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## Climate change strategies of multinational enterprises in China

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#### ABSTRACT

The purpose of this research is to identify the decision process Chinese subsidiaries of multinational enterprises follow to develop and deploy a climate change strategy. These foreign subsidiaries have to be responsive to local institutional and economic demands as well as to the directives from their head-quarters. Our findings suggests that considering and developing climate change strategies is a multi-stage process that alternates between managerial cognition and capabilities and is most effective when locally embedded. The foreign subsidiary develops its own understanding of climate change and an adequate response rather than follows headquarter directives. This allows the subsidiary to be at the adaptation forefront and, potentially, influence the global network of the multinational enterprise. The process can be stopped when cognition, capabilities or both are not developed or realised.

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#### 1. Introduction

Organizational adaptation to a changing external environment has been explained with reference to managerial cognition or to organizational capabilities. These opposing rationales are also evident in the discourse on multinational enterprises' (MNEs) strategic response to climate change. Climate change adaptation by MNEs has been argued to be the result of possessing the adequate capabilities (Berkhout, 2012; Biagini and Miller, 2013; Averchenkova et al., 2015) or of an emergent managerial understanding of how climate change affects the business (Kaplan and Henderson, 2005; Laamanen and Wallin, 2009). An integrative perspective has thus been suggested by Eggers and Kaplan (2013) which considers the two schools of thought jointly and interactively when considering organizational adaptation. We are building on their approach and investigate what the decision-process an MNE's subsidiary follows to develop and deploy a climate change strategy. The MNEs fine-slice and separate functions to place these in the location most productive for the MNE (Buckley, 2009). This can enable them to develop differentiated climate change strategies

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that suit the local conditions and variations in the institutional environment for climate change adaptation (Dyllick and Hockerts, 2002). The fine-slicing also enables the MNE, in theory, to utilise its global cognition of climate change and its global and local capabilities to develop adequate responses (Kolk and Pinkse, 2005, 2008). Despite the likelihood for local variations, previous research has focused on the headquarter level and considered the global operations of the MNE as uniform (Eiadat et al., 2008). Very little research has actually been undertaken to investigate how decision-makers of overseas subsidiaries are responding to climate change and whether these decisions are driven by managerial cognition of climate change or the subsidiaries capabilities to adapt to a changing institutional and economic landscape (Linnenluecke et al., 2013, 2015).

Our objective is to address the omission of subsidiaries by combining the cognitive and capabilities perspectives to reveal how overseas subsidiaries of European MNEs make decisions on climate change strategies when operating in a less-developed institutional environment. These subsidiaries are operating, prima facie, in an environment that exerts less pressure for developing climate change strategies than their headquarters' environment. The Chinese institutional environment leaves it open the firm to develop its climate change strategy more intrinsically and in line with its dominant cognitive or capability strengths.

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Through interviews with mainly European subsidiaries in China we have developed a decision-making pathway model that identifies when cognitive- and capabilities-related determinants influence the climate change strategy. Our findings contribute, first, to the literature on corporate climate change adaptation by showing the drivers, and barriers, in the global climate change strategy decision-making at a more granular level which is the foreign subsidiary. This allows us to understand not only how MNEs approach climate change but also to understand how adaptation works differently across the global network MNEs maintain. Our work allows contributes, second, to the discourse on whether cognition or capabilities drive business decisions and strategy. Our climate change pathway suggests that these two sides interact and work in tandem rather than stand alone.

The next section introduces a literature review which sets the focus for our work. This is followed by a methodology section and a presentation and discussion of our findings. The work concludes with a discussion of the implication and suggestions for further research.

#### 2. Literature review

Climate change strategies by MNEs and their overseas subsidiaries are a response to changing external circumstances which includes regulatory changes in the home and host markets (Hiatt et al., 2015; Dirckinck-Holmfeld, 2015), novel technological and competitive pressures (Wennersten et al., 2015), and changes to nature brought about by climate change (Asseng et al., 2015; Lesk et al., 2016). Climate change can cause "significant, sudden, disruptive change in the broader ecological or social systems of which organisations and economic systems are a part" off (Winn et al., 2011, 166). Compared to typical environmental changes, climate change is a phenomenon with much greater scale and scope on a longer time-scale and this creates greater uncertainties. Relatively few managers have yet experienced and managed extreme weather conditions that have been caused by climate change suggesting an overall unawareness to its physical impacts (Berkhout et al., 2006). A business-as-usual response by MNEs is unlikely to be sufficient and adaptation is required (Linnenluecke and Griffiths, 2010; Linnenluecke et al., 2012). Corporate climate change adaptation involves the forecasting of and reaction to regulatory and natural environmental changes, and can include strategic proactive behaviour in influencing policies that benefits the MNE's particular climate change position (Lyon and Maxwell, 2004).

This section will assess and relate the literature on organizational adaptation to the development of climate change strategies at the subsidiary level. Research on organizational adaptation from a strategic choice perspective seeks to explain adaptation as a process whereby decision-makers assess the changing organizational environment and then formulate strategic responses (Child, 1972; Miles et al., 1978). Empirical evidence has shown that shifts in the regulatory environment (Meyer, 1982; Smith and Grimm, 1987) and technologies (Pugh, 1981) motivate strategic changes. Such changes, it has been argued, depend on the managerial cognition or organizational capabilities. Following Eggers and Kaplan (2013) we will consider here both perspectives and integrate them into a climate change strategy pathway.

## 2.1. Development of climate change strategies through managerial cognition

Chakravarthy (1982) emphasised the role of managerial attention to predict the occurrence and nature of firms' responses to environmental shifts. "Informational inputs that are ambiguous,

uncertain, and equivocal" (Weick, 1969: 40) emerge naturally in almost every environmental change and need to be recognised by the key decision-makers and shared within the organization (Billings et al., 1980; Thomas and McDaniel, 1990). This suggests that managerial cognition and sensemaking are important first steps in developing actions towards a changing environment (Kiesler and Sproull, 1982; Huff et al., 2000). Organisations with similar assets might respond differently to the same environmental shift when their top managers' cognition of the situation differs (Osborne et al., 2001; Hoffmann et al., 2009), as cognitive limits prevent top managers from developing a complete understanding of their environments (Bogner and Barr, 2000). Cognitive limits, biases and misperception at the individual (senior management) level determine whether environmental changes attract organizational attention. Factors that influence a firms' climate change strategy development process, include the managers' awareness of climate change (Levy and Kolk, 2002; Hoffmann et al., 2009) and the disposition of decision-makers towards accepting that it exists (Linnenluecke et al., 2013, 2015). Key decision-makers, and change agents at lower levels of a company, also play a key role in influencing a company's climate change adaptation (Linnenluecke et al., 2013, 2015).

From the cognitive perspective, the subsidiaries decision to develop and deploy a climate change strategy is hence reliant on how the senior managers in that subsidiaries view climate change. An absence of awareness of climate changes or a rejection of climate change can make the manager complacent (Barr, 1998). On the other, managers who consider climate change a real threat to their firm, industry, or humankind can be driven to engage with the matter regardless of the capabilities their subsidiary currently possesses. The firm has in this case to work towards in current capabilities and develop future ones that better fit the vision of the manager.

## 2.2. Development of climate change strategies through organizational capabilities

Existing organizational capabilities inform the firm's response to shifting environmental conditions and allow the firm to realign its operations and strategy (Barney, 1991; Teece et al., 1997). Firms gain a competitive advantage by leveraging capabilities to configure assets in a unique way (Leiblein, 2011) and by adapting earlier than others to external changes. Business adaptation to climate change is influenced by the context in which firms are embedded. Although extreme weather events and their physical impact play a role in the location of operations and in raising awareness of climate risks (CDP, 2012), Berkhout et al. (2006) and Galbreath (2014) maintain that firms are more influenced by the economic and institutional impact of climate change than their manager's cognition.

Studies have found that a clear and transparent regulatory environment plays a critical role in encouraging climate change adaptation (CDP, 2012; Wilby and Vaughan, 2011). Governments also have a role to play in encouraging climate change adaptation, by providing credible, accessible scientific information, cofinancing research and development of new products and services, and by forming public-private partnerships to reduce risk (Agrawala et al., 2011; Crawford and Seidel, 2013).

Climate change adaptation is also driven by economic pressures (Hoffman, 2005). As companies seek to respond to changing purchasing behaviour of consumers their attention to climate change increases (Bonini and Oppenheim, 2008). In response companies develop new products and services, access new markets and seize new business opportunities that arise from climate change (Agrawala et al., 2011). Economics pressure also derives from

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