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# The influence of board committee structures on voluntary disclosure of greenhouse gas emissions: Australian evidence

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## ABSTRACT

In this paper, we examine the impact of having risk management committees at the board level on the voluntary disclosure of greenhouse gas (GHG) emissions in Australia. There is no impact of having a standalone risk management committee on the levels of voluntary disclosure of GHG emissions. However, when firms have combined audit and risk management committees the level of disclosure of GHG emissions is lower and this result holds in multivariate models that control for a number of firm characteristics including corporate governance. Further, we find that firms voluntarily disclosing higher quality information on GHG emissions experience reduced stock price volatility and improved stock market liquidity.

## 1. Introduction

There is increasing interest in climate-change risk arising from greenhouse gas (GHG) emissions of firms (PricewaterhouseCoopers, 2012). Some sell-side analysts are incorporating the financial impacts of carbon emissions into their investment recommendations (Eccles et al., 2011). According to some experts, carbon emissions and their expected impact on global climate change will drive a reallocation of value from firms that do not control their emissions to those that do (GS Sustain, 2009). In particular, the financial services industry, especially banks and managed funds, has a large stake in comprehending and mitigating risk associated with climate change. Banks are particularly interested in managing reputational issues associated with financing carbon-intensive industries (Coleman and LaPlante, 2016). Since climate change presents a real and potentially damaging risk to investment portfolios, pension funds and managed funds must fully consider the impact of climate change related risk exposure of their investments. Given this heightened interest in carbon emissions information, we examine the determinants of voluntary disclosure of GHG emissions in Australia.

The voluntary dissemination of GHG emissions data constitutes a risky disclosure (Chapple et al., 2013; Peters and Romi, 2014). We believe that carbon emissions disclosure is considerably more risky than other types of voluntary disclosure for the following reasons. First, carbon emissions disclosure is an ill-defined risk since the measurement of carbon emissions is not precise but involves estimation (Matsumura et al., 2014). Second, carbon emissions are associated with a decrease in market value (Matsumura et al., 2014). Third, carbon emissions disclosure has other adverse consequences such as an increase in the cost of capital arising from the provision of information that might prompt government agencies to investigate firms, initiation of costly litigation, the supply of competitors with information about the firm's sustainability strategies and provocation of potentially negative attention from environmental advocacy groups. (Peters and Romi, 2014). Fourth, untruthful reporting that is eventually exposed will subject the firm to litigation risk (Matsumura et al., 2014). Fifth, GHG disclosures may provide proprietary non-financial information about the firm's

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exposure to climate risks to competitors (Peters and Romi, 2014, Securities and Exchange Commission (SEC), 2010). Sixth, competitors may benefit from a firm's GHG disclosures by pursuing nuanced green marketing strategies (Matsumura et al., 2014). Seventh, carbon risks may not be fully understood by either firms or investors (Chapple et al., 2013). Eighth, pricing distortions may occur as analysts may face difficulties incorporating carbon related liabilities into their valuation models (Chapple et al., 2013). Finally, as institutional investors try to decarbonize their portfolios, it could affect the value of emissions disclosing firms. The extent of decarbonization is a source of risk.

Although the disclosure is voluntary and risky, there may be some potential benefits of disclosure. First, through voluntary disclosure, firms may signal their serious commitment to improving the ecology by reducing their carbon footprint (Al-Tuwaijri et al., 2004; Clarkson et al., 2008; Mitchell et al., 2006; Tilt, 2001). Periodic disclosures provide a verification device. Second, firms may enhance their image and reputation by voluntarily disclosing GHG emissions information (Barnea and Rubin, 2010; Fombrun, 2005; Freeman et al., 2007; Ioannou and Serafeim, 2012). Third, institutions are increasingly focussing on climate change risk and are therefore likely to favor firms with a pro-active commitment to mitigate global warming (Cotter and Najah, 2012). By voluntarily disclosing carbon emissions information, firms may be attracting more institutional ownership. Finally, firms may reduce information asymmetry and reduce the stock price volatility and improve stock liquidity by voluntarily disclosing carbon emissions information (Brown and Hillegeist, 2007; Heflin et al., 2005; Leuz and Verrecchia, 2000; Verrecchia, 2001).

A firm's corporate governance attributes are expected to influence the level of voluntary disclosure of relevant firm level information in a timely manner (Ashbaugh-Skaife et al., 2006). Further prior works find evidence consistent with the view that corporate governance is a fundamental driver of voluntary disclosure of GHG emissions (Peters and Romi, 2014). We, therefore, examine the attributes of corporate governance that determine this disclosure in the Australian context. In particular, we study the role played by board committee structure on the propensity to disclose and the quality of disclosure of GHG emissions. Since we consider GHG emissions revelation as a risky disclosure, we argue that a firm's risk management arrangements will play a key role in determining the decision to disclose and the extent of disclosure.

Since GHG emissions is an indicator of carbon risk and affects investors' risk perception of their stock holdings, we choose to study Australia as it has a high per capita emission of GHG.<sup>1</sup> The results of our study are generalizable to other developed economies which have high emissions and follow a voluntary disclosure regime for GHG emissions.

Specifically, we examine the role of audit and risk management committees on the decision to disclose and the quality of such disclosures based on the voluntary disclosures made under the Carbon Disclosure Project's GHG Emissions Questionnaire. Prior research supports the view that having an effective audit committee is associated with higher disclosure quality. We extend this strand of literature to examine the decision to disclose GHG emissions which may be characterized as a voluntary risk disclosure. An innovation of our paper is the analysis of the role of risk management committees in the decision to voluntarily disclose a firm's risk associated with its GHG emissions. In addition to investigating the influence of having a risk management committee on disclosure and disclosure quality, we also consider the effect of combining the audit and risk management roles into a single committee as opposed to having standalone committees for each function.

The main findings of the paper are as follows. First, we show that the diversity of viewpoints when a firm has combined risk and audit committee structure makes the firm more risk averse resulting in lower levels of GHG emissions disclosure. Second, we show that the impact of risky disclosures associated with GHG emissions reduces the volatility of a firm's stock. Finally, we study the quality of GHG emissions disclosure on stock market liquidity and find that higher quality disclosures are associated with improvements in stock market liquidity.

Our empirical results provide significant insights adding to the literature on the antecedents of voluntary disclosures and their stock market impacts. We contribute to the literature in three ways. First, we examine the determinants of carbon emissions disclosure, and the role played by voluntary committees such as risk committee and environmental committee. Further, we study the impact of a joint risk and audit committee choice versus a standalone risk committee on voluntary disclosure of carbon emissions. Second, we investigate the impact of carbon emissions disclosure on information asymmetry by examining changes in stock return volatility. Finally, we study whether voluntary disclosure of carbon emissions is associated with an improvement in stock market liquidity. We check the robustness of our results to controls for endogeneity.

Our contribution is further strengthened since voluntary emissions disclosure differs from other types of voluntary disclosures in three significant ways. First, GHG emissions disclosures focus more on avoiding reputational and regulatory harm rather than driving operational changes (Rodrigue et al., 2013). Second, voluntary GHG emission disclosure is viewed as more risky than other types of voluntary disclosures (Peters and Romi, 2014). Third, voluntary GHG emission disclosure can create adverse consequences for the firm as compared to other types of voluntary disclosures (Coburn et al., 2011).

The remainder of this paper is organized as follows. We describe the Australian regulatory setting and background surrounding the efforts to mitigate GHG emissions in Section 2. In Section 3, we provide an overview of the literature and develop empirically testable hypotheses. In Section 4, we describe our sample selection and characteristics of the sample firms. Section 5 describes our research design. Section 6 presents our empirical results. Our concluding remarks are presented in the final section.

<sup>1</sup> Australia has per capita emission of 16.75 tonnes; US 17.5 tonnes; Canada 14.67 tonnes; U.K. 7.96 tonnes; New Zealand 7.22 tonnes; Germany 9.06 tonnes; Japan 9.25 tonnes. Source: [www.cotap.org](http://www.cotap.org).

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