*Eco-Management and Auditing*
*Eco-Mgmt. Aud.* **7**, 155–164 (2000)

# THE RELATIONSHIP BETWEEN ENVIRONMENTAL DISCLOSURES AND FINANCIAL PERFORMANCE: AN EMPIRICAL STUDY OF US FIRMS

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The purpose of this study is to examine the current practices of relatively large corporations concerning the relationship between environmental disclosures and financial performance. An examination of 469 firms listed in the 1994 *Forbes 500* was conducted. The results showed that firms classified as high financial performers had higher incidences of environmental policies and/or descriptions of environmental commitment than firms classified as low performers. Firms classified as medium financial performers had the highest incidences of firm environmental policies and/or a description of their environmental commitment. Copyright © 2000 John Wiley & Sons, Ltd and ERP Environment.

Received 1 March 2000
Revised 21 March 2000
Accepted 27 April 2000

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## INTRODUCTION

An area receiving an increased focus of attention in the social issues management literature is corporate social responsibility (Carroll, 1979; Cochran and Wood, 1984; Ullmann, 1985; Wartick and Cochran, 1985; Wood, 1991a,b). The purpose of this study is to examine the current practices of *Forbes 500* companies pertaining to their environmental responsiveness and financial performance. The existence of a formal environmental policy and an explicit description of the organization's overall environmental commitment is, in part, a component of the corporate social responsiveness of the organization.

### *Previous research on corporate social responsiveness*

Frederick's (1978) original definition of social responsiveness has been modified by other researchers over the years to become increasingly more complex and comprehensive. Frederick states that social responsiveness 'refers to the capacity of a corporation to respond to social pressures' (1978, p 6). Carroll (1979) extends this definition by presenting a model where social responsiveness is based on four different management approaches (reactive, defensive, accommodative and proactive). Carroll states that '[c]orporate social responsiveness, which has been discussed by some as an alternative to social responsibility is rather, the action phase of management responding in the social sphere' (1979, p 502).

Wartick and Cochran (1985) continued the exploration of social responsiveness by presenting a description of the challenges to the corporate social performance model, which includes economic responsibility, public responsibility and social responsiveness. Wartick and Cochran (1985) argue that social responsiveness (i) is pragmatic in its approach, (ii) views the firm as the unit of analysis and (iii) emphasizes the responses of the firm. It is the social responsiveness of the organization that is the focus of this paper.

Wood (1991a) categorizes corporate social responsiveness as a trilogy which is comprised of (i) environmental assessment by the organization, (ii) the management of stakeholders by the organization and (iii) the management of issues by the organization. Specifically, this paper will focus on the second component of Wood's trilogy of social responsiveness, which is the management of stakeholders by the organization.

Social responsiveness of organizations is based, in part, on the ability to meet the needs of the stakeholders. Wood and Jones (1995) state that stakeholders have at least three different roles in the level of corporate social responsibility adopted by the organization. They are the following: '(1) stakeholders are the source of expectations about what constitutes desirable and undesirable firm performance, (2) stakeholders experience the effects of corporate behavior; that is, they are the recipients of corporate actions and output, and (3) stakeholders evaluate how well firms have met expectations and/or how firms' behaviors have affected the groups and organizations in their environment.' (Wood and Jones, 1995, p 231). These three roles of stakeholders highlight the responsibilities that organizations have in making environmental disclosures that explain their environmental policy and commitment. By having a formal written document to refer to (the environmental policy) and a description of the type of environmental activities that the organization is currently involved in (the organization's environmental commitment), stakeholders are allowed to develop actual expectations and methods to properly evaluate the environmental responsiveness of the organization.

Previous studies on environmental disclosures have extended the framework of Carroll (1979) by categorizing the level of environmental responsiveness. Researchers such as Arthur D. Little, Inc. (1989), Hunt and Auster (1990) and Post and Altman (1992) have presented frameworks where environmental responses by organizations range in a continuum from being very reactive and ignoring environmental issues to being very proactive and incorporating environmental issues in the day to day operations of the company.

Both Hunt and Auster (1990) and Arthur D. Little, Inc. (1989) conclude that a majority of firms are not proactive in their environmental responsiveness. Arthur D. Little, Inc. (1989) estimates that only 10 to 15 percent of the firms are in the proactive stage while Hunt and Auster (1990) state that only a few firms could be classified as being proactive.

### *Previous research on corporate social and environmental disclosures*

Previous research has shown that corporate social disclosures are not consistent among organizations (Aupperle, 1984; Cowen *et al*., 1987; Tilt, 1994; Gray *et al*., 1995). Studies examining environmental disclosures have also found similar results (Patten, 1992; Gray, 1993; Gray *et al*., 1993), but have found a general increase in the level of environmental disclosures of the organization. Even though there is an increased focus of environmental disclosures by organizations, Gray *et al*. (1995) found that environmental disclosures were still considered a low priority by organizations and were usually summarized in less than one page of their annual report.

Although the lack of environmental disclosures by firms in previous studies could be due, in part, to the voluntary nature of some of the environmental issues (Gray *et al*., 1995), researchers have argued that environmental reporting could have a positive impact on the organization. Bullough and Johnson (1995) and Dechant and Altman (1994) state that environmental reporting could be a valuable marketing tool and could be used in establishing a competitive advantage for the organization (Porter and van der Linde, 1995). By becoming an environmental leader, Dechant and Altman (1994) state that a formal environmental mission and value statement must be established. In addition, a formalized framework must be developed in order to manage the environmental initiative required by the organization.

Dechant and Altman (1994) argue that a competitive advantage can be fostered by developing partnerships with environmentally focused stakeholders. However, not all firms incorporate this environmental leadership philosophy (Dechant and Altman, 1994) into their day to day operations. A reason for this could be the level of stakeholder power and strategic posture of the organization (Ullmann, 1985). Ullmann (1985) argues that the inconsistencies that have arisen in the past pertaining to the examination of the relationship between social performance, social disclosure and economic performance are based on various levels of stakeholder power, strategic posture and economic performance. Ullmann states that stakeholder power is positively related to social performance since stakeholders are able to control resources that can 'force' a firm to respond in a certain matter.

### *The relationship between social and environmental responsiveness and financial performance*

The empirical examination of the relationship between corporate responsiveness and financial performance has yielded conflicting results. In their review of a number of articles examining the relationship between social responsiveness and firm performance, Pava and Krausz (1996) found that of the 21 studies reviewed, 12 studies demonstrated a positive relationship between responsiveness and performance, one study found a negative relationship and eight studies yielded no significant association. The 21 studies used various measures of social responsiveness including environmental measures.

Bragdon and Marlin (1972) used the Council on Economic Priorities' (CEP's) air and water pollution measures for environmental responsiveness and found that higher financial performance was related to decreasing levels of pollution. This result was supported by Shane and Spicer (1983), who also measured environmental responsiveness based on CEP pollution measures and found an inverse relationship between level of pollution and stock market performance. Rockness *et al.* (1986) extended the previous work by Bragdon and Marlin (1972) and Shane and Spicer (1983) by examining the level of chemical waste reported by the EPA. Using return on equity as their financial measure, they discovered that higher firm performance was related to lower levels of chemical waste.

Belkaoui (1976) used the disclosure of environmental information in the firm's annual report as the proxy for environmental responsiveness. Belkaoui (1976) found that the stock market return of firms that disclosed environmental information yielded higher returns than those firms that did not.

However, a number of studies have yielded no significant relationship between environmental responsiveness and firm performance (Fogler and Nutt, 1975; Freedman and Jaggi, 1982; Chen and Metcalf, 1984; Freedman and Jaggi, 1986). As Ullmann (1985) and Pava and Krausz (1996) assert, the inconsistent results may be due, in part, to the different methods used to operationalize both environmental and financial measures. As done in the study by Belkaoui (1976), this study will measure environmental responsiveness by examining the environmental disclosures presented by the firms.

### *Hypothesis development*

Based on the review of previous studies examining the relationship between environmental responsiveness and firm performance, it appears that a high level of environmental responsiveness could benefit the financial performance of the firm and, at worst, have no impact on the financial performance of the firm. Therefore, it would be expected that firms would incorporate environmental responsiveness in their day-to-day operations in order to reap the potential financial benefits that may occur. In order for firms to benefit from environmental responsiveness, a formal environmental policy needs to be established. An environmental policy would help direct the actions of the managers of the firm so that they could increase their financial performance. Therefore, the first hypothesis to be empirically tested is the following.

> *Hypothesis 1.* High performing firms will have a higher incidence of having a formal environmental policy within their environmental disclosures.

It is also expected that firms need to implement the guidelines presented in the environmental policy in order to capture the potential financial benefits. Therefore, environmentally responsive firms would also have a description of their environmental commitment, which would describe the specific actions implemented by the firm in order to be environmentally responsive. Therefore, two additional hypotheses to be empirically tested are the following.

> *Hypothesis 2.* High performing firms will have a higher incidence of having a description of their environmental commitment within their environmental disclosures.

> *Hypothesis 3.* High performing firms will have a higher incidence of having both a formal environmental policy and a description of their environmental commitment within their environmental disclosures.

## METHODOLOGY

### *Sample*

A letter was sent in 1994 to the 786 firms that are listed in the *Forbes 500* requesting information on the firm's environmental disclosures. Firms were asked whether their organization has a formal environmental policy and/or environmental commitment, and, if the answer was affirmative, they were asked to send the information to the authors. After 3 months, a follow-up letter was sent to remind the non-participating firms of the request. Of the 786 firms, a total of 520 firms responded. Of these 520 firms, financial data relating to income and asset size was identified for 469 firms. Table 1 shows the results for respondents and non-respondents for the full sample of firms.

### *Measurements*

#### Types of environmental disclosure

Extending the work of Bullough and Johnson (1995), the types of environmental disclosure made by the organization were divided into three major categories: (i) a formal statement which explains the organization's overall corporate environmental policy; (ii) a qualitative and quantitative description of the type of environmental activity implemented by the organization to show their overall environmental commitment and (iii) a combination of (i) and (ii). The types of disclosure received by the authors were coded into the following categories: (i) the firm does not have a environmental policy or description of environmental commitment, (ii) the firm has a formal environmental policy, (iii) the firm has a description of its environmental commitment; (iv) the firm has both a formal policy and a description of its environmental commitment and (v) the firm does not distribute information on its environmental disclosures.

#### Financial performance

Financial performance was based on 1994 net income for the firm divided by the total assets of the firm. This measure allows the net income values to be controlled for firm size. The firms were then ranked based on the value of net income/total assets. The firms in the sample were then separated into three different

Table 1. Analysis of respondents and non-respondents by industry

| Industry | Respondents | Non-respondents |
|---|---|---|
| Airline | 7 | 0 |
| Entertainment | 7 | 5 |
| Chemicals | 25 | 3 |
| Pharmaceutical | 17 | 8 |
| Retail | 45 | 24 |
| Utilities | 54 | 9 |
| Food/Beverage/Tobacco | 32 | 7 |
| Health care | 5 | 9 |
| Oil/Gas/Energy | 36 | 12 |
| Transportation | 11 | 3 |
| Metals | 15 | 5 |
| Insurance | 21 | 32 |
| Forest/Paper products | 13 | 2 |
| Bank/Financial institutions/Brokers | 84 | 80 |
| Restaurants | 2 | 1 |
| Textiles/Apparel | 7 | 3 |
| Health care suppliers and services | 8 | 4 |
| Business supplies and services | 13 | 3 |
| Aerospace and defence | 14 | 7 |
| Personal products | 12 | 0 |
| Telecommunications | 9 | 9 |
| Environmental services | 2 | 0 |
| Hotels | 3 | 2 |
| Furniture | 5 | 0 |
| Automobiles and auto parts | 15 | 2 |
| Heavy equipment | 3 | 2 |
| Computers and office equipment | 18 | 18 |
| Publishing | 9 | 6 |
| Electronics/Electrical equipment/Appliances | 12 | 4 |
| Industrial and farm equipment | 8 | 1 |
| Building materials | 8 | 5 |
| Total | 520 | 266 |

groups. The first group, labelled low performers, had the lowest third of the financial values. The second group, medium performers, represented firms in the middle third of the financial ranking. The third group, high performers, incorporated the top third of firms based on financial performance.

## RESULTS

A summary of the results can be found in Tables 2–4. Some interesting results are presented in Table 2. The results show significant differences in the three financial performers.

The largest number of firms that did not have an environmental policy were the low financial performers (87). High financial performers did have higher incidences of environmental policies (101) as compared with the low financial performers. However, medium financial performers had the highest

Table 2. Summary of incidence of environmental policy and firm performance

| Firm performance | Incidence of environmental policy | | Total |
|---|---|---|---|
| | Policy | No policy | |
| Low performers | 70 | 87 | 157 |
| Medium performers | 115 | 41 | 156 |
| High performers | 101 | 55 | 156 |
| Total | 286 | 183 | 469 |

Chi-square degrees of freedom = 2.
Value = 29.300.
Prob = 0.001.

Table 3. Summary of incidence of environment commitment and firm performance

| Firm performance | Incidence of environmental commitment | | Total |
|---|---|---|---|
| | Commitment | No commitment | |
| Low performers | 62 | 95 | 157 |
| Medium performers | 87 | 69 | 156 |
| High performers | 83 | 73 | 156 |
| Total | 232 | 237 | 469 |

Chi-square degrees of freedom = 2.
Value = 9.602.
Prob = 0.08.

incidences of policies (115). Therefore, Hypothesis 1 is partially supported. Higher performing firms had higher levels of environmental policies than low financial performers. However, medium financial performers had the highest levels of environmental policies.

The results of the analysis of the environmental commitment of the firms are shown in Table 3.

As is seen in Table 3, the incidence of firms having a description of their environmental commitment is similar to the pattern presented related to the environmental policy. The low financial performers had the highest number of firms without a description of the environmental commitment (95). In addition, firms classified as high performers did have higher incidences of a description of their environmental commitment (83) as compared with firms classified as low performers (62). However, firms classified as medium financial performers had the highest incidences of a description of their environmental commitment (87). Therefore, hypothesis 2 is partially supported. Higher financial performers had higher levels of stated environmental commitment than low financial performers, but medium financial performers had the highest levels of environmental commitment.

The results testing the relationship presented in hypothesis 3 are presented in Table 4.

Firms classified as low performers had the highest number of firms (129) that did not have both an environmental policy and a description of their environmental commitment. Firms classified as high financial performers had a higher level of an environmental policy and commitment (60) than low financial performers (28). However, firms classified as medium financial performers had the highest number of firms having both an environmental policy and commitment (69). Therefore, hypothesis 3 is partially supported. Firms classified as high financial performers had higher levels of firms having both an environmental policy and commitment than low performing firms. However, medium performing firms had the highest level of firms having both an environmental policy and commitment.

Additional analysis was done to examine the impact that industry classifications could

Table 4. Summary of incidence of environment policy and commitment and firm performance

| Firm performance | Incidence of environmental policy and commitment | | Total |
|---|---|---|---|
| | Policy and commitment | No policy and no commitment | |
| Low performers | 28 | 129 | 157 |
| Medium performers | 69 | 87 | 156 |
| High performers | 60 | 96 | 156 |
| Total | 157 | 312 | 469 |

Chi-square degrees of freedom = 2.
Value = 27.092.
Prob = 0.001.

have on the relationships tested in hypotheses (i)–(iii). Industry averages for financial performance were calculated for all 31 major industries in the sample (see Table 1). The industry averages were based on all the firms presented in the 1994 *Forbes 500*. The industry averages of financial performers were compared with the financial performance of each firm in the sample. The resulting differences were used to measure the industry adjusted firm performance of each firm. The firms in the sample were classified in three categories, high, medium and low financial performers. The same type of analysis was used to compare the level of environmental policy and/or commitment for the firms in the sample. The results of this analysis were not significant at the 0.10 level.

## DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH

The results of this study have yielded some interesting results about the relationship between environmental responsiveness and financial performance. Financial performance has a varying impact on the different components of environmental responsiveness. High performing firms had higher incidences of environmental policies and/or environmental commitments as compared with low performing firms. However, medium performing firms had the highest levels of environmental policies and/or environmental commitments.

One explanation could be a curvilinear relationship between environmental responsiveness and financial performance that was presented by Bowman and Haire (1975) and proposed by Ullmann (1985). The relationship between environmental responsiveness and financial performance is positive up to a certain financial level and then becomes negative in nature.

As Dooley and Lerner (1994) state, low financial performers do not consider environmental responsiveness a high priority. As a result, low performers cannot afford the potentially high financial costs to be more environmentally responsive (Belkaoui, 1976; Freedman and Jaggi, 1982). Pava and Krausz state that some firms realize that '(s)ome social actions have no net costs, and in fact may benefit the firm in the long run, while other socially-responsible actions (even while creating positive externalities) are costly to the firm' (1996, p 333). So, low performing firms may establish an environmental policy in order to satisfy the requirements of various stakeholders such as the government, stockholders and community groups (Abbott and Monsen, 1979). However, low performers may not spend financial resources in order to implement the components of the environmental policy. As Wood (1991a) states, the existence of a policy does not guarantee that it will be implemented.

However, the perceptions of environmental responsiveness changes for medium financial performers. Medium financial performers may be searching for potential avenues in which to enhance their competitive advantage (Porter and van der Linde, 1995) by being environmentally responsive. In order to attempt to become high financial performers, medium performers would incorporate environmental responsive strategies in their decision making process. The ability to adapt the organization to incorporate environmental responsiveness demonstrates the flexibility of the management style of these organizations (Bowman and Haire, 1975). Therefore, as supported by the result of this study, medium performers are more likely to have both an environmental policy and a description of their environmental commitment to explain the potential benefits of being environmentally responsive.

Although not at the same level as medium performers, high performers did yield higher levels of environmental policies and/or environmental commitments as compared with low performers. High performers firms may believe that they have obtained all of the potential benefits that environmental responsiveness may contribute to the firm. As Walley and Whitehead (1994) state, high performer firms may believe that 'it's not easy being green'. High performers have implemented all the 'easy' environmental initiatives and their high financial performance does not encourage them to be more environmental responsive which may result in little economic benefit. Supporting the results of Dooley and Lerner (1994), high financial performance does not guarantee a further development of environmental responsiveness.

There are a number of limitations in this study. One limitation of this study is the relative size of the firms in the sample. Although the authors believe a wide cross section of diversely different firms were analysed, the sample is biased towards larger sized firms, given the nature of the *Forbes 500*. Since some previous studies have shown a positive relationship between social disclosures and firm size (Cowen *et al.*, 1987; Belkaoui and Karpik, 1989; Tonkin and Skerratt, 1991), additional research should examine firms not included in the *Forbes 500* to see whether the results found for larger firms are applicable to smaller firms.

An additional limitation of this study is the use of one year of data. Although additional years of data could capture the moving trend of financial performance of companies over time, the authors believe that an effective initial examination of the relationship presented in the study is to take a snapshot in time and examine the data for one year. Using one year of data would ensure an accurate and finite measure and matching of both environmental responsiveness and financial performance since both of these variables shift over time. Additional research in the future could explore a longitudinal study of environmental responsiveness and firm financial performance.

The categorization of financial performers into three levels is also a limitation of this study. This categorization was used as a first step in the empirical examination of the complex relationship between environmental responsiveness and financial performance. Future research may embrace alternative measures of financial performance to examine the relationships presented in this study.

There are a number of additional areas where future research can extend the results of this comprehensive study. One extension would be to analyse the actual content of the environmental policies and commitment disclosures and financial performance. Content variables, such as the type of environmental issue discussed, may yield insights about what environmental issues are actually being addressed by *Forbes* 500 firms and their relationship to firm performance.

An additional extension of this study would be to examine the relationship between the environmental responsiveness of the firms and their environmental performance with financial performance. The results of this study could answer the question of whether having an environmental policy and/or commitment impact the environmental performance and financial performance of the organization.

Additional future research opportunities could include the examination of a number of additional different variables in the relationship between environmental responsiveness and financial performance. Additional variables to consider include the role of top management and the strategy developed by the firm. In addition, the organizational culture of the company could be examined to see the level of support of the firm's environmental responsiveness and commitment. The overall philosophy and culture of the firm could also be a significant factor in the level of environmental responsiveness.

The results of this study show that industry appears to have significant impact on the level of environmental responsiveness of the firm. Since the industry adjusted financial performance of the firms did not yield significant differences, it appears industry does play a critical role in the development of a firm's environmental policy and/or commitment. Some of the characteristics of the industry appear to impact this relationship. Future research could examine specifically how industry could moderate this complex relationship.

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