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Can environmental management improve financial performance: An empirical study of A-shares listed companies in China

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ABSTRACT

Environmental management has external effects such that companies typically regard environmental input as a cost with no clear benefit. If the investment only leads to additional costs, companies will not take the initiative to achieve long-term environmental protection. Therefore, if environmental protection can bring economic benefits, indicating that environmental protection and economic interests are in harmony, companies will actively fulfill their responsibility to protect the environment. Thus, it is important to examine the relationship between corporate environmental management and financial performance. This paper examines the relationship between environmental management and financial performance of Chinese listed firms from 2007 to 2011. Results indicate that environmental management is significantly positively related to financial performance in the following year, implying that environmental management can significantly improve future profitability. However, as environmental investment consumes capital and resources, results indicate that environmental management is not significantly related to improved financial performance in the current year. In addition, this study examines the relationship between different environmental protection measures and financial performance, finding that two methods of environmental protection, "recycled harmful substances to the environment (Rec)" and "other methods to control pollution (Other)," positively impact future financial performance. However, these measures also do not have a significant impact on the financial performance of the current year.

1. Introduction

In today's modern economy, the environment is of great concern and the cost of environmental pollution in exchange for economic development is not sustainable (Song et al., 2013). The Third Plenary Session of the 18th Central Committee of the Communist Party of China described a clear, civilized path to improve China's economic and ecological civilization. Enterprises, especially large companies, are inevitably concerned about the environment because environmental destruction and energy depletion, for example, will affect their sustainable development. Therefore, responsible companies cannot ignore environmental issues. However, environmental protection is an externality that requires additional investment from enterprises, such as higher procurement costs for cleaner raw materials and additional investment in environmental protection facilities. Furthermore, the benefits of environmental protection are often not achieved directly. Therefore, from a traditional view, environmental protection is considered a general cost without a clear benefit. If investment in environmental protection produces economic benefits insufficient to cover its additional cost, companies have no motivation to voluntarily participate in environmental protection and will not take the initiative to achieve long-term and conscious environmental protection. Companies will only actively fulfill their responsibilities to protect the environment when environmental protection produces economic benefits that indicate environmental protection and economic interests are in harmony.

According to Heal (2004), corporate environmental behavior can produce benefits that include improved financial performance through efficient resource use, enhanced reputation and competitiveness, improved employee productivity, and improved employee relations. Further, environmental behavior can reduce business risk through improved relationships with regulatory authorities and consumers, reduced risk of penalties and litigation, and reduced

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cost of capital. Ultimately, environmental behavior can increase the value of a company. Investment in corporate environmental behavior can be beneficial and enhance the relationship between income and investment. However, if the earnings are insufficient to cover the investment cost, thus negatively impacting the enterprise value and damaging the interests of shareholders, companies will not sustain the investment in environmental protection. Similarly, if the environmental benefits are sufficient to cover the investment cost, thus positively impacting corporate value through harmonious environmental improvements and economic benefits, the enterprise will continue investing in environmental protection to improve corporate value and meet shareholder interests.

In this paper, we study 2827 Chinese listed companies from 2007 to 2011 to investigate the environmental management impact on the companies' current and future financial performance. We find that the companies' current environmental management and future financial performance has a significantly positive correlation, such that environmental management will significantly enhance future profitability. However, we do not find environmental management to have a significant impact on the companies' current financial performance.

In summary, this paper investigates the potential positive correlation between corporate environmental management and future financial performance to encourage companies to be more actively involved in environmental protection.

2. Literature review and research hypotheses

One view of the relationship between environmental management and corporate financial performance is that environmental protection cannot directly benefit the enterprise, and therefore, environmental investment prejudices the profitability of enterprises. Walley and Whitehead (1994) believe that there is a conflict between a company's business competitiveness and corporate environmental management, especially for certain industries. If a company's environmental costs to total manufacturing costs ratio is much higher than that of other companies, the corporate environmental impact and product value-added are disproportionate. The phenomenon that environmental costs greatly reduce a company's profit margins eventually causes a competitive disadvantage. Therefore, companies typically treat environmental investments as an additional cost that they are not willing to increase.

Another view, held by Porter and Vander (1995), is that environmental management can increase an enterprise's competitive advantage. If companies demonstrate how they protect the environment and develop a positive social image, they can increase product sales and expand their market share. Furthermore, they can obtain environmental permits for new products faster than competitors, allowing them to enter the market first. In addition, increasingly stringent environmental regulatory requirements endanger enterprises with poor environmental management. This potential risk will stimulate enterprises to improve internal environmental management capabilities, such as technology development and resource utilization, to reduce production costs and increase economic benefits.

Many empirical studies investigate the relationship between a company's environmental management and financial performance. However, due to different research methods, variable selection, and environmental performance evaluation systems, the results are inconsistent. Waddock and Graves (1997) studied the relationship between social responsibility (environmental management) and a company's financial performance by using a sample of S&P 500 companies and the Kinder, Lydenberg, Domini Company (KLD) social responsibility index. We found a significant positive correlation between corporate environmental management and corporate financial performance, specifically the return on assets (ROA). Klassen and McLaughlin (1996) found that environmental disclosure and management improve a company's operating financial performance by either increasing operating income or reducing product costs. Potential ways to increase operating income include increasing market share to generate economies of scale, improving contribution margin products, and verifying environmental products and processes. Methods to decrease product costs through environmental management include establishing a wide range of industry standards, which can position the company better to reduce costs, reusing raw materials and energy, thus improving production efficiency, reducing product pollution leakages and environmental liabilities, thereby reducing costs of government regulations in environmental restoration, and pollution removal.

Margolis et al. (2009) reviewed 251 published papers, books, and dissertations on the relationship between corporate social responsibility (CSR) and financial performance. They concluded that there is a small positive relationship between CSR and financial performance and that the size of this relationship has decreased in recent years. Elliott et al. (2013) conducted an experiment to study firm value and CSR performance, finding that firm value is negatively associated with CSR. Moreover, Clarkson et al. (2013) did not find an association between environmental disclosures and the cost of capital.

Russo and Fouts (1997) suggest that a future higher ROA is caused by improved environmental management. Therefore, we believe that improving the level of environmental management will positively impact a company's future financial performance. Some studies have shown that environmental management can enhance a firm's reputation, brand, and trust to attract customers and employees and ultimately increase profitability (Porter and Kramer, 2011; Flammer, 2015). As a result, even CSR efforts that address ethical or philanthropic concerns may maximize shareholder wealth. Thus, this paper proposes the following hypothesis:

Hypothesis H1. Environmental management in the current year will positively impact a company's future financial performance.

By improving environmental management, companies can obtain government subsidies, rewards, tax cuts, or tax rebates through environmental protection and energy transformation. Additionally, companies can also improve their corporate social image and enhance their corporate reputation. In contrast, companies with poor environmental management can be fined or face other penalties, such as having production suspended production by the government's environmental department or being prohibited from expanding production capacity by industrial policy. At the same time, the direct or indirect financing of these companies may also be subject to credit institutions or the Securities Regulatory Commission. Therefore, even though investment in environmental protection facilities and related costs require increased spending in the short term, environmental management can efficiently employ a company's resources and energy and attract corresponding benefits in the medium- and long-term. Improving a company's environmental management requires increased environmental protection funds, resources, and management during the current year. However, funds, resources, and management capacities are often limited. Thus, increasing investment in environmental protection will inevitably decrease the investment in normal production management, such that the reduction of these inputs will reduce the financial results of the current year. Therefore, we believe that improving environmental management may cause a decline in financial performance in the current year. Thus, this paper proposes the following hypothesis: