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Do environmental management systems improve business performance in an international setting?☆

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ABSTRACT

With the worldwide increase in the adoption of environmental management systems (EMSs), some research has emerged that evaluates the reasons why facilities adopt them. However, there is little information about how these motivations extend to different international settings, and the link between the comprehensiveness of an EMS and business performance has yet to be demonstrated. While both institutional pressures and resources and capabilities may encourage EMS adoption and improved business performance, questions remain about whether organizations that are motivated mainly by their resources and capabilities benefit to the same extent as organizations that are driven to adopt an EMS mainly because of institutional pressures. We analyze these relationships using OECD survey data from manufacturing facilities operating in Canada, Germany, Hungary, and the United States. Our results show that facilities that are motivated to adopt more comprehensive EMSs because of their complementary resources and capabilities, such as export orientation, employee commitment and environmental R&D, (as opposed to institutional pressures) observe greater overall facility-level business performance.

1. Introduction

An environmental management system (EMS) consists of a collection of internal policies, assessments, plans and implementation actions (Coglianese and Nash, 2001), affecting the entire organizational unit and its relationships with the natural environment. Since 1996, more than 88,800 facilities worldwide have adopted EMSs that are certified to ISO 14001 (Peglau, 2005), the international EMS standard, and thousands more have adopted other types of EMSs. With the increased number of global EMS adoptions, scholarly interest in EMSs also has burgeoned. Researchers have evaluated the motivations for EMS adoption (e.g., Potoski and Prakash, 2005b; King et al., 2005; Darnall, 2003; Melnyk et al., 2003; Coglianese and Nash, 2001; Anton et al., 2004) and the relationship between EMS adoption and improved environmental performance (Khanna and Anton, 2002; Potoski and Prakash, 2005a; King et al., 2005). However, as yet, we know little about whether EMSs improve the business value for organizations that adopt them.

Previous studies that evaluate the broader link between an organization's environmental strategies and its business performance offer mixed results, with some studies demonstrating that an organization's proactive environmental activities lead to improved business performance (e.g., Russo and Fouts, 1997; Hart and Ahuja, 1996; Rivera 2002; Stanwick and Stanwick, 2001), and others illustrating either insignificant (e.g., Levy, 1995; Fogler and Nutt, 1975; Rockness et al., 1986) or varied findings (e.g., Khanna and Damon, 1999). As such, the argument of whether or not proactive environmental activities lead to improved business performance is far from resolved. Even less is known about how EMSs, in particular, fit into this debate.

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In understanding the link between EMSs and business performance, it is important to consider the motivations for adopting these management systems. Previous research utilizes differing theoretical perspectives. On one hand, a group of scholars has relied on aspects of institutional theory to explain why organizations adopt EMSs and other proactive environmental strategies (e.g., Bansal and Roth, 2000; Hoffman, 1999; Davidson and Worrell 2001; Bansal and Clelland, 2004; Khanna and Anton 2002; Bansal and Hunter, 2003). These authors suggest that organizations are motivated to increase their internal efficiency and external legitimacy, which also can lead to competitive advantage. On the other hand, scholars have relied on the resource-based view of the firm to explain that complementary resources and capabilities lead to the adoption of proactive environmental strategies (e.g., Sharma and Vredenburg 1998; Darnall and Edwards, 2006; Aragón-Correa and Sharma, 2003) and improved business performance (e.g., Russo and Fouts, 1997). By implementing these strategies, these authors suggest that organizations are more likely to gain competitive advantage. In a fewer number of instances, researchers have combined both theoretical views, (e.g., Bansal, 2005; Darnall, 2003) and reached similar conclusions to previous studies that consider both theories individually.

However, little scholarship has examined the *relative contributions* of institutional theory and the resource-based view of the firm to determine the motivations for EMS adoption, and the extent to which these two theories are associated more (or less) with improved business performance. While both institutional pressures and resources and capabilities may encourage EMS adoption and improved business performance, questions remain about whether organizations that are motivated mainly by their resources and capabilities benefit to the same extent as organizations that are driven to adopt an EMS mainly because of institutional pressures. Studying the relative contribution of both theoretical perspectives would enhance our understanding of these theories to a much greater degree.

Finally, previous research examining the motivations to adopt an EMS (Bansal and Hunter, 2003; Potoski and Prakash, 2005b; King et al., 2005; Darnall, 2003; Melnyk et al., 2003; Coglianese and Nash, 2001; Anton et al., 2004) and the relationship between proactive environmental activities and business performance (Russo and Fouts, 1997; Hart and Ahuja, 1996; Stanwick and Stanwick, 2001) generally has focused on organizations operating in the United States (U.S.). As yet, we know little about whether these relationships can be generalized to the broader international setting and whether international capabilities such as export orientation are a significant motivator for facilities to adopt more comprehensive EMSs.

In this paper, we make three contributions to the existing literature. First, we consider both institutional theory and resource-based view of the firm to determine the motivations for EMS adoption at the facility level. These motivations include an important international capability, namely, export orientation, as well as the institutional pressures each facility faces. Second, we examine and empirically test the relative contribution of each of these theoretical perspectives to a facility's overall business performance across four countries (Canada, Hungary, Germany and the United States) and find that our results do generalize to a broader international setting in that facilities that are more motivated to adopt more comprehensive EMSs because of their complementary resources and capabilities observe greater overall facility-level performance. Third, this study takes a significant step forward in advancing our understanding of environmental management in the global context in that our findings suggest that export orientation is an important complementary capability to a facility's decision to adopt more comprehensive environmental management practices.

2. The comprehensiveness of an EMS

Organizations that implement EMSs identify how their activities interact with the environment, the types of environmental impacts that emanate from different operations, and alternative means of preventing environmental pollution and natural-resource degradation (Rondinelli and Berry, 2000). Based on Deming's (1986) continuous improvement model, EMSs are premised on a commitment to continuous environmental improvement (Kitazawa and Sarkis, 2000) and environmental action plans to improve environmental performance over time (Tilley, 1999). These activities create a basis upon which organizations can assess all of the aspects of their operations jointly, thus minimizing the shift of environmental harms from one subsystem to another (Shrivastava, 1995). Since EMSs are intended to design or alter operations, processes, and products to prevent (rather than merely ameliorate) negative environmental impacts, many scholars characterize approaches of this sort as proactive environmental strategies or practices (Hart, 1995; Aragón-Correa and Sharma, 2003; Hart and Ahuja, 1996; Russo and Fouts, 1997; Sharma and Vredenburg, 1998). Such practices, and EMSs in particular, have been shown to lead to improved environmental performance (Khanna and Anton, 2002; Potoski and Prakash, 2005a; King et al., 2005).

When adopting an EMS, organizations implement different types of environmental activities, in large part, because EMSs arise in different organizational settings and organizations adhere to different types of EMS standards (Coglianese and Nash, 2001). For instance, the Canadian Chemical Producers Association's Responsible Care program, the American Forest and Paper Association's Sustainable Forestry Initiative, the International Chamber of Commerce's Business Charter for Sustainable Development, and the International Organization for Standardization's ISO 14001, all have different requirements for adoption (Coglianese and Nash, 2001). While most EMSs involve implementing a written environmental policy, training employees regarding environmental concerns, employing internal environmental audits, and developing environmental performance indicators and goals (Netherwood, 1998), because of their voluntary nature, there often is variation in how these procedures are utilized (Coglianese and Nash, 2001). Some EMSs, like ISO 14001 and the Sustainable Forestry Initiative, require that facilities carry out external audits. Other EMSs, like the Canadian Responsible Care standard, require facilities to publicly report their environmental performance (Coglianese and Nash, 2001). While still other EMSs ask facilities to implement environmental benchmarking and accounting procedures that measure performance (Nash and Ehrenfeld, 1997), and link employee compensation to environmental performance (Netherwood, 1998). While these variations suggest that it is difficult to definitively characterize the core practices