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A comparative analysis of carbon reporting by electricity generating companies in China, India, and Japan

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Abstract

This study investigates the carbon (or greenhouse gas emissions, GHG) reporting of electricity generating companies in the three top carbon (GHG) emitting countries in Asia, namely China, India and Japan. Using the disclosure index adapted from Choi et al. (2013) on the most recent annual reports, stand-alone sustainability reports, and corporate websites, the study finds that 45 companies (out of 90) made some form of carbon disclosure. Japan leads the sample with 60% of reporting companies, followed by China (58%), and India (41%). The average of disclosure score is 10.50% indicating a low level of disclosure. Most of the disclosures are pertaining to climate change risks and actions taken (40% of the sample companies), detailed plans or strategies to reduce GHG emissions (30%), and total GHG emissions (23%). Considering that electricity generating companies are the major contributor to carbon emissions build-up and the prospect of corporate disclosures in reducing carbon emissions, such a low disclosure by companies in the top emitting countries could lead the mission to reduce global emissions by 2020 to crumble.

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1. Introduction

One of the most significant environmental issues facing the world today is climate change. The Intergovernmental Panel on Climate Change (IPCC, 2007) has documented that the root of this problem is the increased concentration of greenhouse gas (GHG) emissions in the atmosphere. Although GHG emissions also

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include methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆), the carbon dioxide (CO₂) emissions represented 77 percent of the total anthropogenic GHG in 2004, and had increased by 80 percent (equivalent to 17 gigatonnes) during the 1970-2004 period (IPCC, 2007). More importantly, the report by the International Energy Agency (IEA, 2013) states that the primary source of CO₂ emissions are from the electricity generation which involves the burning of fossil fuels. Emissions from this source accounted for 42 percent of the total energy related carbon emissions worldwide. The report also found that nearly two-thirds of global emissions for 2011 originated from just ten countries, with China, India, and Japan made up the top 5 emitting countries. Therefore, it is expected that electricity generating companies operating in these countries are in the spotlight hence facing immense global pressure to demonstrate their climate change performance and any actions taken to mitigate climate change problems. This can be done through corporate reporting.

Carbon disclosure is information that emphasises on "any concerns, initiatives, or performance of the company related to carbon emissions" (Alrazi, 2014, pp. 16-17). In line with the increased expectation for companies to report on their carbon information, various reporting guidelines were introduced. These include the Global Reporting Initiative (GRI)'s Sustainability Reporting Guidelines, Greenhouse Gas Protocol's A Corporate Accounting and Reporting Standard, and Carbon Disclosure Project (CDP), to name but a few. Furthermore, there has been an increasing number of companies reporting on carbon information voluntarily (CDP, 2011; KPMG, 2013) and the quality had increased over the years (CDP, 2014). In a similar vein, the number of studies investigating the extent of corporate carbon reporting has also increased (e.g., Amran et al., 2015; Comyns and Figge, 2015; Luo and Tang, 2014; Rankin et al., 2011; Gu et al., 2013). However, most of these studies do not specifically examine the electricity industry which becomes the main focus of this study. Additionally, for few studies which have assessed the carbon disclosure (or environmental disclosure) among electricity companies (e.g., Freedman and Jaggi, 2004; Hooks et al., 2004; Sullivan and Kozak, 2006; Smith et al., 2005), they did not focus on the Asian context which could have different institutional arrangements which in turn lead to differences in the level and nature of reporting.

The objectives of this study are twofold. Firstly, it develops a carbon disclosure index to measure the extent of carbon reporting among electricity generating companies. The disclosure index was adapted from the work of Choi et al. (2013) and after considering items included in the CDP (2013)'s Information Request - Electric Utilities. Secondly, it content analyses annual reports, stand-alone sustainability reports, and corporate websites of a sample of electricity generating companies in Asia. In this regard, a total of 90 companies from India (44 companies), China (26), and Japan (20) were selected.

This research is pertinent for several reasons. In terms of contribution to the literature, the study seeks to fill the gap in the extant research on carbon and/or GHG disclosure by providing the most recent state of carbon reporting by the electricity generating companies in Asia. Additionally, the disclosure index developed in this study would benefit the research community if they want to embark on a similar research. In terms of contribution to the practice, the findings of this study will highlight the strength and weaknesses in the existing disclosure practice so as necessary actions could be implemented to enhance the quality of such reporting in the future. In terms of policy contribution, the fact that reporting on carbon remains a voluntary initiative, the findings could suggest the possibility of making it mandatory to ensure companies are more accountable with their emissions and the global emissions reduction target could be achieved.

The remaining sections of the paper are structured as follows. Section 2 reviews the relevant literature. Section 3 discusses the sample selection and research methods. Section 4 presents the findings and analysis. Section 5 concludes, highlights the limitations and provides recommendations.

2. Literature Review

2.1. Institutional background

The issues of climate change and global warming have received great attention by leaders around the globe. Their commitment to mitigate these issues are attested by the number of countries signing the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the Kyoto Protocol in 1997, and the Copenhagen Accord in

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