

The Extent and Determinants of Disclosure of Global Reporting Initiative Guidelines: Australian Evidence

Theo Christopher
Mirela Filipovic
Edith Cowan University

Abstract

This research paper examines the extent and determinants of disclosure of the Global Reporting Initiative (GRI) in a sample of Australian listed companies. The extent of disclosure was found to be extremely low and selective, differ across industries and couched in general terms. Positive Accounting Theory was used to formulate hypotheses to GRI disclosure in the 2004 annual report of 450 companies listed on the Australian Stock Exchange. It was hypothesised that GRI disclosure would be positively related to ownership, leverage, big four audit firms (BFAFs), size of the firm, profitability and industry type. A multivariate regression analysis was completed and the results supported a significant positive relation with ownership, leverage, size of the firm and industry type. The remaining two variables, BFAFs and profitability, were not found to be significantly related to GRI disclosure but supported a positive relationship.

Introduction

The present study has two objectives. The first objective is to measure the extent of disclosure of the Global Reporting Initiative (GRI) in a sample of Australian listed companies in their 2004 year end annual reports. The second objective is to explain, using the positive accounting theory framework, key characteristics of Australian listed companies in the sample that explain GRI disclosure within their 2004 annual reports.

The motivation for this research is its practical and theoretical significance. First, it will measure the level of GRI reporting across different companies and industries for a large sample size comprising companies of all sizes and utilising a stratified sampling method—a more representative sampling method than previously undertaken. Second, it aims to explain the reasons for the differences in GRI disclosure by linking these to the positive accounting theory framework. This will be of particular significance because previous studies have not used positive accounting theory to explain the

differences in the level of reporting on the GRI per se. Third, the results will be of interest to the regulators of accounting information who are currently investigating the possibility of sustainability disclosure rules. Fourth, the results will also be of interest to lenders of companies that report GRI information. Finally, investors will gain insight into the disclosures/reasons in annual reports for this voluntary information. The sum total of these practical and theoretical reasons add to the body of literature in the area of sustainability reporting in Australia.

The remainder of this paper is organised as follows. Section two discusses the GRI. Section three presents the most recent and relevant studies on the extent and type of GRI reporting and the characteristics of companies reporting this information. Section four addresses the theoretical framework and the development of hypotheses. Section five outlines the research methodology for the study. Section six presents the GRI disclosure analysis, with section seven presenting the multiple regression results. Section eight concludes the study by summarising the main findings and presenting the limitations, implications and some suggestions for future research.

The Global Reporting Initiative

The summary of core indicators of the GRI appears in the paper's appendix. The GRI was one of many sustainability indexes introduced to standardise sustainability reporting (Deegan, 2006). This initiative was introduced by the United Nations Environment Program (UNEP) and Global Compact in response to the growing trend in sustainability reporting. The GRI organisation is backed by the UN and includes members from all areas including trade unions, campaign groups, the accountants and academics. These members are responsible for the development of guidelines that are applicable to all organisations worldwide (Maitland, 2002). The initial guidelines were released in draft format in March of 1999. They have since been twice reviewed, in 2000 and 2002. The guidelines were also to be reviewed in 2006 (GRI, 2005). Since their introduction, the GRI guidelines have gained high praise and a reputation as the most respected and comprehensive guidelines for sustainability reporting (Maitland, 2002) and the preferred format in Australia (Australian Government Department of the Environment and Heritage, 2004, 2005; Frost *et al.*, 2005; KPMG Survey into Corporate Social Responsibility, 2005). For these reasons the GRI was used to measure the level of sustainability reporting in this study.

Literature Review

This literature review examines a range of recent studies on sustainability reporting and identifies a research gap. This gap in the literature relates to the lack of a theoretical framework used to explain sustainability reporting per se together with a bias towards the inclusion of larger companies in the samples used.

Recent and Relevant Studies on Sustainability

The Extent and Type of Sustainability Reporting

The KPMG Survey into Corporate Social Responsibility (2005) found that sustainability reporting had increased since 2002 with economic (74%) and ethical (53%) considerations being the key drivers. Other motivating factors included innovation and learning (53%), employee motivation (47%), risk management or risk reduction (47%), access to capital or increased share value (39%), brand reputation (27%), market position improvement (21%), strengthened supplier relationship (13%), cost savings (9%), improved relationship with government authorities (9%) and other (11%).

The survey consisted of the top 250 companies of the Global Fortune (G250) and top 100 (N100) companies in each of the following countries: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Japan, the Netherlands, Norway, South Africa, Spain, Sweden, UK and USA. The information was collected for the 2003/2004 financial year and companies that provided separate sustainability reports and sustainability sections within their annual reports were considered.

KPMG found that the GRI was the most commonly used format with 40 percent of companies choosing to report sustainability using the GRI. The level of reporting differed between the G250 and the N100 companies, with the G250 companies reporting more information than the N100. The reporting across countries also differed, with Japan and UK leading the way in sustainability reporting. The level of reporting also differed across the sectors. In the G250 companies, the sectors reporting the most were finance, securities and insurance, electronics and computers, and automotive. In the N100, the finance, securities and insurance sectors reported the most, followed by the trade and retail sector and utilities. The survey also found that the major (Big 4) accountancy firms, consisting of PricewaterhouseCoopers, KPMG, Ernst & Young and Deloitte Touche Tohmatsu, dominated the assurance market with 58 percent of sustainability information being audited by these firms.

Kolk's (2005) study found a significant rise for Japan and Europe in sustainability reporting amongst multinational companies. Approximately half of the companies in this study disclosed information on sustainability. Of those, one third of the reports were also externally verified. It was further noted that differentiation existed on sustainability disclosures between countries, with Europe and Japan rating highest.

The Australian Government Department of the Environment and Heritage (2005) study included 486 companies and consisted of companies listed on the S&P/ASX (Australian Stock Exchange) 300 index, the top 100 private companies and the top 100 unlisted public companies. Companies in the sample were sent a questionnaire and an examination of their websites was carried out. Triple bottom line reports, environmental reports and community reports were all considered to be

sustainability reports. Further, both standalone and sustainability information provided in annual reports were considered.

The questionnaire response rate was 28 percent, of which 76 companies provided their sustainability information whilst 62 companies elected not to provide their sustainability information. The findings indicated that 61 percent of the 76 companies that elected to provide their sustainability information were providing sustainability reports, and 24 percent of the total companies (486) were producing sustainability reports.

The findings also indicate an increase in sustainability reports. Most companies providing sustainability information were disclosing this information within their standalone reports as opposed to annual reports. It was also noted that 55 percent of 76 companies providing sustainability information were from the mining and manufacturing industries and the highest rate of sustainability reporting (46%) was by foreign-owned proprietary companies.

The study by the Australian Government Department of the Environment and Heritage (2004) found similar results. Out of 509 companies in their study, 23 percent reported on sustainability by providing standalone reports, information within their annual reports or information on their websites.

Standalone reports were the most commonly used in providing information on sustainability, with 73 percent of companies disclosing their sustainability information in these reports. Annual reports were used by 18 percent of companies and nine percent used their websites to report the information. The percentage of sustainability reporting and verification had increased. However, the increase in external verification was mostly for standalone reports and few companies obtained verification for sustainability information within the annual reports and the websites.

Mining and manufacturing companies provided the most information with 58 percent reporting on sustainability. Foreign-owned companies were also more likely to report on sustainability than those that were Australian-owned. Companies listed on the S&P/ASX reported the most with 36.2 percent, followed by public non-listed that are foreign-owned (30.2%), proprietary that are foreign-owned, public non-listed that are Australian (4.3%) and proprietary that are Australian-owned (1.7%). Out of the 509 companies researched, 40 used the GRI.

Whilst providing valuable information on the extent and type of sustainability reporting, the studies outlined in this section did not attempt to explain the level of sustainability disclosures. These studies looked at selected top companies and not all companies, thus results may be biased towards larger companies. This is problematic considering that financial regulators in Australia are currently considering introducing a standard on sustainability. Compliance with the new sustainability standard would most likely be required for all companies providing annual reports. Thus regulators need more information on sustainability reporting by Australian companies and not

just the top 500 companies. In addition, through the use of content analysis, a wider sample could have been considered.

Characteristics of Companies Reporting Sustainability Information

The only study to look at the characteristics of companies reporting sustainability information was by Frost *et al.* (2005). The study consisted of three parts. In the first part, the current sustainability practices were surveyed and it was found that only 24 out of the top 500 Australian listed companies published a discrete report on sustainability. Of those 24 companies reporting on sustainability, the information provided appeared biased in the sense that it focused on the positives with negative information receiving little if any attention despite 54 percent of these companies having some form of audit or assurance statement attached to it. Frost *et al.* (2005) found that larger companies tended to report more triple bottom line while companies that operated in certain sectors such as capital goods and material industries were more likely to disclose sustainability information in line with the GRI.

In the second part, Frost *et al.* (2005) looked at the 24 companies identified in part one and compared these to all the companies listed on the ASX, and also to the top 100 and 300 listed firms ranked by market capitalisation. They compared various ratios on rate of return measures and found that the sample companies had exceptional performance on cash flow, gearing, debt servicing and valuation multiples. It should be noted, however, that specific industries such as the capital goods and material industries and larger firms dominated the sample.

In the third part of the study Frost *et al.* (2005) demonstrate a method they had developed for ranking the top 100 Australian listed companies by using the GRI indicators to identify the level of reporting on sustainability. They also compared the index scores with the financial and market characteristics in order to explain the link between the level of reporting and the company's performance. In addition, they attempted to link other performance measures such as market-adjusted returns and distress probabilities. The results indicated a negative association between sustainability disclosures and market adjusted returns and a strong positive relationship between the level of disclosure and operating cash flow to assets, working capital to assets, retained earnings to assets, assets backing per share, debt service capacity and capital expenditure. There was a negative association between sustainability disclosures and cash resources to total assets and the price to book value ratios. The correlation between the distress probabilities and the level of sustainability indicated a significant negative relationship.

Whilst this study was extensive and provided a variety of useful information on the level of sustainability disclosure, it did not apply any theoretical framework nor develop hypotheses to attempt to explain why those particular outcomes were occurring. The study was exploratory as it used all ratios and tried to explain which were and which were not associated with disclosure of sustainability information;

however, it provided no explanation as to why certain variables were associated with disclosure whilst others were not. Because the study consisted of the top 500 Australian listed companies, the results may be biased towards large companies and therefore may not be representative of all Australian listed companies. The limitation of this study provides direction to future studies on sustainability disclosures.

Other Studies

Motivation for Disclosure

In Kolk's 2004 article, the companies' motivation for reporting and not reporting were identified. Sustainability-UNEP (1997), as Kolk (2004) discusses, undertook research into the motivation of companies to disclose sustainability information. They interviewed a number of companies in London and found that a series of factors influenced whether a company chooses to disclose sustainability information voluntarily.

Three of the main reasons for reporting on sustainability, according to respondents, were to enhance the ability to track progress against specific targets, have greater awareness of broad environmental issues throughout the organisations and facilitate the implementation of the environmental strategy. For some companies it was the ability to clearly convey the corporate message internally and externally, ability to communicate efforts and standards and improved all-round credibility that influenced them to report on sustainability. For other companies it was the reputation benefits, cost savings, identification, increased efficiency, enhanced business development opportunities and enhanced staff morale that were influencing factors in whether they reported on sustainability.

The reasons for not reporting included doubts over the advantage it would bring to the organisation. Some companies claimed that customers are not interested in sustainability reporting and that sustainability reporting does not increase sales. Other companies stated that there were many other ways of communicating about environmental issues. Some companies also thought that they already had a good reputation for their environmental performance and reporting would not make any difference. For other companies it was too expensive to report and some thought that reporting on these matters could damage the reputation of their company.

Whilst this study provides possible reasons as to why companies might be disclosing sustainability information, it did not look at the actual disclosures or at the characteristics of companies that disclosed. The study was also limited because interview was undertaken as a method of collecting information. A wider sample could have been reached using another method, such as questionnaire. The present study is different because both actual disclosures as well as the characteristics of companies disclosing will be considered, thus users and regulators will be provided with more information.

Standalone Sustainability Reports

There have been other studies in terms of sustainability reporting; however, these studies are different to this research and thus their importance to this study is not directly significant. Studies in this section have been either about standalone sustainability reports or sustainability reporting in general but not specific enough for this study.

This study is only concerned with sustainability reporting in annual reports. As such, studies on standalone sustainability reports are not of great importance to this study because they are considered to be completely different. Standalone sustainability reports are prepared for presenting sustainability information, thus companies that prepare these types of reports are likely to be different to most companies and are likely to report their sustainability information in those reports. Whilst these studies are not directly important, they should nonetheless be briefly discussed as they do provide some information on sustainability reporting. Research on standalone sustainability reports includes studies by Rarr (2002) and Morhardt, Baird and Freeman (2002).

Rarr (2002) investigated the quality and quantity of voluntary environmental disclosures in a study of annual reports and environmental reports of companies. The sample consisted of 425 annual reports and 60 environmental reports of companies listed on the ASX by market capitalisation. The periods looked at were those prior to the release of the GRI guidelines. The findings of the study indicated a trend towards triple bottom line reporting and change to the quality and quantity of environmental information in some categories.

Morhardt *et al.* (2002) undertook a study to examine different sustainability indexes. They scored corporate voluntary reports using different scoring systems to determine if the level of voluntary sustainability reporting varied when a different scoring method was applied. They applied two scoring methods of GRI 2000 and ISO 14031 and discovered that the level of sustainability reporting was considerably lower when using these two scoring methods. A large number of corporate voluntary reports scored below the standards as indicated in GRI and ISO 14031.

The Rarr (2002) study prior to the introduction of the GRI indicated that there was a trend towards this sustainability reporting. Morhardt *et al.* (2002) found that, although companies were reporting on sustainability using the two scoring methods indicated, the companies were disclosing very little information. While their data provided information on trends in reporting it was limited and thus resulted in a number of research gaps. The Rarr (2002) study looked at sustainability prior to the introduction of the GRI, leaving a gap in research as this information does not reflect the current practices but rather past practices, and Morhardt *et al.* (2002) only looked at the sustainability reports not at annual reports.

Other Research

There have been other studies that are significantly different to this project; however, they too have looked at sustainability and should therefore be mentioned. Adams (2004) looked at the actual performance of a company and compared it to the reported performance. Sullivan (2002) looked at sustainability reports and their usefulness. Slater and Gilbert (2004) looked at the usefulness to investors of these reports. Tilt (2001) considered whether corporate environmental policies played a role in what information was disclosed.

Adams (2004) compared the actual sustainability performance of company Alpha to its reported performance. The study found that the actual and reported performances differed significantly. In this study, Adams (2004) compared the reported ethical, social and environmental performance in Alpha's annual report to their performance from other sources. The major concern identified was the *lack of completeness* in reports as Alpha Company often failed to include unfavourable information in their reports.

A study by Sullivan (2002) also found that the current reports lacked consistency in information and data collection and therefore lacked credibility and comparability. Slater and Gilbert (2004) suggest that this type of information proves useless for investors as they are often forced to make decisions based on an incomplete picture of the organisations. They point out that quality sustainability reports could help investors make better decisions by differentiating between those companies that are efficient and positioned well in their market and those that are likely to fail.

Tilt (2001) examined whether corporate environmental policies play a part in how and what information is disclosed and found that environmental policies in Australia contained little information on reporting standards of disclosure. Adams (2004) has argued the need for mandatory sustainability reporting especially for multinational companies. Deegan (2006) has proposed that should sustainability reporting become mandatory this would affect the accountability of management on environmental and social performance and the ability of smaller companies to meet the required cost. Deegan's concern indicates that more research needs to be done for all companies, not just the large ones.

Theoretical Framework and Research Hypotheses

One objective of this study is to use variables from positive accounting theory as well as the review of literature to explain which firms will and which firms will not choose the accounting method of voluntarily disclosing sustainability information. This theoretical framework has not been used in prior studies on voluntary sustainability reporting per se. However, it has been used in other areas of voluntary disclosure including segment reporting (McKinnon & Dalimunthe, 1993), lease disclosures (Bazley Brown & Izan, 1985) and cash-flow statements (Christopher & Hassan, 1996).

Six testable hypotheses were developed and the variables used. Their measurements are presented in Table 1.

Table 1: Variable Definitions

<i>Variable</i>	<i>Expected sign</i>	<i>Measures</i>
<u>Dependent variable</u>		
GRII - disclosure of GRI information	n/a	Aggregate of dichotomous scores for disclosure items in GRI 0 = Non-disclosure 1 = Presence of disclosure item
<u>Independent variables</u>		
1. OWN	(+)	Percentage of ordinary shareholdings held by other than the top 20 shareholders
2. LEV	(+)	Financial leverage: total debt divided by total assets
3. BFAF	(+)	Big 4 audit firms (BFAF) include KPMG, PricewaterhouseCoopers, Ernst & Young and Deloitte Touche Tohmatsu: 1 = auditor, 0 = non-BFAF
4. SIZE	(+)	(a) Market capitalisation: closing share price on the last market trading day of company's financial year multiplied by number of ordinary shares outstanding at the end of the period (b) Reported net profit before abnormal items after tax and less outside equity interests and preference dividends
5. PROF	(+)	Earnings before interest and tax divided by operating revenue
6. INDT	(+)	1 = materials or industrials or energy 0 = other industries

Source: Original table.

Separation of Ownership and Control (OWN)

It is hypothesised that companies with widely held shareholdings are more likely to provide more GRI information within their annual reports than those companies with closely held shareholdings. This is due to the greater separation of decision making that exists when companies have widely held shareholdings (Jensen & Meckling, 1976; Craswell & Taylor, 1992; Roberts, 1992).

In these cases, the agency costs are higher because the agent has greater decision making powers. For this reason, it is expected that the management would elect accounting policy choices that will reduce agency costs. One such choice is providing the principal with additional information on sustainability performance.

In this hypothesis, widely-held shareholdings are indicated where a high percentage of ordinary shares are held by other than the top 20 shareholders. Annual reports are the primary source through which owners can monitor the manager's

performance and so the management is likely to provide the necessary information to demonstrate their performance (Craswell & Taylor, 1992). The following hypothesis is tested to determine if widely held shareholdings increase the level of GRI reporting in annual reports:

H1: *Ceteris paribus, the extent of GRI disclosure in the annual report of Australian listed public companies is positively associated to ownership diffusion.*

Leverage (LEV)

It is hypothesised that companies with high leverage ratios are more likely to disclose GRI information within their annual reports. In cases where companies have higher debt ratios the agency costs of debt may be higher because the agent has decision making powers in relation to more funds. To minimise the agency costs of debt, lenders may impose restrictions on the agents. Due to these restrictions the agents are likely to bond to the interests of the lenders and, in doing so, management may elect accounting policy choices that will reduce the agency cost of debt. One such choice is providing the lenders with additional information on sustainability performance. By providing the information, the agent is disclosing decisions made on the lender's funds, thus adding value to the service the agent provides to the lender. In addition, when the leverage increases, the lenders are likely to demand more information from the management and thus, to satisfy the lenders, management are likely to provide more voluntary information (Deegan, 2001).

The leverage ratio can be calculated in a number of ways. However, in this case, the leverage ratio determined will be debt to total assets. Again, the annual reports are the format through which this information can be communicated (Craswell & Taylor, 1992). Bradbury (1992) found a strong association between the voluntary segment disclosure and leverage. Bazley *et al.* (1985), Gray, Farley and Peirson (1993) and Leftwich, Watts and Zimmerman (1981) found a moderate relationship between the voluntary disclosure of lease, value-added statements and interim reports to the leverage. McKinnon and Dalimunthe (1993) found no significant relationship between leverage and voluntary disclosure of segments. The following hypothesis is tested to determine if high leverage ratios increase the level of GRI in annual reports:

H2: *Ceteris paribus, the extent of GRI disclosure in the annual report of Australian listed public companies is positively associated to financial leverage.*

Big Four Audit Firms (BFAF)

Not many previous studies have linked the audit of BFAFs to voluntary disclosure. Prior studies by Singhvi and Desai (1971), Watts and Zimmerman (1986) and Craswell and Taylor (1992) found that larger audit firms had significant association with voluntary disclosure. According to Craswell and Taylor (1992) large firms fear damaging their reputation and encourage more disclosure. The KPMG (2005) survey also noted that the big accountancy firms dominated the assurance market with 58

percent of sustainability information being audited by these firms. For this reason, it is hypothesised that companies which voluntarily disclose sustainability information in annual reports are positively associated with audit by a BFAF.

This is due to the separation of decision making that exists when companies are not controlled by the principal. The agent's behaviour is monitored by the principal and this results in the agent (management) bonding to the interests of the principal. This means that the agent will act in the interest of the principal. To reduce the agency cost the principal may elect to monitor the agent's performance by demanding audit reports; however, this means that the company will incur monitoring costs. In order to satisfy the principal, the agent is likely to bond with the principal by providing an audit report.

Furthermore, management will elect accounting policy choices that will reduce the agency cost. One such choice is providing the principal with additional information on sustainability performance. In doing so, the agent is likely to use one of the BFAFs as these firms have more resources and expertise and are aware of the importance of this form of disclosure. In addition, good quality external audits safeguard and enhance credibility of financial reports (Ball, Kothari & Robin, 2000; Choi & Wong, 2002). Agents are expected to choose firms with more resources and expertise to provide evidence to owners that the information is credible. Teoh and Wong (1993) have also documented that big audit firms provide better quality service.

Globally, including in Australia, the BFAFs are KPMG, PricewaterhouseCoopers, Ernst & Young and Deloitte Touche Tohmatsu. The following hypothesis is tested to determine if audit by a BFAF influences the company's GRI disclosure in annual reports:

H3: Ceteris paribus, the extent of GRI disclosure in the annual report of Australian listed public companies is positively associated to audit by a big four audit firm.

Size of the Firm (SIZE)

It is hypothesised that larger companies, because of their visibility, are more likely to disclose GRI information in their annual reports than smaller companies. This is due to the political cost that may arise when a company is large. The larger the size of the company the more visible the company becomes to the political pressures (Wong, 1988; Panchapakesan & McKinnon, 1992; Deegan, 2001). From positive accounting theory the political-cost hypothesis predicts that companies under political pressure will adopt policies that decrease their political costs (Watts & Zimmerman, 1986). To avoid these political costs the management is more likely to provide additional GRI information.

Studies by Spicer (1978), Trotman and Bradley (1981), Kelly (1981), Frost *et al.* (2005), KPMG (2005) and the Australian Government Department of the

Environment and Heritage (2004) all found the firm's size was an influencing variable as larger companies tended to provide more voluntary information than smaller companies.

For this hypothesis, two alternative definitions are employed. The size of the firm is calculated first by market capitalisation (closing share price on the last market trading day of company's financial year multiplied by number of ordinary shares outstanding at the end of the period) and second by the reported net profit before abnormal items after tax and less outside equity interests and preference dividends. The following hypothesis is tested to determine if the size of the company influences the level of GRI disclosure in annual reports:

H4: *Ceteris paribus, the extent of GRI disclosure in the annual report of Australian listed public companies is positively associated to firm size.*

Profitability (PROF)

It is hypothesised that companies that voluntarily disclose sustainability information in their annual reports are likely to have higher profitability ratios. This is due to the political cost that may arise when a company is profitable. The more profitable the company the more they become visible to the political pressure (Deegan, 2001; Godfrey & Jones, 1999). From positive accounting theory the political-cost hypothesis predicts that companies under political pressure will adopt policies that decrease their political costs (Watts & Zimmerman, 1986). To avoid these political costs, management is likely to disclose additional GRI information.

Frost *et al.* (2005) found a positive link between those companies that provided voluntary sustainability information and their performance. For this hypothesis, the firm's profitability is calculated by earnings before interest and tax divided by operating revenue. The following hypothesis is tested to determine if there is a link between the company's profitability and the voluntary sustainability disclosure in annual reports:

H5: *Ceteris paribus, the extent of GRI disclosure in the annual report of Australian listed public companies is positively associated to profitability.*

Industry Type (INDT)

It is hypothesised that companies that voluntarily disclose sustainability information in their annual reports are likely to be from materials, industrials and energy sectors. This is due to the political cost that may arise when a company is from one of those industries. Due to the nature of their work, certain industries are more likely to be visible to political pressure, and these include the materials, industrials and energy sectors (Deegan, 2001). From positive accounting theory the political-cost hypothesis predicts that companies under political pressures will adopt policies that decrease their political costs (Watts & Zimmerman, 1986).

Hackston and Milne (1996) found that high profile industries tended to disclose more information. Ness and Mirza (1991) found that companies from the oil industry disclosed more information on their environmental performance. Kelly (1981) also found that operating environment and the industry played a role in voluntary disclosure. A KPMG (2005) study found that, for the G250 companies, the finance, securities and insurance, electronics and computers, and automotive sectors disclosed more than other sectors. This same study found that, for N100 companies, finance and securities and insurance sectors reported the most. In contrast, Frost *et al.* (2005) found that materials, capital goods and energy sectors disclosed more information than other sectors.

For this hypothesis, all sectors that are not materials, industrials and energy sectors are considered *other* sectors. The following hypothesis is tested to determine if companies in the materials, industrials and energy sectors are likely to disclose more GRI information in their annual reports than companies from other sectors:

H6: Ceteris paribus, the extent of GRI disclosure in the annual report of Australian listed public companies is positively associated to materials, industrials and energy sectors.

Research Methodology

Data Source and Sample Selection

The population of companies for this study is contained in the Fin Analysis database. This database was selected over others as it provides detailed financial information for all companies listed on the ASX. The total population of 2004 year ending annual reports consists of ten identifiable sectors including energy, industrials, telecommunication services, utilities, consumer staples, financials, information technology, health care, consumer discretionary and materials. Table 2 contains information on the stratified random sample of 450 annual reports.

Companies with standalone sustainability reports were excluded from this study because these companies are likely to disclose their sustainability information in their standalone reports rather than their annual reports, which was the stated objective of this study. Companies in the sample of the present study were compared to those companies in Frost *et al.* (2005) for the purpose of identifying companies with standalone reports. The initial sample included five companies that provided standalone reports and these companies were systematically replaced. The five companies providing standalone sustainability reports that were excluded from the study included Amcor, Newrest Mining, Bluescope Steel, Henry Walker Eltin Group Limited and Carter Holt Harvey Limited.

Data Collection and Recording Method

Data was collected from the 2004 annual reports of the companies forming the sample contained in the Fin Analysis database. An alternative to this data collection method would have been to use a questionnaire; however, data collection from annual reports is preferred in this instance because of the inherent problems of using questionnaires (De Vellis, 1991; Oppenheim, 1992).

The unweighted dichotomous index was used to score each company against each of the GRI indicators. An alternative to this would have been to use a word or weighted index. However a dichotomous index was preferred in this instance because the study is concerned with the level of disclosure as opposed to the company's importance on disclosed items. An advantage of unweighted index is that *misranking* of disclosure items can be avoided (Marston & Shrives, 1991). However, a disadvantage to this index is that all items are treated equally regardless of the quality of disclosure item (Coy, Tower & Dixon, 1991). This dichotomous index has been used in numerous prior studies on social disclosure, for example by Cooke (1989).

The GRI indicators were added to provide an overall score of the level of sustainability reporting by the selected companies and form the basis of the first objective of the study to be described in section six. Further information on each company was collected from Fin Analysis about the companies in the sample including the company name, the percentage of shareholdings held by the top 20 shareholders, leverage, profitability, size, auditor and the industry to which the company belongs. This information was recorded separately for each company.

Table 2: Population and Sample

<i>Industry</i>	<i>Population</i>	<i>Sample</i>
1. Energy	99	29
2. Industrials	172	52
3. Telecommunication Services	34	9
4. Utilities	18	4
5. Consumer Staples	61	18
6. Financials	263	79
7. Information Technology	140	43
8. Health Care	142	43
9. Consumer Discretionary	168	49
10. Materials	417	124
TOTAL	1514	450

Source: Original table.

Independent Check of Content

Like most other data collection methods, content analysis has a potential weakness. According to Krippendorff (1980), a weakness in content analysis is if only one person is involved in coding of data. To combat the weakness in using content analysis Krippendorff (1980) guidelines were undertaken. An independent person with experience using content analysis was employed to recheck a sample of annual reports. The selected independent person was highly suited for this role having completed an Honours Degree in environmental accounting using content analysis and a Masters in voluntary disclosure of corporate governance information using content analysis and currently undertaking further studies.

The number of annual reports verified by the independent person was 70 (15%). This number, a stratified random sample, was considered reasonable given the time and cost constraint for this study. The initial results indicated that there were a small number of annual reports with variance (2%) in content analysis. This indicated a 98 percent agreement on the level of disclosure. After further discussions and clarifications about the content analysed, as suggested by Krippendorff (1980), 100 percent agreement was reached on the 15 percent of annual reports checked. The independent check confirmed the results were not affected by the weakness in content analysis as suggested by Krippendorff (1980).

Research Design

Multivariate and associated tests were employed to test the hypotheses developed in Section 4. The multivariate test used in this case is the Ordinary Least Squares (OLS) regression. The OLS model can be expressed as follows:

$$\text{GRII} = b_0 + b_1 \text{OWN} + b_2 \text{LEV} + b_3 \text{BFAF} + b_4 \text{SIZE} + b_5 \text{PROF} + b_6 \text{INDT} + e_i$$

Where

GRII is total voluntary disclosure of GRI information

B₀ is a constant value

B_n represents the coefficient of predictive values

e_i a residual value

GRI Disclosure Analysis

The results of sustainability disclosure, which relate to the first objective of the study, confirm findings from earlier work by Frost *et al.* (2005) that the number of Australian companies reporting GRI information is low. Only 22.2 percent of the sample of companies reported on GRI information within their annual reports. Of the GRI indicators in the appendix, those not reported on include EN1, EN3, EN4, EN5, EN7, EN10, EN12, EN13, LA3, LA4, HR1, HR3, HR5, HR6, HR7, SO3 and PR3. Also, it was noted that some companies' annual reports were only presenting positive

and very general information. Few companies' annual reports consisted of multiple pages dedicated to GRI reporting.

The results in Table 3 indicate that the total level of GRI reporting differs significantly across different industries as does the number of disclosures per company by those companies disclosing this information. However, there appears to be no correlation with average disclosure per company disclosing. Given this surprising result, together with the extremely low disclosure and selective and general disclosure, the researchers conjecture that management, at least in this study, does not appear to devote the desired attention to disclosure of GRI information—that is, quality disclosure and more disclosure required for the users of this information.

Table 3: Disclosures by Industry

<i>Industry</i>	<i>Total disclosures</i>	<i>No. of companies disclosing</i>	<i>No. of companies in sample</i>	<i>% of companies disclosing</i>	<i>Average disclosure per company disclosing</i>
Consumer Staples	17	10	18	55.55	1.7
Consumer Discretionary	6	6	49	12.24	1
Energy	14	12	29	41.38	1.17
Financials	12	8	79	15.19	1.5
Health Care	6	5	43	11.63	1.2
Industrials	21	16	52	30.77	1.31
Information Technology	1	1	43	2.32	1
Materials	74	39	124	30.64	1.92
Telecommunication Services	3	2	9	22.22	1.5
Utilities	6	1	4	25	6
TOTAL	160*	100	450	22.22	1.60

Source: Original table.

Note: * The GRI consists of core environmental (CE) indicators and core social (CS) indicators. Total disclosure (160) comprised 116 CE indicators and 44 CS indicators.

The disclosure of GRI information by audit firms shown in Table 4 indicates that the level of reporting differs between companies audited by a BFAF and non-BFAF. Those companies audited by a BFAF have a higher percentage of disclosure (28.57%) than firms not audited by a BFAF (14.14%). Furthermore, differences are evident between the BFAFs. Companies audited by KPMG have the highest percentage (32.35%) of disclosure among the BFAFs, followed by Ernst & Young (30.86%), PricewaterhouseCoopers (26.47%) and Deloitte (19.4%).

The results in Table 4 also indicate that the number of disclosures per company differ between companies audited by a BFAF and those not audited by a BFAF. When companies choose to disclose voluntary sustainability information, those audited by a BFAF provide an average of 1.68 disclosures, whilst those not audited by a BFAF tend to provide an average of 1.39 disclosures. Differences also exist between the BFAFs. When companies are audited by Deloitte they provide an average of 2.28 disclosure items, 1.86 by KPMG, 1.55 by PricewaterhouseCoopers and 1.45 by Ernst & Young.

Table 4: Disclosure of GRI Information by Audit Firm

<i>Audit firm</i>	<i>Total disclosures</i>	<i>No. of companies disclosing</i>	<i>No. of companies in the sample</i>	<i>% of companies disclosing</i>	<i>Average disclosure per company disclosing</i>
BFAF	121	72	252	28.57	1.68
Ernst & Young	36	25	81	30.86	1.44
PWC	28	18	67	26.47	1.55
KPMG	41	22	68	32.35	1.86
Deloitte	16	7	36	19.40	2.28
Non-BFAF	39	28	198	14.14	1.39

Source: Original table.

These results are perhaps not surprising given that the BFAFs are considered to be the premium audit firms and, as such, would probably contain specialists in this area. Their larger research departments and world-wide affiliations would also permit them to be more aware of the emerging trend toward sustainability disclosure. This would also be enhanced by the availability of international surveys on corporate sustainability reporting by KPMG (2002, 2005).

Multiple Regression Results

Prior to performing the multivariate analysis a multicollinearity test among the independent variables was undertaken. The results of this test indicated that two variables—SIZE1 and SIZE2—were affected by multicollinearity. Due to these results, it was decided that one variable had to be removed from the model. Variable SIZE2 was selected to be removed in this instance because variable SIZE1, as measured by market capitalisation, is more widely used. An examination of the data revealed the presence of outliers in some of the data; however, transformation did not improve the data and so the outliers were removed. The removal of these outliers significantly improved the data. Data transformation was undertaken in respect of VDSI, LEV, SIZE1 and PROF.

The results for the ordinary least squares multiple regression analysis is displayed in Table 5. The regression results of sustainability disclosure indicate R^2 of 0.193 which was statistically significant ($F = 17.435$; $p = 0.000$). Four variables—OWN, LEV,

SIZE1 and IND1—were found to be significant at $p < 0.5$ and were in the hypothesised direction. The remaining two variables, BFAF and PROF, were not found to be significant (BFAF was mildly significant) but were also in the hypothesised direction. Thus, the evidence is supporting hypotheses H1, H2, H4 and H6 and rejecting H3 and H5.

Table 5: Results from Multiple Regression (n=450)

<i>Variable</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>	<i>T</i>	<i>Sig.</i> <i>(1 - tailed)</i>
OWN	.074	.971	1.030	1.688	.0460*
LEV	.085	.962	1.040	1.943	.0265*
BFAF	.060	.825	1.212	1.260	.1040
SIZE1	.347	.806	1.240	7.263	.0000**
PROF	.012	.984	1.016	0.286	.3875
IND1	.274	.936	1.068	6.184	.0000**

Source: Original table.

Note: Adjusted $R^2 = .193$; F-ratio = 17.435 ($p = .000$); * Significant at the 0.05 level (1-tailed);

** Significant at the 0.01 level (1-tailed).

Conclusion

The aims of the study were to measure the level of GRI disclosure and to provide an understanding of the incentives that motivated listed Australian companies to report this information in their 2004 annual reports. The results clearly indicated that while the level of disclosure in some industries was considerably higher than other industries the overall level of disclosure was not high and there appeared to be no relationship between the percentage of companies disclosing GRI information and the average disclosure of this information. Because of the low level of disclosure and the often general descriptions of disclosure, there was a hint of bias in the disclosure. Also, where firms were audited by the BFAFs, the percentage of companies disclosing and the average disclosure of these firms were higher than where firms were audited by non-BFAFs. Based on the results of the multiple regression, the decision to report sustainability information is significantly positively influenced by ownership dispersion, leverage, market capitalisation and industry and positively influenced by BFAFs and profitability.

This study has a number of limitations. Due to time constraints and availability of data, the study was limited to one year, 2004, and to the companies listed on the Fin Analysis database. However, 2004 was a relatively recent year and therefore indicative of recent sustainability reporting by listed companies in Australia. Also, the study was limited to annual reports. Other sources such as standalone reports, press reports and websites could have been used either alone or in combination with annual reports. However, annual reports are the most important document prepared by the company and are widely used as a source of information. The study is also limited to the use of

the dichotomous index which does not rank the importance of items of disclosure, though this may also be an advantage because it prevents mistakes in ranking of disclosure items (Marston & Shrides, 1991). Another limitation of this study is the materiality standard which may affect company disclosure. If the disclosure item is perceived to be immaterial, or if the amount is immaterial to the company, they may elect not to disclose. However, since GRI reporting is voluntary, companies are not obliged to follow the standard and may still elect to disclose immaterial items or immaterial amounts. Finally, there are inherent limitations of positive accounting research that have been documented and deliberated by other researchers.

The findings of this study, subject to the limitations discussed in the previous paragraph, have implications for the users of annual reports, the regulators of financial information in Australia, preparers of annual reports, and policy and decision makers. The information is useful for users of annual reports as they now have an insight into GRI reporting. Users now know that a small number of companies disclose GRI information and those that do disclose provide very little information. Should users need this type of information, it may be problematic to extract from annual reports. Users will now be able to associate company characteristics with the extent of GRI disclosure. These results indicate that should regulators proceed with the introduction of a standard similar to the GRI, initial acceptance by preparers of annual reports may be low. A lengthy transition period may be required prior to the introduction of such a standard, especially if a proposed standard by the regulators was based on the GRI in its current format. The consequence for preparers would be the need to conduct more staff training, greater preparation time and hence higher costs in collecting and reporting GRI information. For policy and decision makers this may mean creating more policies and guidelines to address all aspects of GRI and making changes to the existing processes and operations to reflect the new approach in reporting.

In conclusion, this study has provided further evidence on the level and type of disclosure based on the GRI and the association between this disclosure and firm characteristics in their 2004 year end annual reports of Australian companies. The limitations of this study indicate some directions for future research, which should consider a weighted index of GRI disclosure of users of this information. A longitudinal study focusing on more current disclosure practices and GRI Index would be of additional benefit to regulators.

Appendix: Global Reporting Initiative (GRI)

Core indicators	Description
<u>ENVIRONMENTAL</u>	
<i>Materials</i>	
EN1:	Total material used by type
EN2:	Percentage of waste materials used from external source (recycling)

Core indicators	Description
<i>Energy</i>	
EN3:	Direct energy use in J - segmented by primary resource
EN4:	Indirect energy use in J - purchased
<i>Water</i>	
EN5:	Total water use
<i>Biodiversity</i>	
EN6:	Location and size of related land in biodiversity - rich habitats
EN7:	Description of major impacts on biodiversity
<i>Emissions, effluent & waste</i>	
EN8:	Greenhouse gas emissions
EN9:	Use/emissions of ozone-depleting substances (CFC - 11 equivalents)
EN10:	Other significant air emissions by type (e.g., Nox, Sox)
EN11:	Total amount of waste by type and method of treatment
EN12:	Significant discharge of water by type
EN13:	Significant spills of chemical/oils/fuels in no. and volume
<i>Products & services</i>	
EN14:	Significant environmental impacts of principal products
EN15:	Percent of the weight of product sold that is reclaimable and actual reclaim
<i>Compliance</i>	
EN16:	Incidents of and fines for non-compliance
<u>SOCIAL</u>	
<i>Labour: employment</i>	
LA1:	Breakdown of workforce
LA2:	Net employment creation and average turnover segmented by country
<i>Labour: labour/management relations</i>	
LA3:	Percentage represented by trade union
LA4:	Policy and procedures relating to changes like restructuring
<i>Labour: health & safety</i>	
LA5:	Practices on recording and no. of notification of incidence & disease and how they relate to the ILO code of practice
LA6:	Description of formal joint health and safety committees
LA7:	Standard injury, lost days and absentee rates and number of fatalities
LA8:	Policies and programmes for HIV/AIDS

Core indicators	Description
<i>Labour: training & education</i>	
LA9:	Hours of training per employee per year, by category of employee
<i>Labour: diversity & opportunity</i>	
LA10:	Description of equal opportunity policies and programmes
LA11:	Composition of senior management and corporate governance bodies (male/female ratio etc)*
<i>Human rights: strategy & management</i>	
HR1:	Description of policies, guidelines, corporate structure and procedures to deal with all aspects of human rights
HR2:	Evidence of consideration of human rights impacts as part of investment and procurement decision
HR3:	Description of policies and procedures to evaluate and address human rights performance within the supply chain and contracts
<i>Human rights: policies/procedures & management systems</i>	
HR4:	Discrimination
HR5:	Freedom of association
HR6:	Child labour
HR7:	Forced and compulsory labour
<i>Society: policies/procedures & management systems</i>	
SO1:	Impact of operation on community
SO2:	Bribery and corruption
SO3:	Political lobbying and contribution
<i>Product responsibility: policies/procedures & management systems</i>	
PR1:	Customer health and safety
PR2:	Product information and labelling
PR3:	Consumer privacy

Source: Original table.

Note: * This item (LA11) was excluded from the index, as this is not a voluntary disclosure item; it is required to be provided to the ASX under Listing Rules 4.10.3 and 12.7. Consequently 39 indicators are considered in the study.

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