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The drivers of Multinational Enterprises' climate change strategies: A quantitative study on climate-related risks and opportunities

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## **The drivers of Multinational Enterprises' climate change strategies: a quantitative study on climate-related risks and opportunities**

### **Abstract**

The literature on business responses to climate change until now identified several drivers: regulatory changes; physical changes; product and technology innovation; operational efficiency; reputation; financial impacts; and changes in consumer needs. However, these studies are mainly based on qualitative research methods. Therefore, this study aims to investigate with a quantitative analysis the contextual drivers of multinational enterprises' responses to climate change considering the risks and opportunities identified by previous studies. The research is based on the Carbon Disclosure Project climate questionnaire of 2015, which includes information of 1,896 companies within different industries and countries. The analyses highlight that the business continuity is mainly endangered by the physical changes; changes in demand for goods/services or new product/services correspond to market changes drivers; changes in market valuation correspond to reputation drivers. Finally, changes in operational costs and investment opportunity correspond to regulatory drivers. The study provides contributions to the literature on business responses to climate change and implications for business and public policy.

### **Keywords**

Climate change; corporate strategy; climate risks; climate drivers; climate opportunities

### **Introduction**

As recently reaffirmed by the Intergovernmental Panel on Climate Change (IPCC), human interference with the climate system is occurring (IPCC, 2013) and climate change poses risks and/or benefits for human and natural systems (IPCC, 2014). Hence, if climate change represents a major environmental policy challenge, both in the present and in the future (Levy, 1997), institutional and ecological evolution related to climate change are posing increasing pressures to firms since it can affect their future corporate and business strategies (Stern, 2007). On the one hand, companies are directly (e.g. those producing fossil fuel and electricity) and indirectly (e.g. those consuming fossil fuels and electricity) responsible for Green House Gases (GHGs) emissions. The extent of the role that business sector plays with regard to climate change is given by its contribution in terms of carbon footprint. In fact, the GHGs emissions of individual companies can match or even surpass those of smaller countries, such as those of the mining group Rio Tinto which rival those of New Zealand, and the emissions of ExxonMobil, which are higher than those of Belgium (Patenaude, 2011). In addition, the sum of the emissions of the world's biggest companies are equivalents to the annual emissive contribution of the European Union (Patenaude, 2010). This further implies that they can play a huge role in mitigation. On the other hand, companies are affected by the impacts of climate change. For example in terms of ecological changes, e.g. weather and climate events (Linnenluecke and Griffiths, 2010; Linnenluecke et al., 2012; Winn et al., 2011). The extent of these impacts is supposed to be even greater than those of globalization and information technology and it may potentially trigger a business revolution (Porter and Reinhardt, 2007). In fact, the direct and indirect impacts of climate change on business can be related to regulation, to market changes or to climate-induced physical changes affecting the environment where firms operate. Regulatory policies can range from carbon policies at both international and national levels to multiple issues related to ecological impacts (e.g. regulation of freshwater withdrawal) and then to adaptation. This last regulatory aspect could be quite novel for companies given the recent international Paris Agreement on climate change (December 2015), which recognizes the need for adaptation together with reaffirming that of mitigation (UNFCCC, 2015), at

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