

# Carbon Management System and Carbon Reduction Performance

Qingliang Tang and Le Luo  
University of Western Sydney

## Abstract

The aim of carbon management system is to reduce greenhouse gas (GHG) emissions. The system includes organisational structure for emission control, reduction targets and actions, assessment of carbon risks, GHG accounting, carbon performance evaluation and reporting. Manager must make strategic decisions to establish such a system and determine the details of all the elements. However, it is often difficult to determine what elements are most effective in translating strategic objectives into achieved performance. On the other hand, there is scarce research addressing these important issues. This study attempts to fill this gap. We use cross-sectional data of Australian firms that have an explicit interest in carbon management and test a model to evaluate the associations between specific elements of management system and carbon performance. Overall, we found firms with more effective internal carbon management have achieved better reduction performance. Particularly risk identification process, reduction targets, actions, GHG accounting and external carbon disclosure are the most effective elements of the system. We also find evidence of interactive effect of these elements, suggesting a combination of these elements in a system has better effect than piecemeal adoption of these broadly defined managerial tools. In sum, our results provide initial evidence of how Australian firms handle climate change challenges in this transitional period toward low carbon economy characterised by enormous uncertainty. We show that an effective carbon management is essential for carbon mitigation, and firms that take proactive mechanisms, commit resources and prioritize actions are more likely to succeed in GHG control.

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