Report users' perceptions of environmental performance: a preliminary investigation

Keywords environmental disclosure, legitimacy theory, environmental reporting, annual reports

Abstract

This paper reports on a preliminary investigation into speculations raised by researchers regarding the potentially misleading quality of voluntary environmental disclosures in company annual reports to users. Twenty-five subjects used extracts of annual report voluntary environmental disclosures to rate the environmental performance of ten Australian companies. Subject ratings were then statistically compared with an environmental performance measure. Significant differences were identified between subject perceptions of performance and actual performance for nine of the ten companies examined. Subjects demonstrated a propensity to evaluate environmental performance higher than actual performance with the majority of subjects rating companies within "good" categories although nine companies had actual performance ratings corresponding with "bad" categories. The findings suggest that industry claims regarding the success of the voluntary disclosure system – claims relied upon, in part, by government in decisions to maintain a predominantly voluntary disclosure approach - may be questionable, particularly for annual report users.

1. Introduction

The awareness of, and concern for, environmental issues within the broader community has increased steadily over the last two decades (Adams, 2004; Berthelot *et al.*, 2003; Hackston and Milne, 1996; Roberts, 1991). As a consequence corporations have adopted approaches to address community concerns on their environmental performance (Wilmshurst and Frost, 2000). One such approach is the provision of voluntary environmental disclosures within the annual report (Guthrie and Parker, 1990; Mathews, 1997; McMurtrie, 2005) and researchers have noted a substantial increase in disclosures from the early nineties (Deegan and Gordon, 1996; Deegan and Rankin, 1996; Gray *et al.*, 1995; Mathews, 1997). While an increase in disclosure has been noted, the content and usefulness of the disclosures has been questioned (see for example Deegan and Gordon, 1996; Guthrie and Parker, 1990; Deegan *et al.*, 2000) and labelled as potentially misleading (Deegan and Rankin, 1996).

Regardless of these concerns, there has been resistance to extensive mandatory environmental reporting requirements (Business Council of Australia, 2005; PJCCFS 2005; Commonwealth of Australia 1999; Australian Industry Group, 1998). The business community supports the maintenance of a predominantly voluntary disclosure system which, in their view, has been successful. A voluntary disclosure approach has also been supported by the Australian government. With an absence of (and minimal government support for) mandatory requirements, researchers have called for improvements in stakeholder engagement and for research which more extensively engages the business community to improve environmental performance and disclosure (Adams and Larrinaga-González, 2007; O'Dwyer *et al.*, 2005). Future improvement should, however, consider the impact of current disclosure practices upon users of annual reports; that is, what is the extent, if any, to which existing disclosures are misleading and, if so, what factors within those disclosures influence user's perceptions in this manner. This paper reports on the first stage of this research by investigating how existing voluntary environmental disclosures in annual reports affect user's perceptions of environmental performance.

The paper commences with an overview of Australian research investigating voluntary environmental disclosure practices and whether such disclosures are used by users for decision-making purposes. The results of an early US study investigating the relationship between users' perceptions of environmental performance and actual performance are then outlined. The paper then proceeds with a discussion on the theoretical perspective adopted followed by the development of the research hypothesis. The research method is then outlined and the results presented. The paper concludes with a discussion of the research findings and possible directions for future research.

2. Background to the research

Analyses abound on the annual report voluntary environmental disclosure practices of companies in Australia (Deegan and Gordon, 1996; Deegan and Rankin, 1996, 1997; Deegan *et al.*, 2002; Deegan *et al.*, 2000; Guthrie and Parker, 1990; Hackston and Milne, 1996; Tilt, 1994). Australian studies have examined characteristics of environmental disclosures and considered issues such as the quality, (Deegan and Gordon, 1996; Deegan and Rankin, 1996; Guthrie and Parker, 1990) the quantity, (Deegan and Gordon, 1996; Deegan *et al.*, 2000) and the timing (Deegan *et al.*, 2000) of disclosures in annual reports. These studies resulted in a number of speculations being raised regarding the usefulness (Hughes *et al.*, 2001), credibility (Deegan and Rankin, 1996; Deegan *et al.*, 2000) and potentially misleading quality of such disclosures to users (Deegan and Rankin, 1996). Collectively, the findings of these studies suggest that voluntary annual report disclosures may be limited in usefulness to users. Early studies suggest, however, that users rely upon these disclosures for decision-making purposes (Deegan and Rankin, 1997; Tilt, 1994).

Despite the criticisms of researchers and some user groups, both the business community and legislators have resisted the introduction and, more successfully, further extension of mandatory environmental (and/or social responsibility) reporting requirements in annual reports (Business Council of Australia, 2005; PJCCFS 2005; Australian Industry Group, 1998; Commonwealth of Australia, 1999). Senator Andrew Murray of the Australian Democrats proposed amendment 37 to include s. 299(1)(f) in the Australian *Corporations Law* during the process of the *Company Law Review Act* 1998. The amendment attracted immediate opposition from the Liberal National Coalition Government and was referred to the Parliamentary Joint Statutory Committee on Corporations and Securities (PJSCCS). Forty-six submissions were received during the review process with forty opposing the section. In opposing s. 299(1)(f), the Australian Industry Group (AIG) argued there is 'no evidence the current voluntary reporting [approach] has been unsuccessful' (AIG, 1998). Citing a number of factors relating to the inappropriateness of the Corporations Law as a mechanism for reporting on social and environmental matters, the PJSCCS stated that the views of supporters of the amendment 'were not as persuasive as those from the business community' (Commonwealth of Australia, 1999) and it was recommended for repeal[1]. The PJSCCS suggested that mandatory reporting could be unproductive whereas voluntary reporting would encourage companies to achieve best practice.

More recently, the Business Council of Australia (BCA) supported the maintenance of a voluntary reporting system in its submission to the Parliamentary Joint Committee on Corporations and Financial Services (PJCCFS) inquiry into corporate responsibility and triple-bottom-line reporting in 2005. The BCA argued that 'around 80% of BCA Member companies [voluntarily] publicly report what they are doing in terms of CSR related activities' (BCA, 2005, p. 50) and that mandatory

[1] Despite the recommendation for repeal, s. 299(1)(f) remains in the Corporations Act. According to the explanatory memorandum to the *Corporations Amendment Bill (No. 2) 2006* the amendment to repeal the section was withdrawn 'following consideration of submissions received'.

requirements could obscure 'the benefit that companies can derive from developing and issuing their reports' (p. 51). A preference for voluntary disclosure was also adopted by the PJCCFS suggesting that mandatory reporting 'would lead to a "tick-the-box" culture of compliance' so companies should be 'strongly encouraged to engage voluntarily in sustainability reporting rather than being forced to do so' (PJCCFS, 2005, p. xv). Hence, excepting the requirements outlined under s. 1013D[2] and, more specifically s. 299(1)(f) of the *Corporations Act*[3], the reporting system remains predominantly voluntary. Furthermore, s. 299(1)(f) has been criticised regarding its usefulness in providing meaningful information (ACF, 2005) particularly where such disclosures are presented with voluntary disclosures of questionable quality within the same document (Frost 2007).

While the view adopted by the profit-oriented business community is expected, that of government can be considered somewhat hypocritical. As stated by Adams (2004, p. 752) in a case study analysis of the perceived reporting/performance expectations gap, 'room for doubt as to whether reporting reflected performance on the scale highlighted [in the case] would not be tolerated in financial reporting'. Australia has extensive financial reporting requirements primarily aimed to protect those with an economic interest in the company often ignoring the needs of other stakeholders. Even the needs of some economic stakeholders are not taken into account such as those engaging in socially responsible investment which experienced a growth rate of 920 per cent between 2000 and 2004 (Ethical Investment Association, 2004, p. 1). As explained by the ACF (2005, p. 30):

[2] Section 1013D was also amended to the Corporations Act in 2001 requiring those regulated to provide financial product advice to provide clients with a Product Disclosure Statement and include (l) 'if the product has an investment component – the extent to which labour standards or environmental, social or ethical considerations are taken into account in the selection, retention or realisation of the investment'.

[3] At the time the environmental reporting requirement was introduced, the legislation was referred to as the *Corporations Law;* however, it has since been amended and is now referred to as the *Corporations Act.*

> For sustainable investors, information on environmental performance is a core aspect of investment selection methodology…For such funds, meaningful environmental and social data are as essential as good financial accounts, and it is time that our regulatory structure supported their data requirements as well as those of investors and fund managers who limit themselves to purely financial metrics.

While previous researchers, and some users, have questioned the quality of voluntary environmental report disclosures with some suggesting that these disclosures may mislead users, limited research has investigated whether these disclosures are, in fact, misleading. In an early US study Rockness (1985) evaluated users' ability to determine the environmental performance of a sample of US companies using voluntary environmental disclosures in annual reports. Subjects ranked companies on environmental performance from best to worst using the environmental information disclosed in the annual report. The "actual" environmental performance variable was operationalised using ratings compiled by the Council on Economic Priorities (CEP)[4]. The CEP ratings were then compared with the subjects' rankings. It was found that none of the subject's environmental performance ratings were significantly positively correlated with the ratings compiled by the CEP. Furthermore, it was noted that the subjects 'ranked the worst environmental performers as the best and vice versa' (Rockness, 1985, p. 349). Less than 8 per cent of the 128 subjects included in the study rated the company's environmental performance accurately (Rockness, 1985, p. 349). Rockness (1985, p. 349) concluded that the voluntary environmental disclosures contained in the annual report 'may have been an incomplete report of actual environmental performance'.

3. Legitimacy Theory

[4] The CEP was founded in 1969 and is a non-profit organisation that rates firms on their environmental performance.

Legitimacy theory has been used extensively as an explanatory theory in the voluntary disclosure literature (Patten, 2002; Brown and Deegan, 1998; O'Donovan, 1999; Neu *et al*., 1998; Deegan and Gordon, 1996; Deegan and Rankin, 1996). Underlying legitimacy theory is the notion of the 'social contract' which exists between an organisation and the society in which that organisation exists and operates (Shocker and Sethi, 1974). Organisational legitimacy is conferred by parties external to the organisation (Ashforth and Gibbs, 1990; Dowling and Pfeffer, 1975). If the norms and values of the organisation differ from the norms and values of the society in which that organisation operates, organisational legitimacy may be threatened (Lindblom, 1994; Dowling and Pfeffer, 1975) and a legitimacy gap may occur (Wartick and Mahon, 1994). Under such circumstances the organisation may undertake activities in order to gain, maintain or repair legitimacy (O'Donovan, 2002). While there are several strategies an organisation may adopt, the organisation must communicate its legitimating strategies to society (Dowling and Pfeffer, 1975). It has been suggested that this has been achieved via voluntary disclosures in the corporation's annual report (Deegan *et al.*, 2000; Brown and Deegan, 1998; Patten, 1992).

The use of voluntary environmental disclosures as a legitimating tactic was examined by O'Donovan (2002). O'Donovan (2002) questioned senior management of three high profile Australian companies regarding the use of voluntary disclosures following hypothetical environmental events of varying degrees of seriousness. The findings indicated that when a corporation's legitimacy is threatened from an environmental incident of significant magnitude, management will adopt disclosure tactics in an attempt to alter society's perceptions of the company (O'Donovan, 2002) and, as a consequence 'environmental disclosure decisions were made on the basis of presenting the corporations in a positive light' (O'Donovan, 2002, p. 364). Expressing similar concerns to those of previous researchers, O'Donovan (2002) suggested the usefulness of this information may be questionable.

The views of business relating to the motivation to disclose environmental information voluntarily demonstrate some overlap with those of researchers adopting a legitimacy theory perspective. In its submission to the Parliamentary Joint Committee on Corporations and Securities enquiry into CSR the BCA (2005, p. 34) states:

> …companies are attempting to overcome community raised concerns of past performance as well as improve future performance, in order to ensure their continued licence to operate in the broader community over the long-term.
>
> Poor corporate behaviour can threaten a company's licence to operate through the community demanding greater regulatory restrictions being placed on the company. Ultimately, this can lead to prohibitions on the company selling certain products or accessing valuable resources.

In the report on the state of sustainability reporting in 2005, 'reputation enhancement' was the most frequently cited benefit of environmental reporting by Australian companies (Department of the Environment and Heritage, 2005, p. 32). Therefore the findings of previous researchers relating to disclosures being predominantly positive in nature (Deegan and Gordon, 1996; Deegan and Rankin, 1996), increasing in quantity following adverse media attention (Deegan and Rankin, 1996; Deegan *et al.*, 2000), and being useful for presenting the organisation in a positive light (O'Donovan, 2002) may be considered consistent with business views regarding the benefits of such disclosures. While researchers and business appear to, at least broadly, agree on the motivation for and benefits of voluntary disclosures views regarding the quality and usefulness of the content of disclosures remains disparate.

4. Hypothesis development

While the Australian business community continues to advocate the suitability of a voluntary disclosure system, the existing literature suggests that voluntary environmental disclosures are a legitimating tactic with such disclosures possibly lacking credibility (Deegan and Gordon, 1996; Deegan and Rankin, 1996; Deegan *et al.*, 2000; Tilt, 1994), objectivity (Deegan and Rankin, 1996), and usefulness (O'Donovan, 2002; Tilt, 1994) to users of annual reports. The early Rockness (1985) study found users' perceptions of company environmental performance were, in fact, inversely related to actual environmental performance. This finding, although dated, does suggest that there may be substance to the speculations raised by Australian researchers regarding the quality of voluntary disclosures. It could, therefore, be suggested that users may obtain an inaccurate perception of company environmental performance using voluntary environmental disclosures. As a result, the following alternative hypothesis is stated:

H1: There is a significant difference between users' perceptions of company environmental performance based on voluntary environmental disclosures and actual environmental performance.

If a significant difference between users' perceptions of environmental performance and actual environmental performance is identified, this may provide preliminary support for arguments raised by researchers suggesting that voluntary environmental disclosures may have the potential to mislead users regarding company environmental performance. If, on the other hand, the results show there is no significant difference this could indicate that speculations raised by previous researchers may be unfounded and that arguments by industry advocating the maintenance of a voluntary system are potentially valid.

5. Research method

As this study represents preliminary research in the area, a pilot study was undertaken. The benefits of this type of research include flexibility, economy and size (Alreck and Settle, 1995; Cavana *et al.*, 2001) and the smaller number of participants required (Alreck and Settle, 1995). While the generalisability of the results is affected, it should be noted that the purpose of this study was not to achieve conclusive results but to provide an indication as to areas for further study (Cavana *et al.*, 2001).

5.1 Subject sample selection

The subject sample for this study comprised twenty-five undergraduate students enrolled in business degrees[5] at an Australian university. Nineteen (76%) subjects were female and six (24%) were male. Twenty-one subjects (84%) were within the 18 to 25 year age group, with no subjects above 56 years of age. The use of university students as subjects was deemed appropriate for a preliminary study in the area. Rockness (1985) also included students in her study arguing that the nature of environmental disclosures may be directed towards consumers and other concerned members of the public. It was also believed that holding the status of "student" does not limit a subject's ability to assess the environmental performance of an entity from information provided in company annual reports as 'it can be argued that student and non-student samples may be equally useful sources of information about the processes underlying organizational phenomena' (Greenberg, 1987, p. 158).

5.2 Sample company selection and environmental performance variable

[5] Domestic students studying Bachelor of Business, Bachelor of Accounting, Bachelor of Information Systems, Bachelor of Property Valuation and double degrees relating to same.

A sample of ten companies was chosen for assessment by the subjects in the study. The number of companies selected needed to be considered in relation to time constraints associated with the reading of extracted voluntary annual report environmental disclosures. A larger number of companies would have required an extensive time period for the review and assessment process[6].

As the objective of this research was to examine if users' perceptions of environmental performance based on voluntary environmental disclosures were consistent with "actual" environmental performance, it was necessary to utilise a sampling frame from which a measure of "actual" environmental performance existed.

The actual environmental performance variable was operationalised using the Corp Rate. The Corp Rate provides an assessment of the corporate responsibility of Australia's top 50 listed companies and is undertaken by the Australian Consumers' Association (ACA), the Australian Conservation Foundation (ACF) and Oxfam (Corp Rate, 2003)[7]. Companies are rated on performance in three key areas being corporate governance, social performance and environmental performance giving an overall analysis of the corporate responsibility of the top 50 listed companies. A number of criteria are used in the assessment of each key area resulting in a final score out of 100. The environmental performance assessment assesses companies according to performance in environmental strategies, environmental footprint and focus on sustainability issues including:

- Adopting policies that consider the environment

[6] The total environmental disclosures (in words) for the ten sample companies was 6780 (see Table 1).
[7] Bebbington, Larrinega and Moneva (2008) note that reputation-type indices have been criticized because they are based on the views of particular stakeholder groups. The use of the Corp Rate as a "sole" measure of performance is a limitation of this study.

- Accurate public reporting on its environmental performance in compliance with environmental laws
- Any adverse impact on land, air, water, plants and animals as a result of activities
- Whether it produces or processes uranium
- The production of goods or services that benefit the environment and contribute to global sustainability.

The ten sample companies were selected from the Corp Rate 2003 and also meeting the criteria of belonging within an environmentally sensitive industry. The determination of environmentally sensitive industries was based on the existing literature with a number of studies identifying industry classification as a characteristic possibly affecting environmental disclosure (Campbell *et al.*, 2003; Cowen *et al.*, 1987; Deegan and Gordon, 1996; Frost and Wilmshurst, 2000; Roberts, 1992; Rockness, 1985; Wilmshurst and Frost, 2000). Several approaches have been utilised by researchers in an attempt to identify "high profile" or "environmentally sensitive" industries, including the levels of competition, consumer visibility and political risk (Hackston and Milne, 1996; Roberts, 1992), the degree of attention received from environmental lobby groups (Deegan and Gordon, 1996), the societal perception of "sinfulness" (Campbell *et al.*, 2003) those with a detrimental impact on the environment (Ghanbari Parsa and Akhavan Farshchi, 1996; Possingham and Bildstein, 2003; Smith and Krannich, 2000) and the retail industry (Environment Australia, 2005; Corp Rate, 2003).

Taking into consideration industries previously identified as environmentally sensitive or damaging, and appearing in the Corp Rate 2003, industries selected for inclusion in this study included energy, materials and mining, real estate, wine producers, retailing, and food, beverage and tobacco. In addition to belonging within this industry range companies had to have an annual report available in word format on the Connect4 database for the financial year ending 30 June 2003[8] and have included voluntary environmental disclosures in those reports[9].

5.3 Users' perception of environmental performance variable

Subjects were asked to rate their perception of each company's environmental performance after reading voluntary environmental disclosures extracted from the company's annual report. It is acknowledged that companies use a variety of media as a means of disclosing environmental performance information (Wilmshurst and Frost, 2000; Zéghal and Ahmed, 1990). Many researchers, however, have utilised the annual report in studies of the environmental disclosure practices of companies (Deegan and Gordon, 1996; Deegan and Rankin, 1996; Gibson and Guthrie, 1995; Guthrie and Parker, 1990; Hackston and Milne, 1996; Patten, 1992; Roberts, 1991; Rockness, 1985; Wilmshurst and Frost, 2000) as annual reports are used by companies as a tool to voluntarily disclose information to "society" regarding environmental activities (Deegan *et al.*, 2000; O'Donovan, 2002).

Content analysis was used to identify the voluntary environmental disclosures within the sample company annual reports. Content analysis has been defined by Krippendorf (1980, p.21) as being 'a research technique for making replicable and valid inferences from data to their context'. This method of analysis has been used extensively by researchers in examination of environmental disclosures by companies (Deegan and Rankin, 1996; Deegan *et al.*, 2002; Deegan *et al.*, 2000; Gibson and Guthrie, 1995; Patten, 1992; Wilmshurst and Frost, 2000).

[8] One company assessed in the Corp Rate had a financial year end of the 28 July. This company was included as it was determined this difference would not adversely affect the results.

[9] The resultant sample companies are shown in Appendix 1.

In order to identify the voluntary environmental disclosures in the annual reports, it was necessary to differentiate between a "voluntary" environmental disclosure and a "mandatory" environmental disclosure within the annual report due to the amendment of the Corporations Law to include section 299(1)(f). Prior to the amendment the Australian environmental reporting system was predominantly voluntary. Section 299(1)(f) requires certain companies to disclose within the statutory directors report:

> If the entity's operations are subject to any particular and significant environmental regulation under a law of the Commonwealth or of a State of Territory — give details of the entity's performance in relation to environmental regulation.

Once identified voluntary environmental disclosures were extracted as complete sections and not as random sentences or words. Hence, disclosures were extracted from sections such as "the environment", and "health, safety and the environment" rather than individual sentences or words interspersed in other sections of the document. As a result, not all voluntary disclosures may have been captured; however, the inclusion of singular words, phrases or sentences within other parts of the annual report would have provided no contextual meaning to the subjects. Identifying references to the company were deleted and replaced with a randomly assigned pseudonym, being Company A through to Company J (see Appendix 1) to eliminate any bias the subjects may have had towards a particular company (Rockness, 1985).

Subjects were asked to review the extracted disclosures and provide a response that best reflected their opinion of each company's environmental performance using a Likert scale. To ensure a relative level of consistency between the actual environmental performance variable and the subject ratings, attitudes on the Likert scale were developed from the Corp Rate rating. The determination of what and how many alternatives should be included was based on the interpretation and discussion of the findings provided in the Corp Rate by the Australian Conservation Foundation (ACF). The ACF stated that a rating of 50 per cent or above is 'a respectable score' (Corp Rate, 2003, p. 5) hence providing an indication that this represented a point at which companies had attained a range of, at least, slightly good performance. The ACF also stated that a score of 33.33 per cent represents 'serious deficiencies in their environmental performance and policies' (p. 6) suggesting bad or very bad performance. From this, the Likert scale was categorised into six alternatives: Very Bad, Bad, Slightly Bad, Slightly Good, Good and Very Good, with Very Bad being given a rating of 1 and Very Good a rating of 6. It was determined that subjects should have an opinion on the company's environmental performance after reading the voluntary environmental disclosures. Consequently, no "neutral" category was included in the scale[10]. As the environmental assessment ratings in the Corp Rate were reported as a score out of 100, each attitude on the scale was identified to represent a Corp Rate score range of 16, with one attitude (Very Good) representing a score range of 15[11].

The Corp Rate environmental performance rating, corresponding Likert scale rating and number of voluntary environmental disclosures (in words) provided by the sample companies are shown in Table 1.

Insert Table 1 here

The actual environmental performance ratings received by the companies ranged from 20 for Company J to 52 for Company H, out of a possible rating of 100. These ratings corresponded with

[10] It is preferable to include a neutral category within a Likert scale; however, the ratings and discussion from the Corp Rate provided no allowance for a neutral range. This is a limitation of the study.
[11] Calculated by dividing 100 by 6 (the number of attitude alternatives).

attitude alternatives of 2 (Bad), 3 (Slightly Bad), and 4 (Slightly Good), with no company within the 1 (Very Bad), 5 (Good) or 6 (Very Good) range[12]. Of the ten companies, five had a corresponding rating of 2 (Bad), four companies had a rating of 3 (Slightly Bad), and one company had a rating of 4 (Slightly Good). The number of voluntary environmental disclosures ranged from 377 words for Company I to 959 words for Company D. Four companies had voluntary environmental disclosures of 450 words or less, two companies had disclosures above 900 words, with the word count for the remaining companies ranging between 450 and 900 words.

6. Results

A summary of subjects' perceptions of environmental performance for each of the ten companies and the *Wilcoxon matched-pairs signed-ranks test* statistics are presented in Table 2.

Insert Table 2 here

The results indicate the comparison between "perceived" environmental performance and "actual" environmental performance was significantly different for nine of the ten companies with only Company H showing no statistical significance. Forty-eight per cent of the subjects perceived the environmental performance of Company H to be the same as the actual environmental performance rating. Company H had the highest actual performance rating being Slightly Good and this may suggest that the voluntary disclosures provided by Company H in the annual report were the most reflective of actual environmental performance of the sample companies. Of the nine companies showing statistically significant differences between actual and perceived performance eight

[12] The companies included in this study were selected from industries generally recognised as being environmentally sensitive whereas those companies that received higher environmental performance ratings in the Corp Rate were not from the environmentally sensitive industries identified for this study and previous studies.

(Companies B, C, D, E, F, G, I and J) had three or less subjects rating at the actual and/or a lower than actual rating. Overall, of those eight companies there was a minimum of 88 per cent (N=22) of subjects who perceived the environmental performance to be higher than the actual environmental performance rating. Additionally, there were three instances (Company B, Company F and Company I) where 96 per cent of the subjects (N=24) have rated their perception of environmental performance as being higher than the actual environmental performance rating and two companies (Company D and Company E) where all subjects rated performance as being higher than actual performance. It should be noted that Companies D and E had the highest quantities of voluntary environmental disclosure of the sample companies with 959 and 947 words respectively.

7. Discussion and concluding comments

The results of the Wilcoxon signed ranks tests showed numbers of subjects rating performance based on annual report voluntary environmental disclosures differently than actual performance was statistically significant for nine of the ten companies examined. Table 3 provides a summary of the number of subject ratings (mean ranks in brackets) lower than, the same as, and higher than, those of each company's actual performance rating corresponding to that of the Corp Rate.

Insert Table 3 here

There were a total of twenty-six times (10.4%) out of a possible 250 times where the subjects perceived environmental performance to be the same as actual environmental performance. This finding is comparable to that of Rockness (1985) where less than 8 per cent of subjects rated their perception of company environmental performance the same as actual environmental performance (1985, p. 349). Rockness (1985) also found that users were not only unable to evaluate the environmental performance of the company based on voluntary environmental disclosures, but also ranked companies with the worst environmental performance as being the best. Similar findings occurred in this study in that where subjects have rated the companies differently from the actual rating there was a propensity to rate performance as higher rather than lower. There were only nine instances (3.6%) where subjects perceived performance to be lower than actual performance as compared to a total of 215 times (86%) where subjects perceived performance to be higher (or better) than actual environmental performance. In particular, five of the sample companies (Company B, Company D, Company F, Company I and Company J) were identified as having actual environmental performance ratings corresponding with Bad representing the worst actual environmental performance of the ten companies. From the summary of subjects' perceptions presented in Table 2 it was noted that those companies were perceived 108 times (86.4%) out of a possible 125 times as having Slightly Good or better environmental performance.

Based on these findings it may be suggested there is a significant difference between the sample users' perceptions of environmental performance based on voluntary environmental disclosures and actual environmental performance. It may be concluded, therefore, that H1 proposing *there is a significant difference between users' perceptions of company environmental performance based on voluntary environmental disclosures, and actual environmental performance* is supported.

The results of this study provide support for legitimacy theory in explaining the existence of, and motivation for inclusion of, voluntary environmental disclosures within company annual reports. It may be argued that the inconsistency between "perceived" environmental performance and "actual" environmental performance suggests that voluntary environmental disclosures could be successful in gaining, maintaining or repairing corporate legitimacy. As the findings of this study indicated users' perceptions of environmental performance were predominantly better than actual environmental performance it would appear that perceptions were influenced by the content of the disclosures.

While this study is intended to be indicative only, the findings suggest a potential disparity between users' perceptions of performance and actual environmental performance when relying on voluntary environmental disclosures from annual reports. Such a disparity may substantiate arguments proposed by previous researchers that voluntary environmental disclosures from company annual reports may be of questionable usefulness to users for decision making (Deegan and Gordon, 1996; Deegan and Rankin, 1996; Deegan *et al.*, 2000; Tilt, 1994). If voluntary environmental disclosures are, as it would appear from the results of this study, a potentially unreliable indicator of actual environmental performance then the information included in annual reports could be potentially misleading to users as suggested by Deegan and Rankin (1996). Taking into consideration that previous researchers have found that such disclosures are used by a variety of groups for decision making (Deegan and Rankin, 1997; Tilt, 1994) there are practical implications from these findings.

As discussed earlier, the business community continues to advocate the maintenance of a voluntary reporting system for social responsibility, including environmental, issues (BCA, 2005; AIG, 1998). The basis of the arguments put forth by groups such as the AIG is that there is no evidence to suggest that the voluntary reporting system is not successful. Furthermore, the BCA suggests that moving from voluntary to mandatory disclosures would erode the benefit companies obtain from voluntary environmental disclosures. This study has provided evidence supporting the BCAs claim that a benefit may, in fact, be derived from such disclosures; however, it would appear that the findings of this study and those of previous researchers challenge the AIGs suggestion of no evidence of the voluntary system being unsuccessful. While it has been proposed by managers that voluntary environmental disclosures may be useful to business for altering perceptions and as a means of organisational legitimacy (O'Donovan, 2002), the findings of this study suggest that such disclosures may not be as useful to users for developing a true picture of actual environmental performance.

Hence, governmental support for the continuance of a voluntary disclosure system, which has been reliant on business claims of the success of that system, should be reconsidered.

This study is subject to a number of limitations, some of which have been stated throughout the paper. First, the generalisability of results is limited due to the small sample size and the use of university students. Second, the use of a single environmental performance measure such as the Corp Rate reflects the viewpoint of a particular stakeholder group. Third, the annual report was the only disclosure medium considered by the subjects although it is acknowledged that companies use a variety of methods to convey environmental information. This study is further limited by the selection of companies based on those included in the Corp Rate and the need to exclude some annual report disclosures to maintain meaning in the extracted disclosures. Whilst these limitations are acknowledged, the results of this pilot study have provided an indication as to the potential usefulness of voluntary environmental disclosures to users in determining company environmental performance.

The study findings suggest a need for further empirical research in this area. First, research should be undertaken using a broader sample of annual report user groups. Second, analyses should be undertaken using several environmental performance indicators. Finally, future research should not just consider the extent to which disclosures may be misleading but also those factors within disclosures which (perhaps adversely) influence users' perceptions of performance.

Appendix 1: Sample companies and pseudonym

Pseudonym	Company Name
Company A	Amcor Ltd
Company B	Coles Myer Ltd
Company C	Fosters Group
Company D	Santos Ltd
Company E	Southcorp Group
Company F	Mirvac Group
Company G	Bluescope Ltd
Company H	Origin Energy
Company I	Woolworths
Company J	Westfield Holdings Ltd

References

Adams, C.A., 2004, The ethical, social and environmental reporting-performance portrayal gap, *Accounting, Auditing and Accountability Journal* 17(5), 731-757.

Adams, C.A. and C. Larrinaga-González, 2007, Engaging with organisations in pursuit of improved sustainability accounting and performance, *Accounting, Auditing & Accountability Journal* 20(3), 333-355.

Alreck, P.L. and R.B. Settle, 1995, *The survey research handbook,* 2nd Edn, (Irwin, Sydney).

Ashforth, B.E. and B.W. Gibbs, 1990, The double-edge of organizational legitimation, *Organization Science* 1(2), 177-94.

Australian Conservation Foundation, Submission to Treasury on Corporations Amendment Bill (No, 2) 2005 Exposure Draft, March.

Australian Industry Group, 1998, Media release: environmental issues a "significant risk" for Australian industry, November.

Bebbington, J., C. Larrinaga, and J.M. Moneva, 2008, Corporate social reporting and reputation risk management, *Accounting, Auditing & Accountability Journal* 21(3), 337-361.

Berthelot, S., D. Cormier, and M. Magnan, 2003, Environmental disclosure research: review and synthesis, *Journal of Accounting Literature* 22, 1-44.

Brown, N. and C. Deegan, 1998, The public disclosure of environmental performance information - a dual test of media agenda setting theory and legitimacy theory, *Accounting and Business Research* 29(1), 21-41.

Business Council of Australia, Submission to the Parliamentary Joint Committee on Corporations and Financial Services: Inquiry into Corporate Responsibility and Triple-Bottom-Line Reporting, [Internet document] [cited 27 November 2005], available from http://www.aph.gov.au/Senate/committee/corporations_ctte/corporate_responsibility/submissions/sub108.pdf

Campbell, D., B. Craven, and P. Shrives, 2003, Voluntary social reporting in three FTSE sectors: a comment on perception and legitimacy, *Accounting, Auditing and Accountability Journal* 16(4), 558-581.

Cavana, R.Y., B.L. Delahaye, and U. Sekaran, 2001, *Applied business research: qualitative and quantitative research,* (John Wiley and Sons Ltd, Milton).

Cerin, P., 2002, Communication in corporate environmental reports, *Corporate Social Responsibility and Environmental Management* 9(1), 46-66.

Commonwealth of Australia. 1999, Environmental Reporting, in Report on matters arising from the Company Law Review Act 1998, report prepared by Parliamentary Joint Committee on Corporations and Securities, (Commonwealth of Australia, Canberra).

Corp Rate, An Assessment of Australia"s Top 50 Listed Companies in 2003, [Internet document] [cited 22 July 2005], available from www.acfonline.org.au/uploads/res_corp_rate_report.pdf

Cowen, S.S., L.B. Ferreri, and L.D. Parker, 1987, The impact of corporate characteristics on social responsibility disclosure: a typology and frequency-based analysis, *Accounting, Organizations and Society* 12(2), 111-122.

Deegan, C., 2002, The legitimising effect of social and environmental disclosures - a theoretical foundation, *Accounting, Auditing and Accountability Journal* 15(3), 282-311.

Deegan, C. and B. Gordon, 1996(3), A study of the environmental disclosure practices of Australian corporations, *Accounting and Business Research* 26, 187-199.

Deegan, C. and M. Rankin, 1996, Do Australian companies report environmental news objectively? An analysis of environmental disclosures by firms prosecuted successfully by the Environmental Protection Authority, *Accounting, Auditing and Accountability Journal* 9(2), 50-67.

Deegan, C. and M. Rankin, 1997, The materiality of environmental information to users of annual reports, *Accounting, Auditing and Accountability Journal* 10(4), 562-583.

Deegan, C., M. Rankin, and P. Voght, 2000, Firms disclosure reactions to major social incidents: Australian evidence, *Accounting Forum* 24(1), 101-130.

Department of the Environment and Heritage, The State of Sustainability Reporting in Australia 2005, [Internet document] [cited 24 November 2006], available from www.environment.gov.au/settlements/industry/corporate/-reporting/pubs/survey(2005).pdf

Dowling, J. and J. Pfeffer, 1975, Organisational legitimacy: Social values and organisational behaviour, *Pacific Sociological Review* 18(1), 122-36.

Environment Australia, Say no to plastic bags – behavioural change campaign, [Internet document] [cited 12 September 2005], available from www.deh.gov.au/settlements/publications/waste/plastic-bags/ara/index.html#say

Ethical Investment Association 2004, *Socially responsible investment in Australia – 2004*, report prepared by Deni Greene Consulting Services, October 2004.

Frost, G.R., 2007, The introduction of mandatory environmental reporting guidelines: Australian evidence, *ABACUS* 43(2), 190-216.

Frost, G.R. and T.D. Wilmshurst, 2000, The adoption of environment-related management accounting: an analysis of corporate environmental sensitivity, *Accounting Forum* 24(4), 344-365.

Ghanbari Parsa, A.R. and M. Akhavan Farshchi, 1996, Environmental regulations and the real estate industry, *Property Management* 14(1), 6-23.

Gibson, R. and J. Guthrie, 1995, Recent environmental disclosures in annual reports of Australian public and private sector organisations, *Accounting Forum* 19(2/3), 111-127.

Gray, R., R. Kouhy, and S. Lavers, 1995, Corporate social and environmental reporting: a review of the literature and a longitudinal study of UK disclosure, *Accounting, Auditing and Accountability Journal* 8(2), 47-77.

Greenberg, J., 1987, The college sophomore as guinea pig: setting the record straight, *Academy of Management: the Academy of Management Review* 12(1), 157-159.

Guthrie, J. and L.D. Parker, 1990, Corporate social disclosure practice: a comparative international analysis, *Advances in Public Interest Accounting* 3, 159-175.

Hackston, D. and M.J. Milne, 1996, Some determinants of social and environmental disclosures in New Zealand companies, *Accounting, Auditing and Accountability Journal* 9(1), 77-108.

Hughes, S.B., A. Anderson, and S. Golden, 2001, Corporate environmental disclosures: are they useful in determining environmental performance? *Journal of Accounting and Public Policy* 20, 217-240.

Krippendorf, K., 1980, *Content analysis: an introduction to its methodology*, (Sage Publications, London).

Lindblom, C.K., 1994, The implications of organisational legitimacy for corporate social performance and disclosure, Paper presented at The Critical Perspectives on Accounting Conference, New York.

Mathews, M.R., 1997, Twenty-five years of social and environmental accounting research: is there a silver jubilee to celebrate? *Accounting, Auditing and Accountability Journal* 10(4), 481-531.

McMurtrie, T., 2005, Factors influencing the publication of social performance information: an Australian case study, *Corporate Social Responsibility and Environmental Management* 12, 129-143.

Neu, D., H. Warsame, and K. Pedwell, 1998, Managing public impressions: environmental disclosures in annual reports, *Accounting, Organizations and Society* 23(3), 265-282.

O'Donovan, G., 1999, Managing legitimacy through increased corporate environmental reporting: An exploratory study, *Interdisciplinary Environmental Review* 1(1), 63-99.

O'Donovan, G., 2002, Environmental disclosures in the annual report – Extending the applicability and predictive power of legitimacy theory, *Accounting, Auditing and Accountability Journal* 15(3), 344-371.

O'Dwyer, B., J. Unerman, and E. Hession, 2005, User needs in sustainability reporting: perspectives of stakeholders in Ireland, *European Accounting Review* 14(4), 759-787.

Parliamentary Joint Committee on Corporations and Securities, 2006, Corporate Responsibility: Managing Risk and Creating Value, (Commonwealth of Australia, Canberra).

Patten, D.M., 1992, Intra-industry environmental disclosures in response to the Alaskan oil spill: a Note on legitimacy theory, *Accounting, Organizations and Society* 17, 471-475.

Patten, D.M., 2002, Media exposure, public policy pressure, and environmental disclosure: an examination of the impact of tri data availability, *Accounting Forum* 26, 152-171.

Possingham, H. and T. Bildstein, 2003, The end of land clearing, *Australasian Science* 24, 27-30.

Roberts, C.B., 1991, Environmental disclosures: a Note on reporting practices in mainland Europe, *Accounting, Auditing and Accountability Journal* 4, 62-71.

Roberts, R.W., 1992, Determinants of corporate social responsibility disclosure: an application of stakeholder theory, *Accounting, Organizations and Society* 17, 595-612.

Rockness, J.W., 1985, An assessment of the relationship between US corporate environmental performance and disclosure, *Journal of Business, Finance and Accounting* 12, 339-354.

Shocker, A.D. and S.P. Sethi, 1974, An approach to incorporating social preferences in developing corporate action strategies, in: S.P. Sethi, eds, *The unstable ground: corporate social policy in a dynamic society*, (Melville Publishing, Los Angeles, CA), 67-80.

Smith, M.D. and R.S. Krannich, 2000, Culture Clash revisited: newcomer and longer-term residents attitudes toward land use, development, and environmental issues in rural communities in the Rocky Mountain West, *Rural Sociology* 65, 396-421.

Tilt, C.A., 1994, The influence of external pressure groups on corporate social disclosure: some empirical evidence, *Accounting, Auditing and Accountability Journal* 7, 47-72.

Wartick, S.L. and J.F. Mahon, 1994, Toward a substantive definition of the corporate issue construct: a review and synthesis of the literature, *Business and Society* 33, 293-311.

Wilmshurst, T.D. and G.R. Frost, 2000, Corporate environmental reporting: a test of legitimacy theory, *Accounting, Auditing and Accountability Journal* 13, 10-26.

Zéghal, D. and S.A. Ahmed, 1990, Comparison of social responsibility information disclosure media used by Canadian firms, *Accounting, Auditing and Accountability Journal,* 3, 38-53.

Table 1: Ratings and voluntary environmental disclosure word counts of sample companies

Companies	Corp Rate environmental performance rating	Corresponding Likert Scale attitude rating	Voluntary environmental disclosure word count
Company A	43	3	792
Company B	32	2	420
Company C	38	3	442
Company D	22	2	959
Company E	42	3	947
Company F	25	2	854
Company G	35	3	890
Company H	52	4	659
Company I	25	2	377
Company J	20	2	440

Table 2: Summary of subjects' perceptions of environmental performance and Wilcoxon Signed Ranks test statistics

	Very Bad	Bad	Slightly Bad	Slightly Good	Good	Very Good	Z	Asymp. Sig.
Company A	0	1	8 [a]	11	4	1	-3.460	0.001*
Company B	1	0 [a]	0	2	9	13	-4.444	0.000*
Company C	0	1	1 [a]	8	11	4	-4.219	0.000*
Company D	0	0 [a]	5	8	8	4	-4.412	0.000*
Company E	0	0	0 [a]	7	10	8	-4.434	0.000*
Company F	0	1 [a]	0	5	9	10	-4.354	0.000*
Company G	0	0	3 [a]	10	12	0	-4.235	0.000*
Company H	0	3	1	12 [a]	6	3	-0.719	0.472
Company I	1	0 [a]	3	12	8	1	-4.381	0.000*
Company J	1	1 [a]	4	12	4	3	-4.270	0.000*
TOTALS	3 (1.2%)	7 (2.8%)	25 (10%)	87 (34.8%)	81 (32.4%)	47 (18.8%)		

[a] Corresponding Corp Rate Rating
*Asymp Sig. <0.001

Table 3: Summary table of subjects' ratings for each company and mean ranks

	Subjects' ratings compared with Actual Environmental Performance Rating (mean ranks in brackets)			
	Lower	Same	Higher	Corp Rate
Company A	1 (6.50)	8	16 (9.16)	43
Company B	1 (1.00)	0	24 (13.50)	32
Company C	1 (5.00)	1	23 (12.83)	38
Company D	0 (6.50)	0	25 (13.00)	22
Company E	0 (0.00)	0	25 (13.00)	42
Company F	0 (0.00)	1	24 (12.50)	25
Company G	0 (0.00)	3	22 (11.50)	35
Company H	4 (8.88)	12	9 (6.17)	52
Company I	1 (2.50)	0	24 (13.44)	25
Company J	1 (3.00)	1	23 (12.91)	20
TOTAL	9 (3.6%)	26 (10.4%)	215 (86%)	N/A