The Economic Consequences of Voluntary Environmental Information Disclosure

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Abstract: A significant body of accounting and finance literature has witnessed an increase in the demand for company's environmental information over the past few decades. Using data of Australian companies from 1998 to 2000, this study provides an analysis of environmental disclosure in companies' annual reports. The evidence indicates that companies do respond to the increased demand for environmental disclosure by providing more environmental-related information in their annual report. Although the requirement to disclose environmental information in annual reports has not kept pace with the legislative reform, there has been a significant increase of these disclosures from 1998 to 2000. We also find that most of the disclosures are covered in the Director's Report across industries. This paper also evaluates the economic consequences of these disclosures. The importance of the environmental disclosures to the value of the company is examined by investigating the relationship between the environmental information disclosed in the annual report and the company's share price.

Keywords: Environmental information; Share price; Voluntary disclosure

1. INTRODUCTION

With the increasing importance of environmental issues internationally, there is also an increasing trend for organisations to provide information regarding the environmental implications of their operations. This movement towards environmental reporting has become particularly apparent within Australia and throughout the world since the early 1990s.

The demand for information regarding corporate environmental responsibility comes from many different interested parties. Mastrandonas and Strife (1992) find that investors and other stakeholders are demanding more disclosure of company environmental information because of their concerns about the magnitude of costs and liabilities associated with environmental issues. As a result, we have witnessed an increase in the environmental disclosure requirements of public companies by the Securities and Exchange Commission (SEC) in recent years. In June 1993, the SEC issued Staff Accounting Bulletin 92 (SAB 92), which dictates the increase and more prominent disclosures of existing and potential environmental liabilities. Additionally, companies in the US are also experiencing increased disclosure pressures from the Environmental Protection Agency (EPA).

In Australia, the informational needs of stakeholders have also been canvassed in a report issued by the Environmental Accounting Task Force (EATF) in October 1996, entitled *Corporate Reporting – the Green Gap*. This report details that a majority of annual report user groups do demand information about the environmental performance of Australian corporations and that they seek such information from the organisation's annual report.

The increase in demand for such environmental information has led to more companies releasing the requested information to the public. Although the volume of environmental legislation in Australia has increased dramatically in the last few decades (Bates, 1995), the requirement to disclose environmental information within annual reports has not kept pace with the legislative reform. The reporting of environmental issues in Australian companies annual reports remains predominantly voluntary (Deegan and Rankin, 1996).

This study aims to examine the importance of environmental disclosure to the value of the company by investigating whether there is a relationship between the environmental information disclosed in the annual report and the company's share price.

2. LITERATURE REVIEW

Disclosure of non-financial information has attracted much attention from companies, investors, governments, standard setters as well as academia over the past few decades. Traditionally, environmental disclosure constitutes part of what people frequently label as social responsibility and past studies have witnessed an increase in social responsibility disclosures made by corporations since 1971 (Beresford and Feldman (1976), Abbott and Monsen (1979)). The first publication specifically on the Corporate Social Responsibility (CSR) field dates back to 1953, with Bowen's work on "Social responsibilities of the businessman".

2.1 Review of Social Responsibility Disclosures

Corporate Social Responsibility (CSR) has been defined in several ways in the literature. In general, the social responsibilities of a firm seem to arise from the intersection (and compatibility) of the political and cultural systems with the economic system (Jones, 1983). According to Davis (1975), social responsibility is also seen as a consequence of and an obligation following from the unprecedented increase of firms' social power (as tax payers, recruiters, etc.). Frederick et al. (1992) claim that a firm is not responsible to its shareholder (owner) but to all stakeholders (consumers, employees, creditors, etc.) whose contribution is necessary for a firm's success. Thus, CSR means that corporations should be held accountable for any of its actions that affect people, communities and the environment within which those people or communities live.

One of the earliest studies on social responsibility disclosure is Beresford and Feldman (1976). They report that the percentage of Fortune 500 Companies making social responsibility disclosures in annual reports increased by 10 percent from 1974 to 1975. Their results are consistent with a survey published by The Public Relations Journal in 1979, which indicates that about half of Fortune 500 industrials regularly include social responsibility information during the 5-year period ending in March 1978.

Trotman (1979) initiates the study of social responsibility disclosures in Australia. Based on a sample of the largest 100 Australian companies between 1967 and 1977, he finds evidence of an increase in corporate social disclosures over that time period. He explains this increase as a strategy to improve the company's public image and gain public acceptance. Following Trotman (1979), using data of 50 Australian companies with reporting dates from 1969 to 1978, Kelly (1981) finds that social responsibility disclosure practices have also increased increase throughout that period.

Guthrie and Parker (1991) analyse the corporate and social disclosure practice in the US, the UK, and Australia in 1983. They review and document disclosures relating to the environment, energy, human resources, products, community involvement, and other. They find that corporate social disclosures in Australia are relatively limited compared to the US and UK.

2.2 The relationship between Corporate Social Responsibility (CSR) and economic performance

2.2.1 Theoretical view of CSR and economic performance

Those who have theorised a negative relationship between social responsibility and economic performance argue that a high investment in social responsibility results in additional costs. According to McGuire et al. (1988), the added costs may result from actions such as "making extensive charitable contributions, promoting community plans, and others" (p. 855). These added costs may therefore put a firm at an economic disadvantage compared to other less socially responsible firms.

In contrast, others have argued for a positive association between social responsibility and economic performance. McGuire et al. (1988) argue that CSR activities may improve a firm's reputation and relationships with bankers, investors, and government officials. Improved relationship with those parties may well be translated into economic benefits. According to Spicer (1978), Rosen et al. (1991), and Pava and Krausz (1996), a firm's CSR behaviour seems to be a factor that influences banks and other institutional investors' investment decision. Thus, a high CSR profile may improve a firm's access to sources of capital.

2.2.2 Prior Empirical Research

The empirical research into the effect of corporate responsibility on firms' economic performance has produced mixed results. Belkaoui (1976) investigates the information content of pollution control disclosures. His results suggest a positive relationship between economic performance and social responsibility. Other studies produce results consistent with the notion that corporate responsibility activities impact on the financial market (Anderson and Frankle, 1980; Shane and Spicer, 1983).

However, Frankle and Anderson (1978) reject Belkaoui's (1976) interpretation and find that non-disclosing firms consistently perform better than disclosing firms in the market. Additionally, Alexander and Bulcholz (1978) and Abbott and Monsen (1979) find no significant relationship between a corporation's level of social responsibility activities and stock market performance.

The empirical research into the relationship between corporate social responsibility and economic performance is far from conclusive. In a more recent study, Balabanis, Phillips and Lyall (1998) do not find any empirical support for the hypothesis of "ethical investors", which suggests that the capital market rewards socially responsible firms. Quite the opposite, their findings suggest that the capital market seems to be rather indifferent to firms that undertake some CSR activities. Even more so, their results show that the degree to which a firm discloses CSR information negatively impacts on capital market participants.

2.3 Environmental Disclosures and The Expectation Gap

In Australia, as is typically the case internationally, there is a general absence of regulation that specifically requires organisations to publicly disclose information about their environmental performance. The lack of environmental disclosure regulation, however, does not mean that there is no demand for and supply of such information. The voluntary disclosure of environmental information by business firms has been subject to substantial academic interest in the past several decades.

Deegan and Gordon (1996) surveyed the environmental reporting practices of a random sample of 197 Australian companies from 50 industries in 1991. They document that 71 firms (36 per cent of their sample) provided environmental disclosures, although the disclosures were biased towards those that are favourable to the corporate image. These environmental disclosures increased significantly from 1980 to 1991, and so did the community's apparent awareness of environmental issues.

In the US, an annual survey conducted by the Investor Responsibility Research Center (IRRC) in 1998 shows that more companies are publishing environmental reports than previously. Of the 191 S&P 500 companies that responded to the survey, 61% publish a public environmental report.

While there is an increase in the supply of environmental information in the companies' annual report, research has also found a demand for environmental performance information that is not being met by current reporting practices (Deegan and Rankin, 1996). In other words, there exists a significant '*expectation gap*' between the users and preparers of financial statements. Specifically, the information needs of stakeholders have been canvassed in a 1996 report issued by the Environmental Accounting Task Force (EATF), entitled *Corporate Reporting – the Green Gap*. This report details that a majority of annual report user groups (notably shareholders and individuals within organisations with a review or over-sight function) do demand information about the environmental performance of Australian corporations and that they seek such information from organisations' annual reports.

2.4 The Value Relevance of Environmental Information

With the increase in separate environmental disclosure, it is not surprising that this topic has recently been the subject of increased academic attention. Several studies, which will be presented below, show that the capital market reacts to the disclosure of various forms of the environmental information.

Freedman and Stagliano (1991) report that the stock price of firms in the cotton-textile industry is adversely affected by the Supreme Court's decision that validated a more stringent Occupational Safety and Health Administration (OSHA) standard for cotton dust emission. They decompose a sample of 27 companies into groups based on firms' prior disclosure of the potential impact of the standard on operations and find that the share price of firms that provided no disclosure, only narrative disclosure, or which simply reported that the standard would have only immaterial effects on operations, declined relative to companies that disclosed quantitative information about the standard's impact.

Blacconiere and Patten (1994) examine the market reaction to other chemical firms of the catastrophe of Union Carbide's chemical leak, which resulted in approximately 4,000 deaths and 200,000 injuries in Bhopal, India in December 1984. The study indicates evidence of a significant intra-industry reaction. However, firms with more extensive environmental disclosures in their financial report prior to the chemical leak experienced a less negative reaction than firms with less extensive disclosures. The result suggests that investors interpreted such disclosures as a positive sign of the firm managing its exposure to future regulatory cost.

Barth and McNichols (1994) examine the value relevance of non-financial indicators of environmental (Superfund) remediation costs. They introduce non-financial environmental indicators into an accounting identify-valuation model for a sample of firms facing significant potential costs for the clean up of Superfund sites. They find a negative relation between a non-financial measure, the number of superfund sites for which a firm was a Potentially Responsible Party (PRP), and share price. This result suggests that investors assess an unaccrued corporate liability and discount the share price accordingly.

Shane (1995) investigates shareholder wealth effects of changes in environmental regulation ushered in with the Clean Air Act Amendments of 1970. His sample of 47 firms that employed polluting production processes experience an estimated 12 percent risk-adjusted decline in market value at the time leading to the change in environmental regulation. The statistically significant decline in shareholder wealth is consistent with market prices impounding information about expected compliance costs at a stage in the regulatory process earlier than that documented in prior literature.

2.5 Summary

The existing research and evidences are consistent with the theory that investors and financial analysts find environmental information relevant and sufficiently reliable to be incorporated into the financial assessment of the firm. While the empirical evidence on the increase in value relevance of environmental information is voluminous, the studies on the impact of the voluntarily disclosure of environmental information in the annual report on firm value are still lacking. To the best of our knowledge, no studies have examined the impact of the annual report's disclosure of environmental information on the share price. Therefore this research aims to fill the gap.

3. DATA

The data are drawn from the Annual Report Collection (Connect4) database, which comprises a selection of annual reports of the top 500 Australian companies listed on the Australian Stock Exchange. The initial list of the companies that disclose environmental information in their annual report is obtained by reviewing all the annual reports that are available covering the period of January 1998 to December 2000. The review process includes any disclosures pertaining to any organizations' interactions with the environment (following Deegan and Rankin's (1996) analysis). This includes the installation of environmentally friendly machinery, admission of pollution emissions, incurrence of fines relating to environmental misdemeanours, and the like.

Firm specific information such as the share price and the announcement dates, as well as the Australian market index and any subsequent environmental news prior to the release of the annual report are obtained from DATASTREAM, and SIGNAL-G Databases. To remain in the sample, the listed companies must have all of these available data during the sample period.

Positive environmental disclosures are defined as information which presents the company as operating in harmony with the environment. Negative environmental disclosures are defined as disclosures that present the company as operating to detriment of the natural resources. These definitions are consistent with those used by Deegan and Gordon (1996).

4. METHODOLOGY

To achieve our research aim outlined in Section 1, we examine the wealth effect of shareholders as a consequence of environmental information disclosures in company's annual report for three portfolios: (1) companies that disclose any environmental information, (2) companies that provide negative environmental disclosure, and (3) companies that provide positive environmental disclosure. The first procedure involves calculating the actual change in return for each security and the market index for Australian Stock Exchange All Ordinaries for day (-45,15).

The expected return for each company is estimated using the market model proposed by Brown and Warner (1980):

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} \quad \text{.... (1)}$$

where the parameter α_i and β_i are estimated over a clean period (-45,-15), and R_{mt} is the market return (ASX All Ord) for the actual day in the event period (-14, 14).

The abnormal return over the event period (-14, 14) are then averaged (AAR) across all firms for each day.

The final step is to cumulate the average abnormal return to produce the cumulative average abnormal return:

$$CAAR = \sum_{-14}^{14} AAR_{it} \quad \text{.... (2)}$$

5. RESULTS

The evidence indicates that companies do respond to the increase in demand of environmental disclosure by providing more environmental-related information in their annual report. Although the requirement to disclose environmental information within annual reports has not kept pace with the legislative reform, there has been a significant increase of these disclosures from 1998 to 2000. While only 34% of companies in 1998 disclosed environmental-related information in their annual reports, these figures increased substantially to 79% in 2000. Across the industries, most of the environmental disclosures are found in the section "Director's Report" of the annual report. Most of the companies report that no environmental regulations have been breached during the financial year.

This paper also evaluates the economic consequences of these disclosures, specifically with the summary statistic CAAR for each of the three portfolios (table 1).

Table 1. Summary statistic of CAAR

CAAR	(-14,-3)	(-2,1)	(-14,14)
Portfolio 1	-0.0027	0.0050	-0.0139
Portfolio 2	-0.0222	0.0054	-0.0442
Portfolio 3	0.0004	0.0045	-0.0095

Figure 1 shows that surrounding the announcement date (-2, 1), there is a CAAR of around 0.5% for all portfolios. However, there is a significant gap between the CAAR for portfolio 2 and 3, indicating that the companies that disclose positive environmental information perform significantly better than the companies that provide negative environmental disclosure.

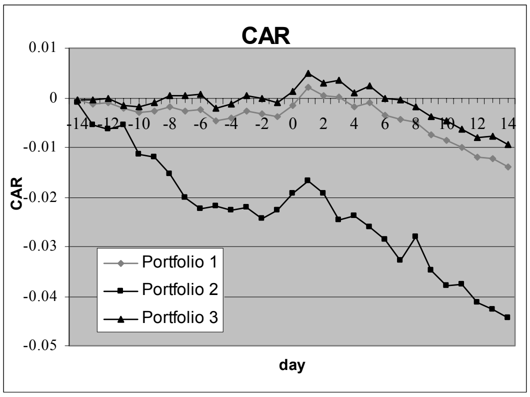

Figure 1. The CAAR graph

6. CONCLUSION

The analyses reported in this paper are aimed at two general concerns. The first is the amount of disclosure of environmental information in the companies' annual report. The results reported here provide convincing evidence that companies do respond to the increased demand for environmental information by investors.

Second, in investigating the effect of these disclosures on the value of the company, we find that companies with positive environmental disclosure perform significantly better in the market than companies that disclose negative environmental information.

The findings of this study will have important implications to standard setters in relation to the disclosure or reporting requirements of a corporation's environmental performance or any environmentally related expenditures or obligations.

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8. REFERENCES

Abbot, W., and R. Monsen, On the measurement of corporate social responsibility: self-reported disclosure as a measure of corporate

social involvement, Academy of Management Journal, 22, 501-15, 1979.
Alexander, G., and R. Bulcholz, Corporate social responsibility and stock market performance, Academy Management Journal, 21, 479-86, 1978.
Anderson, J.C., and A.W. Frankle, Voluntary Social Reporting An Iso-Beta Portfolio Analysis, *The Accounting Review*, 55(3), 467-79, 1980.
Balabanis, G., H.C. Philips and J. Lyall, Corporate social responsibility and economic performance in the top of British companies: are they linked?, *European Business Review,* 98(1), 25-44, 1998.
Barth, M.E., and M.F. McNichols, Estimation and market valuation of environmental liabilities relating to superfund sites, *Journal of Accounting Research,* 32, 1994.
Bates, G.M., *Environmental Law in Australia*, 4th ed., Butterworths, Sydney, 1995.
Belkaoui, A., The Impact of the Disclosures of the Environmental Effects of Organizational Behaviour on the Market, *Financial Management*, 5(Winter), 56-31, 1976.
Beresford, D.R., and S.A. Feldman, Companies increase social-responsibility disclosure, *Management Accounting*, 57(9), 51, 1976.
Blacconiere, W.G., and D.M. Patten, Environmental disclosures, regulatory costs, and changes in firm value, *Journal of Accounting and Economics,* 18, 357-377, 1994.
Bowen, H.R., *Social Responsibilities of the Businessman*, Harper & Row, New York, NY, 1953.
Brown, S.J., and J.B. Warner, Measuring Security Price Performance, *Journal of Financial Economics*, 8, 205-258, 1980.
Davis, K. Five propositions for social responsibility, *Business Horizons*, 18(3), 19-24, 1975.
Deegan, C., and B. Gordon, A study of the environmental disclosure policies of Australian corporations, *Accounting and Business Research*, 26(3), 187-199, 1996.
Deegan, C., and M. Rankin, Do Australian companies report environmental news objectively? An analysis of environmental disclosures by firms prosecuted successfully by the Environmental Protection Authority, *Accounting, Auditing & Accountability Journal,* 9(2), 50-67, 1996.
Frankle, A., and J. Anderson, The impact of the disclosure of the environmental effects of the organizational behaviour on the market comment, *Financial Management*, 21(Summer), 92-107, 1978.
Frederick, W.C. et al., *Business and Society*, McGraw-Hill International, New York, NY, 1992.
Freedman, M., and A.J. Stagliano, Differences in Social-Cost Disclosures: A market test of investor reactions, *Accounting, Auditing & Accountability Journal,* 4(1), 68-83, 1991.
Guthrie, J. and L. Parker, Corporate social disclosure practice: A comparative international analysis, *Advances in Public Interest Accounting*, 159-76, 1991.
Jones, T., An integrating framework for research in business and society: a step forward the elusive paradigm?, *Academy of Management Review*, 8, 559-64, 1983.
Kelly, G.J., Australian social responsibility disclosure: some insights into contemporary measurement, *Accounting and Finance*, February, 97-107, 1981.
Mastrandonas, A., and P.T. Strife, Corporate Environmental Communications: Lessons from Investors, *Columbia Journal of World Business*, 27(3,4), 234-41, 1992.
McGuire, J., A. Sundgreen, and T. Schneeweis, Corporate social responsibility and firm financial performance, *Academy of Management Journal*, 31(4), 854-72, 1988.
Pava, M.L., and J. Krausz, The association between corporate social-responsibility and financial performance – the paradox of social cost, *Journal of Business Ethics*, 15(3), 321-57, 1996.
Rosen, B.N., D.M. Sandler, and D. Shani, Social issues and socially responsible investment behavior – a preliminary empirical investigation, *Journal of Consumer Affairs*, 25(2), 221-34, 1991.
Shane, P., and B. Spicer, Market Response to Environmental Information Produced Outside the Firm, *The Accounting Review*, 58(2), 521-38, 1983.
Shane, P.B., An investigation of shareholder wealth effects of environmental regulation, *Journal of Accounting, Auditing & Finance,* 10(3), 485-521, 1995.
Spicer, B. Investors, corporate social performance and information disclosure: an empirical study, *Accounting Review*, 53, 94-111, 1978.
Trotman, K.T., Social responsibility disclosures by Australian companies, *The Chartered Accountant in Australia*, March, 24-28, 1979.