APPLICATION OF STAKEHOLDER THEORY TO CORPORATE ENVIRONMENTAL DISCLOSURES

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Abstract

Ullmann's (1985) three-dimensional model of social responsibility disclosure is tested to determine whether it can be operationalized to help explain the quantity and quality of environmental disclosures in Australian annual reports. The stakeholder power dimension of Ullmann's framework is significant in explaining environmental disclosures while content of the mission statement and existence or otherwise of environmental or social responsibility committees also find strong statistically significant support in the results. Ullmanns' stakeholder theory has previously been applied to explain social disclosures in general (Roberts, 1992) and is an important theory because it introduces a measure of strategy. The current paper demonstrates how this theory can be applied to a specific social disclosure using variables that are idiosyncratically applicable to the types of disclosures.

Keywords: corporate governance, stakeholders, social responsibility

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The authors gratefully acknowledge the financial support of the Australian Research Grants scheme. The paper has benefited considerably from the advice and comments of Jere Francis, Jenny Goodwin, Kathleen Herbohn, Gordon Richardson, Carolyn Windsor and participants at the 2003 AFAANZ Conference.

1. Introduction

This study examines the quantity and quality of voluntary corporate environmental disclosures in the annual reports of Australian listed companies. Stakeholder theory (Ullmann, 1985) is adopted as a parsimonious model for explaining levels of environmental disclosure by corporations.

The Parliamentary Joint Committee on Corporations and Financial Services, 2006 made a recommendation to the Australian government that legislation should not be introduced to mandate corporate responsibility disclosure for Australian companies. However, invited submissions to the committee varied for different stakeholders that responded to the committee. Certain groups including companies, industry associations, accounting firms, and accounting bodies recommended that social responsibility accounting remain voluntary while social and environmental non-government organisations, consumer associations, employee groups and individuals recommended that companies be required to report on their social responsibilities to protect interested stakeholders (Deegan and Shelly, 2006; Kent and Monem, 2008).

Some progress for mandatory social responsibility reporting was introduced by the *National Green house and Energy Act 2007* that requires companies to report on green house gas emissions from 1 July 2008. However, mostly social responsibility reporting remains voluntary with stakeholders disagreeing on the need for mandatory social responsibility reporting.

Environmental disclosures form part of a broader category of corporate social responsibility disclosures (Adams *et al.,* 1998; Neu, *et al.,* 1998, Tilt, 1997). Earlier research has not distinguished the various categories of social responsibility disclosure, but has attempted to explain social responsibility disclosures generally (for example, Roberts, 1992). More recent research has focused on green house gas emission information (Freedman and Jaggi, 2004), carbon trading practices (Roeser and Jackson, 2002; Okereke, 2007; Egenhofer, 2007), site restoration costs (Li and McConomy, 1999), water pollution (Cormier and Magnan, 1999) and specific countries (De Villiers and Van Staden, 2006; Freedman and Jaggi, 2004; Okereke, 2007; Egenhofer, 2007; Neu *et al.,* 1998; Leuz and Verrecchia, 2000; Li and McConomy, 1999).

Alternative, frequency used frameworks available

to explain environmental disclosures are information and proprietary costs (Li et al., 1997; Li and McConomy, 1999; Cormier and Magnan, 1999), political cost theory (Watts and Zimmerman, 1978) and legitimacy theory (Kent and Monem, 2008, De Villiers and Van Staden, 2006; Deegan, 2002; Deegan et al. 2002; O'Donovan, 2002). Political costs, legitimacy and stakeholder theories as overlapping perspectives on the same issue. These theories differ in terms of their level of refinement in approaching the issue of voluntary disclosures with political cost being the least refined and stakeholder theory being the most refined (Gray, *et al.,* 1995a). Legitimacy theory appears as one of the theories most likely to explain the increased level of social responsibility disclosures since the 1980's (O'Donovan, 2002). However, researchers have questioned the explanatory power of legitimacy theory arguing that it excludes internal corporate governance variables in models explaining the decision to provide voluntary social responsibility disclosures (Adams, 2002; O'Dwyer, 2000; Bebbington *et al.*, 2008)

Research indicates that different types of disclosure are explained by substantially different independent variables (Cowen, *et al.,* 1987). Alternative theories are complementary in explaining social responsibility disclosures and these alternatives increase our knowledge of the reasons for different levels and quality of disclosures (Parker, 2005). One of the areas that has been under researched is the relation between social responsibility accounting and environmental strategy (Parker, 2005). The current study provides additional incite to environmental strategy and contributes to the literature in five ways.

First, the study applies Ullmann's theory as a comprehensive, integrated theory for explaining social responsibility disclosures that can be modified to specific types of disclosures. Ullmann's theory allows a researcher to focus on a specific disclosure and gain greater insights into the explanatory power of the independent variables. Second, Ullmann's stakeholder theory is operationalized and applied to a specific social responsibility disclosure area (environmental reporting) rather than social responsibility disclosures in general (Roberts, 1992).

Third, disclosures are examined in a country whose public are relatively sensitive to environmental issues. It is expected that demands for environmental information are country specific because of the varying demands for environmental information in different countries (Leuz and Verrecchia, 2000). Fourth, the study provides a measure of quality of environmental disclosures and compares this with a measure of quantity of environmental disclosures. This is important for researchers in the future when examining other social disclosures in annual reports in alternative regulatory frameworks. Finally, the study is useful for regulators in deciding on future regulation. The need to regulate environmental disclosure is unnecessary if we find that companies are providing high quality disclosures voluntarily. The issue of the need to regulate social responsibility disclosures continues to be unresolved.

The decision to focus on the annual report as the source of environmental disclosures is justified for a number of reasons. First, the annual report is the predominant source of corporate communications to investors and is widely used by companies for social disclosures (Rockness, 1985; Wiseman, 1982). Second, corporate spending on social responsibility grounds often produces conflicts with the economic objectives of the shareholders of the firm (primary stakeholders in the present analysis). The presentation within one document (the annual report) of financial and social information is an important element in reducing costs of disclosure (Gray, *et al.,* 1995a). Third, the type of information most actively sought by pressure groups (secondary stakeholders in the present analysis) is the annual report (Tilt, 1994). Finally, the annual report is one communication medium over which management has complete editorial control and is therefore not subject to the risk of journalistic interpretations and distortions which are possible for disclosures through the popular press (Guthrie and Parker, 1989).

2. Development of hypotheses

Studies into the relationship between social disclosure, social performance and economic performance were reviewed extensively by Ullmann (1985). Critical focus was given to the largely inconsistent findings that have resulted from these studies. Ullmann suggested that the direction for future research into this area should not lie in controlling for an increasing number of variables. Instead a new direction should focus on a unifying theory of corporate social responsibility reporting. In particular, he argued that the models were incorrectly specified because they did not take into account the element of strategy by a company (p. 551-552).

Freeman (1984) is generally credited as having laid the foundation (in his book entitled *Strategic Management: A Stakeholder Approach)* upon which a substantive theory of stakeholders can be built. This approach formed the theoretical basis for Ullmann's social disclosure model. The basic proposition forwarded by stakeholder theory is that the success of a firm is not dependent solely upon the successful management of the firm's relationship with its shareholders. Instead, the firm when regarded as a nexus of contracts (Jensen and Meckling, 1976) should be more accurately characterized as being a nexus of both explicit and implicit contracts between the firm and its various stakeholders. The success of a firm is then dependent upon a successful management of all the relationships, which a firm has with its stakeholders; shareholders being a substantial class of this group.

Effective management of a firm's relationship with its external environment requires the managers of the firm to consider the concerns of the various groups,

which comprise this environment. Not all the concerns of these groups command the attention of the firm as it has limited resources. It is necessary to distinguish stakeholder issues from social issues because "corporations and their managers manage relationships with their stakeholders and not with society" (Clarkson, 1995, p. 100). Stakeholder issues are of concern to one or more stakeholder groups and are not necessarily the concerns of society as a whole. The distinguishing feature of social issues is that, because they are of sufficient concern to society as a whole, they are the subject of legislation and regulation (Clarkson, 1995). In the context of this current study, the stakeholders' demand for environmental information can be properly characterized as being stakeholder issues (therefore stakeholder theory is appropriate) because the production of this information is still largely unregulated in Australia.

2.1. Stakeholder power

The first dimension (*stakeholder power*) to Ullmann's model proposes that a stakeholder's power in relation to the firm is a factor influencing disclosure. Stakeholder power is viewed as a function of the stakeholders' degree of control over resources required by the firm and how critical these resources are to the continued viability of the firm (Ullmann, 1985). This leads to the following hypothesis:

H1: Firms disclose more environmental information of higher quality when the firm's stakeholders have greater power.

Stakeholders must be identified and proxies developed to represent the construct of stakeholder power for hypothesis one to be reduced to testable form.

2.2. Strategic posture

The second dimension of the model, *strategic posture*, was incorporated into Ullmann's social disclosure model as an element of strategy. Ullmann (1985) argued that different strategies in dealing with stakeholder demands were observed by firms, ranging from an avoidance of the demands to partial or total fulfillment of them. The strategic posture of a firm describes its mode of response towards social demands (Ullmann, 1985, p. 552). An active posture is implied where a firm is continually monitoring its relationship with its key stakeholders and seeks to manage that relationship so as to attain an optimal level of interdependence with its stakeholders. Developing social responsibility programs and disclosing their existence is seen as part of this active stakeholder management strategy. A firm displaying a passive posture is not monitoring its relationship with its stakeholders nor taking steps to manage that relationship. This leads to the following hypothesis:

H2: Firms displaying an active posture towards environmental issues disclose more environmental information of higher quality than firms displaying a passive posture to these issues.

Measures of strategic posture are identified below.

2.3. Economic performance

A firm's past and current economic performance enters the Ullmann model as a third, final dimension because of its influence on a firm's decision to report the social demands of its stakeholders. The economic performance of the firm is an important factor in determining whether a social issue receives the attention of management because substantial additional costs and foregone profit opportunities are associated with being socially and environmentally responsible. In periods of depressed economic performance, the immediate economic objectives of the firm receive priority over social demands (Roberts, 1992).

The economic performance of a firm also affects the firm's financial capability to undertake costly social responsibility activities, which are the subject of social disclosures. Given certain levels of stakeholder power and strategic posture, the better the economic performance of a firm, the greater its social responsibility activities and disclosure (Roberts, 1992). This leads to the following hypothesis:

H3: Firms with higher past or current economic performance disclose more environmental information of higher quality than firms with lower past or current economic performance.

3. Identification of stakeholders

A multiplicity of groups has a potential stake in an organization (Freeman, 1984) and therefore a structured approach is taken in this current study to identify the main stakeholders for analysis. Two criteria are applied to identify the important stakeholders. These are the proximity between the potential stakeholder and the firm and the nature of the power exercised by the potential stakeholder.

3.1. Proximity of relationship

Freeman, (1984, p. 46) defines a stakeholder in an organization as "any group or individual who can affect or is affected by the accomplishment of that organization's goals". Applying this definition, the class of potential stakeholders may be delineated as primary and secondary stakeholder groups. A primary stakeholder is one whose continuing support for the corporation is required if the company is to continue as a going concern (Clarkson, 1995). Examples of primary stakeholders are shareholders, creditors, employees, customers, suppliers and regulators.

Freeman (1984) noted that the distinguishing feature of the corporate social responsibility literature

is that it can be viewed as applying stakeholder theory to non-traditional and adversarial groups (p. 38). Thus, the secondary stakeholder group is defined to include groups, which have the capacity to mobilize public opinion in favor of or in opposition to the firm. The stakeholders contemplated within this secondary group are the media, consumer advocacy groups and environmental lobby groups.

3.2. Nature of the power

The main stakeholders for analysis can also be identified by reference to the nature of the power possessed by the potential stakeholder. Freeman (1984) considered that stakeholder power could be classified as voting power, economic power and political power. Shareholders exercise voting power by virtue of their equity stake in the firm. Customers, suppliers and creditors are able to exercise economic power by switching to another firm, increasing prices and the cost of capital and withholding supply. Regulators and lobby groups exercise political power.
After considering both the nature of the relationship between the stakeholders and the firm, and the nature of the power that these stakeholders possess, it was decided to limit the analysis to the following stakeholders - shareholders, creditors, regulators and environmental lobby groups. This selection of stakeholders includes primary stakeholders used by Roberts (1992) and also introduces a secondary or adversarial stakeholder. The stakeholders selected also reflect the range of stakeholder powers identified by Freeman (1984).

4. Measures of stakeholder power

Proxies for the construct of stakeholder power in relation to the four identified stakeholders are presented. A measure of shareholder power within a firm is likely to be the distribution of ownership of that firm. The direction of the influence of ownership distribution on the likelihood of the production of environmental information is disputable. One argument is that, as the distribution of ownership of a firm becomes less concentrated, the demands placed on the firm by the shareholders become broader (Keim, 1978; Roberts, 1992, p. 601). Consequently, this first argument predicts that wider dispersion of ownership leads to better or more environmental disclosures. This argument is also supported on the basis that a diffused ownership structure produces an asymmetrical distribution of information. This arises because the transaction costs involved with each small shareholder acting to obtain the information discourage the shareholders from doing so. Firms voluntarily disclose information to correct information asymmetry because costs arise in withholding information (Ackerlof, 1970).

A more compelling argument is that a concentrated ownership structure indicates greater power on the part of these shareholders relative to the firm and greater willingness to exercise that power. Shareholders voting power is in direct proportion to shares held in the regulatory environment under study. A concentrated ownership structure indicates key shareholders are more powerful in demanding environmental disclosures. These key shareholders are also more powerful in suppressing information they view as being private or detrimental to the company (Bushee and Noe, 2000; Leuz and Verrecchia, 2000; Cormier and Magnan, 1999).

On balance, it is expected that key shareholders have an interest in disclosing rather than suppressing environmental information. These shareholders are also more willing to exercise their powers for two reasons. First, the number of shareholders in a concentrated structure is smaller than that found in a diffused structure. This smaller number of shareholders reduces the organization costs involved in mobilizing the shareholders to exercise their voting power. Second, the expected benefits for a shareholder wishing to exercise their voting power are higher in a firm with concentrated ownership than in a firm with diffused ownership because the smaller number of shareholders in the firm reduces the prospect of other shareholders "free-riding" on his/her efforts (Ramsay and Blair, 1993). It is expected that a more concentrated ownership structure is related to more and better environmental disclosures.

Cornell and Shapiro (1987) demonstrate that creditors are important stakeholders whose influences should be managed as part of the firm's stakeholder strategy. The creditors' stake in a firm is to ensure that the firm taking on risky activities does not reduce the value of their claim on the firm. A firm, which conducts its business activities in an environmentally irresponsible manner, is increasing the risk of the creditors' claim because such activities attract severe and costly sanctions. Sanctions applied to socially undesirable corporate activities include monetary penalties under legislative enactment and regulations (Deegan and Rankin, 1996), adverse judicial decisions and consumer retaliation (Spicer, 1978). Creditors, as controllers of access to financial resources, are able to exercise their economic power by increasing the cost of capital or withholding debt finance.

The power of the creditors in relation to the firm can be measured by the degree to which the firm relies on debt financing for its activities (Roberts, 1992). More leveraged firms are expected to make more/better environmental disclosures than less leveraged firms.

Regulators, in response to demands by voters (including relevant stakeholders), regulate business in the perceived public interest (Freeman, 1984). The political power exercised by the regulator takes the form of legislative enactments and regulations and the establishment of various governmental agencies to enforce these regulations. The volume of environmental legislation in Australia has increased dramatically (Bates, 1995) and penalties have been imposed for non-compliance (Annual Report,

Environment Protection Authority of New South Wales, 1995). The costs imposed on businesses by these regulations include compliance costs (i.e. costs involved in ensuring that business activities are carried out in an environmentally responsible manner). Monetary penalties have been lenient for companies in Australia for breaching regulations although loss of reputation is an indirect cost with potentially higher monetary consequences (Kent and Monem, 2008).

The firm must address the interests of the regulators as part of its stakeholder management strategy given the regulators ability to impose significant costs on the firms. Higher levels of perceived regulatory activism are expected to lead to a greater effort on the part of management to meet the expectations of the regulators. Hence, the power of regulators in relation to a firm can be proxied by the incidence of prosecutions of that firm for breaches of environmental legislation. Firms that have been prosecuted for breaches of environmental legislation in the past are likely to make more/better environmental disclosures than firms not prosecuted.

A direct measure of the power of environmental lobby groups is the size of groups' membership base because power may be defined as the ability to use resources to make an event actually happen (Freeman, 1984, p. 61). Lobby groups having larger memberships have greater resources at their disposal (Coopers and Lybrand Consultants, 1993).

The use of group membership to proxy for the power of a lobby group is inappropriate for use in this study because the construct of stakeholder power in Ullmann's model refers to the power of the stakeholder relative to the firm. Group membership merely reflects the power of one lobby group relative to other lobby groups and not relative to the firm.

An indirect measure of the power of the lobby groups relative to the firm is to determine the environmental sensitivity of the industry in which the firm operates. The business activities of firms have a varying impact on the natural environment. It is useful to dichotomize the firms as being high-impact firms and low-impact firms. High-impact firms have as their central function the modification of the physical environment (Dierkes and Preston, 1977). Obvious examples are firms in the extractive and chemical industries and energy production firms. Low-impact firms are those involved in activities, which by their nature have only a minimum, if any, direct impact on the natural environment (Dierkes and Preston, 1977). Examples are financial institutions and firms in the distributive trades.

The environmental sensitivity of the industry in which a firm operates is an indirect measure of the power of the lobby groups because environmentally sensitive industries receive greater attention from these groups (Deegan and Gordon, 1996). Deegan and Gordon (1996) measured the environmental sensitivity of the industries in their sample by asking the lobby groups to rate industries according to the extent to which the groups had targeted the industries for their lobbying activities. This implies that environmental groups impose costs on selected industries because of their impact on the environment. Hence, it is argued that higher levels of perceived scrutiny by the lobby groups is an incentive for management to make environmental disclosures so as to "alter or shift the views held about the environmental effects of the industry at large or in an attempt to favorably differentiate the firm from other firms within the industry" (Deegan and Gordon, 1996, p. 194). This suggests that firms operating in environmentally sensitive industries are likely to make more/better environmental disclosures than firms operating in less sensitive industries.

5. Measures of strategic posture

Two proxies serve as indicators of the nature of a firm's strategic posture toward social responsibility or environmental issues. These are the content of the mission statement of the firm and absence or presence of social responsibility or environmental committees.

A firm's mission statement provides the firm's objectives, guiding principles and values. As the stakeholders comprise a part of the firm's external environment, recognition within a firm's mission statement of the importance of the stakeholders' concerns regarding corporate social responsibility or environmental issues indicates an active posture on the part of that firm.

These statements constitute a formal recognition of the environmental impact of the activities of the firm and they also demonstrate a commitment to consider wider environmental issues within the decision-making system of the firm. The mission statement of a firm is capable of being a reliable indicator of the nature of the firm's strategic posture. This suggests that a firm makes more/better environmental disclosures when its mission statement contains recognition of social responsibility or environmental issues, than a firm whose mission statement does not.

A firm's strategic posture is also likely to be identified by ascertaining the existence or absence of committees established to deal with stakeholder concerns. The establishment of social responsibility or environmental committees is a manifestation of a firm's active posture towards these issues (Cowen et al., 1987). Thus, it is expected that firms with established social responsibility or environmental committees are likely to make more/better environmental disclosures than firms without these committees.

6. Measures of economic performance

Ullmann's third dimension, the past or current economic performance of a firm, previously has been proxied using either accounting-based or share market-based measures of performance. These two types of performance measures focus on different aspects of

firm performance and each is subject to disadvantages. The principal disadvantages of using accounting-based measures of performance are that they reflect only the historical performance of the firm and are subject to manipulation by management (Christie and Zimmerman, 1994; Holthausen, 1990).

Accounting-based performance measures are used as surrogates for the past and current economic performance of the firm. This is because these measures reflect the historical performance of the firm and they have also been found to be better predictors of corporate social responsibility than market-based measures. Market measures are related to systematic movements among all firms. Accounting measures are more likely to capture unsystematic firm attributes responsible for corporate social responsibility reporting (McGuire et al., 1988). This suggests that firms with higher past or current accounting performance are likely to make more/better environmental disclosures than firms with lower past or current accounting performance.

7. Control variables

Two additional variables extraneous to Ullmann's model are included in this study as control variables. Several studies have found that firm size is a significant factor in a firm's production of social responsibility disclosures (Cowen et al., 1987; Trotman and Bradley, 1981; Patten, 1991). A frequent rationale offered for the size-disclosure relationship is that larger firms are more politically visible and therefore are more likely to adopt measures to reduce that visibility (Watts and Zimmerman, 1986), and one such measure being social responsibility disclosures. Ball and Foster (1982) noted that size is a highly aggregated variable and could proxy for a number of factors and hence there may be several rather than a single explanation for this relationship. Larger firms may enjoy economies of scale and bear consequential lower information production costs (i.e. collection and processing costs - Foster, 1986), or they may have lower costs of competitive disadvantage associated with the disclosure of corporate information (Meek, Roberts and Gray, 1995). Larger firms as more complex organizations face a more diverse range of stakeholder demands and social responsibility disclosures may represent an efficient means of addressing their demands. Thus, size is included to control for all these possible confounding factors to a firm's decision to disclose environmental information.

A second variable introduced into this study is a control for risk. An association exists between a corporation's social performance and its value as an investment. This association stems from recognition that socially irresponsible corporate activities result in costly sanctions imposed against the corporation. Investors associate lower levels of risk with the shares of firms that demonstrate adequate concern for social issues. Low risk firms have the greatest incentives to disclose social and environmental information because where information concerning the social responsibility activities of firms is asymmetrically distributed, firms that do not produce social disclosures will be perceived as high-risk firms (Ackerlof, 1970; Spicer 1978; Verrecchia, 1983; McGuire *et al.*, 1988).

8. Sample selection

A further control for size is built into the model by selecting a sample of firms only from a population of large companies in 1995. The 110 largest firms (Business Review Weekly, 1995) listed on the Australian Stock Exchange were selected. Eight companies were removed from the sample because financial statements were stated in foreign currency (5) and the remainder was removed because their annual report did not contain all the financial information required by this study. This produced a final sample of 102 firms.

9. Measurement of Variables

9.1. Dependent variables

The construct of "environmental disclosure" predicted by the hypotheses is operationalized as the level of disclosure (i.e. quantity) and the quality of disclosure. A systematic method is required to quantify the essentially qualitative nature of environmental disclosures (Toms, 2002). Researchers have used content analysis employing an index of disclosure (Marston and Shrives, 1991) or a scoring system similar to content analysis (Toms, 2002).

An alternative is to measure the amount of disclosure. This involves determining the amount of space in the annual report allocated to environmental disclosures. Prior studies have used various units of analysis, but the preferred units of analysis in written communications tend to be words, sentences and portions of pages (Gray et al., 1995b). Noise is introduced when portions of pages are used as the unit of measurement because print sizes, column sizes and page sizes differ from one annual report to another. The advantage of considering pages is that this measure incorporates pictorial as well as written environmental disclosures. Words have the advantage of lending themselves to more exclusive analysis. Alternatively, this unit of analysis introduces researcher discretion in deciding which individual word is an environmental disclosure and which is not (Hackston and Milne, 1996).

The sentence was selected as the unit of analysis to be employed in the present research. Sentences are easily identified because they are natural units of written English, which clearly exist between two punctuation marks, (Hackston and Milne, 1996; Ingram and Frazier, 1980). This unit of analysis allows a more refined examination of the disclosure practices of the firms than the page measure while reducing ambiguity in determining whether or not an individual word amounts to an environmental

disclosure.

The annual reports of the sampled firms for 1995 were read and passages of text, which can broadly be termed as "environmentally related disclosures", were identified and highlighted by the researchers. From this general group of environmentally related disclosures, individual sentences needed to be identified as amounting to environmental disclosures in order to be counted as part of the firm's quantity of disclosure score. A set of decision rules (reproduced in appendix 1) adapted from Gray et al. (1995b) and Hackston and Milne (1996) was employed to reduce the subjectivity involved in the process of identifying sentences that disclosed environmental information.

Prior studies have assumed that greater quantity of disclosures imply higher quality disclosures (Toms, 2002; Gray et al., 1995a; Zeghal and Ahmed, 1990). In this study, the quality of the environmental disclosures is measured through an index. The passages of text identified in assessing quantity of disclosure were retyped into a questionnaire so as to standardize their format. Twenty-six Accounting/Commerce university graduates were asked to read identified passages of environmentally related disclosures and asked to provide a subjective rating by completing a Likert style rating scale from 0 (not an environmental disclosure) to 5 (excellent environmental disclosure). They were also provided with an adaptation of the judging criteria for the Chartered Association of Certified Accountants Environmental Reporting Award (Deegan, 1996) to provide some objective criteria (see appendix 2) for assessing the quality of the environmental disclosures. This enhanced the validity of the questionnaire as a data collection instrument. High consistency was shown between the responses with the average variance of the responses being 0.75.

9.2. Independent Variables

Ownership concentration is measured as the percentage of outstanding ordinary shares held by shareholders who own five per cent or more of the shares (Roberts, 1992). Shareholding information was obtained through the annual report disclosure of the top twenty shareholdings in each of the sampled firms. The stakeholder power of the creditors is measured by the debt to equity ratio. This ratio was chosen to represent creditor power because it captures the importance of creditors relative to shareholders as providers of capital to the firm (Roberts, 1992). The variable creditor power is defined as the firm's average debt to equity ratio for the years 1994 and 1995. Information regarding the debt and equity content of the firms was obtained through the sample firms' annual reports.

The frequency of prosecution of firms for breaches of environmental legislation is an observable indicator of the level of regulatory activism. The various state Environmental Protection Authorities are charged with the duty to regulate and enforce the respective state Environmental Protection Acts. Given the Environmental Protection Acts' regulatory and enforcement roles within the bureaucracy, these Authorities are treated in the present study as surrogates for the regulators as a primary stakeholder group in a firm. The power of the regulators is proxied by the incidence of prosecutions of the sampled firms by the Environmental Protection Authorities.

Information concerning Environmental Protection Authorities' prosecutions was obtained from three sources. First, this information was requested from the various states Environmental Protection Authorities. The information sent by the Authorities or the Departments typically consisted of annual reports or in the case of the Department of Land Protection (Western Australia), a separate list of prosecutions initiated by that department. Second, Deegan and Rankin (1996) conducted a study on the environmental disclosures of firms, which were ex post identified as having been successfully prosecuted for environmental breaches. Thus, a list of firms so identified was obtained from that study. Third, the Australian Business Intelligence database was searched for Environmental Protection Act prosecutions reported in the Australian media up until June 1995.

The variable regulator power was coded 1 where an examination of the data from these three sources presented evidence of an Environmental Protection Act prosecution of a firm in the sample. For all other firms, the variable was coded 0. In carrying out this procedure, no distinction was drawn between successful and unsuccessful prosecution. The rationale is that the mere fact that a firm was targeted for prosecution or actually investigated would have affected that firm's perception of regulatory activism. It is expected that regulator power is positively correlated with the quality and quantity of environmental disclosures.

The variable, lobby group power is defined as a dichotomous classification of industries as being of high or low environmental sensitivity. The process of implementing this classification scheme is often subjective and ad hoc (Roberts, 1992; Hackston and Milne, 1996). Ideally, as this variable is intended to represent the power of the environmental lobby groups, the classification of the industries could be made on the basis of the attention which particular industries receive from these lobby groups (Deegan and Gordon, 1996). A difficulty associated with this approach is that the lobby groups have a vested interest in answering the questions in a particular way (Tilt, 1994).

Legislation provides some guidance on an industry classification scheme. For example, s.38 of the Queensland *Environmental Protection Act* 1994 provides for "environmentally relevant activities" to be prescribed by regulation. Previous literature also provides a guide as to what types of industry are environmentally sensitive. The approach taken in the present study is to review the three major sources of

industry classification schemes (i.e. lobby group rating, legislation and prior studies) and to synthesize from them classification rules to be used to partition the sampled industries into high and low environmental sensitivity. *The Business Who's Who: Australian Business Rankings* (Riddell Information Services) was used to determine the various sectors in which the sampled firms operate. The variable lobby group power for the firm was then classified according to the classification rules (1 for high sensitivity and 0 for low sensitivity). Lobby group power is expected to be positively correlated with more/better environmental disclosures.

The mission statement variable of a firm is set to 1 if the mission statement of the firm discloses recognition of the firm's social or environmental responsibility. The variable is set to 0 where the mission statement does not acknowledge the firm's social or environmental responsibility or where no mission statement is included in the firm's annual report. As there is a fine distinction between something constituting a firm's mission statement and something being part of the general disclosures of the annual report, a decision rule was applied in the data gathering process to promote the reliability of the measure. The statement must sit apart from the general disclosures of the annual report, that is, it must not be part of the Chairman's Review or any other such qualitative disclosures to be counted as a mission statement. As a rule of thumb, statements contained in their own section of the annual report and headed by words such as "mission", "vision", "values", "objectives", "philosophy" and "aims" were treated as mission statements for the purposes of this study. A mission statement is expected to be positively related to more/better disclosures. Environmental disclosures in the mission statement were not included as part of the quantity or quality measures of disclosure.

The presence or absence of social responsibility or environmental committees was ascertained through the annual reports of the firms in the sample. The variable environmental committee was coded 1 for firms with established social responsibility or environmental committees as part of their board structure and, otherwise 0. This variable is expected to be positively related to the dependent variables.

Economic performance of the firms was measured in terms of return on assets (ROA), which was calculated as operating profit after tax as a percentage of net book value of assets (Herremans, *et al.,* 1993). Three alternative variations of ROA were included in the analysis. Current economic performance of the firms was measured by the variable return on assets '95. Return on assets '94 was included to test for past performance and the variable average return on assets, calculated as the average return on assets for the years 1994 and 1995, was included in the model as an alternative measure of economic performance (Cowen et al., 1987; Hackston and Milne, 1996). Remember that all three variants of ROA are expected to be positively correlated with the dependent variables.

9.3. Control Variables

The variable size measures the market capitalization of the sampled firms' shares as calculated by *Business Review Weekly* as part of their publication of the Top 500 Australian public companies for 1995.

The age of the corporation is included in the model as a measure for risk. Older firms are expected to have less risk (Roberts, 1992; Kent, 1999). The natural evolution argument contends that evolution and natural selection (survival of the fittest) ensures that older firms are more adaptable and less risky (Alchian, 1950). The variable risk is defined as the age of the corporation since its inception as of 1995. This information was obtained from *Jobson's Year Book of Australian Companies 1995/96* and in the case of mining firms in the sample, from *Jobson's Mining Year Book 1995/96*. Where two firms have merged since their inception, the age of the resulting entity was taken to be the age of the older of the two firms.

10 Results and Discussion

10.1. Descriptive statistics

The sample consists of 49 disclosing firms and 53 non-disclosing firms. Descriptive statistics are shown in Tables 1 and 2. Quantity of disclosures ranged from zero sentences to 85 sentences of environmental reporting. The highest quality disclosure was 4.76 indicating a perception of excellent quality disclosures. The mean was 1.19 indicating that companies on average do not have high quality disclosures applying the criteria in appendix 2.

The correlation matrix in table 2 indicates that quality of disclosures and quantity of disclosures are highly correlated with a correlation of 0.82 at a significance level of $p < 0.001$. This suggests that counting sentences of environmental information is a reasonable estimate of quality of disclosures. An examination of the correlation matrix in Table 3 does not indicate that multicollinearity is a threat to the computational accuracy of the models, with the highest coefficient between the independent variables being 0.37 for lobby group and environmental committee. The models generate variance inflation factors for each of the analysis to further test whether possible multicollinearity is cause for concern. These results indicate that multicollinearity is not a problem in the present models.

Insert Tables 1 and 2

10.2 Univariate Results

T test and chi-square tests were conducted for disclosing and non-disclosing groups and the results are shown in Tables 3 and 4. The variables other than size and creditor power are approximately normally

distributed using conventional tests. Size was transformed using the natural log and creditor power was winsorized with extreme low values being reset to 0.01. Shareholder power is significantly greater for the disclosing firms in support of hypothesis one for the measure of shareholder power. The chi-square tests also support hypothesis one in that disclosing firms have a relatively higher proportion of overall environmental violations (measure of regulator power) than non disclosing firms. Further support is added in that a higher proportion of firms with lobby power also disclose environmental information. Hypothesis two is supported in that higher proportions of disclosing firms have a mission statement and an environmental committee. Hypothesis three is not supported. Disclosing firms are older firms indicating lower risk ($p = 0.02$) and are larger ($p < 0.001$) than non-disclosing firms.

Insert Tables 3 and 4

10.3. Multivariate Test Results

The multiple ordinary least squares (OLS) regressions are stated as follows (alternative variables are separated by a slash):

$Quantity_i$ / $Quality_i$ of Disclosures = b_0 + b_1Shareholder $power_i$ + b_2Creditor $power_i$ + b_3Regulator $power_i$ + b_4Lobby group $power_i$ + b_5Mission $statement_i$ + b_6Environmental $committee_i$ + b_7Return on assets '94_i / Return on assets '95_i / Average return on $assets_i$ + b_8Size_i + b_9Risk_i + e_i

where:

b_0 = intercept term.

Quality of disclosures = quality of environmental disclosure measured by index.

Quantity of disclosures = number of sentences of environmental disclosure.

Shareholder power = percentage of shares of the corporation owned by shareholders owning more than 5% of the outstanding shares individually in 1995.

Creditor power = average debt to equity ratio of firm for the period 1994 to 1995.

Regulator power = 1 if firm has Environmental Protection Authority prosecutions, and 0 otherwise.

Lobby group power = 1 if the firm operates in an industry with high environmental sensitivity, and 0 otherwise.

Mission statement = 1 if firm has a mission statement disclosing an acknowledgment of social or environmental responsibility, and 0 otherwise.

Environmental committee = 1 for existence of a social responsibility or environmental committee, and 0 otherwise.

Return on assets '94 = return on assets for firm in 1994.

Return on assets '95 = return on assets for firm in 1995.

Average return on assets = average return on assets for firm for the period 1994 to 1995.

Size = natural logarithm market capitalization of firm at April 1995.

Risk = age of corporation in 1995.

e_i = error term.

Two ordinary least square regressions were performed on the data for the two measures of the dependent variable - quantity and quality. The results of these regressions are shown in Tables 5 and 6. The first model with quantity of disclosures as the dependent variable explains 53 per cent of the variation in quantity of environmental disclosures and is significant at $p < 0.001$. Hypothesis one is supported in that shareholder power (coefficient = 0.08, $p = 0.04$) and lobby group power (coefficient = 14.08, $p < 0.001$) adds significant positive explanatory power to the model. The strategic posture variables estimated as mission statement power (coefficient = 11.32, $p < 0.001$) and environmental committee power (coefficient = 5.48, $p = 0.03$) also add significant explanatory power in the predicted direction. Three alternative measurements of economic performance are tested and none are found to be significant. In the interests of brevity, only the results of the economic performance variable as measured by return on assets in 1995 are reported in the tables.

The explanatory power of the model is 66 per cent when the dependent variable is quality of disclosures as shown in Table 6. Shareholder power (coefficient = 0.01, $p = 0.02$), regulator power (coefficient = 0.33, $p = 0.06$) and lobby group power (coefficient = 1.90, $p < 0.001$) have significant explanatory power in support of hypothesis one. Both strategic posture variables have significant explanatory power with mission statement having a coefficient of 0.66, $p < 0.001$ and environmental committee having a coefficient of 0.69 and $p = 0.005$. Size is significant in the first model with a coefficient of 2.62 and $p < 0.001$ while the coefficient in model two is 0.15 and $p = 0.03$.

Insert Tables 5 and 6

Creditor power is not significant in explaining environmental disclosures in the predicted direction in the univariate and multivariate tests. This potentially indicates that creditors are not a key stakeholder group that demand environmental information in annual reports. All three measures of economic performance are also non-significant predictors of environmental disclosure applying univariate and multivariate tests. This finding is consistent with those of Patten (1991) and Hackston and Milne (1996). Both studies employed return on assets as a measure of economic performance. The amount of environmental disclosure was measured as high and low in the case of Patten's study and content analysis in the case of Hackston and Milne.

11. Conclusion

The study provides a comprehensive, integrated theory for explaining voluntary environmental disclosures

operationalizing Ullmann's three-dimensional model. Both quantity (number of sentences) and quality using a rating index are measured and it is found that these measures are highly correlated. Less than half the sample discloses any environmental information. Those disclosing generally do not provide high quality disclosures. This finding has implications for regulators as it suggests the need to mandate environmental information if it is decided that this information is valuable. This is particularly the case for companies with stakeholders who are not in a sufficiently powerful position to demand environmental disclosures.

The significance of the strategic posture variables in explaining disclosure practices has implications for the users of the information. The results imply that firms which acknowledge their social and environmental responsibilities through their mission statements or the establishment of social responsibility or environmental committees do adopt an active posture towards these issues. This implies that these manifestations of an active posture are not merely public relations exercises as they are related to the production of environmental information.

Future research should apply Ullmann's framework to alternative countries whose public have different sensitivities to environmental information and different regulatory frameworks. This framework can also be applied to other social responsibility disclosures such as disclosures of employee information. This study is restricted to larger companies and research should be directed to considering listed companies outside the top 100.

Appendix 1

The following decision rules adapted from Gray, Kouhy and Lavers (1995) and Hackston and Milne (1996), were used in the study to ascertain whether a particular sentence could be characterized as an environmental disclosure:

Environmental policy
actual statement of policy;
statement of formal intentions;
general statements of the "the company will, the company does" nature.

Environmental audit
reference to environmental review, scoping, audit, assessment including independent attestation.

Product and process related
statements indicating that the company's operations are non-polluting or that they are in compliance with pollution laws and regulations;
efficiently using material resources in the manufacturing process;
preventing waste;
statement indicating that pollution from operations has been or will be reduced e.g. land contamination and remediation;
conservation of natural resources e.g. recycling glass, metals, oil, water and paper;
using recycled material e.g. in packaging;
prevention of repair or damage to the environment resulting from processing or natural resources e.g. land reclamation or reforestation;
pollution control in the conduct of the business operations.

Financially related data
reference to financial/economic impact e.g. capital, operating and research and development expenditures for pollution abatement;
investment and investment appraisal;
discussion of areas with financial/economic impact;
discussion of environmental-economic interaction.

Aesthetics
designing facilities harmonious with the environment;
contributions in terms of cash or art/sculptures to beautify the environment;
restoring historical buildings/structures;
landscaping.

Environmental other
undertaking environmental impact studies to monitor the company's impact on the environment;
wildlife conservation;
protection of the environment e.g. pest control;
environmental awards for the company's environmental record, programs or policies;
public amenity provision;
environmental education e.g. anti-litter campaigns;
sponsorship of environmentally related campaigns;
mention of sustainability or sustainable development.

Energy related
conservation of energy in the conduct of business operations;
using energy more efficiently during the manufacturing process;
utilizing waste materials for energy production;
disclosing energy savings resulting from product recycling;
discussing the company's efforts to reduce energy consumption;
disclosing increased energy efficiency of products;
research aimed at improving energy efficiency of products;
stating the company's concern about the energy shortage;
disclosing the company's energy policies.

Appendix 2

Environmental Disclosure Quality Survey
Instructions:
This survey consists of extracts from the annual reports of Australian companies, which are identified

as being environmentally related disclosures. Your task is to read the extracted passages for each of the identified companies and evaluate the **quality** of the disclosure by circling a score on the rating scale provided at the end of each company's disclosures.

The passages are extracted from various sections of the annual reports (the sections are identified by the *LOCATION IN REPORT:* heading). **Note:** please complete the rating scale after reading **all** the sections (including any photocopied sections). That is, the rating is to reflect the quality of the disclosures as a whole and not the individual sections.

To assist you in evaluating the quality of the disclosures, the next page of this survey sets out the elements of what is regarded as good environmental disclosure and you may use that as a guide. Please use the following scale when assigning a score:

0 Not an environmental disclosure
1 Very limited environmental disclosure
2 Limited environmental disclosure
3 Acceptable environmental disclosure
4 Good environmental disclosure
5 Excellent environmental disclosure

Thank you very much for your time and effort.

Elements of Good Environmental Disclosure

Environmental policies (*eg. Reference to industry policies, corporate policies, stakeholders, target audiences*);
Management commitment and systems (e.g. *Environmental management systems {EMS}, environmental audits*);
Narrative on impact on core businesses
Quantitative Disclosure
Factual data (*e.g. Bad and good news, global and/or site level data*)
Historical trends, commentary and explanation;
Performance v. Targets
Targets (*global and/or site level*)
Performance against targets
Explanation of variances in performance
Financial Dimension
Link to financial statements, liabilities, provisions and accounting policies
Environmental expenditure
Verification
External verification (*scope of examination on data and/or systems*)
Discussion of sustainability
Resource use and efficiency indicators
Additional Information
Channels of communication
External report availability
(*Adapted from ACCA Environmental Reporting Award Criteria for 1994*)
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Table 1. Descriptive Statistics of raw data

Variable	Minimum	Maximum	Mean	Standard deviation
Quantity of Disclosure	0	85	7.23	14.32
Quality of Disclosure	0	4.76	1.19	1.50
Shareholder Power	0	96.08	38.81	24.14
Creditor Power	0.01	4.45	1.23	1.23
Return on Assets '94	-0.08	0.36	0.06	0.06
Return on Assets '95	-0.11	0.31	0.06	0.05
Average Return on Assets	-0.041	0.33	0.06	0.05
Size ('000)	99.42	32224.30	2458.64	4413.11
Log size	11.51	17.29	13.96	0.36
Ris k	1	164	51.64	39.96

Where:
Quantity of disclosures = quantity of environmental disclosure for firm.
Quality of disclosures = quality of environmental disclosure for firm.
Shareholder power = percentage of shares of the corporation owned by shareholders owning more than 5% of the outstanding shares individually in 1995.
Creditor power = average debt to equity ratio of firm for the period 1994 to 1995.
Return on assets '95 = return on assets for firm in 1994.
Return on assets '95 = return on assets for firm in 1995.
Average return on assets = average return on assets for firm for the period 1994 to 1995.
Size ('000) = market capitalization of firm as at April 1995
Log size = natural logarithm market capitalization of firm as at April 1995.
Risk = age of corporation in 1995.Table 2

Table 2. Pearson Product-Moment Correlation Matrix

	Quantity disclosure	Quality disclosure	Share-holder power	Creditor power	Regulator power	Lobby group	Mission statement	Environmental committee	Economic performance	Log size
Quality	**0.82**	1								
disclosure	<0.001									
Shareholder	**0.16**	**0.17**	1							
power	0.11	0.08								
Creditor	**-0.13**	**-0.14**	**-0.12**	1						
power	0.18	0.17	0.24							
Regulator	**0.17**	**0.30**	**-0.08**	**-0.06**	1					
power	0.08	<0.001	0.40	0.56						
Lobby	**0.65**	**0.74**	**0.16**	**-0.19**	**0.22**	1				
group power	<0.001	<0.001	0.11	0.06	0.03					
Mission	**0.45**	**0.38**	**-0.12**	**0.05**	**0.19**	**0.29**	1			
statement	<0.001	<0.001	0.22	0.61	0.06	<0.001				
Environmental	**0.36**	**0.43**	**-0.01**	**-0.06**	**0.11**	**0.37**	**0.08**	1		
committee	<0.001	<0.001	0.96	0.53	0.29	<0.001	0.42			
Economic	**0.02**	**0.07**	**-0.02**	**-0.32**	**-0.13**	**0.13**	**-0.03**	**-0.01**	1	
performance	0.84	0.46	0.86	<0.001	0.20	0.21	0.79	0.97		
Log size	**0.38**	**0.40**	**-0.08**	**0.25**	**0.34**	**0.27**	**0.24**	**0.22**	**-0.20**	1
	<0.001	<0.001	0.41	0.01	<0.001	<0.001	0.02	0.02	0.05	
Risk	**0.04**	**0.18**	**-0.09**	**0.23**	**0.22**	**0.01**	**0.11**	**0.16**	**-0.08**	
	0.71	0.08	0.37	0.02	0.03	0.95	0.27	0.12	0.44	<0.001

Bold = correlation coefficient
Not bold = p value
Quality disclosures = quality of environmental disclosure for firm i.
Quantity disclosures = quantity of environmental disclosure for firm i.
Shareholder power = percentage of shares of the corporation owned by shareholders owning more than 5% of the outstanding shares individually in 1995.
Creditor power = average debt to equity ratio of firm i for the period 1994 to 1995.
Regulator power = 1 if firm has Environmental Protection Authority prosecutions, and 0 otherwise.
Lobby group power = 1 if the firm operates in an industry with high environmental sensitivity, and 0 otherwise.
Mission statement = 1 if firm has a mission statement acknowledging social or environmental responsibility, and 0 otherwise.
Environmental committee = 1 for existence of a social responsibility or environmental committee, and 0 otherwise.
Economic Performance = return on assets for firm in 1995.
Log size = natural logarithm market capitalization of firm as at April 1995.
Risk = age of corporation in 1995.

Table 3. Results of independent samples t tests for continuous variables

Disclosure Variables	Yes =49 Mean	No = 53 Mean	t	p
Shareholder Power	47.22	31.04	3.57	<0.001
Creditor Power	1.15	1.29	-0.56	0.29
Return on Assets '94	0.06	0.06	0.24	0.41
Return on Assets '95	0.06	0.06	0.05	0.48
Average Return on Assets	0.06	0.06	0.15	0.44
Log Size	14.33	13.61	3.32	<0.001
Risk	59.94	43.82	2.06	0.02

one tailed probabilities
Where:
Shareholder power; = percentage of shares of the corporation owned by shareholders owning more than 5% of the outstanding shares individually in 1995.
Creditor power = average debt to equity ratio of firm for the period 1994 to 1995.
Return on assets '94 = return on assets for firm in 1994.
Return on assets '95 = return on assets for firm in 1995.
Average return on assets = average return on assets for firm for the period 1994 to 1995.
Log Size = natural logarithm market capitalization of firm as at April 1995.
Risk = age of corporation in 1995.

Table 4. Results of independent samples chi-square tests

	Environmental committee Yes	Regulator power Violations Yes	Lobby group power Yes	Mission statement Yes
Disclosure companies	12	12	28	12
No disclosure companies	0	3	2	5
Total	12	15	30	17
	$\chi^2 = 14.71$ $p < 0.001$	$\chi^2 = 7.20$ $p < 0.001$	$\chi^2 = 34.93$ $p < 0.001$	$\chi^2 = 4.16$ $p = 0.04$

Where:
Environmental committee = 1 for existence of a social responsibility or environmental committee, and 0 otherwise.
Regulator power = 1 if firm has Environmental Protection Authority prosecutions, and 0 otherwise.
Lobby group power = 1 if the firm operates in an industry with high environmental sensitivity, and 0 otherwise.
Mission statement = 1 if firm has a mission statement acknowledging social or environmental responsibility, and 0 otherwise.

Table 5. Quantity of disclosures as dependent variable

Variable	coefficient	t	P (one tail)
Shareholder Power	0.08	1.75	0.04
Creditor Power	-1.26	-1.35	0.09 [a]
Regulator Power	-2.17	-0.7	0.24 [a]
Lobby Group Power	14.08	5.17	< 0.001
Mission Statement	11.32	3.93	< 0.001
Environmental Committee	5.48	1.61	0.03
Economic Performance	-6.77	-0.32	0.37 [a]
Log size	2.62	2.43	< 0.001
Risk	-0.02	-0.56	0.15
Constant	-35.71	-2.43	0.02 [a]

N = 102, Adjusted $R^2 = 0.53$, Standard error = 9.95, F = 13.22, p < .001
a = two tailed probabilities
Where:
Quantity of disclosures = number of sentences disclosing environmental information.
Shareholder power = percentage of shares of the corporation owned by shareholders owning more than 5% of the outstanding shares individually in 1995.
Creditor power = average debt to equity ratio of firm for the period 1994 to 1995.
Regulator power = 1 if firm has Environmental Protection Authority prosecutions, and 0 otherwise.
Lobby group power = 1 if the firm operates in an industry with high environmental sensitivity, and 0 otherwise.
Mission statement = 1 if firm has a mission statement acknowledging social or environmental responsibility, and 0 otherwise.
Environmental committee = 1 for existence of a social responsibility or environmental committee, and 0 otherwise.

Economic Performance = return on assets for firm in 1995.
Log size = natural logarithm market capitalization of firm as at April 1995.
Risk = age of corporation in 1995.

Table 6. Quality of Disclosures as dependent variable

Variable	coefficient	t	P (one tail)
Shareholder Power	0.01	2.151	0.02
Creditor Power	-0.09	-1.09	0.14 [a]
Regulator Power	0.33	1.20	0.06
Lobby Group Power	1.90	7.88	< 0.001
Mission Statement	0.66	2.59	< 0.001
Environmental Committee	0.69	2.30	0.005
Economic Performance	1.06	0.57	0.14
Log size	0.15	1.61	0.03
Risk	0.01	1.46	0.08 [a]
Constant	-2.19	-1.68	0.10 [a]

N = 102, Adjusted R^2 = 0.66, Standard error = 0.88, F = 22.22, p < .001
Where:
Quality of disclosures = quality of environmental disclosure for firm.
Shareholder power = percentage of shares of the corporation owned by shareholders owning more than 5% of the outstanding shares individually in 1995.
Creditor power = average debt to equity ratio of firm for the period 1994 to 1995.
Regulator power = 1 if firm has Environmental Protection Authority prosecutions, and 0 otherwise.
Lobby group power = 1 if the firm operates in an industry with high environmental sensitivity, and 0 otherwise.
Mission statement = 1 if firm has a mission statement acknowledging social or environmental responsibility, and 0 otherwise.
Environmental committee = 1 for existence of a social responsibility or environmental committee, and 0 otherwise.
Economic Performance = return on assets for firm in 1995.
Size = natural logarithm market capitalization of firm as at April 1995.
Risk = age of corporation in 1995.

[1] Charges that are both infrequent and unusual are referred to as extraordinary items and listed below income from continuing operations in the income statement.
[2] Institutional investors are defined as large investors who exercise discretion over the investment of others. Similar to Bushee (1998), institutional investors are defined as entities such as bank trusts, insurance companies, mutual funds and pension funds that invest on behalf of others and manage at least $100 million in equity. These entities are required to file form 13f with the SEC to report their equity holdings. Entities such as brokerage houses and companies holding stocks for their own portfolio are not required to disclose their equity holdings.
[3] See WSJ 1995a; WSJ 1995b; WSJ 1996a; WSJ 1996b; WSJ 1997 for various instances of institutional activism.
[4] Some of the items classified as "special items" in the Compustat database include (and not limited to) restructuring charges, write-down of assets, write-offs of capitalized computer software costs.
[5] The interpretation of positive special items is often difficult. For instance, management might sell an asset for a gain to raise cash.
[6] A tax rate of 36 percent was assumed for all the firms.
[7] The Z Score (1968) is a widely used and well accepted measure of financial distress and continues being used in recent studies (e.g., Kane and Richardson 2002). A score of 1.8 or below suggests a high default risk.