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Corporate environmental initiatives in the Chinese context: Performance implications and contextual factors

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ABSTRACT

Although a number of studies have been conducted on the relationship between environmental management and firm performance, most of them are conducted in the Western context. Due to the unique social and economic environments in China, the performance implications of environmental management might be quite different in the Chinese context. We examine the impact of corporate environmental initiatives (CEIs) on the market value of firms in China. We find that, in contrast to the findings in the Western context, Chinese investors react *negatively* to CEI announcements. The negative reaction is more significant when the announcements are related to processes rather than products, and for state-owned enterprises rather than privately-owned corporations. However, there is no difference whether the CEI is self-declared or third-party endorsed. Overall, our research indicates that Chinese investors consider CEIs to be in conflict with shareholder interest. In particular, CEIs in state-owned enterprises might be considered by investors as signals that firms need to sacrifice profits to shoulder more social responsibility.

1. Introduction

The financial implications of firms' environmental practices have attracted researchers' attention for years (Klassen and McLaughlin, 1996; Lucas and Noordewier, 2016). Various studies have been conducted to address a simple yet important question: Does it pay to be green? (Dixon-Fowler et al., 2013; Hart and Ahuja, 1996; Stefan and Paul, 2008). A common approach employed to answer this question is the event study methodology, which quantifies stock market reactions to the announcements of corporate environmental initiatives (CEIs) (Gilley et al., 2000; Jacobs et al., 2010). While the event study results vary, some recent reviews observe that "it pays to be green" has become the predominant finding among studies (Endrikat, 2016; Molina-Azorín et al., 2009). However, these reviews also find that as prior studies have mainly focused on Western countries, especially in the US context, "further research on non-US firms is needed to assess whether the mainstream results are consistent with findings for other countries" (Blanco et al., 2009, p. 498).

Such a concern is especially valid in the context of developing countries such as China, in which environmental regulations and customers' preferences are quite different from those in the US and other Western countries (Economy and Lieberthal, 2007; Hsu et al., 2014; Marquis et al., 2011; Zhu, 2016). As a result, it is questionable whether the predominant finding that "it pays to be green" still holds in the Chinese context. Moreover, while it is important to understand whether it pays to be green, recent reviews have pointed out that it is even more critical to explain when it pays to be green in order to provide more insightful implications for theory and practice (Dixon-Fowler et al., 2013). Therefore, our research attempts to investigate whether and when it pays to be green in China.

Conducting an event study of 556 CEI announcements of Chinese firms over a ten-year period 2005–2014, we find that Chinese investors react *negatively* to CEI announcements. More specifically, over a two-day event window from the event day to the day after the event (i.e., days 0 to 1), the mean and median cumulative abnormal returns (CARs) are -0.28% and -0.33%, respectively. Moreover, the CARs are statistically significant based on the t-test ($p<0.05$) and Wilcoxon signed-rank test ($p<0.01$).

We then adopt signalling theory to explore when it pays to be green in China. Signalling theory suggests that in the situation of information asymmetry, one party may need to rely on some observable signals sent by another party to interpret the

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underlying capabilities of the latter (Connelly et al., 2011). Applying to our research context, the extent to which Chinese investors value CEIs may depends on how they view the observable signals contained in CEI announcements. Signalling theory thus enables us to hypothesize how the observable characteristics of CEIs and firms may send different signals to Chinese investors, resulting in different stock market reactions to firms' CEI announcements. Consistent with our signalling logic, we find that the stock market reactions are more negative for process-focused (rather than product-focused) CEIs and state-owned (rather than privately-owned) firms. However, there is no difference in stock returns between self-declared and third-party certified CEIs.

Our research is important in several ways. First, while the financial implications of CEIs have been well studied in the Western context (Gilley et al., 2000; Jacobs et al., 2010), little is known about how stock markets may react to Chinese firms' CEI announcements. Our research fills this gap by documenting the CARs of 556 CEI announcements in China over a ten-year period 2005 to 2014. Moreover, the negative CARs found in our research challenge the pervasive claim that "it pays to be green" (Endrikat, 2016; Molina-Azorín et al., 2009) and highlight the importance of taking the national context into account when studying the financial implications of CEIs.

In addition to the main effect, our research also documents how stock market reactions could vary across different CEIs and firms. These findings enable practitioners to gain a better understanding of not only whether but also when it pays to be green in China. Finally, the signalling perspective adopted in our research may offer a fruitful theoretical foundation for future research on CEIs.

2. Literature and hypothesis development

2.1. CEIs and their impacts on financial performance

Consistent with prior studies (e.g., Gilley et al., 2000; Jacobs et al., 2010), we define CEIs as firms' efforts to reduce the negative environmental impact or to enhance the positive environmental benefit of their products or processes. CEIs can be either process-focused, such as the implementation of green manufacturing systems, or product-focused, such as the introduction of eco-friendly products (Aragon-Correa and Sharma, 2003; Christmann, 2000). On the other hand, firms can decide whether third-party verification or certification is involved in their CEIs (Jacobs et al., 2010). For instance, firms may implement environmental management systems with or without third-party certification (e.g., ISO 14001).

The links between CEIs and financial performance have been well studied in the Western context (e.g., Gilley et al., 2000; Jacobs et al., 2010; Klassen and McLaughlin, 1996; Wassmer et al., 2014). Prior studies on CEIs commonly agree that CEIs can help firms improve financial performance through two different mechanisms, namely cost reduction and revenue gain (Jacobs et al., 2010). First, CEIs are able to reduce costs because of the consumption of less energy and material, migration of environmental risks and crises, and avoidance of environmental lawsuits and legal settlements. On the other hand, CEIs enable firms to increase revenues by enhancing the loyalty of existing customers, attracting new and environmentally sensitive customers, and earning higher margins for eco-friendly products. These arguments have gained empirical support in the literature (see, e.g., Albertini, 2013; Dixon-Fowler et al., 2013; Molina-Azorín et al., 2009). In particular, a recent meta-analytic review shows positive relationships between CEIs and stock market reactions across prior studies (Endrikat, 2016).

Researchers increasingly adopt the event study methodology to investigate how Chinese investors react to various corporate events or initiatives such as mergers and acquisitions (Gaur et al., 2013), marketing channel expansions (Homburg et al., 2014), IT investments (Meng and Lee, 2007), and product recalls (Zhao et al., 2013). After an extensive search, we identify some related event studies concerning environmental management in China (e.g., Kong et al., 2014; Lyon et al., 2013; Xu et al., 2012) and discuss how they are different from our research on Chinese firms' environmental initiatives. For instance, Kong et al. (2014) studied the impact of an environmental policy (i.e., the carbon emission rights trading scheme (CERTS) announced on 29 October 2011), rather than corporate initiatives, on the market value of Chinese firms. On the other hand, Xu et al. (2012) investigated how stock markets react to Chinese firms' environmental violation events, rather than their environmental protection efforts. Finally, Lyon et al. (2013) examined stock market reactions to environmental awards initiated by a third-party in China (i.e., China Entrepreneur Club), rather than the environmental efforts initiated by Chinese firms themselves. Therefore, to the best of our knowledge, our research represents one of the first attempts to quantify stock market reactions to CEI announcements in China.

On the other hand, due to the different environmental regulations and customers' preferences in China (Economy and Lieberthal, 2007; Marquis et al., 2011), it is questionable whether the positive relationships between CEIs and stock market reactions found in Western countries (Endrikat, 2016) still hold in the Chinese context. Some prior event studies (e.g., Lyon et al., 2013; Xu et al., 2012), although different from our research, have raised the same concern. For instance, Lyon et al. (2013) found that winning environmental awards in China has no effect and, in some cases, even has a negative impact on shareholder value; Xu et al. (2012) revealed that environmental violation events have less negative effects on the market value of Chinese firms, compared with firms in other developed countries. Therefore, Chinese investors may not appreciate the cost reduction and revenue gain mechanisms of CEIs in China for various reasons.

First, CEIs may not be regarded as an attractive option for Chinese firms to reduce cost. As the environmental regulations in China are less stringent compared with those in Western countries such as the US (Dixon-Fowler et al., 2013), Chinese firms "find it cheaper simply to pay fines than to adhere to the regulations" (Economy and Lieberthal, 2007, p. 93). Moreover, competition for economic growth among different areas in China results in lax enforcement of the environmental regulations by local governments (Marquis et al., 2011), making it less likely to punish environmentally irresponsible but economically important firms. As a result, instead of reducing cost, CEIs may be viewed as costly investments for Chinese firms.

On the other hand, Chinese firms may not benefit from CEIs in terms of revenue gain. Chinese customers are less environmentally aware compared with their counterparts in Western countries (Hsu et al., 2014). As a result, they may not view products' environmental impacts as an important consideration in their buying decision process. Moreover, due to the significant differences in individual incomes between China and Western countries (Malik, 2013), Chinese customers are more price-sensitive and thus may prefer products with lower prices rather than with better environmental performance. Given that the cost reduction and revenue gain mechanisms of CEIs may have opposite effects in Chinese firms compared with those in the Western economies, we expect negative, rather than positive, stock market reactions to CEI announcements of Chinese firms. Therefore, we propose that