. Evidence suggests that CEP is higher in firms with higher board independence, larger boards (Walls *et al.*, 2012), active CEOs on boards, and more legal experts on boards (de Villiers *et al.*, 2011). Board demographic, structural, and capital diversity are positively associated with carbon performance (Mehedi *et al.*, 2024). Homroy and Slechten (2019) find a negative link between directors with prior experience in environmental issues and firm greenhouse gas (GHG) emissions. Board gender diversity indicates a positive connection with CEP in UK firms when financial performance is high (Al-Shaer *et al.*, 2024). Haque (2017) finds a positive impact of board gender diversity and independence on firm carbon reduction initiatives. Australian evidence indicates similar results. A higher proportion of women directors on boards increase social and environmental disclosure (Rao and Tilt, 2016). Biswas *et al.* (2018) find positive associations between board gender diversity, independence, and CEP. Hollindale *et al.* (2019) reveal a positive influence of board gender diversity on GHG disclosure quality. Overall, international and Australian empirical evidence indicates the positive impact of certain board characteristics, namely, gender, independence, and prior experience, on CEP.

Another research stream examines the link between board committee existence/ characteristics and CEP. Dixon-Fowler *et al.* (2017) find a positive association between the existence of board environmental committees and CEP, and this link is moderated by the presence of a senior environmental manager within the firm. Research in the Australian context indicates similar results. The existence of sustainability committees in firms positively influences CEP (Biswas *et al.*, 2018). Krishnamurti and Velayutham (2018) find negative associations between combined committees (audit and risk) and firm GHG disclosure. de Villiers *et al.* (2022) revealed a positive influence of the existence of RMC on a firm's CEP and positive associations between RMC human capital (e.g. board experience, and qualifications) and CEP. Although these studies focus on board committee characteristics, these essentially indicate the characteristics of directors who serve on these governance functions.

The extant empirical evidence indicates the importance of board and committee characteristics in influencing CEP. There is consistent evidence that firms with more independent directors, women directors, and experienced and highly networked directors are likely to have higher CEP. Extending this understanding, we propose that director benevolence is distinct from previously studied board characteristics and may positively influence corporate environmental performance for several reasons. Serving on NFPs simultaneously with corporate leadership may indicate the moral characteristics of these leaders, such as altruism, empathy, and pro-social tendency (Bekkers and Wiepking, 2011; Feng *et al.*, 2023; Weerasinghe *et al.*, 2024) and accepting a moral obligation towards social causes. Relatedly, despite the motivations to hold NFP positions (e.g. reputation), directors who serve on NFPs have higher exposure to broad for-purpose stakeholder-oriented objectives roles (Chen *et al.*, 2022; Feng *et al.*, 2023; Ward and Miller-Stevens, 2021), which makes them distinct from directors who only work in the corporate sector. Also, these directors are likely exposed to the personal values of leaders who primarily serve in the philanthropic sector (Fredette and Sessler Bernstein, 2021). Thus, we argue that benevolent directors will have a broader sense of moral and social responsibility towards the society and environment in which firms operate, which is reflected in their corporate decisions.

Certain theoretical lenses are useful in this context. Benevolence can be defined as the behaviour indicating concern for other's good and well-being (Steinbach *et al.*, 2021). Benevolence is identified as a form of excellence in virtue ethics developed through an acquired habit of doing good for others (Mercier and Deslandes, 2020). In the organisational context, Karakas and Sarigollu (2012) propose a model of leaders' benevolence with three dimensions, leaders' ethics and values (morality), how they create positive change in corporate culture (spirituality), and their contributions toward society (community). Demonstration of leaders' benevolence in organisations includes developing an ethical culture supporting the well-being of its stakeholders and creating positive outcomes for most members of a community (Karakas and Sarigollu, 2012). Benevolent leaders are inclined to be kind, and ethical, and engage in charitable acts driven with a sense of obligation towards others. Corporate leaders who make a personal life choice to serve in NFP leadership indicate a disposition to accept their social responsibility. This resonates with the notions of morality and community in the benevolent leadership model (Karakas and Sarigollu, 2012). This action is a personal life demonstration of their sense of obligation towards the community.

The question is then whether this demonstrated benevolence in personal life influences corporate strategic decision-making. Upper-echelon theory (UET) suggests that organizations' top echelons (leaders) are likely to view situations through their perspectives, and their characteristics are ultimately reflected in corporate outcomes (Hambrick and Mason, 1984). UET suggests that corporate leaders' dispositions, cognitive biases, and personal experiences shape their approaches to strategic opportunities and problems in organisational context (Osei Bonsu *et al.*, 2024). Previous research has firmly established that the personal characteristics and ethics of directors/CEOs play a vital role in shaping corporate behaviour (Chapple *et al.*, 2020). Empirical evidence examines the influence of board members' demographics (e.g. gender, culture), expertise (e.g. qualifications) (Gray and Nowland, 2017; Weerasinghe *et al.*, 2023), and corporate outcomes. While directors' characteristics are commonly viewed through the above dimensions, an alternative perspective is to view their ethics, such as generosity, altruistic behaviour, empathy, and benevolence (Bekkers and Ottoni-Wilhelm, 2016; Weerasinghe *et al.*, 2024). Research suggests that the personal ethics of corporate leaders are reflected in organisational strategic decision-making in the form of promoting an ethical culture (Páez and Salgado, 2016). Thus, we contend that benevolent leaders will uphold their ethical values in organisational decisions considering the impact on all stakeholders, including society, and promote environmentally friendly initiatives.

Relatedly, enlightened stakeholder theory (EST) is informative in further arguing for benevolent leaders' sense of obligation towards all stakeholders. The original stakeholder theory considers managerial focus and moral foundation in managing stakeholders, organizational strategy, and creating economic and non-economic value for stakeholders (Freeman, 2010). EST builds from the structure of the stakeholder theory; however, it "*accepts maximization of the long-run value of the firm as the criterion for making the requisite trade-offs among its stakeholders*" (Jensen, 2002, p. 9). EST essentially indicates the importance of balancing the interests of shareholders and stakeholders within the goal of value maximization. Benevolent directors' approach to decision-making is likely to align with the EST approach as they are positioned to understand and accept their duties through both for-purpose and for-profit objectives. Thus, we argue that benevolent directors likely lead firms with ethical aspirations and adopt an enlightened stakeholder-oriented approach, which will reflect in ethical aspects, such as environmental performance, leading to the following hypothesis:

H1. Board benevolence is positively associated with CEP.

Our study recognises the benevolence of directors through their personal life involvement in social causes by serving NFPs. This represents an action or behavioural-based benevolence; however, prior studies have recognised the benevolence of corporate leaders in other ways. One prominent example is referring to women directors as benevolent and their concern towards

maximising stakeholder benefits (Peng *et al.*, 2023). Women on boards and corporate social and environmental performance have been extensively studied, much of this research indicating the positive influence of women directors on ethical aspects, including their gender-based benevolence and universalism, the benefits of enhanced gender diversity within boards, and reduced overconfidence (Liu, 2018). Their gender benevolence argument is based on the inherent nature of women directors who are less power-oriented, caring about others' needs, and have a strong sense of ethics (Adams *et al.*, 2011; Peng *et al.*, 2023). Prior research indicates that boards with more women directors increase corporate social and environmental performance, aiming to serve stakeholders (Liu, 2018; Peng *et al.*, 2023). From a diversity perspective, corporate strategic decisions can benefit from different perspectives enabling boards to evaluate multiple options (Estélyi and Nisar, 2016; Liu, 2018). Enhanced board diversity can disrupt board trust relationships, challenging the status quo, which could increase decision-making quality and governance (Cummings *et al.*, 2015; Liu, 2018). Thus, women directors are a significant factor in determining the ethical aspects of firms due to their benevolence, strong sense towards ethics, and bringing constructive diverse perspectives. While we acknowledge gender-based benevolence and its influence on environmental performance, our study is different from this literature to the extent that we recognise the benevolence of directors relying on their personal life actions supporting social causes and not-for-profit purposes.

Research also indicates connections between CEO characteristics and CEP. For instance, Elsayih *et al.* (2021) examine the influence of CEO characteristics on CEP in Australian firms, finding positive associations between CEO executive experience, CEO duality, and CEP. Al-Shaer *et al.* (2024) reveal that women CEOs increase environmental, social, and governance performance in London-listed firms. Other research finds the interaction effects of board-CEO characteristics in influencing CEP. In a sample of Chinese firms from 2009 to 2013, McGuinness *et al.* (2017) reveal that corporate social environmental performance is higher in firms with higher board gender diversity. This association is strengthened in the presence of women CEOs (McGuinness *et al.*, 2017). We propose CEO benevolence as a moderator of the association between board benevolence and CEP. CEO benevolence mirrors director benevolence. CEOs who serve across corporate and NFP sectors are likely to have distinct, broader stakeholder-oriented perspectives than CEOs who do not serve in such positions. They likely understand and acknowledge the balance between for-profit and for-purpose firm objectives in creating long-term value. Relatedly, benevolent CEOs and directors are part of the same in-group concerning their ethical activities. Thus, they are likely to share similar values and less likely to challenge initiatives that increase social and environmental aspects. Therefore, in the presence of benevolent CEOs, the association between board benevolence and CEP is likely strengthened:

H2. CEO benevolence strengthens the association between board benevolence and CEP.

3. Research design

3.1 Sample and data collection

Our sample consists of ASX 300 listed firms from 2010 to 2019. We identify ASX 300 firms in 2020 and collect data for the preceding ten years for each of these firms. After excluding financial firms (due to different regulatory requirements) and observations with missing data, our final sample consists of 920 firm-year observations.

3.2 Econometric models

The following models are used to investigate our hypothesized relationships. All independent variables are lagged one year to address reverse causality concerns. The first model examines the relationship between board benevolence and CEP (H1). The second model then includes the interaction effect between CEO benevolence and board benevolence (H2). All the variable descriptions are provided in Appendix.

$$\begin{aligned}
CEP_{i,t} = & \alpha + \beta_1 BOARDBEN_{i,t-1} + \beta_2 CEOBEN_{i,t-1} + \beta_3 CEODUA_{i,t-1} \\
& + \beta_4 CEOGEN_{i,t-1} + \beta_5 CEOTEN_{i,t-1} + \beta_6 ROE_{i,t-1} + \beta_7 LNCAPEX_{i,t-1} \\
& + \beta_8 LEV_{i,t-1} + \beta_9 LNTA_{i,t-1} + \beta_{10} FAGE_{i,t-1} + \beta_{11} MBV_{i,t-1} + \beta_{12} BDIND_{i,t-1} \\
& + \beta_{13} BDSIZE_{i,t-1} + \beta_{14} BDDIV_{i,t-1} + Year\ Dummies + Industry\ Dummies + \varepsilon_{i,t}
\end{aligned} \tag{1}$$

$$\begin{aligned}
CEP_{i,t} = & \alpha + \beta_1 BOARDBEN_{i,t-1} + \beta_2 CEOBEN_{i,t-1} \\
& + \beta_3 BOARDBEN_{i,t-1} * CEOBEN_{i,t-1} + \beta_4 CEODUA_{i,t-1} + \beta_5 CEOGEN_{i,t-1} \\
& + \beta_6 CEOTEN_{i,t-1} + \beta_7 ROE_{i,t-1} + \beta_8 LNCAPEX_{i,t-1} + \beta_9 LEV_{i,t-1} \\
& + \beta_{10} LNTA_{i,t-1} + \beta_{11} FAGE_{i,t-1} + \beta_{12} MBV_{i,t-1} + \beta_{13} BDIND_{i,t-1} \\
& + \beta_{14} BDSIZE_{i,t-1} + \beta_{15} BDDIV_{i,t-1} + Year\ Dummies + Industry\ Dummies + \varepsilon_{i,t}
\end{aligned} \tag{2}$$

3.3 Variable measurements

3.3.1 Corporate environmental performance (CEP). CEP is the Environmental Performance score (ranging from 0 to 100) from EIKON/Refinitiv Environmental, Social, and Governance (ESG) data, which measures firm ESG performance based on more than 500 indicators [2] (Pozzoli et al., 2022). The use of EIKON/Refinitiv (Asset4) for ESG performance is consistent with prior research (de Villiers et al., 2017, 2022; Lin et al., 2022; Pozzoli et al., 2022). We use the “Environment” pillar that comprises three sub-categories: resources use, emissions, and innovation.

3.3.2 Board and CEO benevolence (BOARDBEN and CEOBEN). Benevolence is measured by corporate leaders’ involvement in NFP leadership positions at the same time as they hold their corporate leadership positions. Board benevolence is calculated as the proportion of directors on the board serving in NFP leadership positions in a year. CEO benevolence is the number of NFP positions a CEO holds each year. Directors and CEOs’ NFP position data is hand-collected from corporate annual reports, following the approach of Weerasinghe et al. (2024). A list of ASX 300 firms is chosen in Connect4 using ASX codes. A keyword search [3] is conducted through annual reports using the database to refine the reports with potential NFP names under director/CEO biographies. Next, the resulting annual reports are manually read to recognise potential NFPs. Certain business structures, such as Pty Ltd, Ltd, NL, Corp, and PLC are disregarded as being for-profit organizations (it is required by firms to disclose these roles under Australian Corporations Legislation). The recognized list of potential NFPs is checked through primary public information sources, such as the ABN and Australian Charities and Not-For-Profit Commission (ACNC) registers.

3.3.3 Control variables. Control variables are included at three levels: CEO characteristics, board characteristics, and firm characteristics. CEO gender (CEOGEN) is equal to 1 if the CEO is a woman and 0 otherwise. Gender is not necessarily a binary variable; however, our sample comprises only men and women, as disclosed in director biographies in annual reports. CEO duality (CEODUA) equals 1 if the CEO is also the Chair and 0 otherwise. CEO tenure (CEOTEN) is the number of years the CEO has held the CEO role in the firm. CEO data is sourced primarily from the Connect4 and EIKON/Refinitiv databases and supplemented with hand-collection. Board characteristics (Biswas et al., 2018; de Villiers et al., 2022; Walls et al., 2012) include board independence (BDIND, the percentage of independent directors on the board), board size (BDSIZE, the number of directors on the board), and board gender diversity (BDDIV, the proportion of women directors on the board). Consistent with Biswas et al. (2018), Clarkson et al. (2011), de Villiers et al. (2022), and Hollindale et al. (2019), firm-level variables

include performance, measured using return on equity (ROE), size using the natural logarithm of total assets (LNTA), market to book value ratio (MBV), and age (FAGE) based on the number of years listed on ASX. Capital expenditure (LNCAPEX) is the natural logarithm of the proportion of capital expenditure on operating revenue, and leverage (LEV) is the ratio of total liabilities to total capital. This data is sourced from Morningstar and EIKON/Refinitiv databases.

4. Results and discussion

4.1 Descriptive statistics

Table 1 reports the descriptive statistics of the variables. All variables except CEP, BOARDBEN, and CEOBEN are winsorized at the 1st and 99th percentiles to adjust for outliers.

CEP values for the sample range from 0 to 89, with an average of 31, indicating a right-skewed, non-normal distribution with 120 zero observations [4]. Thus, we use Tobit regressions in our analysis. Board benevolence ranges from 0 to 100% with an average of 39%, and CEO benevolence ranges from 0 to 9 with an average of 0.51. This indicates that, on average, 39% of firm directors also serve on NFPs. The average CEO tenure is 5 years. Average values for firm age is 22 years, log of total assets is 14.29, board independence is 67%, board size is 7 directors, board meetings is 12, and board gender representation is 17%. The Pearson correlations of all variables indicate low to moderate correlations (not tabularized), indicating no threat of multicollinearity (Tabachnick *et al.*, 2013).

4.2 Board benevolence and CEP

Our main results are reported in Table 2. In the first model, we find a positive ($\beta = 9.982, p < 0.01$) relationship between board benevolence and CEP. This supports our first hypothesis that benevolent directors enhance the environment performance of firms. As a measure of economic significance, these results indicate that one additional benevolent director on the board of the

Table 1. Descriptive statistics of all variables

	Variable	Mean	SD	Min.	Max.	Skewness
<i>Main variables – dependent and independent</i>						
1	CEP	30.69	25.34	0.00	89.37	0.44
2	BOARDBEN	0.39	0.26	0.00	1.00	0.32
3	CEOBEN	0.51	0.98	0.00	9.00	2.89
<i>CEO characteristics</i>						
4	CEODUA	0.09	0.29	0.00	1.00	2.89
5	CEOGEN	0.04	0.19	0.00	1.00	4.84
6	CEOTEN	5.19	4.55	0.00	21.00	1.49
<i>Characteristics</i>						
7	ROE	10.98	24.50	-108.04	72.01	-1.66
8	LNCAPEX	-2.61	1.26	-5.84	1.11	0.28
9	LEV	0.46	0.18	0.08	0.99	0.32
10	LNTA	14.29	1.62	10.30	18.88	0.15
11	MBV	3.36	3.50	0.28	20.51	2.56
12	FAGE	21.94	18.67	2.00	105.00	1.91
<i>Board characteristics</i>						
13	BDIND	0.67	0.19	0.13	0.94	-0.91
14	BDSIZE	7.21	1.97	4.00	13.00	0.61
15	BDDIV	0.17	0.13	0.00	0.50	0.28

Note(s): SD: Standard Deviation. All the variable descriptions are provided in Appendix

Source(s): Authors' own work

Table 2. Board benevolence, CEO benevolence, and corporate environmental performance

Parameter	Estimate H1	Estimate H2
Intercept	-0.546 [0.020]	9.401 [0.310]
BOARDBEN	9.982*** [3.310]	6.115* [1.770]
CEOBEN		-1.907 [1.230]
BOARDBEN*CEOBEN		5.572** [2.010]
ROE	0.038 [1.220]	0.041 [1.330]
LNCAPEX	1.366** [2.300]	1.282** [2.150]
LEV	4.695 [1.150]	5.318 [1.300]
FAGE	0.068* [1.740]	0.068* [1.730]
LNTA	3.827*** [5.820]	3.711 [5.590]
MBV	-0.134 [0.550]	-0.149 [0.620]
BDIND	6.110 [1.640]	6.022 [1.620]
BDSIZE	4.143*** [8.960]	4.135*** [8.960]
BDDIV	39.037*** [5.870]	40.115*** [5.980]
CEODUA	1.789 [0.760]	1.736 [0.740]
CEOGEN	-13.025*** [3.680]	-12.836*** [3.610]
CEOTEN	0.424*** [2.830]	0.404*** [2.700]
Year and Industry FE	Yes	Yes
Log Likelihood	-3580	-3578
Number of Observations	920	920

Note(s): Significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ and t -values are reported in parentheses below estimates. All the variable descriptions are provided in [Appendix](#)

Source(s): Authors' own work

average firm ($1/7 = 0.14$) is associated with an increase in the CEP score of 1.40 points (0.14×9.982) or an increase in the average CEP score of 4.56% ($1.40/30.69$). The coefficient on CEOBEN is insignificant, indicating no direct relationship between CEO benevolence and CEP.

For the control variables, firm size, capital expenditure, board size, board meetings, board gender diversity, and CEO tenure are positively related to CEP. CEO gender is negatively related to CEP. In addition, board gender diversity ($\beta = 39.037$, $p < 0.01$), CEO gender ($\beta = -13.025$, $p < 0.01$), and board benevolence ($\beta = 9.982$, $p < 0.01$) indicate the strongest associations in magnitude with CEP. The result of board gender diversity is the strongest of all variables and is consistent with prior literature revealing the positive impact of women directors on boards in enhancing the environmental performance of firms (Liu, 2018; Peng *et al.*, 2023). As discussed in Section 2 of this paper, the influence of women directors on CEP could be viewed through the theoretical perspectives of gender-based benevolence (Adams *et al.*, 2011; Peng *et al.*, 2023) and diversity of ideas in decision-making (Estélyi and Nisar, 2016; Liu, 2018). However, CEO gender is negatively related to CEP, indicating contradictory

evidence that women leaders enhance CEP. This may indicate that women in boards are more effective in increasing CEP rather than women in CEO roles.

4.3 Moderating role of CEO benevolence

In the second model in Table 2, the positive coefficient on BOARDBEN*CEO BEN ($\beta = 5.572, p < 0.05$) indicates that the positive relationship between board benevolence and CEP is enhanced when firms also have benevolent CEOs. This is consistent with our second hypothesis. Figure 2 illustrates the nature of this interaction. The coloured lines indicate the relationship between board benevolence and CEP at different levels of CEO benevolence. It shows that benevolent CEOs strengthen the association between board benevolence and CEP. This moderating role is more pronounced when CEOs have multiple NFP positions (higher benevolence); thus, indicating the validity of our hypothesis.

4.4 Robustness tests

We perform several robustness tests to validate our results: propensity score matching (PSM), entropy balancing (EB), two-stage least square approach (2SLS), and firm fixed effects regressions with robust standard errors. We also examine the influence of board benevolence on different industry sectors and investigate the sub-categories of the CEP variable.

4.4.1 Propensity score matching. PSM is a commonly applied technique in accounting and finance research to address sample selection bias. The PSM process generates a matched sample through propensity scores by eliminating the covariate mean differences between the treated and control groups (Fan *et al.*, 2021; Rosenbaum and Rubin, 1983) of the independent variable, board benevolence. We create a binary variable for board benevolence, with $\geq 50\%$ score as High (treated) and $< 50\%$ score as Low (control). The matched sample is created using this binary variable as the outcome variable and all other covariates in the baseline model as predictors. The PSM sample has 502 observations, with 251 each for the treated and control groups. In unreported testing, the statistical mean differences of all covariates between the

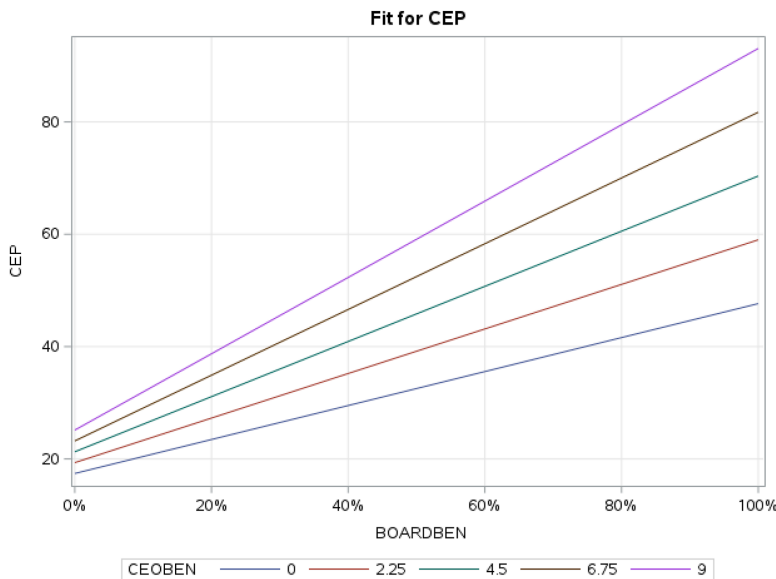


Figure 2. Moderating role of CEO benevolence on the association between board benevolence and CEP. Source: Authors' own work

groups are close to zero and non-significant. Table 3 reports the regression results using the PSM sample. The PSM results confirm our prior results for H1 and H2, indicating a positive relationship between board benevolence and CEP ($\beta = 11.513, p < 0.01$) and the significant moderating role of CEO benevolence ($\beta = 8.076, p < 0.05$).

4.4.2 Entropy balancing. Next, we conduct the EB technique, a relatively new and robust method that can be used in conjunction with PSM (Bhandari and Golden, 2021; Francoeur et al., 2022). Zhao and Percival (2017) referred to EB as a “doubly robust” technique and recent evidence indicates that EB is more robust than PSM (Bhandari and Golden, 2021; McMullin and Schonberger, 2020; Zhao and Percival, 2017). EB poses several advantages over PSM: retaining the original sample size as the matching is done through entropy weighting observations and removing researcher discretion in specifying the matching criteria (Bhandari and Golden, 2021; Francoeur et al., 2022). In unreported testing, the EB process resulted in zero mean differences in control variables between the treated and control groups. Table 3 reports the regression results

Table 3. Matched sample regressions

Parameters	PSM sample		EB sample	
	Estimates H1	Estimates H2	Estimates H1	Estimates H2
Intercept	-481.804 [0.570]	-387.683 [0.460]	-30.241 [0.930]	-17.647 [0.540]
BOARDBEN	11.513*** [2.800]	6.656 [1.420]	8.856*** [3.070]	2.021 [0.600]
CEOBEN	-0.620 [0.680]	-4.495** [2.210]	0.935 [0.610]	-10.586*** [3.160]
BOARDBEN*CEOBEN		8.076** [2.140]		24.137*** [3.860]
ROE	-0.019 [0.000]	-0.012 [0.000]	0.034 [1.130]	0.039 [1.320]
LNCAPEX	2.256** [2.540]	2.250** [2.540]	1.536*** [2.820]	1.437*** [2.660]
LEV	1.669 [0.290]	1.832 [0.320]	-0.395 [0.100]	0.234 [0.060]
FAGE	0.116 [0.000]	0.122 [0.000]	0.063 [†] [1.780]	0.070** [2.000]
LNTA	1.289 [1.510]	1.290 [1.510]	3.740*** [8.880]	3.733*** [6.200]
MBV	-0.619* [1.940]	-0.642 [2.020]	0.015 [0.070]	-0.001 [0.000]
BDIND	6.342 [1.230]	6.274 [1.230]	0.670 [0.200]	0.050 [0.010]
BDSIZE	5.690*** [9.350]	5.663*** [9.330]	3.744*** [8.880]	3.825*** [9.130]
BDDIV	47.040*** [5.030]	46.321*** [4.970]	41.600*** [6.790]	41.687*** [6.850]
CEODUA	-2.200 [0.640]	-1.790 [0.520]	-0.736 [0.340]	-0.963 [0.440]
CEOGEN	18.132*** [4.040]	17.497*** [3.900]	-15.194*** [4.530]	-14.069*** [4.210]
CEOTEN	0.494** [2.410]	0.495** [2.420]	0.266 [†] [1.910]	0.249* [1.800]
Controls and Year and Industry FE	Yes	Yes	Yes	Yes
Log Likelihood	-1998	-1995	-3945	-3938
Number of Observations	502	502	920	920

Note(s): Significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ and t -values are reported in parentheses below estimates. All the variable descriptions are provided in Appendix

Source(s): Authors' own work

using the EB sample. Again, the results confirm our prior results for H1, indicating a positive relationship between board benevolence and CEP ($\beta = 8.856, p < 0.01$). The results also support H2, CEO benevolence strengthens the board benevolence-CEP relationship ($\beta = 24.137, p < 0.01$). Together, these two matched sample techniques, confirm that board benevolence has a unique influence on CEP that is not explained by other controls in the model.

4.4.3 Two-stage least square (2SLS) regression. The above PSM and EB approaches are designed to minimise concerns associated with sample selection bias. However, our results could still be subject to endogeneity concerns due to omitted variables and reverse causality. We may not have captured some unobservable influencing factors in determining CEP in our regression models and the results could be driven by those factors. Reverse causality is also possible as higher CEP in firms may have led to the recruitment of more benevolent directors. In other words, the dependent variable may influence the independent variable. To address reverse causality in our main analysis, we lagged all of the independent variables by 1 year ($t-1$). In this section, we conduct a 2SLS regression to address both omitted variable bias and the reverse causality.

Given the novelty of the construct of board benevolence, suitable instrumental variables are not available in prior literature. In these situations, research in accounting and finance indicates that instruments can be developed by manipulating the independent variable, such as obtaining the lagged values (Wintoki *et al.*, 2012; Le *et al.*, 2024). Valid instruments must satisfy certain conditions; relevance (the instrument must be highly correlated with the independent variable – endogenous variable) and exclusion (the instrument must only influence the dependent variable through the endogenous variable and have no direct connection with the dependent variable) (Le *et al.*, 2024). The relevance criterion is established by examining the correlation between the instrument and the endogenous variable, with an F -Statistic exceeding 10 (First Stage) (Wang and Bellemare, 2019). The First Stage model involves regressing the endogenous variable on the instrument and all other covariates to obtain the predicted values, which are then used in the Second Stage regression, replacing the endogenous variable. The idea of the First Stage regression is to isolate the variation explained in the endogenous variable by the instrument that represents a unique proportion of the endogenous variable. This isolated portion of the endogenous variable is less likely to be influenced by omitted variables and the dependent variable; thus, addressing the endogeneity concern of reverse causality. The exclusion criterion is tested by examining the correlation between the error term of the second-stage regression and the instrument. An insignificant correlation can establish there is no direct connection between the instrument and the dependent variable except through the endogenous variable (Bernile *et al.*, 2018).

We construct an instrument using the lagged value of board benevolence (LAG_BBENIV) and use it in estimating the predicted values of board benevolence (PRED_BBEN). Given all independent variables are lagged by one year ($t-1$) in our baseline models, essentially, the instrument here is lagged by two years ($t-2$). In Table 4, the results show that the instrument is significantly and highly associated with board benevolence ($\beta = 0.738, p < 0.01$), with an F -Statistic of 78.21, establishing the relevance condition. The Second Stage regression uses the predicted values (PRED_BBEN) of the First Stage model, replacing the endogenous board benevolence. The results support H1 indicating that the predicted values of board benevolence are positively related to CEP ($\beta = 12.155, p < 0.01$). Finally, in unreported testing, the association between the error term of the Second Stage model and the instrument is insignificant ($\beta = -1.959, p = 0.820$), indicating the validity of the exclusion condition.

4.4.4 Firm fixed effects. Our baseline analysis includes year and industry fixed effects to control for heterogeneity in years and industries across the sample. In this section, we add firm fixed effects to control for any time-invariant persistent firm characteristics that were not considered in our original regression model (Yang *et al.*, 2019). In addition, we clustered standard errors at the firm level (147 clusters). The results are reported in Table 4. Using firm fixed effects, we continue to document a positive relationship ($\beta = 5.901, p < 0.10$) between board benevolence and CEP. While statistical significance has decreased from 1% to 10% after accounting for heterogeneity across firms, the results are qualitatively consistent with previous analyses. This means the relationship between board benevolence and CEP remains valid after

Table 4. Two-stage least square (2SLS) and firm fixed effects regressions

Parameter	First stage (relevance) (1)	Second stage (main results H1) (2)	Firm fixed effects and robust standard errors (3)
Intercept	−0.121 [1.640]	−102.32*** [9.110]	−66.227** [2.460]
LAG_BBENIV	0.738*** [32.570]		
PRED_BBEN		12.155*** [2.670]	
BOARDBEN			5.901* [1.817]
CEOBEN	0.024*** [4.740]	1.139 [1.410]	−0.207 [0.292]
ROE	0.000 [0.590]	0.009 [0.430]	−0.009 [1.033]
LNCAPEX	0.000 [0.060]	0.200 [0.430]	−0.558* [1.733]
LEV	−0.062** [2.220]	2.671 [0.620]	−5.089 [0.968]
FAGE	−0.000 [0.490]	0.067 [1.600]	1.406*** [4.905]
LNTA	0.017*** [3.640]	3.208*** [4.400]	1.842 [1.409]
MBV	0.001** [2.310]	0.092 [0.460]	0.072 [0.642]
BDIND	−0.001 [0.350]	4.411 [1.130]	−7.261 [1.245]
BDSIZE	−0.000 [0.300]	4.283*** [8.500]	1.281** [2.569]
BDDIV	0.175*** [3.760]	41.683*** [5.770]	−7.297 [1.293]
CEODUA	0.005 [0.310]	2.011 [0.790]	−1.240 [0.436]
CEOGEN	0.005 [0.240]	−13.456*** [3.680]	4.580 [1.003]
CEOTEN	−0.000 [0.560]	0.432** [2.730]	0.046 [0.283]
Year and Industry FE	Yes	Yes	Yes
Number of Observations	920	920	920
Adj. R-squared/Log Likelihood	0.73	−3179	−5706
F-statistic	78.21		

Note(s): Significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ and t -values are reported in parentheses below estimates. All the variable descriptions are provided in [Appendix](#)

Source(s): Authors' own work

accounting for heterogeneity across different years, firms, and industries and within cluster correlations over different years in the sample ([Abadie et al., 2023](#)).

An interesting observation in the results when using firm fixed effects and robust standard errors is the insignificance of the board gender diversity and CEO gender variables. These two variables indicated the strongest associations with CEP in the baseline model and the 2SLS regression. However, board gender diversity and women CEOs are no longer significant. This means that after accounting for heterogeneity in firm-specific time-invariant characteristics and within-cluster correlations, the influence of women directors and CEOs is not evident. The

strongest association is between board benevolence and CEP, validating our key finding that board benevolence has a unique influence on CEP.

4.4.5 Environmentally sensitive industries. Following the approaches of [de Villiers et al. \(2022\)](#) and [Lin et al. \(2022\)](#), we examine sectoral impact by classifying firm industries into natural (dirty) and non-natural (non-dirty). The variable INDSSENS equals 1 if the firm belongs to an environmentally sensitive industry [5] and 0 otherwise ([de Villiers et al., 2022](#)). The sample consists of 312 observations in sensitive industries (out of a total of 920 observations). Firms in sensitive industries are subject to significant environmental risks and pressures ([Cho et al., 2015](#)), thus, we expect these factors might influence the results. However, our results remain qualitatively consistent with the main findings (not tabularized), indicating sensitive industries do not impact the results.

4.4.6 Sub-categories of corporate environmental performance. We also test the influence of board benevolence on CEP sub-categories, consistent with [de Villiers et al. \(2022\)](#): resources use, emissions, and innovations. The results for specifying each sub-category of CEP as the outcome variable are reported in [Table 5](#). We find that board benevolence is

Table 5. Categories of corporate environmental performance

	Resource use	Emissions	Innovations
Intercept	8.873 [0.220]	-37.802 [1.020]	-145.547*** [4.030]
BOARDBEN	7.175* [1.900]	9.041*** [2.600]	4.771 [1.410]
CEOBEN	0.789 [0.410]	4.284** [2.400]	-3.029* [1.740]
ROE	0.073** [2.080]	0.048 [1.480]	-0.042 [1.280]
LNCAPEX	1.876*** [2.760]	1.339** [2.140]	-3.678*** [6.020]
LEV	12.098*** [2.600]	0.075 [0.020]	-3.943 [0.920]
FAGE	0.097** [2.140]	0.032 [0.780]	0.157 [3.850]
LNTA	4.724 [6.250]	5.200*** [7.490]	-4.849*** [7.160]
MBV	-0.003 [0.010]	0.194 [0.790]	-0.407* [1.680]
BDIND	-4.401 [1.040]	9.837*** [2.540]	11.485*** [3.020]
BDSIZE	4.074*** [7.720]	3.357*** [6.920]	4.442*** [9.390]
BDDIV	50.176*** [6.500]	39.658*** [5.590]	37.590*** [5.370]
CEODUA	-5.245** [1.960]	4.396* [1.790]	3.754 [1.570]
CEOGEN	-21.673*** [5.280]	-11.079*** [2.940]	-4.156 [1.130]
CEOTEN	0.245 [1.430]	0.165 [1.050]	0.272* [1.690]
All Controls	Yes	Yes	Yes
Year and Industry Fixed Effects	Yes	Yes	Yes
Log Likelihood	-4145	-4066	-4002
Number of Observations	920	920	920

Note(s): Significance is denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ and t -values are reported in parentheses below estimates. All the variable descriptions are provided in [Appendix](#)

Source(s): Authors' own work

positively related to the sub-categories of Resource Use ($\beta = 7.715, p < 0.10$) and Emissions ($\beta = 9.041, p < 0.01$). There is no significant relationship between board benevolence and Innovations. This suggests that benevolent directors on boards have a greater influence on responsible resource use and actions toward mitigating carbon emissions, and their influence is not significant in driving environmental innovations.

5. Conclusion

This paper examines the relationship between board of director benevolence and CEP. We also investigate the moderating role of CEO benevolence. This research is informed by upper-echelon, benevolent leadership, enlightened stakeholder theories, and the extant literature examining the nexus between board composition and CEP. From a sample of ASX 300 firms from 2010 to 2019, we find a positive relationship between board benevolence and CEP, providing confirmatory evidence for our hypotheses. Our results remain valid after numerous robustness tests: PSM and EB methods, 2SLSIV technique and firm fixed effect regressions.

The results resonate with our theoretical arguments for the link between benevolence and CEP. Benevolent directors/CEOs' indicate a moral standing of accepting their moral social obligations as indicated through their personal life commitments to social causes by serving on NFPs (Chen *et al.*, 2021; Feng *et al.*, 2023; Weerasinghe *et al.*, 2024). Relatedly, they may have a higher inclination to serve a wide range of stakeholders and are equipped with additional experience, broader perspectives, and accountabilities developed through serving on NFPs (Bekkers and Wiepking, 2011; Feng *et al.*, 2023; Ward and Miller-Stevens, 2021). These arguments resonate with UET (Hambrick and Mason, 1984), the benevolent leadership model (Karakas and Sarigollu, 2012), and EST (Freeman, 2010).

We contribute to scholarly research in several ways. First, we contribute to the international and Australian literature examining associations between board/committee composition and CEP (Biswas *et al.*, 2018; de Villiers *et al.*, 2011, 2022; Walls *et al.*, 2012), by exploring the effects of a new board composition characteristic, director benevolence. We are the first to examine the influence of director benevolence (measured through corporate director involvement in NFPs) on CEP. Second, our results contribute to the upper-echelon literature that investigates the link between managerial characteristics and corporate outcomes (Arena *et al.*, 2018; Borghesi *et al.*, 2014; Chapple *et al.*, 2020). Third, our findings resonate with the enlightened stakeholder view (Queen, 2015), revealing the greater influence on CEP of directors who serve across corporate and NFP sectors than their counterparts who do not engage with NFPs. Further, we find that benevolent CEOs support benevolent directors in generating environmental initiatives. We argue that these corporate leaders are inclined to serve a wide range of stakeholders, understand the need for both for-profit and for-purpose aspects in decision-making, and manage firms with broad perspectives developed through engaging in NFP leadership. Lastly, we contribute to the literature that examines the interaction effect between board-CEO characteristics in influencing CEP (McGuinness *et al.*, 2017; Walls *et al.*, 2012), with CEO benevolence. Our findings indicate that the association between board benevolence and CEP is more potent in the presence of a benevolent CEO.

We offer three significant implications for practice. First, we reveal the positive impact of directors who serve in the NFP sector on CEP in the Australian context. The findings are primarily insightful for firms, corporate leaders, and recruiters pursuing avenues to increase environmental performance. The results indicate that firms can significantly improve their CEP by increasing the proportion of directors who hold NFP positions (benevolence). Our results will be insightful for firms in structuring top leadership leading to the mandatory sustainability reporting in the Australian context from 2025. This is likely to be achieved by either recruiting benevolent directors or encouraging existing directors to serve in NFP leadership positions. We also show that firms would benefit from board and CEO interactions when both leadership structures consist of benevolent leaders. Second, our findings will

interest Australian regulatory bodies such as ASIC and ASX, given their significant commitments (e.g. strengthening reporting requirements) to make Australia less polluted (ASX Corporate Governance Council, 2019; Li *et al.*, 2023). Third, the results will interest investors, lenders, auditors, and anyone concerned about the corporate environmental impacts in understanding the drivers of CEP. Finally, our study shows that many directors are serving on NFPs, indicating the potential that NFP organizations might likely benefit through increased access to resources.

We also acknowledge the limitations of our research and suggest future research avenues. We focus on a sample of Australian-listed firms for this research. However, it does not necessarily rule out the value of the findings to the international context, precisely, to the countries making efforts to reduce their corporate environmental impact. For instance, despite efforts, countries such as China, India, and the US are the most significant GHG emitters globally, collectively accounting for 42.6% of global emissions (World Resources Institute, 2023). Further, the results will be valuable for countries that perform better in environmental performance and wish to sustain their ethical practices. Future research can extend our study to different contexts to examine whether the influence of board and CEO benevolence remains significant to CEP. We use CEO benevolence as a moderator and future studies can investigate other CEO characteristics that may interplay with board benevolence. We also do not separately assess the differential impacts of serving on different types of NFPs and CEP, thus, a compelling avenue for future research. Lastly, we measure board benevolence based on the proportion of benevolent directors on boards. However, it is possible to proxy benevolence based on the number of total NFP positions collectively held by boards and examine this influence on CEP.

Notes

1. See for more details: Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Act 2024. Amends the: *Corporations Act 2001* and 8 other Acts. Passed as legislation on 17th September 2024, available at: https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bid=r7176
2. Number of indicators are given for the total ESG indicators rather than the environment pillar.
3. The detailed data hand-collection process and descriptive analyses are available in Weerasinghe *et al.* (2024).
4. The zero observations do not represent missing values as these firms have total ESG scores in EIKON. This is verified by checking certain firms manually in the database. Thus, we include zeros for the analysis.
5. SIC codes between 800 and 899 (Forestry), 1000–1099 (Metal Mining), 1200–1399 (Coal Mining and Oil and Gas Exploration), 2600–2699 (Paper and Pulp Mills), 2800–3099 (Chemicals, Pharmaceutical and Plastics Manufacturing), 3300–3399 (Iron and Steel Manufacturing), and 4900–4999 (Electricity, Gas and Wastewater).

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Further reading

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Appendix

Table A1. Variable descriptions

Variable	Definitions	Source	Key literature
<i>Panel A: Corporate Environmental Performance and NFP positions</i>			
CEP	Environmental performance score ranging from 0–100	EIKON	Clarkson et al. (2011)
CEO BEN	Discrete count variable representing NFP positions held by a CEO of a firm in a year	Hand-collected	Weerasinghe et al. (2024)
BOARD BEN	Percentage of the board holding NFP positions (at least one position) in a year	Hand-collected	
LAG_ BBENIV	One-year lagged values of board benevolence	Calculated	–
PRED_ BBEN	Predicted values of board benevolence in the 2SLS regression	Estimated	–
<i>Panel B: Firm Characteristics</i>			
ROE	Return on equity	Morningstar	Biswas et al. (2018) , Clarkson et al. (2011) , de Villiers et al. (2022) , Hollindale et al. (2019) , Lin et al. (2022)
LNCAPEX	Natural logarithm of capital expenditure/operating revenue	Morningstar	
LEV	Ratio of total liabilities to total capital	Morningstar	
LNTA	Natural logarithm of the sum of total assets	Morningstar	
FAGE	The number of years listed in ASX	Morningstar	
MBV	Market value/common shareholder equity	Morningstar	
<i>Panel C: Corporate Governance Characteristics</i>			
BDIND	Percentage of independent directors on the board	EIKON	Biswas et al. (2018) , de Villiers et al. (2022) , Walls et al. (2012)
BDSIZE	The total number of board members at the end of the fiscal year	EIKON	
BDDIV	Percentage of women directors on the board	EIKON	
<i>Panel D: CEO Characteristics</i>			
CEODUA	Binary variable, equal to 1 if the CEO is also the Chair and 0 otherwise	EIKON	Biswas et al. (2018) , de Villiers et al. (2022) , Walls et al. (2012)
CEO GEN	Binary variable, equal to 1 if CEO is woman and 0 otherwise	Connect4	
CEOTEN	The number of years a CEO has been the CEO	Connect4	
Source(s): Authors' own work			

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