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The effects of board characteristics and sustainable compensation policy on carbon performance of UK firms

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A B S T R A C T

This study examines the effects of board characteristics and sustainable compensation policy on carbon reduction initiatives and greenhouse gas (GHG) emissions of a firm. We use firm fixed effect model to analyse data from 256 non-financial UK firms covering a period of 13 years (2002–2014). Our estimation results suggest that board independence and board gender diversity have positive associations with carbon reduction initiatives. In addition, environment-social-governance based compensation policy is found to be positively associated with carbon reduction initiatives. However, we do not find any relationship between corporate governance variables and GHG emissions of a firm. Overall, our evidence suggests that corporate boards and executive management tend to focus on a firm's process-oriented carbon performance, without improving actual carbon performance in the form of reduced GHG emissions. The findings have important implications for practitioners and policymakers with respect to the effectiveness of internal corporate governance mechanisms in addressing climate change risks, and possible linkage between corporate governance reform and carbon related policies.

1. Introduction

There have been increasing concerns from the environmentalists, civil societies, policymakers, regulators, markets and shareholders about the consequence of greenhouse gas (GHG) emissions and climate change risks on the environment and on firm performance. The Kyoto Protocol is considered as the main driving force that influenced various stakeholder groups to put pressure on firms to disclose GHG emissions and to undertake emission reduction initiatives (Freedman & Jaggi, 2005). Luo, Lan, and Tang (2012) observe that the driving force for climate change initiatives comes from social, economic, regulatory pressures. Firms are gradually responding to these concerns by reducing GHG emissions and adopting various strategies relating to the consumption and use of water, energy and biodiversity (Gallego-Alvarez, Segura, & Martínez-Ferrero, 2015). Specific actions include complying with regulatory requirements, buying carbon credits (to offset own emissions), requiring supply chain partners to reduce their emissions, and applying technological solutions to reduce carbon footprint and other pollution (Galbreath, 2010). Vesty, Telgenkamp, and Roscoe (2015) observe that the carbon emissions numbers become central to an organisation's accounts, which include the decision-making process and asset valuation for long-term investment projects. They also observe that carbon accounting has emerged as a part of a broader effort to make global sustainability issues visible and accountable.

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Corporate governance (CG) mechanisms play critical roles in addressing a firm's environmental and climate-related risks, and monitoring a firm's engagement in carbon initiatives (see Peters & Romi, 2014). Matsumura, Prakash, and Vera-Muñoz (2014) observe that shareholders are exerting increasing pressure on managers to evaluate the risks and opportunities of a firm in relation to climate change, and to report the financial consequences of climate-related decisions of executive management. Available literature (for example, Ibrahim & Angelidis, 1994; Liao, Luo, & Tang, 2015; Singh, Vinnicombe, & Johnson, 2001) suggests that the implementation of climate-related programmes is more complex due to greater conflict of interests among various stakeholders, and that a diverse, independent and representative board is more likely to resolve these conflicts by making a balance between a firm's financial and non-financial goals. It is also observed that female directors show greater orientation towards corporate social and environmental responsibilities, and that independent directors offer effective monitoring of management actions on environmental matters. However, Prado-Lorenzo and Garcia-Sanchez (2010) find that corporate boards generally remain inactive in monitoring the disclosure of a firm's environmental and carbon-related activisms.

Therefore, available literature shows inconclusive evidence of the effectiveness of the board in addressing environmental concerns. Moreover, these studies examine the impact of board characteristics on carbon disclosures, rather than carbon performance such as carbon protection initiatives and GHG emissions. Whilst carbon disclosure is a part of overall carbon mitigation activities, the latter require substantial amount of financial, personnel and technological resources, and long-term strategic commitments of the shareholders, boards and executive management (Luo, Lan, & Tang, 2013). Liao et al. (2015) argue that these decisions and potential outcomes have a far-reaching impact on a firm's future development. Among others, Matsumura et al. (2014) and Kim, An, and Kim (2015) examine the impact of carbon emissions on firm performance, whereas Luo and Tang (2014) examine the relationship between carbon performance and carbon disclosures. However, these studies do not consider the effects of corporate governance characteristics on carbon performance.

A notable exception is de Villiers, Naiker, and van Staden (2011), who examine the effects of board characteristics on environmental performance of US firms, and find evidence in support of monitoring and resource provisioning roles of the board. In a similar study, Mallin and Michelon (2011) examine the relationship between board characteristics and corporate social performance, and support the resource based view (RBV) of the board. A related literature addresses the incentivising role of the board in that the board can design an effective compensation structure to motivate self-serving executives to undertake environmental initiatives. For example, Mahoney and Thorn (2006) and Campbell, Johnston, Sefcik, and Soderstrom (2007) argue that executive compensation is likely to promote good social and environmental performance, which can enhance social and environmental legitimacy as well as organisational survival capabilities. Since carbon abatement projects require substantial long-term financial commitment without immediate financial gain (Liao et al., 2015), they are less likely to be materialised without active engagements of powerful executive management. Therefore, as Berrone and Gomez-Mejia (2009) suggest, firms can persuade powerful managers to undertake environmental initiatives and extract the benefits of good environmental performance. Accordingly, Mahoney and Thorn (2006) find a positive relationship between executive compensation and corporate social performance of Canadian firms.[1] Using data from US firms, Berrone and Gomez-Mejia (2009) also show a positive relationship between executive compensation and environmental performance, even though Cordeiro and Sarkis (2008) find mixed evidence.

Recognising the significance of executives' commitment in pursuing sustainable corporate strategies, there is a recent trend in the corporate sector to link executive compensation with sustainability issues. For example, the Newsweek Green Ranking 2015 shows that 53 percent of US firms and 69 percent of global firms link at least part of their executive bonus payout to green performance targets such as energy use and GHG emissions (Heaps, 2015).[2] The significance of addressing the effect of executive compensation is more relevant in the context of the UK, where regulations were imposed on firms to disclose detailed reports on executive remunerations,[3] following the latter's alleged role in the recent financial crisis. Interestingly, no studies to date address the effect of environment-social-governance (ESG)-based compensation on carbon performance of a firm.[4]

Moreover, related literature considers social or environmental performance, rather than carbon performance of a firm. Considering the significance of climate-related risks, it is imperative to have a separate empirical framework on the determinants of carbon performance. Liao et al. (2015) and Lash and Wellington (2007) observe that GHG differs from water and air pollution, hazardous waste and toxic chemical emissions, since GHG emission problem is global and its consequences are long-term and irreversible. Therefore, carbon management requires unique firm-specific capabilities and capital investment, and is guided by separate regulations and reporting requirements (Liao et al., 2015). Moreover, Luo and Tang (2014) argue that

[1] Frye, Nelling, and Webb (2006) examine the effect of CEO compensation on CEO turnover in socially responsible (SR) US firms, and find that SR firms are more likely to experience CEO turnover following poor performance.

[2] A Glass Lewis study of 2013 shows 44% of S&P 100 firms linking at least some executive compensation to at least one sustainability criteria, up from 42% in 2012 (Welsh, 2014).

[3] UK regulations require FTSE firms to present a directors' remuneration report covering information on directors' remuneration policy, service contract, characteristics of the pension schemes and share-based payments as well as details of the remuneration received by each director (in terms of salary, bonus, benefit and termination payment) (Melis, Gaia, & Carta, 2015).

[4] Cordeiro and Sarkis (2008) examine the relationship between environmental performance (EP) and CEO compensation in the US firms with explicit contractual linkage with EP, and find inconclusive evidence.