



Revisiting the relationship between environmental and financial performance in Chinese industry



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ABSTRACT

The debate on the relationship between corporate or industrial environmental performance (EP) and financial performance (FP) has yet to be resolved, and studies need to examine the possible moderating effects on the EP-FP link. We argue that industrial EP has a positive effect on FP and that industrial munificence and resource slack can moderate the EP-FP link. Using a dataset from Chinese industrial firms, we examine the direct effect of industrial EP on FP and the indirect effects of industrial munificence and resource slack on the EP-FP link. Our results show that improving corporate or industrial-level EP significantly influences FP and that slack resources play a significant role on the EP-FP link. However, we found no significant moderating effect of industrial munificence on the link.

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1. Introduction

Global environmental challenges and the critical role industrial firms play in preventing environmental deterioration has increased interest in management research agendas (Hart, 1995; Iwata and Okada, 2011; Porter and Van der Linde, 1995). Researchers view environmental issues as both an opportunity and a threat, and during the last two decades the relationship between environmental performance (EP) and financial performance (FP) has come under increased scrutiny, not only in academia, but also in the industrial sectors and government (Hart and Ahuja, 1996; Horváthová, 2010; Lioui and Sharma, 2012; Stanwick and Stanwick, 1998).

Extensive empirical studies from both economic and business perspectives provide mixed evidence regarding the EP-FP link. Some researchers share the assumption that the better a firm's EP, the higher its potential financial value will be. Researchers supporting this view argue that a strong EP can improve a firm's operational efficiency (Cronin et al., 2010; Hart and Ahuja, 1996; Kleindorfer et al., 2005; Porter and Van der Linde, 1995), reduce its operational risk, which can provide insurance-like protection

and help reduce avoidable losses (Dobler et al., 2012; Godfrey, 2005; Godfrey et al., 2009), and improve its reputation among stakeholders (Melo and Garrido-Morgado, 2012; Miles and Covin, 2000). Some empirical studies support these views (Aragón-Correa et al., 2008; Brammer and Pavelin, 2006; Busch and Hoffmann, 2011; Fujii et al., 2012; Guenster et al., 2011; Russo and Fouts, 1997).

Other researchers argue that EP negatively affects firms' FP, claiming that EP improvement does not align with FP. Accordingly, improving firms' EP requires government involvement in addressing environmental issues (Jensen and Meckling, 1976). Some empirical studies provide evidence for this relationship (Cordeiro and Sarkis, 1997; Fisher-Vanden and Thorburn, 2011; Lioui and Sharma, 2012; Stanwick and Stanwick, 1998), while a smaller group of scholars argue that the relationship is neutral (McWilliams and Siegel, 2000).

The debate on EP's financial effects is unresolved, in part, because what seemed to be a straightforward relationship has proven to be complex (Horváthová, 2010; Hull and Rothenberg, 2008). Recently, some have started exploring the mechanisms connecting EP to FP (Dixon-Fowler et al., 2013; Lioui and Sharma, 2012; Menguc et al., 2010; Surroca et al., 2009; Wagner, 2010). For example, Russo and Fouts (1997) found that growth industries moderate the link between environmental and financial performance. Wagner (2010) found that firms' innovation capacity has no significant moderating effect on the EP-FP link. The empirical study conducted by López-Gamero et al. (2009) indicated that a firm's

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environmental resources and competitive advantage act as mediating variables in the EP-FP relationship.

The resource-based view depicts firms as a bundle of heterogeneous tangible and intangible resources (Barney, 1991). Among these various resources, researchers consider environmental capacity to be an important resource for generating economic rents (Hart, 1995). According to Day (1994) and Sharma and Vredenburg (1998), environmental capabilities are complex bundles of environmental skills and knowledge, exercised through organizational processes that enable firms to efficiently and competitively use their assets—whether tangible or intangible. This includes the capacity for higher-order learning, stakeholders' integration, and continuous innovation (Sharma and Vredenburg, 1998). Developing these capacities can reduce environmental risks, promote process and product innovation, and improve corporate reputation and relationships with stakeholders (Sharma and Vredenburg, 1998). The inter-firm difference in environmental capacity has important implications for firms' competitive position. However, relative to general resources, firms' environmental capacity development requires continuous resource investment in order to sustain the potential associated with greater economic performance. When a firm is in financial distress, which is often associated with a significant reduction in long-term investments, such as environmental investment, this further reduces firms' competitive advantage (Surroca et al., 2010; Waddock and Graves, 1997).

Organizational environments also represent one of the major contingencies faced by a firm (Tosi and Slocum, 1984). In the last few decades, organizational environments' effects on firms' environmental and financial performance have received growing attention (Goll and Rasheed, 2004). Business environment characteristics may strengthen or weaken the relationship between environmental and financial performance (Aragon-Correa and Sharma, 2003). On one hand, the general business environment will influence dynamic environmental capability development; on the other, it will moderate the competitive value of an environmental strategy. Munificent business environments favor firms' potential to convert EP into FP (Aragon-Correa and Sharma, 2003). Based on this literature, we provide an integrated framework analyzing the moderate roles of industry munificence and resource slack on the EP-FP link at the industrial level.

For our empirical analysis, we use a Chinese industrial sector panel dataset for the years 1990–2010 to attempt to shed further light on the relationship mechanism between EP and FP. From an empirical point of view, we provide the first econometric analysis for China on the effects of EP on FP at the industry sector level. The Chinese economy has seen rapid economic growth since the 1980s, resulting in substantial environmental problems (Xu et al., 2012; Zeng et al., 2012; Zhu and Sarkis, 2004). Under continual pressure from government, community, and competitors, firms need to balance economic and environmental performance (Cole et al., 2008; Zhu et al., 2007). Whether environmental investment can benefit financial performance is not only a strategic issue, but also a theoretical one.

2. Research hypotheses

2.1. Environmental performance and financial performance

Based on the natural resource-based view of managing stakeholder expectations through enhanced environmental performance, firms are able to develop resources that are valuable, rare, inimitable, and non-substitutable resources (Hart, 1995; Srivastava et al., 1998). The total benefit of environmental performance includes increased revenues through improved operational efficiency and environmental reputation, and reductions in environmental

risk by preventing environmental disasters that could have negative effects on firm performance (Pelozo, 2006). Environmental improvement can improve the reputation of a firm (Miles and Covin, 2000). A firm's environmental reputation is related to that of other firms' in the same industry. In other words, firms in the same industry share a common reputation resource. By being environmentally friendly, firms can collectively improve the industry's general reputation. Improved EP can mitigate firms' operational risk stemming from environmental pollution and prevent stakeholder boycotts (Godfrey et al., 2009). Furthermore, proactive environmental practices can reduce environmental regulation compliance costs and improve employee morale and productivity (Mazzanti and Zoboli, 2009; Pil and Rothenberg, 2003; Shrivastava, 1995). EP improvements also play a role in insurance function, benefiting firms through capital cost reductions (Sharfman and Fernando, 2008), decreasing firms' market risk (Salama et al., 2011) and financial risk (Godfrey, 2005; McGuire et al., 1988; Porter and Kramer, 2006; Salama et al., 2011). Lower risk makes a firm's future cash flow projections more certain and reliable and increases the firm's value and its shareholders' wealth (Orlitzky and Benjamin, 2001). These insurance-like properties help value preservation, especially in difficult times when such protection is most needed, hence creating their value (Godfrey et al., 2009). Many authors found a positive relationship between a firm's EP and its FP (Hart and Ahuja, 1996; King and Lenox, 2001; Russo and Fouts, 1997). We thus construct our first hypothesis as follows:

Hypothesis 1. *An industry's EP positively correlates to its FP.*

2.2. Environmental munificence

Industrial business environments, as a contingency for firms, seek growth opportunities in achieving higher financial performance (Porter, 1980). These environments vary in their degree of munificence, which affects the potential value of a firm's resources and capabilities (Sirmon et al., 2007). Firms prosper and survive better in munificent environments characterized by higher levels of market growth (Dess and Beard, 1984). Within munificent environments, firms have access to more opportunities, which enhances their ability to survive and prosper (Castrogiovanni, 1991). Munificent environments are more likely to receive governmental incentives and easy access to technical knowledge provided by educational institutions, and provide adequate external resources needed by firms engaging in environmental improvement (Aragon-Correa and Sharma, 2003; Covin and Slevin, 1989; Deeds and Decarolis, 1999; Rueda-Manzanares et al., 2008).

In such contexts, firms have more opportunities to allocate resources for adopting environmentally proactive strategies in response to stakeholder pressure and will be more likely to integrate stakeholders into the process. When an industry's environment is munificent, firms tend to engage more in socially responsible behavior (Goll and Rasheed, 2004). Munificent environments allow organizational members to experiment with new ways of coping with organizational change and develop environmentally friendly technologies or products (Rueda-Manzanares, Aragón-Correa, and Sharma, 2008). Munificent environments promote organizational change in order to assimilate valuable external information, which enhances organizational members' opportunities to explore, learn, share, and integrate environmental practices across departments and functions, thereby facilitating the accumulation of social and environmental knowledge (Shrivastava, 1995; Surroca et al., 2009). Additionally, munificence in industry environments provides greater decision-making freedom to industry managers in making environmental investments (Sahaym

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