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Climate Change Governance in the South African Mining Sector

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A high carbon footprint attributed to coal-based electricity; low value-added in mineral exports; regional isolation from its key trading partners; low levels of technological innovation; low levels of climate change mitigation efforts; and low value-added in its exports: all these expose the South African mining sector to climate change-related business risks. This study explores corporate governance as a vehicle through which South Africa's mining companies could improve their response to climate change. In this study, discussions of climate change at board level, the existence of climate change strategy, communications on climate change and initiatives to mitigate climate change are considered proxies for corporate performance on climate change. Furthermore, corporate governance mechanisms and practices, the role of company executives and that of the board are regarded as central determinants to corporate performance on climate change. Research findings from a sample of 12 mining companies indicate the sector's vulnerability to climate change business risks. The study results showed that South Africa's mining companies in general do not regard 'product', 'competition', 'technological' and 'consumer activism' as significant forms of climate change business risks. The assessment showed that, on average, South African mining companies need to improve their climate change corporate governance.

- Climate change
- Climate change governance
- Corporate governance
- Corporate performance
- Carbon footprint
- Climate change mitigation
- Climate change risks
- Business risks

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Companies whose core business is in emissions-intensive sectors would do well to think about investment in greater energy efficiency and new technology development, and in some instances even diversifying their activities. The fact is that, in a carbon constrained world, there will be winners and losers, and it is up to every CEO and board Chair to rise to these new challenges and opportunities (Van Schalkwyk 2007).

CLIMATE CHANGE IS TOPICAL NOT ONLY BECAUSE of the evidence of its broad impact on the ecosystem and our quality of life but, equally importantly, because of its impact on business, business ecosystems and competitiveness of nations (Bernstein *et al.* 2007). Scientific evidence indicates that the increase in levels of atmospheric anthropogenic greenhouse gases attributed to industrialisation has made a significant contribution to climate change (Le Treut *et al.* 2007). With the increase in concentration of these gases, climate change is expected to increase the frequency and magnitude of many types of extreme event, including floods, droughts, tropical cyclones and wildfires (Bernstein *et al.* 2007; Kirby 2009). As a result of scientific consensus on the link between climate change and increasing concentration of these gases in the atmosphere, the Kyoto Protocol (UNFCCC 1998) was adopted in 1997 to monitor, limit and reduce climate change through targeting the generation of anthropogenic greenhouse gases. The protocol employs various instruments including carbon tax, emission reduction targets, emission caps, regulations and market mechanisms in order to limit further emissions. In parallel, several other initiatives such as the United Nations through its various programmes, international scientific programmes and institutions, industry-driven programmes, non-governmental organisations and international humanitarian organisations are approaching the climate change challenges from various angles.

According to Llewellyn (2007), businesses are likely to be affected both by climate change itself and by policies designed to mitigate climate change. Equally, climate change mitigation offers innovation-driven companies opportunities such as improving the bottom line through efficiency and alternative energy supply, improving industry reputation and gaining access to new markets (Southworth 2009). According to a survey by Deloitte (2009), climate change has become a business issue because of emerging regulations, increased requirements for reporting and transparency, heightened pressure from investors, energy price volatility, costs to business linked to climate change and market demands for green products and technologies. Furthermore, according to Cogan *et al.* (2006) and the Carbon Disclosure Project (CDP) report (2009), shareholders and financial analysts increasingly assign value to companies that prepare for and capitalise on business opportunities posed by climate change—whether from greenhouse gas regulations, direct physical impact or changes in corporate reputation. Several studies, including those by McKinsey (2008), Deloitte (2009), CDP (2007, 2008) and Llewellyn (2007), assert the strategic importance to business of climate change mitigation. As a result, company executives and boards are faced with a challenge in responding to climate change without compromising shareholder expectations (WEF 2002; Cogan *et al.* 2008a; Mills 2009; DiPiazza 2009). Despite the above, it has been reported

that mining companies in general do not consider climate change as a risk in strategic planning (KPMG 2010).

Corporate governance is critically important in determining how companies respond to climate change (Cogan *et al.* 2008a). According to DiPiazza (2009), Porter and Kramer (2006) and Enkvist *et al.* (2008), the involvement of the board and the vision and leadership of the chief executive officer (CEO) are vital in accelerating a company's collective response to climate change. Companies that integrate climate change into their board and executive structures, as well as their public reporting mechanisms, are far more likely to maintain the long-term commitment and comprehensive approaches needed to effectively address climate change risks and opportunities across their entire business structure (Llewellyn 2007; Cogan *et al.* 2008b). Within the South African context, the roles, responsibilities and liabilities of executives and boards are set out in the King III code of corporate governance (IOD 2009) and the Companies Act 2008 (Act 71 of 2008; RSA 2008). The King code requires boards to identify and report key performance and risk areas for the company (KPMG 2011).

The purpose of this study was to add to the body of knowledge about the corporate sector's ability to operate within a carbon-constrained society by employing effective corporate governance principles and practices. The research attempted to answer the question: **To what extent is the corporate governance platform used by companies in responding to the challenges of climate change?**

This study was limited to an investigation of the climate change-related management functions, roles, systems and practices adopted by the board and the CEO. The study pays particular attention to how corporate executives and boards are addressing company governance systems to minimise climate-related risks and maximise solution-oriented products and services (Cogan *et al.* 2008a). According to BSR (2007), companies should focus on management paradigm shifts in: (a) rethinking basic assumptions about business processes; (b) building strong governance structures; (c) engaging and involving employees at all levels as contributors; (d) reducing embedded emissions; (e) educating customers; (e) co-creating opportunities with other organisations; (f) designing low emission products and services; and (g) encouraging climate-friendly behaviour among individuals. According to Deloitte (2009), in spite of the current global economic crisis, the board's role is undoubtedly increasing, as there is greater awareness of the business risks and opportunities associated with corporate responsibility, sustainability and climate change.

This study was necessitated by the fact that corporate governance provisions differ from company to company, and that corporate governance structure has certain characteristics or constituent elements which distinguish it from country to country. Durisin and Puzone (2009) noted that most articles published on corporate governance are based on a single country context (the United States, to be specific) and that only a few are multinational. Furthermore, little is known about the extent to which governance practices are addressing the climate change issue in firms around the world (Galbreath 2009). No study linking corporate governance mechanisms and climate change in the South African mining sector has ever been produced.

South Africa's economy is not isolated from climate change risks. Its energy-intensive industries with specific reference to the mining sector are vulnerable to climate change risks owing to their strong dependence on coal-generated energy. Over 95% of South Africa's energy is derived from burning fossil fuels (DEA 2009). In 2000, South Africa's energy consumption contributed about 79% of national greenhouse gas emissions (PMG 2010). As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, South Africa is compelled to contribute to efforts to combat climate change while ensuring the sustainability of its economy (Eskom Annual Report 2009). Standard statistics for measuring South Africa's contribution to climate change indicate the situation is dire. In comparison, South African per capita greenhouse gas emissions are higher than those of China and India and exceed the global average. Its emissions per GDP are also high compared with most developed and developing countries (DEA 2010). It is therefore important to note that the mining sector contributes significantly to South Africa's GDP (Baxter 2011). Brent *et al.* (2009) state that current South African exports have at least 129% more associated carbon per dollar earned on exports than per dollar spent on imports. Their study showed that the carbon footprint of the outflows equated to 37% of the total carbon emissions of the economy. South Africa's challenge is how to achieve its growth objective while reducing its greenhouse gas emissions (NCCRP 2009).

Literature review

The literature review sought to establish a rational link between climate change and corporate governance. Llewellyn (2007) found that efficacy in responding to climate change is becoming a competitive attribute for companies, while companies that fail to respond to climate change may not be sustainable in the long term. This view is supported by Galbreath (2009), Hoffmann *et al.* (2009) and Cogan *et al.* (2008a), who have noted that climate change corporate governance is of great importance to the oversight and strategic direction of corporations. In the *McKinsey Quarterly*, Enkvist *et al.* (2008) found that 60% of surveyed executives regarded climate change as strategically important for activities such as product development, investment planning, brand management, media attention to climate change, corporate reputation and customer preference. A related study by Deloitte (2009) showed the growing role and interest of the board in issues of climate change. The Deloitte (2009) study found that 79% of directors that responded to their study had a strong or moderate understanding of the business risks associated with climate change, while 76% had a strong or moderate understanding of the business opportunities associated with climate change. In spite of the current global economic crisis, the board's role is undoubtedly increasing, as there is greater awareness of the business risks and opportunities associated with corporate responsibility, sustainability

and climate change (Deloitte 2009). According to Salgado (2009), investors are starting to evaluate businesses on the basis of their level of climate change preparedness.

The sixth CDP report shows that South African companies have not yet fully grasped the management challenges associated with their carbon performance. Only 23% of the JSE Top 100 companies that responded to the sixth CDP survey had specific emission-reduction targets in place. And about 61% of the JSE Top 40 responding companies have allocated board-level or upper-management responsibility for climate change-related issues (CDP 2007).

This study recognises corporate governance as an important factor in corporate response to climate change. Corporate governance is concerned with holding the balance between economic and social goals and between individual and communal goals (King II 2002). According to Aguilera *et al.* (2007), corporate governance occurs in a context centred on social interaction between members of the board, the company, its stakeholders and the company's macro-environment. According to King III (2009), corporate governance involves the establishment of structures and processes, with appropriate checks and balances that enable directors to discharge their legal responsibilities. Corporate governance is viewed in this study in respect of the generic functions of the CEO and the board (Fama and Jensen 1983; Hung 1998; King II 2002; King III 2009). Through focusing on corporate governance, the study gives particular attention to how corporate executives and boards are addressing their governance systems to minimise climate-related risks and maximise solution-oriented products and services that aim to help society mitigate and adapt to climate change (Cogan *et al.* 2008b).

Effective and sustainable response to climate change is subject to the effectiveness of the corporate governance systems used in a particular context. The foundations of effective corporate governance are an appropriate and effective legal, regulatory and institutional base, reflecting a country's specific circumstances, history and tradition (OECD 2004). Generally, guidelines for corporate governance are contained in the code of corporate governance. Zattoni and Cuomo (2008) consider a corporate governance code as a set of best practices regarding the board and other governance mechanisms. Corporate governance in South Africa is defined by the King Code. The King Code is built on a number of international codes and practices, as listed by KPMG (2004), and includes the Netherlands Code, the OECD Principles of Corporate Governance and the UK Combined Code. In this study, the King Code is reviewed in respect of its relevance to effective corporate response to climate change. Corporate governance in South Africa was institutionalised by the publication of the King Report on Corporate Governance in 1994 (King II: 5).

In the context of this study, corporate governance is described by the board's structure and functions, the board charter, the content of board meetings, the CEO's role, and the climate change position statement. Rose (2007), Cogan *et al.* (2008), Galbreath (2009, 2011), Terjesen *et al.* (2009), Amran *et al.* (2011), Bernardi *et al.* (2009) and the CDP survey (2008) consider the following additional attributes as defining corporate governance on climate change:

- ▶ Public disclosure. Communicating with stakeholders about company climate change information such as emission reduction targets, carbon footprint and climate change initiatives
- ▶ Emission accounting systems. Measuring and monitoring the company's carbon footprint
- ▶ Executive management execution. Leadership on matters relating to response to climate change challenges
- ▶ Strategic planning and implementation
- ▶ Innovation related to climate change
- ▶ A focus on stakeholders
- ▶ Board oversight
- ▶ Importance of non-executive directors and women on the board

The challenges that face executives and the board include (Llewellyn 2007):

- ▶ Integrating climate change into business strategy
- ▶ Securing dedicated resources for responding to climate change
- ▶ Inculcating in management a constructive culture of adaptation to a changing economic landscape
- ▶ Educating employees on climate change
- ▶ Encouraging employees to embrace change, and equipping them to do so
- ▶ Undertaking the requisite research and development for radical innovative solutions and translating this research and development into appropriate investment in physical and human capital

Corporate governance theories

The purpose of this section is to outline the theories that underlie corporate governance structures and systems adopted by companies in their efforts to effectively respond to climate change. The significance of corporate governance in corporate response to climate change has been outlined in the above paragraphs and in several studies that include Galbreath (2009), Hoffmann *et al.* (2009), CDP (2009), Deloitte (2009) and Cogan *et al.* (2008a). Corporate governance is about how firms should be governed so that they operate effectively and efficiently. According to Filatotchev and Boyd (2009) and Oikos (2011), it sets the legal framework to protect a company's shareholders and stakeholders. Cogan *et al.* (2006) argue that effective corporate response to climate change must be built on well-functioning environmental management systems and properly focused corporate governance practices. In that respect, the paragraphs below describe the agency theory, the stakeholder theory and the resource dependence theory in order to give a perspective from which companies, through the

corporate governance function and arrangements, respond to climate change. The various aspects of corporate governance relevant to corporate response to climate change are described in the following paragraphs.

According to Daily *et al.* (2003), and Filatotchev and Boyd (2009), the most dominant theory applied to corporate governance is the agency theory. Interestingly, from their review of corporate governance literature between 1993 and 2007 using citation and co-citation analysis, Durisin and Puzone (2009) show that the agency theory dominated corporate governance theory between 1993 and 2007. The agency theory is strengthened by the fact that it has undergone academic scrutiny for decades. The roots of the agency theory are found in Berle and Means (1932), who highlighted the separation of ownership and control, and in Jensen and Meckling (1976), who defined the agency theory as an explanation of how the public corporation could exist, given the assumption that managers are self-interested and exist in a context in which they do not bear the full wealth effects of their decisions. Berle and Means (1932) (as cited in Tudor 2006) were among the first to argue that the separation between ownership and control in publicly traded corporations produces an agency problem: how less informed 'outside' owners could monitor or be better informed than 'inside' managers.

The agency theory is concerned with minimising the agency problem. The theory posits that board independence is critical to protecting shareholder interests, because independent board members are expected to monitor and control the opportunism of inside managers (Galbreath 2009). Jensen and Meckling (1976) define an agency relationship as a contract under which one or more persons (the principal or principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent. Ross (1973) (as cited in Tudor 2006) defines it as a relationship between two or more parties when the one designated as the agent acts for or on behalf of, or as a representative of, the other designated as the principal, in a particular domain of decision problems.

The agency theory is relevant to climate change response in that it underscores the necessity for establishing corporate boards and that it provides the expected roles of boards in corporate governance. Considering the risks and opportunities of climate change, the CEO as an agent is expected to respond to climate change for the optimal benefit of a company's stakeholders. The CEO is expected to do so without negatively affecting shareholder value. The board is required to ensure that: (a) the company is responsive to climate change; and (b) that the initiatives chosen are of strategic relevance to the company.

The resource dependence theory is based on the conception of the firm as being embedded in networks of interdependences and social relationships, wherein attention is focused on powerful individuals or institutions within a society (Tudor 2006: 106). In a situation of information asymmetry, non-executive directors are important for climate change response. According to Galbreath (2009), board independence is important in governing climate change because independence could be expected to inject new insights and perspectives related to environmental and social stakeholders, while challenging existing mental

models in decision-making that might be focused exclusively on the economic bottom line. Within the South African context, the King III code highlights the significance of non-executive directors in corporate governance. It requires that the board must be chaired by a non-executive director and that the audit committee should be chaired by and comprise exclusively non-executive directors.

The stakeholder theory is based on Freeman's (1984) (as cited in Kolk and Pinkse 2009) definition of stakeholders as 'any group or individual who can affect or is affected by the achievement of the organisation's objectives'. From such a perspective, a company emerges as a nexus of implicit and explicit contracts between various actors with interests that are not always congruent (Hill and Jones 1992; Kolk and Pinkse 2006). King III presents the 'stakeholder' and 'ethics' as concepts of central importance to defining corporate governance within a South African context. The King III code's emphasis on stakeholder, ethics and sustainability issues demonstrates the link between the King III code and matters of climate change.

The stakeholder view is relevant to climate change because:

- ▶ It encourages managers to articulate the shared sense of the value they create, and is what brings company core stakeholders together. Thus market performance and financial metrics are used
- ▶ Managers are compelled to outline the types of relationship to be created with stakeholders in order to deliver on the company purpose (Hill and Jones 1992; Kolk and Pinkse 2009)

In sum, 'agency' and 'stakeholder' theories of corporate governance suggest that firms that adopt good corporate governance practices can better align the interests of stakeholders and management, thus creating long-term value (Oikos 2011). The agency theory helps to explain the behaviour of firms in addressing climate change issues (Amran *et al.* 2011). As applied in Cogan *et al.* 2006 and CDP 2009, climate change corporate governance is understood through investigating aspects of corporate governance such as board diversity, board composition, subcommittees of the board and the roles of company executives in dealing with climate change-related issues.

Methodology

The research population comprised South African companies in the energy-intensive sector that responded to the sixth Carbon Disclosure Project (CDP) survey (CDP RSA 2008). The sixth CDP survey had an 85% response rate; 30% of the sample comprised companies from energy-intensive sectors.

Among companies in the energy-intensive sector, mining companies were selected for the study sample because of the following factors: (a) the mining sector is highly energy intensive; (b) mining operations often contribute to large emissions of anthropogenic greenhouse gases (GHGs); (c) the carbon

footprint of the mining companies is worsened by high secondary emissions; and (d) exports from the mining sector encounter possible risks from emission targeting regulations. Furthermore, climate change has the potential to affect the competitiveness of the mining sector, particularly if the following assumptions are realised in the future:

- ▶ Introduction of compulsory emission reduction targets for companies
- ▶ Introduction of punitive penalties for companies that exceed set emission limits
- ▶ Introduction of compulsory carbon footprint reporting
- ▶ Introduction of across-the-board carbon taxes
- ▶ Increasing stakeholder and shareholder activism on climate change
- ▶ A scenario where advanced clean and alternative technologies become key competitiveness factors

Within the study sample, only those companies that gave full access to their CDP survey reports were selected; in that regard, the study sample was conveniently reduced to 12 mining companies and may represent a sample that is more positively disposed to environmental sustainability in general.

Qualitative research techniques were chosen in order to solicit secondary data on corporate governance practices and systems that address climate change. According to Flick (2007), a qualitative research technique is designed to understand, describe and explain social phenomena by analysing individuals and documents, and the observation of individuals in their natural environmental context of interest.

Data sources

Data was sourced from the annual report, the sustainability report, company documents, the board charter and respective company websites. Narrative sections of the annual reports that were considered included the CEO's letter, the chairperson's letter, the board minutes, the board report and any other narratives in which the company reported on its climate change initiatives. The annual report is an important source of company information, because it is used by researchers and by investors for valuing the worth of a company (Walker 2009). In addition, the King III code, the JSE listing requirements and the South African Companies Act (Act No. 71 of 2008) prescribe measures to ensure that information reported in the annual report is factual and truthful. However, an examination of annual reports over the period 1990 to 1993 (Deegan and Rankin 1996, as cited in Jason *et al.* 2006) identified shortcomings of annual reports as a source of reliable data. These researchers found that 'poor' environmental performers provide more disclosure than other firms but that such disclosure is almost always of a positive, general nature and unrelated to any environmental prosecution or performance. Mitchell *et al.* (2006) came

to a similar conclusion, confirming that environmental disclosures in annual reports of violating firms are general in nature, overwhelmingly positive and with almost no disclosure of the actual environmental violations.

South African companies are required by the King code to voluntarily produce and publish a sustainability report outlining their responsibility to the environment and societies in which they do business on an annual basis (King III 2009). This report is produced separately from the annual report. It is based on the recognition that a business cannot operate in an economically viable manner over a prolonged period without due regard for long-term sustainability issues (King III 2009). However, there are potential limitations to the reliability of these reports. It has been observed that these reports are presented in a form and through a process suggesting that companies use them as effective public relations instruments. Apart from the fact that reports published by South African companies do not report directly on climate change matters, it has been observed that the reports are generally produced by professional editing firms; hence their glossiness.

The CDP survey is an investor- and policy-maker-supported survey designed to provide quality information on company climate change activities. The survey is managed by the CDP, an independent not-for-profit organisation (CDP RSA 2008). According to Stanny and Ely (2008), the CDP survey was launched in 2000 with two objectives: to inform managers about investors' concerns regarding climate change; and to inform investors about firms' risks associated with climate change. The sixth CDP survey questionnaire collected information on four key areas of corporate climate change management and reporting: (a) climate risks and opportunities; (b) GHG emissions accounting; (c) performance; and (d) climate change governance.

The CDP report as a source of reliable data on company response to climate change has several limitations. Kolk *et al.* (2008) noted that voluntary carbon disclosure remains inconsistent and difficult to interpret. Stanny and Ely (2008) note that companies may disclose for reasons that may include the following:

- ▶ Firms that are in a healthy financial and business position would probably want to disclose information
- ▶ Firms that have newer and cleaner technologies would probably disclose information
- ▶ Firms that are likely to face scrutiny by sophisticated investors because of their large size and/or because they are in carbon-intensive industries are likely to disclose more information
- ▶ Firms that have disclosed to the CDP are likely to continue disclosing information
- ▶ Bigger firms are likely to disclose since the cost of disclosure is lower for them
- ▶ Companies listed on the stock markets are likely to disclose information

- Firms with higher foreign sales face a higher climate risk and will therefore be more likely to disclose

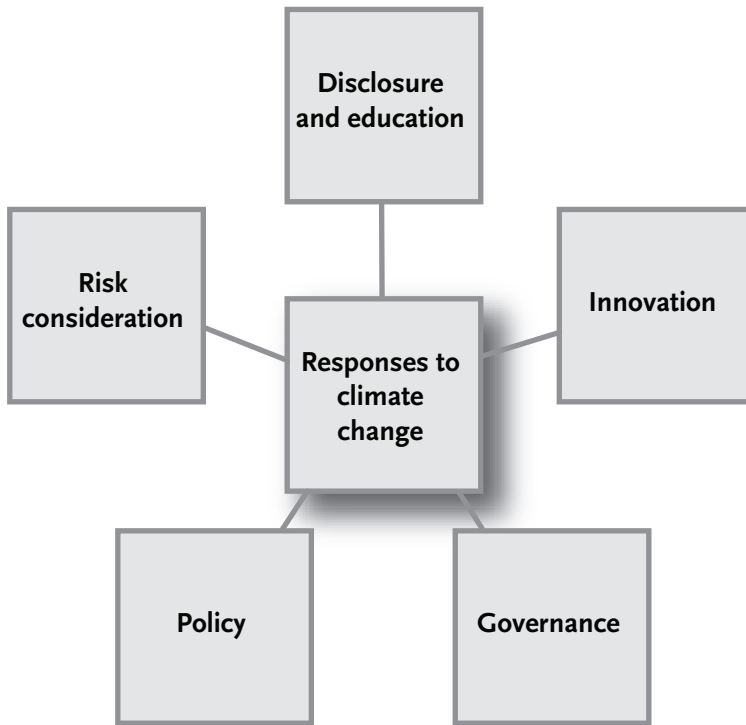
Following Cogan *et al.* (2006) and CDP (2008), five key variables were chosen in this study to describe effective corporate response to climate change with respect to: governance, policy, innovation, disclosure and education, and risk considerations (see Fig. 1). The category 'GHG emissions accounting' used in CDP (2008) was omitted in this study because of low levels of GHG emissions accounting in South Africa. Questions were asked under each category; as an example, governance is described by the board structure, its functions, the CEO's role, the board charter, the climate change position statement and the content of board meetings. Questions were asked in order to source descriptive information on each of these elements. For example, five questions were asked to describe the board structure; these questions were aimed at ascertaining CEO duality, the presence of women on the board, and whether non-executive directors made up the majority of the board. The purpose of this measure was to investigate whether a firm's board was structured to enable an effective response to climate change. Weights were allocated to each category, as illustrated in Table 1. The rating methodology used follows that of Sullivan (2009). However, to reduce researcher bias and to customise the weightings to this study, the weightings were verified and adjusted on the basis of a survey of local experts on climate change.

Table 1 Category weights

Key category	Weighting
Governance	0.35
Policy	0.10
Disclosure and education	0.20
Innovation	0.25
Risk considerations	0.10

In order to collect secondary data from the above listed sources, a checklist was designed based on similar studies (Moloi 2008; Sullivan 2009) and the King II Board Effectiveness checklist. According to Burritt (1997), the checklist enables content analysis to be performed in a replicable manner. Berritts (1997) argues that the checklist improves objectivity of measurement and solves a key problem of content analysis: the lack of 'inter-subjective testability' of collected data. The checklist was designed to source data in the five categories (see Fig. 1).

Figure 1 Categories used to define effective climate change corporate governance



Results

The performance of the sampled firms for each variable defining climate change is summarised in Table 2 using weighted scores. The data analysis steps used in the study are illustrated in Figure 2.

The board function is described by seven questions aimed at understanding how the board deals with executing its climate change oversight role. Board functions were defined by the following elements: whether a board subcommittee was created to deal with climate change; whether it was chaired by the executive; whether the members of such a subcommittee had relevant qualifications; and, lastly, whether its members received training on matters of climate change.

The board charter reflects the purpose, aim and key objectives of the board. The charter was expected to shed light on whether the company had a position statement on climate change.

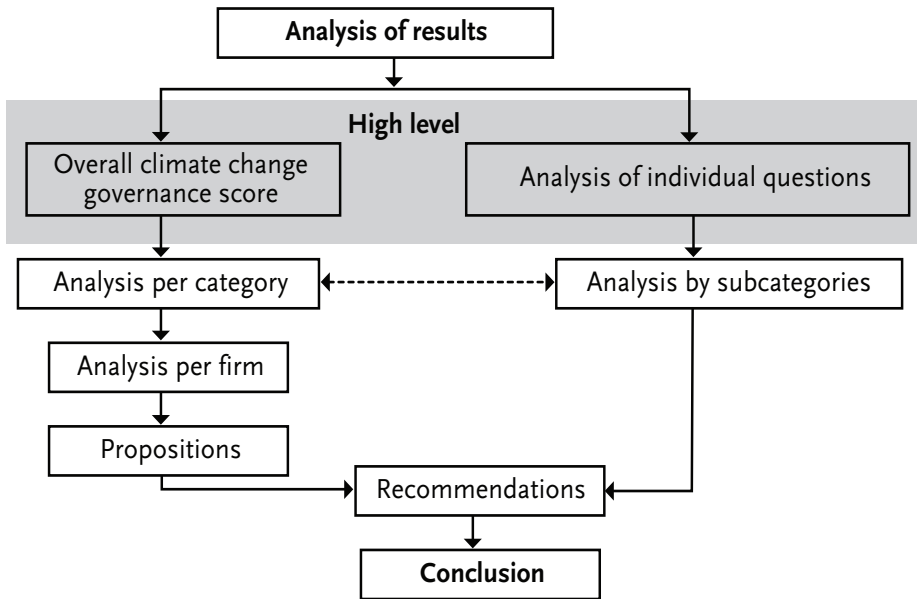
Under the ‘governance’ category, it was found that:

- ▶ Eleven of the 12 companies in the survey had non-executive directors as the majority on the board

Table 2 Weighted scores for the 12 companies

Category	Exxaro	ARM	Harmony	Gold-fields	Anglo-Ashanti	BHP	Kumba	Anglo-American	Lonmin	Northam	Impala-Plat	Anglo-Plat
Governance	2.45	1.4	1.05	1.75	1.75	2.8	0.35	2.45	1.4	2.1	2.1	3.15
Policy	0.1	0.1	0	0	0	0.1	0	0.1	0.1	0	0	0.1
Disclosure and education	2	1.2	1.4	1.2	1.6	2.2	1.8	2	1.6	1.6	1.6	1.6
Innovation	1.5	0.25	0.75	0.25	1	1.3	0.25	1.25	1	0.75	1	1.25
Risk consideration	0.6	0.3	0.3	0.8	0.7	0.9	0.9	0.7	0.6	0.8	0.8	0.7
Total	6.65	3.25	3.5	4	5.05	7.3	3.3	6.5	4.7	5.25	5.5	6.8

Figure 2 A schematic illustration of data analysis steps used in this study



- ▶ Only 1 out of 12 company boards was chaired by an executive director
- ▶ Ten out of the 12 companies had at least two women on their boards
- ▶ Only 7 of the 12 companies had a board subcommittee assigned responsibility over climate change matters and none had the CEO chairing the subcommittee
- ▶ Only one company provided information indicating that the board had received training on climate change
- ▶ Chairpersonship of the subcommittees is equally shared between executive and non-executive directors
- ▶ It was discovered that 7 out of 12 CEO's letters contained in the annual reports mentioned climate change-related matters
- ▶ It was found that CEOs of 7 out of 12 companies had addressed their respective companies on climate change
- ▶ It was also discovered that 7 out of 12 companies had a position statement on climate change. But only 5 out of 12 companies' board charters mentioned the climate change responsibility of the board

Under the 'disclosure and innovation' category, it was found that:

- ▶ The annual reports of 10 of the 12 companies had a section on climate change; however, only 7 of the 12 companies reported on climate change
- ▶ All 12 companies mentioned climate change initiatives in one of the company documents

- ▶ Only 2 out of 12 companies mentioned climate change budget and/or costs
- ▶ Seven out of 12 companies mentioned climate change-related R&D activities
- ▶ Eleven of the 12 companies mentioned their carbon footprint on their website
- ▶ It was noted that all 12 companies had emissions reduction targets
- ▶ Of 12 companies, 9 outlined their climate change risks on the website
- ▶ Only 3 out of 12 companies mentioned the words 'innovation' and 'climate change' in the same paragraph in company documents
- ▶ The words 'risk' and 'climate change' were mentioned in 11 of 12 companies
- ▶ The words 'climate change' and 'strategy' were mentioned in 8 of the 12 companies
- ▶ The words 'investment' and 'climate change' were mentioned in 9 of the 12 companies

According to Lehn *et al.* (2004) and Raheja (2005), the size of the board is a function of firm characteristics and hence is determined endogenously and in ways that conform to value maximisation. Lehn *et al.* (2004) further noted that the size of the board could be related to the size of the firm. It was found that sampled companies had an average board size of 13. The highest figure (21) was for Anglo-Ashanti, a South African multinational mining company. The sample size could not allow for a detailed statistical analysis; however, the sampled companies had an average board of 13 members regardless of company size, the commodity mined and the ownership structure. The average board size for the highest and lowest performing categories was 12.8 and 12.5, respectively. Regardless of limitations of sample size, it can therefore be deduced that, between these categories, the board size cannot be a significant differentiator.

The King III code of corporate governance specifically recommends that effective boards be characterised by the following: non-executive directors making up the majority and the board being chaired by a non-executive director. An analysis of the results given in Table 2 shows that 83% of companies in this study had a majority of non-executive directors. Equally, 83% of the sampled companies had boards chaired by non-executive directors.

For a multinational mining company, a presupposition is that its climate change performance will be influenced by legislation applied in some of the regions or countries in which it operates. The research found that only 58% of sampled companies had subsidiaries abroad. However, two of the top four performing companies in terms of climate change governance were multinational companies—exceptions were Exxaro and Anglo-Plat. The researcher could not draw a conclusion with regard to the impact of the multinational characteristic on climate change corporate governance owing to sample size limitations.

Based on individual categories (see Fig. 2), sampled companies performed least well under the 'governance' category with a 32% average performance. The better performing companies under this category were the leading companies under the 'climate change governance' measure. Furthermore, the average of these companies was 50% of the total possible score, while the lowest scoring companies made 17% of the score.

Results from this study indicate that the most significant performance was under the 'disclosure and education' category. By applying the weighting factors, it was shown that sampled companies performed better under the 'disclosure and education' category compared with the 'risk consideration' category. Companies scored above average (58% of total expected score) under the 'innovation' category whereas only 50% of the sampled companies had a climate change-related policy. On average, it was found that the top-scoring companies did well in all but one category. On the other hand, the lowest performers did poorly in all, with the exception of the 'disclosure and education' category.

The research findings led to the following propositions related to corporate governance in the South African mining sector:

- ▶ **Proposition 1.** Climate change disclosure and education is easily adopted compared with other corporate governance practices
- ▶ **Proposition 2.** The type of commodity mined does not influence company climate change performance
- ▶ **Proposition 3.** Companies that perform better regarding climate change have a subcommittee responsible for climate change
- ▶ **Proposition 4.** Initial efforts at instituting effective climate change corporate governance should focus on enacting compulsory disclosure on climate change activities and introduce compulsory emissions accounting
- ▶ **Proposition 5.** The CEO's visibility and visionary leadership on climate change matters should be reflected through communications with the company

Conclusions

It was possible, based on the data obtained and by way of the analysis, to provide answers to the research question: **To what extent is the corporate governance platform used by companies in responding to the challenges of climate change?**

The study has shown that the average weighted climate change corporate governance score for sampled companies is only 52.4% of the possible average score. Assuming that response to climate change will be a tool of competitive advantage in the future (according to Llewellyn 2007), it can be concluded that

the sampled companies need to improve their corporate governance systems and practices in order to compete within a carbon-constrained global marketplace.

Results show that sampled companies scored highly under the 'risk consideration' and 'disclosure and education' categories. Overall, companies performed poorly on: (a) 'establishment of a climate change dedicated board subcommittee' or 'executive subcommittee' and 'having it chaired by the CEO or a board member'; (b) 'clearer articulation of the board's position on climate change'; and (c) 'heightening the participation of the CEO on climate change'.

On further analysis of the performance scores according to the given variables, it was discovered that, even though the performance for overall climate change corporate governance for the study sample was above average, companies still performed poorly (39% of total possible score) in the most significant category: 'governance'. Further analysis of this finding was conducted by reviewing the performance characteristics of the top-performing companies and comparing them with the lowest performers. The lowest performers did poorly in all characteristics, with the exception of the 'disclosure and education' category. The lowest performing firms were also the least innovative.

A detailed review of the performance of companies regarded as top performers and poor performers showed that these companies have to improve on all aspects of climate change governance.

A comparative analysis of the top-scoring company and the lowest-scoring company can be summarised as follows:

- ▶ The top-performing company is an Australia-based multinational
- ▶ The lowest-performing company is based in South Africa
- ▶ The company with the highest climate change corporate governance score produces coal—a commodity directly linked to South Africa's high carbon footprint for coal-based electricity
- ▶ The lowest performer is an iron ore mining company
- ▶ The lowest performer had no climate change policy; in addition, it performed poorly under 'governance' and 'innovation'. In contrast, the top performer had the highest score on 'governance', and outperformed all companies except in the 'innovation' category

All the sampled companies noted the regulatory and financial risks of climate change. The assessment showed that, on average, South African mining companies need to improve their climate change corporate governance in order to survive in a carbon-constrained global market. It was shown that 'product', 'competitor', 'technological' and 'consumer activism' types of climate change risk are not treated as significant risks to business within the studied sector.

Implications for future research

There are a number of aspects of corporate response to climate change that need further study. In this regard it is recommended that a further study on climate change corporate governance should be based on a case study of companies in the mining sector. A similar study could be repeated on a larger sample size using related methodologies.

Further research on the following (within a South African context) is suggested:

- ▶ Rating of the various factors that influence efficiency of corporate response to climate change
- ▶ A case study on the extent to which corporate governance influences corporate response to climate change
- ▶ Quantification of climate change business risks for South Africa's energy-intensive sectors
- ▶ A case study on corporate response to climate change over a chosen period
- ▶ The extent of South African government influence on corporate response to climate change
- ▶ A case study-based comparative study of the climate change response of multinational companies in different jurisdictions or countries in which they operate

Conclusions

The research found that 'product', 'competitor', 'technological' and 'consumer activism' types of climate change business risk are generally not regarded as highly significant types of risk. To encourage good governance it is suggested that the South African Government should introduce legislation that compels companies to disclose their climate change impacts through important documents such as the annual integrated sustainability report and company websites. Furthermore, it is suggested that government should introduce incentive instruments and support systems to foster innovation. The King Code should prescribe that boards should formulate board charters and that board charters should outline how respective boards should tackle climate change. It is further suggested that a subcommittee of the board on climate change should be established and that it should be chaired by a non-executive director.

The government can play a role in mitigating the climate change risks to companies. To protect its economy from regional and international climate change legislation, the South African Government could initiate regional alliances on

climate change and it should work towards creating regional trading alliances in its key trading partner regions.

In order to encourage innovation in this sector, the government should introduce incentives to encourage further added value to commodities before export. Such efforts should be accompanied by government support in the form of research and development funding and other forms of incentive that include tax incentives. Ideal incentives would be those that promote innovative solutions for climate change.

The significance of reputational risk in the mining sector would be enhanced by compelling companies to report on climate change initiatives, introducing climate change legislation, and introducing a climate change disclosure initiative readily accessible to investors and the public. Companies that performed poorly should be advised to focus on improving their 'governance' systems and formulating and implementing a climate change response strategy.

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