

DOES THE PROVISION OF VOLUNTARY CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE INFLUENCE THE COST OF EQUITY CAPITAL? EVIDENCE FROM AUSTRALIA AND THE UNITED KINGDOM

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Abstract

The practice of managers of firms making voluntary social disclosures has become widespread. Corporate ownership (shareholders) will be interested to know whether these voluntary social disclosures affect them by influencing the firm's cost of equity capital. This study investigates the relationship between the voluntary corporate social responsibility disclosure of Australian and UK firms, based on the 2008 KPMG International Survey of Corporate Social Responsibility Reporting and the cost of equity capital based on the Botosan and Plumlee (2005) model. Using a sample of 59 firms ranked in the top 100 of Australian and UK firms, we find that firms making voluntary corporate social responsibility disclosure in compliance with the Global Reporting Initiative Guidelines are associated with an increased cost of equity capital. Our main results are robust to several alternative measures of voluntary corporate social responsibility disclosure. These results can be attributed to two reasons. Firstly, firms making voluntary corporate social responsibility disclosure provide information that allows certain traders to make judgments about a firm's performance that are superior to the judgments of other traders. As a result, there may be more information asymmetry amongst traders. Secondly, shareholders consider that the information production and proprietary costs associated with voluntary corporate social responsibility disclosure outweighs its potential benefits. Both explanations suggest that investors will impose a higher cost of equity on firms making voluntary corporate social responsibility disclosure. In the additional tests, we show that our main results are robust to alternative measures of voluntary corporate social responsibility disclosure.

Keywords: Corporate Social Responsibility, Disclosure, Capital, Corporate Governance

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1. Introduction

Managers increasingly provide corporate social responsibility (CSR) reporting on a voluntary basis. The trend is, e.g., evidenced in the 2008 KPMG International Survey of Corporate Social Responsibility Reporting. The survey is aimed at tracking CSR reporting trends in the world's largest companies in 22 countries, and it has revealed significant increases in the number of firms integrating their corporate responsibility and financial reporting over the past few years.

Many studies aim to enhance the understanding of the rationale behind these disclosure decisions (Cormier and Gordon, 2001; Clarkson et al., 2008). Some of these academic studies examine the value

relevance of CSR information (Andersen and Frankle, 1980; Ittner and Larcker, 1998; Al-Tuwaijri et al., 2004) and generally find evidence that CSR information is value relevant. CSR disclosure can influence the reporting firms financially through various channels. Firstly, voluntary CSR behaviour can help firms avoid potential regulatory and litigation costs through its commitment towards environmental protection and social responsibility issues. Both regulatory and litigation costs can have severe adverse impacts on firm's financial performance and value, therefore by voluntarily adopting and disclosing CSR practices will help firms prevent governmental intervention and save mandatory compliance and litigation costs. Secondly, studies have shown that socially responsible investors

are willing to pay a premium for the securities of firms that exhibit superior corporate social behaviour (Andersen and Frankle, 1980; Richardson and Welker, 2001). Therefore, by conducting CSR practices and providing voluntary disclosure on these practices, firms can attract investors with a social awareness. This suggestion is consistent with the emergence and increased popularity of socially responsible investing (Reyes and Grieb, 1998; Bauer et al. 2007; Schepers and Sethi, 2003). Lastly, CSR practice and disclosure can have direct influence on a firm's future cash flows. For instance, practices aimed at protecting the environment and promoting employee welfare is able to reduce the potential clean up and litigation costs in the future. Therefore, firms with superior CSR practice can enjoy this positive cash flow effect and this in turn increases a firm's financial performance and value (Dhaliwal et al., 2010). Furthermore, other proponents of voluntary CSR disclosure have often claimed that one of its primary benefits is a reduction in the cost of equity capital (Dhaliwal et al., 2010). Therefore, this paper focuses on the cost of equity capital as the value relevance measure for voluntary CSR disclosure provided by firms.

Most extant literature examines the impact of financial disclosures on the cost of equity capital (Diamond and Verrecchia, 1991; Clarkson et al. 1996; Botosan, 1997; Leuz and Verrecchia, 2000; Easley and O'Hara, 2004), but there is little empirical evidence on the association between voluntary CSR disclosures and the cost of equity capital. Furthermore, the existing literature on the association between disclosure and the cost of equity capital has resulted in mixed findings. Research finding a negative relationship between disclosure and the cost of equity have suggested that the reasons for a reduction in the cost of equity capital is due to the enhancement of market liquidity through a reduction in information asymmetry, a reduction of estimation risk (Glosten and Milgrom, 1985; Diamond and Verrecchia, 1991; Clarkson et al., 1996) and investors' preference effects (Richardson et al., 1999). On the other hand, research finding a positive relationship between disclosure and the cost of equity capital suggested three reasons for this relationship. Firstly, greater disclosure provides information that allows more informed traders to make superior judgments about a firm's performance (Kim and Verrecchia, 1994), resulting in more information asymmetry amongst traders. Secondly, greater disclosure attracts more transient traders to act on this information, which increases the stock price volatility and a firm's perceived riskiness (Bushee and Noe 2000). Finally, shareholders consider that the information production and proprietary costs associated with increased disclosure outweighs its potential benefits (Cormier and Gordon, 2001; Armitage and Marston, 2008). All three explanations

suggest that investors will impose a higher cost of equity on firms making voluntary disclosure.

To determine the association between voluntary CSR disclosure and the cost of equity capital, a sample of 59 firms from the top 100 Australian and UK firms are used in the study. The initial sample contained a total of 200 Australian and UK firms which were included in the 2008 KPMG survey with the available data for our voluntary CSR disclosure. However, due to data requirements for estimating the cost of equity capital and the control variables, 141 firms had to be dropped out. The proxy for the cost of equity capital used in the study was computed from the Botosan and Plumlee (2005) model and the primary proxy used for voluntary CSR disclosure was the *GRI_DUMMY* variable compiled by the 2008 KPMG International Survey of Corporate Social Responsibility Reporting. The main results indicate that firms making voluntary CSR disclosure in compliance with the Global Reporting Initiative (GRI) Guidelines are associated with an increased cost of equity capital. In the additional analyses, we show that our results are robust to alternative proxies of voluntary CSR disclosure. We attribute these results to two explanations. Firstly, firms making voluntary CSR disclosure provide information that allows more informed traders to make superior judgments about a firm's performance (Kim and Verrecchia, 1994), resulting in more information asymmetry amongst informed and uninformed investors. Secondly, shareholders consider that the information production and proprietary costs associated with CSR disclosure outweighs its potential benefits.

To the best of our knowledge, this research is the first to examine the effect of voluntary CSR disclosure on the cost of equity capital within an Australian and UK setting. Our research is motivated by potential shareholder concern regarding the effect of voluntary CSR disclosures on their investments and the lack of empirical evidence towards the impact of voluntary non-financial disclosure on the cost of equity capital as most extant literature have focused on the effect of financial disclosures. Therefore, by using CSR disclosure, our study extends the traditional research on voluntary disclosure to a broader dimension beyond the narrowly-focused financial disclosures. In addition, there are mixed findings regarding the relationship between disclosure and the cost of equity. It is the endeavour of this study to examine factors driving the effect of voluntary CSR disclosure on the cost of equity capital and to provide further insight into this area of research. The study contributes to the disclosure literature by adding important complementary evidence on the association of voluntary CSR disclosure and the cost of equity capital by exploring an Australian and UK setting.

The remainder of the paper is organised as follows. Section 2 introduces the related literature and develops the hypothesis. Section 3 describes the

sample and research methodology. Section 4 presents empirical evidence on the relationship between voluntary CSR disclosure and the cost of equity capital. Section 5 provides robustness checks using alternative voluntary CSR disclosure measures. Section 6 summarises and concludes.

2. Prior Literature and Hypothesis Development

Prior literature have been extensively focused on the relationship between financial disclosure and the cost of equity capital (Diamond and Verrecchia, 1991; Clarkson et al. 1996; Botosan, 1997; Leuz and Verrecchia, 2000; Easley and O'Hara, 2004). Most of these empirical studies have suggested a negative association between financial disclosure and the cost of equity capital. The findings of this literature rely on two streams of theoretical research. The first stream suggests that greater disclosure reduces information asymmetry which enhances stock market liquidity. Therefore, the cost of equity capital is reduced through either a reduction in transaction costs or an increase in the demand for a firm's securities. Many prior studies have followed this stream of research and provided empirical evidence supporting this view. Research studies by Verrecchia (1983) and Dye (1985) indicated that improved disclosure increases the demand for the firm's securities, thus leading to a lower cost of capital. Diamond (1985), Benston (1986) and Fishman and Hagerty (1989) argue that improved voluntary disclosures enables investors to better monitor firms' managers. In addition, this also suggests that these more forthcoming managers have less or nothing to hide, otherwise it would be irrational to provide such disclosures. Therefore, the demand for the securities of these firms is increased leading to a reduction in the cost of equity capital. Amihud and Mendelson (1986) suggest that the cost of equity capital is greater for securities with wider bid-ask spreads as investors require a higher return to compensate for the added transaction costs. By disclosing more information voluntarily, the firm is able to reduce the adverse selection component of the bid-ask spread, thus reducing their cost of equity capital. Diamond and Verrecchia (1991) provided evidence suggesting that greater disclosures reduce information asymmetry for investors. This in turn makes investors more willing to accept a larger position in a firm's securities, which reduce its cost of capital. Furthermore, Botosan (1997) suggested that in general, a firm with low amounts of analysts following is associated with higher information asymmetry. She argued that with increased levels of disclosure, information asymmetry will be reduced leading to a lower cost of capital.

The second stream of research suggests that greater disclosure leads to a reduction in the estimation risk associated with investors' assessments of future cash flows. Investors use disclosed

information to forecast future cash flows in determining the present value of their investments. Greater disclosure is able to reduce the uncertainty and lower the estimation risk for investors, thereby decreasing the cost of equity capital. Previous literature has investigated whether parameters of a security's payoff distribution can be estimated based on available information about a firm. Barry and Brown (1985), Handa and Linn (1993), Coles et al. (1995) and Clarkson et al. (1996) have all suggested that better disclosure can reduce the estimation risk arising from investors' estimates of the parameters of an asset's return distribution. This in turn lowers the expected return required by investors.

The above mechanisms to lower the cost of equity capital is likely to apply to both financial and non-financial disclosure as long as the information disclosed is value relevant to investors. Surveys have shown that investors, analysts and top executives at multi-national firms believe that non-financial information is important and value relevant, especially if these information can be used to augment financial forecasting (Eccles and Mavrinac, 1995; PricewaterhouseCoopers, 2002). Therefore, these two mechanisms can also apply to non-financial CSR disclosures, implying that CSR disclosure is able to reduce information asymmetry and reduce uncertainty and lower the estimation risk for investors.

In addition to the two streams of research, it was suggested by Richardson et al. (1999) that another possible reason for the negative relationship between disclosure and the cost of equity arises from investor preference effects. They suggested that investors are willing to accept a lower expected return on investments that also fulfil non-financial social objectives. This suggestion is consistent with the emergence and increased popularity of socially responsible investing (Reyes and Grieb, 1998; Bauer et al. 2007; Schepers and Sethi, 2003).

Although most prior research provides evidence suggesting that greater disclosure is associated with a lower cost of capital, some research shows the opposite. Firstly, Kim and Verrecchia (1994) suggested that disclosure provides information that allows certain traders to make judgments about a firm's performance that are superior to the judgments of other traders. This can arise due to traders' superior knowledge of the disclosing firm prior to the disclosure or their ability to acquire private information after the disclosure. As a result, there may be more information asymmetry amongst traders. By implication, this leads to a higher cost of capital. This argument can be extended to CSR disclosures, i.e. traders that are more informed about a firm can utilise the CSR disclosure to form better judgments on the financial performance of the disclosing firm than other investors. Alternatively, these traders have the incentive to acquire private information about the disclosing firm after the disclosure to help them make more informed decision than other traders. Therefore,

there is greater information asymmetry between the informed and uninformed investors.

Secondly, the AICPA (1994) suggested an alternative explanation for the positive relationship between disclosure and the cost of equity capital. The AICPA argued that greater disclosure tend to increase stock price volatility, therefore increasing the cost of equity capital. This argument is supported by empirical evidence provided by Bushee and Noe (2000). The empirical study suggested that more forthcoming disclosure attracts transient traders. Transient traders are investors that are focused on attaining short-term returns from their position in a firm's stock, high market liquidity is therefore important to them so that the price impact of their trading does not erode any potential trading gains. Thus, transient traders are expected to be attracted to firms with more informative disclosure practices as this enhances market liquidity (Amihud and Mendelson, 1986; Diamond and Verrecchia, 1991). The short investment and aggressive trading strategies of these transient traders exacerbates a firm's stock return volatility. This in turn increases a firm's perceived riskiness, thereby raising its cost of equity capital (Froot et al., 1992). Applying this to voluntary CSR disclosure would imply that greater or more informative CSR disclosure will attract more transient traders to trade on this information, thus increasing the stock price volatility and raising the cost of equity capital.

Furthermore, greater voluntary non-financial disclosure can be considered costly and unnecessary to shareholders as the information production and proprietary costs associated with voluntary disclosure could outweigh the potential benefits of this disclosure (Cormier and Gordon, 2001; Armitage and Marston, 2008). As a result, the cost of equity capital imposed by shareholders would be increased. Armitage and Marston (2008) documented in their study that the main perceived cost of disclosure by

firm executives is the cost of producing the information. Cormier and Gordon (2001) examines the proprietary costs associated with environmental and social disclosure. The study suggested environmental and social disclosures contain proprietary information that can be used by third parties to the disclosing firm's disadvantage. For instance, competitors can use this information to enhance their competitive position; government can impose new regulations that are costly as a result of the disclosure; environmental groups can also impose pressure if certain information is disclosed that are unfavourable in their perspective. In addition, reputational damages can also arise due to the disclosure of environmental liabilities and any disclosure that does not comply with public's social perception. Therefore, providing CSR disclosure can have an adverse impact on the cost of equity capital due to the information production and proprietary costs associated to the disclosure.

Due to the competing theoretical arguments and the mixed empirical evidence discussed above, we do not predict a direction and test the following null hypothesis:

H_0 : Voluntary CSR disclosure provided by firms is not associated with the firm's cost of equity capital

3. Research Design

3.1. Dependent Variable - Cost of Equity Capital

The main cost of equity proxy used in this paper is derived from the Botosan and Plumlee (2005) model. This expected cost of equity capital proxy is based on the price earnings growth (PEG) ratio. To implement the PEG ratio based implied cost of equity capital (r_{peg}) model as in Botosan and Plumlee (2005), the following equation is used:

$$r_{peg} = \frac{\sqrt{EPS_5 - EPS_4}}{P_0} \quad (1)$$

where:

r_{peg} = the ex-ante implied cost of equity capital

EPS_4 = forecasted EPS for the year ending 31/12/2012 taken at 31/12/2008

EPS_5 = forecasted EPS for the year ending 31/12/2013 taken at 31/12/2008

P_0 = Price of a firm's stock at $t=31/12/2008$

We have selected the r_{peg} measure suggested by Botosan and Plumlee (2005), which is also used in Francis et al. (2008) among other methods of estimating the cost of equity capital for several reasons. Firstly, in Botosan and Plumlee (2005), the construct validity of four proxies for the expected cost of equity was compared including the Value Line (VL) cost of equity estimate, a Gordon growth model estimate, a residual income estimate, and a positive earnings growth (PEG) ratio based estimate. The study concluded that the VL cost of equity estimate and the PEG estimates are reliable cost of capital

proxies which outperform the other approaches. Unfortunately, the VL data is not available for Australian and UK firms; therefore, using the PEG ratio based estimate gives the most superior measure of the implied cost of equity.

Secondly, Easton (2004) also uses a PEG ratio based estimate of the cost of equity capital. The difference between the model employed in this study and the Easton (2004) model is that our chosen model uses the long-run earnings forecasts (EPS_4 and EPS_5) in place of EPS_1 and EPS_2 of the Easton (2004) model. It has been justified in Botosan and Plumlee

(2005) that long-run earnings forecast model better meets the sample inclusion criteria for most firms (providing a positive earnings and positive earnings growth) than do near term forecasts.

Finally, we acknowledge that alternative approaches to estimating a firm's expected cost of equity capital relying on methods including the Gordon growth model and a discounted residual income model are available, which have been suggested by Claus and Thomas (2001) and Gebhardt et al. (2001). However, it is inappropriate to use these models in our analysis as the variables required for the models will reduce the number of observations for our study further. This will severely restrict the power of our tests as a result of the limited number of observations available.

3.2. Independent Variable - Voluntary CSR Disclosure

The voluntary CSR disclosure measure was compiled by the 2008 KPMG International Survey of Corporate Social Responsibility Reporting. The survey is aimed at examining reporting trends in the world's largest companies, including the global fortune 250 (G250) and the 100 largest companies (N100) in 22 countries (KPMG International Survey of Corporate Social Responsibility Reporting, 2008). KPMG examined information disclosed publicly by these companies to identify the historical and emerging trends in corporate responsibility reporting. The survey looked at CSR information that are available in the public domain where the sources are limited to corporate responsibility or sustainability reports, company websites and annual financial reports. The disclosure information collected from these sources was for the period from 2007 to 2008.

The survey identified that one of the principal global frameworks for CSR reporting is the GRI. The GRI was launched in 1997 with the objective to develop a globally accepted reporting framework to enhance the "quality, rigor, and utility of sustainability reporting" (Global Reporting Initiative, 2002). The GRI Reporting Framework is intended to serve as a generally accepted framework for reporting on an organisation's economic, environmental, and social performance. The framework is based on ten principles. The first four principles (materiality, inclusiveness, context and completeness) are used to define report content and the remaining six principles (balance, comparability, accuracy, timeliness, clarity and reliability) are used to ensure reporting quality. GRI issued its first set of guidelines in 2000, the second in 2002 (known as the G2 Guidelines) and the third in late 2006 (G3 Guidelines). By 2008, the majority of companies that had previously reported using the G2 Guidelines, had switched to the G3 version. The G3 Guidelines places greater emphasis on the reporting process by encouraging greater comparability, materiality, and rigor with reporting

(KPMG International Survey of CSR Reporting, 2008).

It is clear that the GRI Reporting Framework is a highly recognized framework for CSR reporting within international organisations as evidenced through the increasing trend in the number of large firms adopting this framework. The increasing trend is supported by the 2008 KPMG survey indicating more than 77 percent of the G250 and 69 percent of the N100 reporting companies follow the GRI Guidelines for CSR reporting. This is far greater than any other guidelines which include both internally-developed company frameworks as well as national standards, with roughly 20 percent of G250 and N100 firms adopting either of these guidelines. The adoption of the GRI Framework can be seen as a sign of compliance and conformance with international standards to achieving better CSR reporting. By implication, firms adopting this framework are likely to have higher quality CSR disclosure than firms that do not comply with the GRI Guidelines. Therefore, to carry out our empirical study, the primary proxy used for the voluntary CSR disclosure measure is whether firms report using the GRI Guidelines (*GRI_DUMMY*).

In addition, the GRI Framework also distinguishes firms by application levels. This allows firms to declare the extent to which they have followed the GRI Guidelines, with the maximum compliance scoring a rating of A and the minimum compliance with a rating of C. To obtain an application level of C, firms must report on ten of the GRI indicators. At the B level, companies must report on at least 20 of the GRI indicators. Finally, to obtain an A level, organisations must report on all 50 GRI core indicators by presenting supporting data or a valid explanation of why the indicator is not presented. Finally, a company can choose to employ independent third party assurance on their indicated level, this adds a "+" to the declared level. Therefore, as an alternative specification for the voluntary CSR disclosure measures, the *GRI_LEVEL* variable will be used. This measure is ranked from zero to six (where A+=6, A=5, B+=4, B=3, C+=2, C=1 and firms that do not use the GRI Guidelines=0) depending on the extent of compliance of the firms to the GRI Framework and whether assurance is obtained by these firms.

3.3. Sample

The initial sample of the study is based on 200 firms made up of the top 100 firms in both Australia and UK as voluntary CSR disclosure provided by the KPMG survey is only available for these firms. Using these firms, further data are required to be collected for the cost of equity measure and the control variables. The control variables used in the study includes beta (measured as the slope coefficient by regressing the firm's weekly stock return on the

weekly market return), size (proxied by the natural log of total assets), market-to-book ratio (measured as the market value of common equity divided by the book value of common equity), leverage (measured as the ratio of total debt divided by total assets), industry (based on the GICS classification codes) and country (measured as a dichotomous variable to separate the Australian firms from the UK firms). As previously mentioned, the disclosure information collected by the KPMG survey was from 2007 to 2008, but the exact time of collection was unknown. Therefore, all the control variables used in the study are averaged for the year 2007 and 2008. Table 1 illustrates the sampling process which begins with the initial sample

of 200 firms, 49 firms which are not listed on the Australian Stock Exchange (ASX) or the London Stock Exchange are deleted as the computation of the cost of equity capital, beta and market-to-book ratio requires price data on these firms. Firms that are classified as financial institutions with GICS classification codes from 4010 to 4040 are excluded. Finally, firms without the required financial data from Compustat Global and firms without the required forecasted EPS data from I/B/E/S are further deleted. The final sample consists of 59 firms comprising of 28 Australian firms and 31 UK firms, with all available data for the empirical model.

Table 1. Sampling Process

Selection Criteria	Observations
Firms with voluntary disclosure measure on the KPMG database	200
Less: Firms not listed on ASX or London Stock Exchange	(49)
Financial institutions (GICS codes 4010-4040)	(45)
	106
Less: Observations not available on Compustat Global and I/B/E/S	(47)
Final sample observations	59

3.4. Empirical Model

Prior studies have indicated that the cost of equity capital is associated with a firm's systematic risk (Botosan, 1997; Dhaliwal et al., 2009), market-to-book ratio (Fama and French, 1992; Gebhardt et al., 2001; Gode and Mohanram, 2003; Hail and Leuz, 2006), firm size (Fama and French, 1992; Botosan, 1997; Gode and Mohanram, 2003; Hail and Leuz, 2006), leverage (Modigliani and Miller, 1958; Modigliani and Miller, 1963; Dhaliwal et al., 2006) and industry (Gebhardt et al., 2001). Therefore, we include these as the control variables in our regression. We further include a country variable to control for the differential effect that Australian and UK firms may have on the cost of equity capital.

In order to test our hypothesis, we employ the following regression model:

$$COE = \alpha_0 + \alpha_1 VOL_DISC + \alpha_2 BETA + \alpha_3 MB + \alpha_4 SIZE + \alpha_5 LEVERAGE + \alpha_6 INDUSTRY + \alpha_7 COUNTRY \quad (4)$$

The variables in the regression above are defined as follows:

COE– is the cost of equity capital measure computed using the Botosan and Plumlee (2005) model as defined by Equation (1) using data from both Compustat Global and I/B/E/S.

VOL_DISC– is the voluntary CSR disclosure for the period 2007 to 2008 using data compiled by the 2008 KPMG survey. It is a dichotomous variable measured by *GRI_DUMMY*. Where *GRI_DUMMY* =1 if the firm adopts the GRI Guidelines for CSR reporting and 0 otherwise.

BETA– is a measure of the volatility or the systematic risk of a firm's security compared to the market. *BETA* is computed by regressing the firm's weekly stock return on the return of the market index (ASX All Ordinaries for Australian firms and FTSE All Shares for UK firms) for the period 01/01/2007 to 31/12/2008 using weekly price data from Yahoo Finance. *BETA* is included in the regression to control for the systematic risk. Botosan (1997) and Dhaliwal et al. (2009) documented that the cost of equity capital is an increasing function of the firm's systematic risk captured by *BETA*. Therefore, we expect that *BETA* will have a positive association with the cost of equity capital.

MB– is the average market-to-book ratio measured as market value of common equity (#25*#199), divided by the book value of common equity (#60) for the period 2007 to 2008 using data from Compustat Global. Fama and French (1992) found that realised stock returns are positively related to the book-to-market ratio, implying a negative association between the market-to-book ratio and the

implied cost of equity. Recent empirical studies on the implied cost of equity (Gebhardt et al., 2001; Gode and Mohanram, 2003; Hail and Leuz, 2006) report evidence consistent with the findings of Fama and French's (1992). Accordingly, we expect a negative association between the market-to-book ratio and the implied cost of equity.

SIZE– is the average of the natural logarithm of the total asset (#6) value for the period 2007 and 2008 using data from Compustat Global. Fama and French (1992) suggested that the cost of equity is negatively related to firm size. Empirical research by Botosan (1997), Gode and Mohanram (2003) and Hail and Leuz (2006) also documented that the implied cost of equity is negatively associated to firm size. Therefore, we expect a negative association between the cost of equity and firm size.

LEVERAGE– is the average leverage ratio, measured as the ratio of total debt (#9+#34), divided by the total assets (#6) for the period 2007 to 2008 using data from Compustat Global. Modigliani and Miller (1958) showed that without taxes and transaction costs, the firm's cost of equity is an increasing function of its debt ratio. Modigliani and Miller (1963) showed that the cost of equity is also positively related to the firm's leverage ratio when corporate taxes are taken into account. Consistent with the findings of Modigliani and Miller (1963), Dhaliwal et al. (2006) concludes that the cost of equity is positively associated with leverage. Accordingly, we expect the cost of equity to be positively associated with the firm's leverage ratio.

INDUSTRY– is a dichotomous variable where firms in environmentally sensitive industries (utilities, energy, materials and pharmaceuticals) are classified as 1 and 0 otherwise, consistent with the classification adopted in Van Staden and Hooks (2007). The industry classification of each firm is based on the GICS codes. We expect that firms in more environmentally sensitive firms to have a higher cost of equity capital due to the increased risk associated with potential litigation and future environmental liabilities.

COUNTRY– is a dichotomous variable where 1 is allocated to firms located in Australia and 0 is allocated to firms located in the UK.

4. Empirical Results

Table 2 provides the descriptive statistics for variables used in the cost of equity regression equation. The mean for the cost of equity capital is 14.94% for firms using the GRI Guidelines in their CSR disclosure and 10.88% for firms that do not adopt the GRI Guidelines. The difference between the means is significant at the 5% level (p-value= 0.029), suggesting that firms using the GRI Framework for CSR disclosure are associated with a higher cost of equity capital. This provides preliminary evidence against the null hypothesis stating that there is no association between voluntary CSR disclosure and the cost of equity capital. The mean firm size measured by the natural log of total assets for firms using the GRI Guidelines is \$14.64 billion while the mean firm size for firms not adopting the GRI is \$6.05 billion. The difference between the means is highly significant at the 1% level (p-value= 0.001). This indicates that firms complying with the GRI Guidelines for their disclosure are larger in size than the firms that do not comply with GRI. This is consistent with prior research suggesting that firms that are more visible provide greater and more informative disclosure to reduce their political cost associated with its visibility (Hackston & Milne, 1996). Furthermore, larger firms also have a lower cost associated with information production due to economies of scale. Therefore, they are more likely to provide CSR disclosure (Lang and Lundholm, 1993; Clarkson et al., 2008). The mean leverage ratio is 0.2814 and 0.2198 respectively for firms disclosing in compliance with the GRI and firms that do not comply with the GRI. The difference between the means is significant at the 10% level (p-value= 0.101) which indicates that firms complying with the GRI also exhibit a higher level of debt in its capital structure. This is consistent with the disclosure literature suggesting that the monitoring demand for information increases as a firm's debt increases (Leftwich et al., 1981). Empirical evidence is consistent with this argument showing that managers are more forthcoming to reduce the agency cost of debt and to facilitate debt contracting with creditors (Jensen and Meckling, 1976). Finally, the results indicate that there are more firms complying with the GRI in the UK and more firms that do not comply with the GRI located in Australia and this difference is significant at the 10% level (p-value= 0.074).

Table 2. Descriptive Statistics

	GRI_DUMMY=1 (N=24)			GRI_DUMMY=0 (N=35)			Difference N=59	
	Mean	Median	SD	Mean	Median	SD		p-value
COE	0.1494	0.1161	0.0932	0.1088	0.0990	0.0448	0.0406	0.029**
BETA	1.1033	1.0269	0.4229	0.9754	0.8942	0.4841	0.1279	0.150
MB	3.2142	2.7265	1.9839	2.8324	2.1350	2.2913	0.3818	0.255
SIZE	9.5914	9.6535	1.1843	8.7075	8.6195	0.7350	0.8839	0.001***
LEVERAGE	0.2814	0.2642	0.1120	0.2393	0.2198	0.1301	0.0421	0.101*
INDUSTRY	0.3800	0	0.4950	0.3400	0	0.4820	0.0400	0.402
COUNTRY	0.3300	0	0.4820	0.5700	1.0000	0.5020	-0.2400	0.074*

*, **, *** indicate significance at 0.10, 0.05, and 0.01 levels, respectively.

Variable Definitions:

GRI_DUMMY - The voluntary CSR disclosure for the period 2007 to 2008 using data compiled by the 2008 KPMG survey. It is a dichotomous variable where *GRI_DUMMY* =1 if the firm adopts the GRI Guidelines for CSR reporting and 0 otherwise

BETA - The systematic risk of a firm's security compared to that of the market. *BETA* was computed by regressing the firm's weekly stock return on the return of the market index (ASX All Ordinaries for Australian firms and FTSE All Shares for UK firms) for the period 01/01/2007 to 31/12/2008 using weekly price data from Yahoo Finance.

MB - Average market-to-book ratio measured as market value of common equity (#25*#199), divided by the book value of common equity (#60) for the period 2007 to 2008 using data from Compustat Global.

SIZE - The average of the natural logarithm of the total asset (#6) value for the period 2007 and 2008 using data from Compustat Global.

LEVERAGE - The average leverage ratio, measured as the ratio of total debt (#9+#34), divided by the total assets (#6) for the period 2007 to 2008 using data from Compustat Global.

INDUSTRY - A dichotomous variable where firms in environmentally sensitive industries are classified as 1 and 0 otherwise consistent with the classification adopted in Van Staden and Hooks (2007). The industry classification of each firm is based on the GICS codes.

COUNTRY - A dichotomous variable where 1 is allocated to firms located in Australia and 0 is allocated to firms located in the UK.

Table 3 shows that the cost of equity capital is significantly associated with a firm's systematic risk (*BETA*), their average market-to-book ratio (*MB*), their country of domicile (*COUNTRY*) and whether they make CSR disclosure in compliance with the GRI Guidelines (*GRI_DUMMY*). The positive relationship between the cost of equity and a firm's systematic risk is consistent with prior research suggesting that the former is an increasing function of the latter (Botosan, 1997; Dhaliwal et al., 2009). The significant negative association between the cost of equity and the average market-to-book ratio is also as expected, following the same relationship identified in prior literature (Gebhardt et al., 2001; Gode and Mohanram, 2003; Hail and Leuz, 2006). The results also indicate that there is a significant positive relation between the cost of equity and the voluntary CSR disclosure measured by *GRI_DUMMY*. This suggests that firms complying with the GRI Guidelines have a higher cost of equity capital, which again provides evidence against the null hypothesis. Finally, there is a significant negative association between the cost of equity and a firm's country of domicile. This suggests that firms in Australia experience a lower cost of equity than firms in the UK. This needs to be interpreted with the results in Table 2, which indicated that there are more UK firms complying with the GRI Guidelines and more Australian firms that do not adopt the GRI Guidelines. Taken together, the results are consistent with the significant positive association between cost of equity and voluntary CSR disclosure. As less Australian firms comply with the GRI Guidelines, therefore they will obtain a lower cost of capital and the reverse applies for UK firms. Table 3 shows that the highest correlation is between *COE* and *BETA*, which is

0.448. This is well below the 0.7 level, which suggests that multicollinearity is not a concern. Therefore, it is appropriate to proceed with the multivariate regression model.

Table 4 presents the main results using the primary measures for both the cost of equity capital (Botosan and Plumlee (2005) model) and voluntary CSR disclosure (*GRI_DUMMY*). We use the winsorised data to run the regression using Equation (4). The winsorised data is used to ensure that the results are not affected by any outliers in the sample. The process of winsorisation is achieved by altering only the highest and lowest observations; this is due to the limited number of observations available in the sample. All the independent variables in the regression exhibit the predicted association with the cost of equity capital. For the control variables, *BETA* and *LEVERAGE* both have a positive and significant association with the cost of equity capital. This is consistent with the prior literature which provided evidence that the cost of equity is an increasing function of both *BETA* (Botosan, 1997; Dhaliwal et al., 2009) and *LEVERAGE* (Modigliani and Miller, 1958; Modigliani and Miller, 1963; Dhaliwal et al., 2006). The cost of equity exhibits a significantly negative association with the average market-to-book ratio. Again, this is consistent with prior literature which also found a significant negative relationship between the two variables (Gebhardt et al., 2001; Gode and Mohanram, 2003; Hail and Leuz, 2006). The multivariate results show that the variable of interest, *GRI_DUMMY*, has a significant positive association with the cost of equity. This is consistent with the results in both Table 2 and Table 3, indicating that firms complying with the GRI Guidelines for their voluntary CSR disclosure are associated with an increased cost of capital. This result can be attributed to two reasons. Firstly, firms making voluntary CSR disclosure provide information that allows certain traders to make judgments about a firm's performance that are superior to the judgments of other traders. As a result, there may be more information asymmetry amongst traders. Secondly, shareholders consider that the information production and proprietary costs associated with voluntary CSR disclosure outweighs its potential benefits. Both explanations suggest that investors will impose a higher cost of equity on firms making voluntary CSR disclosure. However, the results are not attributed to the explanation which suggests that firms making voluntary CSR disclosure attract more transient traders which increases the stock price volatility and a firm's perceived riskiness. This is because we have included *BETA* as a control variable in the regression model and this controls for the effect of the stock price volatility. The results show that even after controlling for stock price volatility, there is a positive and significant association between voluntary CSR disclosure and the cost of equity capital. Therefore, the relationship between the two variables is not driven by the effect of stock price volatility. Overall, the results provide support against the null hypothesis and indicate that there is an association between voluntary CSR disclosure and the cost of equity capital.

Table 3. Pairwise Correlations between COE, *GRI_DUMMY* and Control Variables

	BETA	MB	SIZE	LEVERAG E	INDUSTRY	COUNTRY	COE	GRI_DUM MY
BETA		-0.060	0.021	-0.311***	0.315***	-0.181	0.448***	0.137
MB	-0.080		-0.061	0.2152**	-0.094	0.116	-0.298*	0.087
SIZE	-0.048	0.001		0.240**	-0.050	-0.074	0.087	0.424***
LEVERAGE	-0.343***	0.178*	0.184*		-0.306***	0.152	0.017	0.168*
INDUSTRY	0.291**	-0.096	-0.087	-0.302***		0.215**	0.084	0.033
COUNTRY	-0.219**	0.074	-0.078	0.163*	0.215**		-0.209*	-0.234**
COE	0.430	-0.318***	-0.083	-0.048	0.148	-0.299**		0.284**
GRI_DUM MY	0.148	0.156	0.389***	0.166*	0.033	-0.234**	0.243**	

*, **, *** indicate significance at 0.10, 0.05, and 0.01 levels, respectively.

Variable definitions: see table 2

The table presents the pairwise correlations between the COE, *GRI_DUMMY* and control variables with the Pearson correlation coefficient above the diagonal and Spearman's correlation coefficient below the diagonal.

Table 4. Relation between COE and *GRI_DUMMY*

	Predicted sign	Coefficient	t-statistics
Constant		0.1405	2.057
BETA	+	0.0555	3.324***
MB	-	-0.0104	-3.117***
SIZE	-	-0.0091	-1.219
LEVERAGE	+	0.1104	1.636*
INDUSTRY	+	0.0045	0.279
COUNTRY	+/-	-0.0091	-0.609
GRI_DUMMY	+/-	0.0332	2.097**
Adjusted R²			0.2865
N			59

*, **, *** indicate significance at 0.10, 0.05, and 0.01 levels, respectively.

Variable definitions: see table 2

The regression results are based on Equation (4) using winsorised data. The dependent variable is the Botosan and Plumlee (2005) cost of equity capital.

5. Robustness Checks for Alternative Voluntary CSR Disclosure Proxies

We investigate the sensitivity of our findings in this section using three methods. Firstly, we adopt a non-winsorised model using the primary voluntary CSR disclosure measure, *GRI_DUMMY*. Secondly, we consider an alternative voluntary CSR disclosure measure, namely *GRI_LEVEL* (outlined in Section 3.2). Finally, we alter and run the regression model by only including the control variables (*BETA*, *MB* and *LEVERAGE*) which were significant in the main results presented in Table 4 for both disclosure measures (*GRI_DUMMY* and *GRI_LEVEL*).

Model 1 (*GRI_DUMMY* (non-winsorised) model) in Table 5 uses non-winsorised data. Model 2 (*GRI_LEVEL* model) utilises the alternative voluntary CSR disclosure measure, *GRI_LEVEL*, where *GRI_LEVEL* is a ranked variable that can range from zero to six (where A+=6, A=5, B+=4, B=3, C+=2, C=1 and firms that do not use the GRI Guidelines=0) depending on the compliance level of the firm to the

GRI Framework and whether assurance is obtained by the firm. Model 3 and 4 is based on the *GRI_DUMMY* and *GRI_LEVEL* measure respectively but reducing the control variables to include only *BETA*, *MB* and *LEVERAGE* which had a significant result in Table 4. By reducing the number of control variables for the regression model, the degrees of freedom issue will be minimised. This is because it is best to have at least ten data points for each independent variable.

The results from Table 5 indicate that the *VOL_DISC* from all four models using either *GRI_DUMMY* or *GRI_LEVEL* have at least a marginally significant and positive association with the cost of equity capital. Overall, this suggests that our results are robust to alternative measures of the voluntary CSR disclosure proxies. The R² values in Models 3 and 4 show that when the control variables are limited to the ones that exhibit a significant relationship with the dependent variable, the explanatory power of the regression model is increased.

Table 5. Robustness Checks for Alternative VOL_DISC Measures

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Constant	0.1110	1.403	0.1314	1.468	0.0443	1.478	0.0596	1.839
BETA	0.0708	3.729***	0.0624	3.006***	0.0705	3.948***	0.0643	3.281***
MB	-0.0112	-2.960***	-0.0106	2.789***	-0.0109	2.992***	-0.0104	2.820***
SIZE	-0.0073	-0.845	-0.0076	-0.831	-	-	-	-
LEVERAGE	0.1256	1.692*	0.1084	1.741*	0.1110	1.978*	0.0949	1.677*
INDUSTRY	-0.0037	-0.198	-0.0008	-0.041	-	-	-	-
COUNTRY	-0.0091	-0.518	-0.0092	-0.511	-	-	-	-
VOL_DISC	0.0349	1.888*	0.0085	1.504^	0.0311	1.940*	0.0072	1.569^
Adjusted R²	0.2984		0.2813		0.3225		0.3068	
N	59		59		59		59	

^, *, **, *** indicate significance at 0.15, 0.10, 0.05, and 0.01 levels, respectively.

Variable definitions: see table 2

GRI_LEVEL A ranked variable that can range from zero to six (where A+=6, A=5, B+=4, B=3, C+=2, C=1 and firms that do not use the GRI Guidelines=0)

Model 1 is based on non-winsorised data and using *GRI_DUMMY* as the measure for *VOL_DISC*

Model 2 is based on *GRI_LEVEL* as the measure for *VOL_DISC*

Model 3 is based on *GRI_DUMMY* as the measure for *VOL_DISC* and limiting the control variables to *BETA*, *MB* and *LEVERAGE*

Model 4 is based on *GRI_LEVEL* as the measure for *VOL_DISC* and limiting the control variables to *BETA*, *MB* and *LEVERAGE*

6. Conclusion

In this paper, we provide empirical evidence on the association between voluntary CSR disclosure based on the 2008 KPMG International Survey of Corporate Social Responsibility Reporting and the cost of equity capital based on the Botosan and Plumlee (2005) model in an Australian and UK setting. Using a sample of 59 firms ranked in the top 100 of Australian and UK firms, the main results suggest that firms adopting the GRI Guidelines for voluntary CSR disclosure are associated with an increased cost of equity capital. This result can be attributed to two reasons. Firstly, firms making voluntary CSR disclosure provide information that allows certain traders to make judgments about a firm's performance that are superior to the judgments of other traders. As a result, there may be more information asymmetry

amongst traders. Secondly, shareholders consider that the information production and proprietary costs associated with voluntary CSR disclosure outweighs its potential benefits. Both explanations suggest that investors will impose a higher cost of equity on firms making voluntary CSR disclosure. Taken together, the results provide support against the null hypothesis and indicate that there is an association between voluntary CSR disclosure and the cost of equity capital. Nevertheless, the effect of voluntary CSR disclosure on the cost of equity capital documented in this study should not be taken to imply that voluntary CSR disclosure has an overall negative effect on the firm. It has been suggested by Richardson and Welker (2001) that social and environmental issues have significant distributional effects. Therefore, even though investors may require a higher cost of capital for firms with voluntary CSR disclosure, other

stakeholders such as employees, customers, suppliers, regulators and environmentalists may provide greater support to the firm because of voluntary CSR practices and disclosures. Therefore, the net effect of voluntary CSR disclosure on a firm's financial performance and value should be examined to better understand the motivations for providing voluntary CSR disclosure and its overall impact on a firm.

This study contributes to extant voluntary disclosure literature by being the first to examine the effect of voluntary CSR disclosure on the cost of equity capital within an Australian and UK setting. In addition, the use of CSR disclosure in our study extends the traditional research on voluntary disclosure to a broader dimension beyond the narrowly-focused financial disclosures. Furthermore, this study adds significant insight and complementary evidence to extant literature on the association between voluntary CSR disclosure and the cost of equity capital by exploring an Australian and UK setting.

Some limitations of the study arise from the small sample size used in the analysis. Future research can address this limitation by using a larger sample size by either extending to other countries or conducting a longitudinal study. In addition, the firms used in the sample is biased towards large firms as the companies were taken from the 2008 KPMG survey which focused on the top 100 firms. Future research can include firms that are small to medium in size in order to better generalise the results of the study. Finally, as the study was conducted using Australian and UK firms, the results may be low in external validity. Therefore, future research can provide complementary evidence on the effect of voluntary CSR disclosure on the cost of equity capital by exploring firms in other countries.

References

- Al-Tuwaijri, S. A., Christensen, T. E., Hughes, K. E., 2004. The relation among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach. *Accounting, Organizations and Society* 29, 447–471.
- American Institute of Certified Public Accountants (AICPA), 1994. Improving business reporting— a customer focus: a comprehensive report of the special committee on financial reporting. AICPA, New York.
- Amihud, Y., Mendelson, H., 1986. Asset pricing and the bid-ask spread. *Journal of Financial Economics* 17, 233–250.
- Andersen, J. C., Frankel, A. W., 1980. Voluntary social reporting: an iso-beta portfolio analysis. *The Accounting Research* 55, 467–479.
- Armitage, S., Marston, C., 2008. Corporate disclosure cost of capital and reputation: evidence from finance directors. *The British Accounting Review* 40, 314–336.
- Barry, C., Brown, S., 1985. Differential information and security market equilibrium. *Journal of Financial and Quantitative Analysis* 20, 407–422.
- Bauer, R., Derwall, J., Otten, R., 2007. The ethical mutual fund performance debate: new evidence from Canada. *Journal of Business Ethics* 70, 111–124.
- Benston, G. J., 1986. The benefits and costs to managers of voluntary accounting disclosure. *Contemporary Accounting Research* 3, 35–44.
- Botosan, C. A., 1997. Disclosure level and the cost of equity capital. *The Accounting Review* 72, 323–349.
- Botosan, C., Plumlee, M., 2005. Assessing alternative proxies for the expected risk premium. *The Accounting Review* 80, 21–53.
- Bushee, B., Noe, C., 2000. Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of Accounting Research* 38, 171–202.
- Clarkson, P., Guedes, J., Thompson, R., 1996. On the diversification, observability, and measurement of estimation risk. *Journal of Financial and Quantitative Analysis* 31, 69–84.
- Clarkson, P.M., Li, Y., Richardson, G.D., Vasvari, F.P., 2008. Revisiting the relation between environmental performance and environmental disclosure: an empirical analysis. *Accounting, Organizations and Society* 33, 303–327.
- Claus, J., Thomas, J., 2001. Equity premia as low as three percent? Evidence from analysts' earnings forecasts for domestic and international stock markets. *Journal of Finance* 56, 1629–1666.
- Coles, J., Loewenstein, U., Suay, J., 1995. On equilibrium pricing under parameter uncertainty. *Journal of Financial and Quantitative Analysis* 30, 347–364.
- Cormier, D., Gordon, I.M., 2001. An examination of social and environmental reporting strategies. *Accounting, Auditing & Accountability Journal* 14, 587–616.
- Dhaliwal, D., Heitzman, S., Li, O.Z., 2006. Taxes, leverage, and the cost of equity capital. *Journal of Accounting Research* 44, 691–723.
- Dhaliwal, D., Li, O. Z., Tsang, A., Yang, Y. G., 2010. Voluntary non-financial disclosure and the cost of equity capital: the initiation of corporate social responsibility reporting. *The Accounting Review* 86, 1, 59–100.
- Diamond, D., 1985. Optimal release of information by firms. *Journal of Finance* 40, 1071–1094.
- Diamond, D., Verrecchia, R., 1991. Disclosure, liquidity and the cost of capital. *Journal of Finance* 46, 1325–1360.
- Dye, R. A., 1985. Disclosure of nonproprietary information. *Journal of Accounting Research* 23, 123–145.
- Easley, D., O'Hara, M., 2004. Information and the cost of capital. *Journal of Finance* 59, 1553–1583.
- Easton, P., 2004. PE ratios, PEG ratios, and estimating the implied expected rate of return on equity capital. *The Accounting Review* 79, 73–95.
- Eccles, R. G., Mavrinac, S. C., 1995. Improving the corporate disclosure process. *Sloan Management Review* 36, 11–25.
- Fama, E.F., French, K.R., 1992. The cross-section of expected stock returns. *Journal of Finance* 47, 427–65.
- Fishman, M. J., Hagerty, K. K., 1989. Disclosure decisions by firms and the competition for price efficiency. *Journal of Finance* 44, 633–646.

27. Francis, J., Nanda, D., Olsson, P., 2008. Voluntary disclosure, earnings quality, and cost of capital. *Journal of Accounting Research* 46, 53–99.
28. Froot, K., Perold, A., Stein, J., 1992. Shareholder trading practices and corporate investment horizon. *Journal of Applied Corporate Finance* 5, 42–58.
29. Gebhardt, W., Lee, C. M. C., Swaminathan, B., 2001. Toward an implied cost of capital. *Journal of Accounting Research* 39, 135–176.
30. Global Reporting Initiative 2002. Sustainable Reporting Guidelines.
31. Glosten, L., Milgrom, P., 1985. Bid, ask, and transaction prices in a specialist market with heterogeneously informed traders. *Journal of Financial Economics* 14, 71–100.
32. Gode, D., Mohanram, P., 2003. Inferring the cost of capital using the Ohlson-Juettner model. *Review of Accounting Studies* 8, 399–431.
33. Hackston, D., Milne, M.J., 1996. Some determinants of social and environmental disclosures in New Zealand companies. *Accounting, Auditing & Accountability Journal* 9, 77–108.
34. Hail, L., Leuz, C., 2006. International differences in cost of equity capital: do legal institutions and securities regulations matter? *Journal of Accounting Research* 44, 485–531.
35. Handa, P., Linn, S., 1993. Arbitrage pricing with estimation risk. *Journal of Financial Economics* 33, 81–100.
36. Ittner, C. D., Larcker D. F., 1998. Innovations in performance measurement: trends and research implications. *Journal of Management Accounting Research* 10, 205–238.
37. Jensen, M., Meckling, W., 1976. Theory of the firm: managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics* 3, 305–360.
38. Kim, O., Verrecchia, R., 1994. Market liquidity and volume around earnings announcements. *Journal of Accounting and Economics* 17, 41–67.
39. KPMG 2008. KPMG International Survey of Corporate Responsibility Reporting 2008.
40. Lang, M., Lundholm, R., 1993. Cross-sectional determinants of analyst ratings of corporate disclosures. *Journal of Accounting Research* 31, 246–247.
41. Leftwich, R. W., Watts, R. L., Zimmerman, J. L., 1981. Voluntary corporate disclosure: the case of interim reporting. *Journal of Accounting Research* 19, 50–77.
42. Leuz, C., Verrecchia, R., 2000. The economic consequences of increased disclosure. *Journal of Accounting Research* 38, 91–124.
43. Modigliani, E., Miller, M., 1958. The cost of capital, corporation finance and the theory of investment. *American Economic Review* 48, 261–297.
44. Modigliani, E., Miller, M., 1963. Corporate income taxes and the cost of capital: a correction. *American Economic Review* 53, 433–443.
45. PricewaterhouseCoopers 2002. Non-financial measures are highest rated determinants of total shareholder value.
46. Reyes, M. G., Grieb, T., 1998. The external performance of socially responsible mutual funds. *American Business Review* 16, 1–7.
47. Richardson, A., Welker, M., 2001. Social disclosure, financial disclosure and the cost of equity capital. *Accounting, Organization and Society* 26, 597–616.
48. Richardson, A., Welker, M., Hutchinson, I., 1999. Managing capital market reactions to corporate social responsibility. *International Journal of Management Reviews* 1, 17–43.
49. Scheepers, D. H., Sethi, S. P., 2003. Do socially responsible funds actually deliver what they promise? *Business and Society Review* 108, 11–32.
50. Van Staden, C. J., Hooks, J., 2007. A comprehensive comparison of corporate environmental reporting and responsiveness. *British Accounting Review* 39, 197–210.
51. Verrecchia, R., 1983. Discretionary disclosure. *Journal of Accounting and Economics* 5, 179–194.