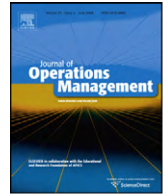
Journal of Operations Management 28 (2010) 430–441

Contents lists available at ScienceDirect

Journal of Operations Management

journal homepage: www.elsevier.com/locate/jom



An empirical investigation of environmental performance and the market value of the firm

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ARTICLE INFO

Article history:
Received 4 November 2008
Received in revised form 8 January 2010
Accepted 14 January 2010
Available online 25 January 2010

Keywords:
Market value
Environmental performance
Environmental initiatives
Awards
Certifications
Stock market reaction

ABSTRACT

This paper analyzes the shareholder value effects of environmental performance by measuring the stock market reaction associated with announcements of environmental performance. We examine the market reaction to two categories of environmental performance. The first category includes 417 announcements of Corporate Environmental Initiatives (CEIs) that provide information about self-reported corporate efforts to avoid, mitigate, or offset the environmental impacts of the firm's products, services, or processes. The second category includes 363 announcements of Environmental Awards and Certifications (EACs) that provide information about recognition granted by third-parties specifically for environmental performance. Although the market does not react significantly to the aggregated CEI and EAC announcements, we find statistically significant market reactions for certain CEI and EAC subcategories. Specifically, announcements of philanthropic gifts for environmental causes are associated with significant positive market reaction, voluntary emission reductions are associated with significant negative market reaction, and ISO 14001 certifications are associated with significant positive market reaction. The difference between the market reactions to the CEI and EAC categories is statistically insignificant. Overall, the market is selective in reacting to announcements of environmental performance with certain types of announcements even valued negatively.

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1. Introduction

This paper analyzes the shareholder value effects of environmental performance by measuring the stock market reaction (abnormal returns) associated with announcements of environmental performance. We examine the market reaction to two categories of environmental performance. The first category is announcements about self-reported corporate efforts to avoid, mitigate, or offset the environmental impacts of the firm's products, services, or processes. We refer to such announcements as Corporate Environmental Initiatives (CEIs). We examine the market reaction to the broad category of CEIs as well as its subcategories of specific announcement types. The second category is announcements about recognition granted by third-parties specifically for environmental performance. We refer to such announcements as Environmental Awards and Certifications (EACs), and examine the market reactions to both the broad category of EACs as well as its specific subcategories. We also contrast the market reactions to CEIs and EACs.

The issues addressed in this paper are important for a number of reasons. First, Skapinker (2008) highlights the proactive sustainability initiatives of Unilever and Wal-Mart to frame the ongoing debate over whether such initiatives are merely window dressing. Even though Wal-Mart's energy conservation and recycling initiatives, and Unilever's forays into low-cost water purification and eco-friendly detergents are well received by the popular press, the question remains as to whether the market perceives the returns on such initiatives to be as attractive as returns on alternative investment opportunities. In other words, can a firm increase shareholder value through improvements in its environmental performance? The controversy continues to receive attention in the press (Elgin, 2007; Thomson, 2006). Proponents claim that direct economic benefits from CEIs improve return on investment and market value. Benefits include energy, raw material, and abatement cost reductions, as well as intangible advantages of improved consumer perception, community relations, employee morale, and access to new markets. Skepticism remains, however, due to the perceived high costs of improving environmental performance, and the uncertain and longer term

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doi:10.1016/j.jom.2010.01.001

payoffs from such efforts (Engardio et al., 2007). By examining the market reaction to environmental performance, we provide evidence for the debate on the potential for environmental initiatives to create value.

Second, academics have studied the relationship between environmental performance and financial performance, both theoretically (Walley and Whitehead, 1994; Hart, 1995; Porter and van der Linde, 1995) as well as empirically (Ullman, 1985; Margolis and Walsh, 2003). Friedman (1970) argues that any environmental expenses beyond those required for regulatory compliance are not in the best interest of shareholders and will result in degradation of firm performance and value. However, Barnett and Salomon (2006) suggest that good social performance attracts resources to the firm, including better quality employees and expanded market opportunities. Also, since proactive approaches to environmental performance require greater intangible skills (e.g., cross-disciplinary activity and problem solving) than do reactive approaches, related efforts create more valuable resources and can be a source of competitive advantage (Hart, 1995; Russo and Fouts, 1997). In contrast, Walley and Whitehead (1994) propose that instances where environmental efforts can improve firm performance are rare. In analyzing the market reaction to a broad range of environmental initiatives, we shed light on whether such initiatives affect firm value.

Third, although the dominant view today is that good environmental performance results in improved financial performance, empirical results have been inconclusive and even conflicting, which highlights the complex nature of the link between environmental and financial performance (Corbett and Klassen, 2006). Related empirical research that use secondary data are of three types: portfolio studies, regression studies, and event studies (King and Lenox, 2001; Guenster et al., 2006). Portfolio studies determine whether the return on a portfolio of firms with good environmental performance outperforms the market. Regression analyses determine the long-term relationships between environmental performance and accounting-based measures of firm performance. These studies require careful matching of the firms under study with control firms to estimate any departures from "normal" financial performance during the study period. Due to the relatively long time periods over which such studies are conducted, they are sensitive to the host of other possible explanatory factors of firm performance.

Event studies estimate market value impacts using announcements of environmental events. A statistically significant market reaction to announcements of environmental events would indicate a causal link. Event studies have been used in the literature to determine the impacts of both positive and negative environmental events, e.g., product- and process-related initiatives (Gilley et al., 2000), environmental awards and crises (Klassen and McLaughlin, 1996), and lawsuits (Karpoff et al., 2005). The work of Klassen and McLaughlin (1996) and Gilley et al. (2000) is particularly relevant to our work. Klassen and McLaughlin (1996) document the market reaction to independent, third-party awards for environmental performance. Using a sample of 140 announcements during the period 1986–1991, they find that environmental awards are associated with a statistically significant average market reaction of 0.63%. Gilley et al. (2000) study the market reaction to environmental activities that improve processes and products. Based on a sample of 71 announcements from *The Wall Street Journal* during 1983–1996, they find that process-related announcements result in a statistically significant average market reaction of −0.45% but the market does not react significantly to product-related announcements.

Our research extends earlier research but also differs from it in several important aspects. First, our approach considers a wide variety of specific CEIs rather than just process and product-related initiatives considered by Gilley et al. (2000). Second, our study of environmental awards builds upon the work of Klassen and McLaughlin (1996) by examining whether, in the time since their study, the increased pervasiveness of and publicity surrounding environmental efforts has affected the market value of firms that receive recognition for such efforts. Third, we expand upon Klassen and McLaughlin's work by testing environmental certifications, which were new to the US market at the time of their study but are more prevalent today. The impacts of environmental management system (EMS) certifications (such as ISO 14001) on firm performance have mainly been studied using survey data (Delmas, 2001; Melnyk et al., 2003). To the best of our knowledge, the literature has not examined the market reaction to EMS certifications. Fourth, by including both CEIs and EACs in our study, we are able to examine the difference between the market reaction to self-disclosed information and to third-party assessments of environmental performance. Finally, we study the market reaction to specific types of CEIs and EACs, many of which have not been examined in the literature.

Our results are based on an analysis of 780 announcements (417 CEI announcements and 363 EAC announcements) that appeared in the daily business press during the period 2004–2006. Although the market does not react significantly to the aggregated CEI and EAC categories, it does react significantly to certain types of CEI and EAC announcements. Specifically, we find that announcements of: (1) philanthropic gifts for environmental causes, result in statistically significant positive market reaction; (2) pledges or realizations of voluntary emission reductions, result in statistically significant negative market reaction; and (3) attainment of ISO 14001 certification, results in statistically significant positive market reaction. The difference between the market reactions to the aggregate CEI and EAC categories is statistically insignificant. Overall, the market is selective in reacting to announcements of environmental performance with certain types of announcements even valued negatively.

The next section develops our hypotheses. Section 3 describes the sample. Section 4 discusses the event study methodology. Section 5 presents the empirical evidence and Section 6 discusses the managerial implications of our results. Section 7 summarizes the paper, discusses its limitations, and provides directions for future research.

2. Hypotheses

We use the framework in Fig. 1 to develop our hypotheses of the impact of environmental performance on financial performance. Researchers have proposed different mechanisms by which environmental performance influences revenue gains and cost reductions. An examination of these mechanisms illustrates how CEIs can impact firm value.

Revenue growth can be achieved either through gains in existing markets or access to new markets. Klassen and McLaughlin (1996) propose that gains in existing markets can be realized through the reputational benefits of positive environmental performance. They argue that demonstration of reduced environmental impacts of products and processes, and the establishment of an EMS can improve brand reputation. Dowell et al. (2000) also note that the development and maintenance of stringent environmental management standards can have positive reputational effects. Corbett and Muthulingam (2008) propose that a primary reason for firms to pursue Leadership in Energy and Environmental Design (LEED) certification for building construction is to signal environmental concern to regulators, employees, and the public. Brand recognition and corporate reputation can also be enhanced through "strategic philanthropy" to support environmental causes (Seifert et al., 2003). Similarly, other environmentally conscious initiatives, such as

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