



The importance of corporate environmental reputation to investors

Corporate
environmental
reputation

229

Khaled Hussainey

Stirling Management School, University of Stirling, Stirling, UK, and

Aly Salama

Durham Business School, Durham University, Durham, UK

Abstract

Purpose – The purpose of this paper is to explore how corporate environmental reputation (CER) affects the association between current annual stock returns and current and future annual earnings. In particular, it seeks to examine the potential usefulness of CER to investors in predicting future earnings.

Design/methodology/approach – The paper uses the returns-earnings regression model introduced by Collins *et al.* to examine the importance of CER for investors. It uses a sample of 889 non-financial firms listed on the London Stock Exchange from 1996 to 2004.

Findings – The paper finds that firms with higher levels of CER scores exhibit higher levels of share price anticipation of earnings than firms with lower levels of CER scores.

Originality/value – This paper is the first direct evidence that CER contains value-relevant information. Such information is potentially useful to investors in anticipating future earnings.

Keywords Corporate social responsibility, Stock returns, Earnings, Investors, United Kingdom

Paper type Research paper

1. Introduction

The information content of corporate social responsibility (CSR) ratings has received attention in a growing body of literature. Many studies examine the information content of these rankings either by investigating the stock market reaction to the announcement of such rankings or by investigating the differences in mean returns between firms that disclose and do not disclose environmental information (Ingram, 1978; Jaggi and Freedman, 1992; Murray *et al.*, 2006). Other studies (Moneva and Cuellar, 2009) examine the value relevance of environmental reporting. Moneva and Cuellar (2009) find that financial environmental information provides value-relevant information for about the firm value. However, they did not find the same for non-financial environmental information.

In a recent paper, Cormier and Magnan (2007, p. 614) argue that “environmental reporting will be likely used by investors to better assess firm’s earnings prospects and reduce implied uncertainty”. However, to the best of our knowledge, there is no study directly examine that the extent to which corporate environmental activity can provide value-relevant information to the capital market participants in assessing the future prospects of firms.

The present paper examines the association between corporate environmental reputation (CER) and share price anticipation of earnings[1]. To measure this association, we modify the regression model of Collins *et al.* (1994) and regress current returns against current and future earnings changes. We use the future earnings response coefficient



(FERC) as a proxy for the stock market's ability to anticipate the firms' future earnings. We predict higher FERCs for firms with higher levels of CER scores.

We find that higher levels of CER are associated with stock prices that are more informative about future earnings (i.e. higher FERC). These results suggest that environmental reputation provides value-relevant information for investors to anticipate future earnings.

The remainder of the paper is organised as follows. Section 2 reviews the theory and relevant empirical literature. Section 3 describes the research design and the empirical predictions. The main findings and the sensitivity analysis are then discussed in Section 4. In Section 5, conclusions are drawn.

2. Reputation signalling and stock returns: theory and empirical evidence

Signalling theory was used in prior studies to explain why managers voluntarily disclose forward-looking information in their annual report narratives (Hussainey *et al.*, 2003; Schleicher *et al.*, 2007; Hussainey and Walker, 2009). We use the same theory to interpret our research findings.

Signalling theory can be traced back to Akerlof (1970) who explained signalling theory in a general product market setting. This theory is based on the idea of information asymmetries between insiders (managers) and outsiders (i.e. investors). Managers usually have better information than other stakeholders, and therefore outsiders may interpret any additional information as signals to the stock market. Corporate environmental responsibility represents a firm's strategy to respond adequately to the expectations of society in which it operates. Signalling theory suggests that firms provide information that could be used by individuals who are seeking to form impressions about the firm, its values and the overall future direction (Jones and Murrell, 2001). These individual evaluations of firms are relevant in a variety of settings and circumstances. For example, individuals need information to make various decisions such as whether they will purchase a firm's goods and services and whether they want to invest in a firm (Akerlof, 1970; Spence, 1973).

The resource-based view (RBV) of the environmentally responsible firm is our main theoretical framework in examining the role of environmental reputation in increasing the stock market's ability to anticipate future earnings change. The fundamental principle of RBV is that a firm's competitive advantage derives from its ability to assemble, control and exploit an appropriate combination of unique resources (e.g. tangible and intangible assets, attributes, capabilities, knowledge, processes, skills, etc.) that are strategic, valuable and rare[2]. That advantage can be sustained over longer time periods, resulting in superior long-term financial performance, to the extent that the firm is able to protect against resource imitation, transfer or substitution (Wade and Hulland, 2004). Arguably, if these conditions hold, the environmental reputation, as one of the firm bundle of unique resources, can help the firm sustaining above average returns.

Our study is important for two main reasons. First, bearing in mind that there is a need to reduce investors' uncertainty about firms' future prospects, we seek to investigate whether CERs make investors more confident/less uncertain when they anticipate firms' future earnings change.

Second, the empirical results of previous studies that examines the information content of CSR disclosures or CSR ratings, as a proxy for social responsiveness, is mixed and inconclusive.

The main objective of the current study is to examine the potential value-relevant information of the community and environmental responsibility ratings, published in the UK financial media, to investors in anticipating a firm's future earnings change, as reflected in current stock returns. As Dowling (1986) points out, investors routinely depend on the reputations of firms in making investment decisions. Predictably, firms that act in an environmentally responsible manner and have a history of fulfilling their obligations to various stakeholder groups are creating environmental reputation, which can be considered as a subset of overall corporate reputation[3] (Miles and Covin, 2000). This corporate reputation is arguably the most important of intangible assets (Miles and Covin, 2000; Toms, 2002). It signals value-relevant information to investors about how the firm's organizational effectiveness compares to that of competing firms (Fombrun and Shanley, 1990; Belkaoui, 1999).

There is one accepted method of measuring CER, that is "corporate reputation index", where knowledgeable observers rate firms on the basis of one or more dimensions of social performance (Fombrun and Shanley, 1990; Herremans *et al.*, 1993). Many US surveys have relied on the reputation rankings published annually in *Fortune* magazine to assess corporate social and environmental responsibility performance (McGuire *et al.*, 1988; Herremans *et al.*, 1993). This method is still one of the most popular methods because of its comprehensiveness and availability. Despite the degree of subjectivity inherent in the ranking, this method has two main advantages (Karake, 1998). First, it summarises the responses of a key constituency of various firms. Second, it tends to be internally consistent because one evaluator is applying the same (although usually subjective) criteria to each firm. Herremans *et al.* (1993) argued that *Fortune* annual survey of corporate reputations is reliable in that it draws out the opinions of a large number of senior executives, outside directors and financial analysts, all intimately familiar with the industries of the companies they are asked to evaluate.

In addition to *Fortune*, annual company ratings are beginning to appear in other countries, including *Asian Business*' "Asia's Most Admired Companies (MAC)", *The Far Eastern Economic Review's* "Review 200" and *The Financial Times*' "Europe's Most Respected Companies". The British equivalent of the *Fortune* survey, which follows the same methodology, has been published since 1989, first in the *Economist* and since 1994 in *Management Today*. In this study, the reputation index of Britain's MAC which was published in *Management Today* is used as a proxy to measure CER. The survey is based on the opinions of senior directors from 250 of Britain's largest companies. Financial analysts for each sector are also included in the survey. In the survey, companies are rated between 0 (poor) and 10 (excellent) using nine characteristics, one of which is community and environmental responsibility, which is used in this study as an empirical proxy for CER.

Based on the above discussion, we hypothesise that:

- H1. Corporate environmental activity provides value-relevant information to investors to better anticipate the future earnings of firms.

3. Research design and empirical predictions

The initial sample population chosen for this study included all companies covered by the *Management Today* "Britain's MAC" 1996-2002 survey in terms of "community and environmental responsibility"[4]. A total of 1,359 firm-years were listed in these surveys. Financial sectors were left out of the study. The sample was reduced further due to missing accounting and return data. This leaves 889 usable observations which

appeared on MAC-published survey of environmental reputation from 1996 to 2002 (inclusive) and for which all appropriate data were available.

To examine the impact of CER on the market's ability to anticipate future earnings, we modify the Collins *et al.*'s (1994) model which has been applied in a number of recent studies[5]. This model regresses the current-year stock returns on current and future earnings and other control variables. We modify Collins *et al.*'s (1994) model as follows:

- following Schleicher and Walker (1999), we use only two years' future earnings growth variables in our regression ($N = 2$ and $k = 1, 2$) rather than three years future earnings growth variables; and
- we deflate annual earnings by share price and not by lagged annual earnings. This yields the following modified Collins *et al.*'s (1994) model:

$$R_t = b_0 + b_1 X_t + \sum_{k=1}^2 b_{k+1} X_{t+k} + \sum_{k=1}^2 b_{k+N+1} R_{t+k} + b_{2N+2} EP_{t-1} + b_{2N+3} AG_t + u_t \quad (1)$$

where:

b_0 : intercept.

$b_1 - b_8$: coefficient of slope parameters.

μ : error term.

R_t : stock return for period t .

R_{t+1} : stock return for period $t + 1$.

R_{t+2} : stock return for period $t + 2$.

X_t : earnings change per share in period t deflated by the share price four months after the end of the financial year $t - 1$.

X_{t+1} : earnings change per share in period $t + 1$ deflated by the share price four months after the end of the financial year $t - 1$.

X_{t+2} : earnings change per share in period $t + 2$ deflated by the share price four months after the end of the financial year $t - 1$.

EP_{t-1} : earnings yield is defined as earnings per share for period $t - 1$ divided by share price four months after the end of the financial year $t - 1$.

AG_t : total assets growth for period t .

Accounting and annual stock return data come from Datastream. In particular, annual earnings are defined as operating income before all exceptional items (Worldscope item 01250). Earnings per share are calculated by dividing Worldscope item 01250 by the outstanding number of shares. Consistent with Hussainey *et al.* (2003), annual stock returns are calculated as buy-and-hold returns (inclusive of dividends) over a 12-month period from eight months before the financial year-end to four months after the financial year-end. Earnings yield, EP_{t-1} , is defined as period $t - 1$'s earnings over price four months after the financial year-end of period $t - 1$. AG_t is defined the growth rate of book value of total assets (Worldscope item 02999) for period t .

Further, we expand the above model to include the CER variable to examine its potential value to investors. We interact all right-hand-side variables with a dummy variable (1 = companies with high CER scores; 0 otherwise). In particular, companies in the top (bottom) 50 per cent of the distribution of CER scores are defined as high (low) CER firms[6]. Interacting all explanatory variables in equation (1) with CER and noting that $N = 2$ yields our main regression model:

$$\begin{aligned}
 R_t = & b_0 + b_1X_t + \sum_{k=1}^2 b_{k+1}X_{t+k} + \sum_{k=1}^2 b_{k+3}R_{t+k} + b_6EP_{t-1} + b_7AG_t \\
 & + b_8CER + b_9[CER * X_t] + \sum_{k=1}^2 b_{k+9}[CER * X_{t+k}] \\
 & + \sum_{k=1}^2 b_{k+11}[CER * R_{t+k}] + b_{14}[CER * EP_{t-1}] + b_{15}[CER * AG_t] + e_t
 \end{aligned} \tag{2}$$

Our main prediction is that b_{k+9} is positive because the relation between returns and future earnings changes should increase with higher levels of CER scores, and b_{k+9} measures the difference in FERCs between high and low CER scores[7]. Consistent with previous research on the returns-earnings relation (Lev, 1989), we expect b_1 to be positive. We also expect the FERCs of low CER firms, b_{k+1} to be positive.

CER data were collected from the UK MAC survey from 1996 to 2002. Each annual survey contains all the FTSE100 British companies and, on average, 90 per cent of the top 200 companies by market capitalisation. The sample companies are the largest by market capitalisation from each of 26 sectors. Each year Britain's MAC survey asks senior executives from 260 British companies and senior specialist business analysts to give a rating of the performance of each company, other than their own in the case of executives, within their industrial sector. They provide a score of 0 (= poor) to 10 (= excellent) for each of nine characteristics that influence the major stakeholders, including CER, the variable of interest for this study. The CER variable, which has been used in some prior academic studies (Toms, 2002; Salama, 2003, 2005; Hasseldine *et al.*, 2005), is the average score derived from the individual ratings of executives and analysts combined.

The validity of CER scores is supported in prior research (Hasseldine *et al.*, 2005) by two different sets of analyses:

- (1) The correlation between CER scores and three different environmental disclosure measures (qualitative; quantitative and quality adjusted quantitative disclosure measures).
- (2) The correlation between CER scores and firm characteristics identified in prior studies to be associated with the level of corporate disclosures.

Hasseldine *et al.* (2005) show that CER scores are highly correlated with other environmental disclosure measures. In addition, they find that the correlation between CER scores and power of shareholders, risk, profitability, size and corporate diversification are highly significant. Therefore, we do believe that CER scores can be used as a measure of corporate environmental disclosure and this measure is reliable as it is driven by the same factors affecting the level of corporate voluntary disclosure.

4. Results

Table I presents the regression results from the estimate of equation (2). We divide firms into high and low environmental reputation based on the top/bottom 50 per cent of the distribution of the CER scores and then we use pooled ordinary least squares (OLS) regression over 1996-2002 time periods to estimate this equation. Pooled regressions are becoming central to the market-based accounting research. It enables researchers to undertake their studies on a large number of observations. One feature of estimating a pooled OLS regression is that it forces the intercept term to be the same across firms and assumes that the error term is distributed identically over the entire sample (Cheung *et al.*, 2007).

As expected, the coefficient on X_t is positive and significant at the 1 per cent level. There is no evidence of prices leading earnings for firms with low environmental reputation. The coefficients on X_{t+1} and X_{t+2} are negative with p -values of 0.922

Independent variable	Expected sign	CER = 1 if the firm is in the top 50 per cent of CER scores CER = 0 if the firm is in the bottom 50 per cent of CER scores			
		OLS pooled regression		Fixed effects panel data regression	
Intercept	(?)	0.12***	(0.004)	0.14***	(0.001)
X_t	(+)	1.50***	(0.009)	1.48***	(0.001)
X_{t+1}	(+)	-0.05	(0.922)	-0.06	(0.782)
X_{t+2}	(+)	-0.53**	(0.042)	-0.47**	(0.025)
R_{t+1}	(-)	-0.05	(0.416)	-0.03	(0.361)
R_{t+2}	(-)	-0.17***	(0.001)	-0.17***	(0.001)
EP_{t-1}	(+)	-0.02	(0.962)	-0.02	(0.859)
AG_t	(-)	0.01	(0.560)	0.01	(0.632)
CER	(?)	-0.07	(0.217)	-0.07	(0.102)
$CER * X_t$	(?)	0.40	(0.556)	0.18	(0.783)
$CER * X_{t+1}$	(+)	2.05***	(0.002)	2.09***	(0.001)
$CER * X_{t+2}$	(+)	1.69***	(0.001)	1.56***	(0.002)
$CER * R_{t+1}$	(?)	-0.05	(0.601)	-0.05	(0.496)
$CER * R_{t+2}$	(?)	-0.05	(0.501)	-0.03	(0.613)
$CER * EP_{t-1}$	(?)	0.48	(0.263)	0.51	(0.137)
$CER * AG_t$	(?)	0.05	(0.147)	0.05*	(0.100)
Full model adj. R^2		0.120		0.160	
Collins <i>et al.</i> adj. R^2		0.105		0.138	
Basic model adj. R^2		0.064		0.094	
Observations		889		889	
F-value		9.08***	(0.001)	4.03***	(0.001)

Notes: The significance levels are: *10, **5, ***1 per cent; reports OLS and fixed effects panel regression results. R_t , R_{t+1} and R_{t+2} are calculated as buy-and-hold returns from eight months before the financial year-end to four months after the financial year-end; the earnings variables, X_t , X_{t+1} and X_{t+2} , are defined as earnings change per share in periods t , $t + 1$ and $t + 2$ deflated by the share price four months after the end of the financial year $t - 1$; earnings measure is the Worldscope item 01250 which is operating income before all exceptional items; asset growth, AG_t , is defined as the growth rate of total assets (Worldscope item 02999) in period t ; EP_{t-1} is defined as period $t - 1$'s earnings over price four months after the financial year-end of period $t - 1$; CER scores are converted into a dummy variable; firms in the top (bottom) 50 per cent of the distribution of CER scores are defined as high (low) reputation firm

Table I.
Main regression results

and 0.042, respectively. It is also noticeable that the coefficients for both EP_{t-1} and AG_t are insignificant.

The coefficients on the future stock return variables, R_{t+1} and R_{t+2} are expected to be negative. Negative coefficients on future stock returns may demonstrate that realised future earnings contain a measurement error that future returns remove (Collins *et al.*, 1994). Table I shows that the coefficient estimate on R_{t+1} is negative but not significant, while the coefficient estimate on R_{t+2} is negative and significant at the 1 per cent level.

Of more direct interest to us here is to look at $CER * X_{t+1}$ and $CER * X_{t+2}$, which are the coefficients on the interaction between environmental reputation and future earnings change (i.e. the incremental effect of high-reputation scores on the FERC). A significant positive coefficient is hypothesised. Table I shows that the coefficient estimate on $CER * X_{t+1}$ is 2.05 with a p -value of 0.002 indicating that current stock returns incorporate future earnings information much more strongly for firms with high levels of reputation scores than those with low scores. The coefficient on $CER * X_{t+2}$ is 1.69 and significant at the 1 per cent level. Therefore, the regression results show that the stock prices of high environmental reputation firms have significantly greater forecasting power for future earnings changes one and two years ahead than those of low environmental reputation firms.

Interestingly, CER and $CER * X_t$ are both insignificant indicating that all the value of CER is captured through an improved ability to forecast future earnings. There is no evidence of a contemporaneous relation between environmental reputation scores and returns. The influence of environmental reputation on returns is going through future earnings. These results are consistent with our hypothesis, that high CER increases the market's ability to anticipate future earnings change, with the increased ability reflected in current stock returns.

Table I also reports three adjusted R^2 values; R^2 for the basic current returns-current earnings regression model; R^2 for the Collins *et al.* (1994) regression model without including the CER dummy variable and R^2 for our main regression model. Table I shows that R^2 is improved when we move from the basic current returns-current earnings model to the Collins *et al.*'s (1994) model. Also it shows that R^2 in our regression model increases when we include the CER dummy variable. In particular, the table shows that R^2 for the basic current returns-current earnings model is 0.06. Adding two years of future growth variables and other control variables increases R^2 of the Collins *et al.*'s (1994) regression model to 0.10. When we add the CER dummy variable, R^2 increases to 0.12. The difference between the adjusted R^2 in Collins *et al.*'s (1994) model and our model is consistent with our expectation that CER provides potential value-relevant information for investors for forecasting future earnings change.

Our results suggest that some firms respond to the expectation of society in which they operate. They signal value-relevant information – environmental reputation – to outsiders to distinguish themselves from low reputation quality firms. Consistent with the RBV theoretical framework, our study shows that firms with a unique and valuable resource such as environmental reputation exhibit a long-term advantage. This advantage is the ability of these firms to signal their long-term future prospects to the market participants (investors). Our study shows that environmental reputation helps investors to better anticipate future earnings change two years ahead. This leads us to accept our main research hypothesis.

Hsiao (1986) argues that the pooled OLS estimates may lead to false inferences. It is likely to be inefficient, biased or both (Hicks and Janoski, 1994). However, panel data analysis is better able to give more informative data, more variability, less collinearity among the variables, more degrees of freedom, more efficiency and, most importantly, controls for heterogeneity (Baltagi, 2001). Therefore, we also report the results of using fixed-effects panel data regression analysis, on a complementary basis, to assess how reliable our results are. Table I shows that the coefficients on all independent variables calculated by the panel regression are consistent with those estimated by the pooled OLS regression. Thus, we can conclude that our empirical results are valid, regardless of the regression method we used.

As noted previously, although the method of defining the high/low reputation was widely used in prior literature, it could be argued that it may have some limitations, for example, the median CER scores for high- and low-reputation firms are quite close (4.94 for low firms versus 6 for high firms). To overcome this problem and to assess whether our regression results, presented in Table I, are sensitive to the definition of high/low-reputation firms, we use an alternative method of classification which is also, widely used in prior studies (Gelb and Zarowin, 2002; Hussainey *et al.*, 2003; Schleicher *et al.*, 2007).

In doing so, we divided our reputation scores into four quartiles. We then drop observations with reputation scores in the second and third quartiles. Thus, we define high-reputation firms as those appearing in the top 25 per cent of the distribution of CER scores, while low-reputation firms are those appear in the bottom 25 per cent of the distribution of CER scores. Table II reports the new regression results. Table II shows similar results as those reported in Table I. So it is safe to conclude that the incremental effect of environmental reputation on the share price anticipation of earnings is not conditional on the spread in the median reputation score between high- and low-reputation firms.

5. Conclusion

We contribute to existing CSR research by examining the association between CER and investors ability to forecast future earnings. We employ the “FERC” framework to examine this research issue. Our results show that environmental reputation increases the stock market’s ability to anticipate future earnings change. This effect is positively statistically significant in models that examine two-periods-ahead share price anticipation of earnings. The results support the view that current earnings alone have only a limited ability to communicate a firm’s value to investors. Other information leads to a better forecasting ability of future earnings by investors. An important type of this information is the CER.

This paper establishes that the reputation for leadership in environmental affairs is associated with better market’s ability to anticipate future earnings change, as reflected in current stock returns. Therefore, there is a clear message for corporate managers and policy makers. The attention to develop a sound environmental policy, through allocating some resources toward environmental agenda, and therefore developing a reputation for that policy, does not represent a competitive disadvantage. Our research findings have managerial implications. The findings show that investors are uncertain about the quality of reported earnings and that they appear to be better informed when they take into their account the CER. Therefore, environmental issues

Independent variable	Expected sign	CER = 1 if the firm is in the top 25 per cent of CER scores CER = 0 if the firm is in the bottom 25 per cent of CER scores			
		OLS pooled regression		Fixed effects panel data regression	
Intercept	(?)	0.20***	(0.001)	0.18***	(0.001)
X_t	(+)	0.95	(0.170)	0.94**	(0.015)
X_{t+1}	(+)	0.62	(0.199)	0.60	(0.110)
X_{t+2}	(+)	-0.93	(0.117)	-0.95***	(0.008)
R_{t+1}	(-)	-0.17***	(0.008)	-0.16***	(0.005)
R_{t+2}	(-)	-0.21***	(0.008)	-0.21***	(0.001)
EP_{t-1}	(+)	-0.23	(0.373)	-0.23*	(0.068)
AG_t	(-)	0.05	(0.486)	0.05	(0.360)
CER	(?)	-0.20***	(0.001)	-0.19***	(0.002)
CER * X_t	(?)	0.98	(0.229)	0.83	(0.370)
CER * X_{t+1}	(+)	1.78**	(0.015)	1.88**	(0.031)
CER * X_{t+2}	(+)	2.60***	(0.003)	2.66***	(0.005)
CER * R_{t+1}	(?)	0.09	(0.340)	0.09	(0.382)
CER * R_{t+2}	(?)	-0.12	(0.272)	-0.09	(0.296)
CER * EP_{t-1}	(?)	1.05***	(0.008)	0.97**	(0.033)
CER * AG_t	(?)	-0.03	(0.727)	-0.02	(0.702)
Full model adj. R^2		0.181	0.181	0.224	0.224
Collins <i>et al.</i> adj. R^2		0.152	0.152	0.182	0.182
Basic Model adj. R^2		0.056	0.056	0.084	0.084
Observations		433			
F-value		7.37***	(0.001)	1.27	(0.271)

Notes: The significance levels are: *10, **5, ***1 per cent; reports OLS and fixed effects panel regression results. R_t , R_{t+1} and R_{t+2} are calculated as buy-and-hold returns from eight months before the financial year-end to four months after the financial year-end; the earnings variables, X_t , X_{t+1} and X_{t+2} , are defined as earnings change per share in periods t , $t + 1$ and $t + 2$ deflated by the share price four months after the end of the financial year $t - 1$; earnings measure is the Worldscope item 01250 which is operating income before all exceptional items; asset growth, AG_t , is defined as the growth rate of total assets (Worldscope item 02999) in period t ; EP_{t-1} is defined as period $t - 1$'s earnings over price four months after the financial year-end of period $t - 1$; CER scores are converted into a dummy variable; firms in the top (bottom) 25 per cent of the distribution of CER scores are defined as high (low) reputation firm. Middle quartiles are not included in the analyses

Table II.
Regression results:
a specification test

are most likely to better influence investors' ability to forecast future earnings and hence their decisions to purchase the companies' securities. Therefore, for effective financial communication with investors, accountants should give high priority to develop appropriate and complete environmental disclosure practices. The findings reported in the study provide assistance to accountants wishing to understand more precisely how environmental reporting issues affect the quality of reported earnings numbers.

Our findings are important because they help to inform regulators about the benefits of CSR to current and potential investors and the disclosing company.

Our results also have important implications for small investors who may not have access to other sources of information in the same way that financial analysts or large institutional investors do. Our findings suggest that reported earnings alone may be

insufficient for an investor to forecast future earnings, the publication of CER scores by MAC improves investors' earnings forecasts and this is most likely to guide their investment decisions in the right way.

Finally, our results have implications for the efficient market hypothesis. The results suggest that CER provides investors with value-relevant information. This information enables them to better forecast companies' future earnings. Accordingly, this leads to more efficient capital markets.

Taken together, our paper provides the first empirical evidence that environmental reputation improves investors' ability to forecast future earnings. We suggest a number of other avenues for future research. The study offers empirical evidence on the importance of CER for investors' ability to anticipate future earnings. Additional research could be undertaken to examine other contexts such as the effect of CER on cost of equity capital, cost of debt capital and the characteristics of analysts' forecasts. Future research may be conducted to examine the potential value of CER to other stakeholders. In addition, it would be interesting to study the determinants of CER ratings of British companies. Finally, it would be interesting to extend our research by testing the extent to which corporate governance mechanisms affect the association between corporate environmental reputation and the investors' ability to forecast future earnings.

Notes

1. Other studies examine the relationship between corporate disclosure and share price anticipation of earnings (Hussainey *et al.*, 2003; Schleicher *et al.*, 2007; Hussainey and Walker, 2009).
2. See for example, Barney (1991), Hart (1995), Litz (1996), Russo and Fouts (1997), Wade and Hulland (2004).
3. Corporate reputation consists of the set of stakeholders' perceptions of a company, which is the result of information transmitted via mass media and through interpersonal communication (Fombrun, 1996; Gray and Balmer, 1998; Hooghiemstra, 2000). Riel (1995, p.23) defines it as "a set of meanings by which an object is known and through which people describe, remember and relate to it. That is the result of the interaction of a person's beliefs, ideas, feelings and impressions about an object". In another definition, Dowling (2001) describes it as the attributed values (such as authenticity, honesty, reliability, responsibility, and integrity) elicited from stakeholders' beliefs and feelings about a company.
4. We would like to thank Mike Brown from Nottingham Trent University for allowing us to use the MAC data.
5. See Hussainey and Walker(2009) for more details.
6. This is consistent with prior research (i.e. Abraham and Tonks, 2006; Hussainey and Walker, 2009; Lundholm and Myers, 2002).
7. The FERC of high environmental reputation firms is obtained as the sum of b_{k+1} and b_{k+9} .

References

- Abraham, S. and Tonks, I. (2006), "Voluntary corporate disclosure by UK companies", working paper, University of Exeter, Exeter.
- Akerlof, G.A. (1970), "The market for lemons: quality uncertainty and the market mechanism", *Quarterly Journal of Economics*, Vol. 84 No. 3, pp. 488-500.

-
- Baltagi, B.H. (2001), *Econometric Analysis of Panel Data*, Wiley, New York, NY.
- Barney, J.B. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17, pp. 99-120.
- Belkaoui, A. (1999), *Corporate Social Awareness and Financial Outcomes*, Quorum Books, London.
- Cheung, Y., Chinn, M.D. and Fujii, E. (2007), "The overvaluation of Renminbi undervaluation", working paper, University of Wisconsin-Madison, Madison, WI.
- Collins, D.W., Kothari, S.P., Shanken, J. and Sloan, R.G. (1994), "Lack of timeliness and noise as explanations for the low contemporaneous return-earnings association", *Journal of Accounting and Economics*, Vol. 18 No. 3, pp. 289-324.
- Cormier, D. and Magnan, M. (2007), "The revised contribution of environmental reporting to investors' valuation of a firm's earnings: an international perspective", *Ecological Economics*, Vol. 62 Nos 3-4, pp. 613-26.
- Dowling, G. (1986), "Managing your corporate image", *Industrial Marketing Management*, Vol. 15, pp. 109-15.
- Dowling, G. (2001), *Creating Corporate Reputations: Identity, Image, and Performance*, Oxford University Press, Oxford.
- Fombrun, C.J. (1996), *Reputation: Realizing Value from the Corporate Image*, Harvard Business School, Boston, MA.
- Fombrun, C.J. and Shanley, M. (1990), "What's in a name? reputation building and corporate strategy", *Academy of Management Journal*, Vol. 33 No. 2, pp. 233-58.
- Gelb, D.S. and Zarowin, P. (2002), "Corporate disclosure policy and the informativeness of stock prices", *Review of Accounting Studies*, Vol. 7, pp. 33-52.
- Gray, E.R. and Balmer, J.M.T. (1998), "Managing corporate image and corporate reputation", *Long Range Planning*, Vol. 31 No. 5, pp. 695-702.
- Hart, S. (1995), "A natural resource-based view of the firm", *Academy of Management Review*, Vol. 20 No. 4, pp. 986-1014.
- Hasseldine, J., Salama, A.I. and Toms, J.S. (2005), "Quantity versus quality: the impact of environmental disclosures on the reputations of UK Plcs", *The British Accounting Review*, Vol. 37 No. 2, pp. 231-48.
- Herremans, I.M., Parporn, A. and McInnes, H. (1993), "An investigation of corporate social responsibility reputation and economic performance", *Accounting, Organizations and Society*, Vol. 18 Nos 7/8, pp. 587-604.
- Hicks, A.M. and Janoski, T. (1994), *The comparative Political Economy of the Welfare State*, Cambridge University Press, Cambridge.
- Hooghiemstra, R. (2000), "Corporate communication and impression management – new perspectives why companies engage in corporate social reporting", *Journal of Business Ethics*, Vol. 27, pp. 55-68.
- Hsiao, C. (1986), *The Analysis of Panel Data*, Cambridge University Press, Cambridge.
- Hussainey, K. and Walker, M. (2009), "The effects of voluntary disclosure policy and dividend payment status on prices leading earnings", *Accounting and Business Research*, Vol. 39 No. 1, pp. 37-55.
- Hussainey, K., Schleicher, T. and Walker, M. (2003), "Undertaking large-scale disclosure studies when AIMR-FAF ratings are not available: the case of prices leading earnings", *Accounting and Business Research*, Vol. 33 No. 4, pp. 275-94.

- Ingram, R. (1978), "An investigation of the information content of certain social responsibility disclosures", *Journal of Accounting Research*, Vol. 16 No. 2, pp. 270-85.
- Jaggi, B. and Freedman, M. (1992), "An examination of the impact of pollution performance on economic and market performance: pulp and paper firms", *Journal of Business Finance & Accounting*, Vol. 19 No. 5, pp. 697-713.
- Jones, R. and Murrell, A.J. (2001), "Signaling positive corporate social performance: an event study of family-friendly firms", *Business and Society*, Vol. 40 No. 1, pp. 59-78.
- Karake, Z.A. (1998), "An examination of the impact of organizational downsizing and discrimination activities on corporate social responsibility as measured by a company's reputation index", *Management Decision*, Vol. 36 No. 3, pp. 206-16.
- Lev, B. (1989), "On the usefulness of earnings: lessons and directions from two decades of empirical research", *Journal of Accounting Research*, Vol. 27, Supplement, pp. 153-92.
- Litz, R. (1996), "A resource-based view of the socially responsible firm: stakeholder interdependence, ethical awareness and issue responsiveness as strategic assets", *Journal of Business Ethics*, Vol. 15, pp. 1355-63.
- Lundholm, R.J. and Myers, L.A. (2002), "Bringing the future forward: the effect of disclosure on the returns-earnings relation", *Journal of Accounting Research*, Vol. 40 No. 3, pp. 809-39.
- McGuire, J., Sundgren, A. and Schneeweis, T. (1988), "Corporate social responsibility and firm financial performance", *Academy of Management Journal*, Vol. 31 No. 4, pp. 854-72.
- Miles, M.P. and Covin, J.G. (2000), "Environmental marketing: a source of reputational, competitive, and financial advantage", *Journal of Business Ethics*, Vol. 23, pp. 299-311.
- Moneva, J.M. and Cuellar, B. (2009), "The value relevance of financial and non-financial environmental reporting", *Environmental and Resource Economics*, Vol. 44 No. 3, pp. 441-56.
- Murray, A., Sinclair, D., Power, D. and Gray, R. (2006), "Do financial markets care about social and environmental disclosure? Further evidence and exploration from the UK", *Accounting, Auditing & Accountability Journal*, Vol. 19 No. 2, pp. 228-55.
- Riel, C.B.M.V. (1995), *Corporate Communication*, Prentice-Hall, New York, NY.
- Russo, M. and Fouts, P. (1997), "A resource-based perspective on corporate environmental performance and profitability", *Academy of Management Journal*, Vol. 40 No. 3, pp. 534-59.
- Salama, A. (2003), "The relationship between environmental disclosure, environmental reputation and firm financial performance: UK evidence", unpublished PhD thesis, University of Nottingham, Nottingham.
- Schleicher, T. and Walker, M. (1999), "Share price anticipation of earnings and management's discussion of operations and financing", *Accounting and Business Research*, Vol. 29 No. 4, pp. 321-35.
- Schleicher, T., Hussainey, K. and Walker, M. (2007), "Loss firms' annual report narratives and share price anticipation of earnings", *The British Accounting Review*, Vol. 39 No. 2, pp. 153-71.
- Spence, A. (1973), "Job market signalling", *Quarterly Journal of Economics*, Vol. 87, pp. 355-79.
- Toms, J.S. (2002), "Firm resources, quality signals and the determinants of corporate environmental reputation: some UK evidence", *British Accounting Review*, Vol. 34 No. 3, pp. 257-82.

Wade, M. and Hulland, J. (2004), "The resource-based view and information systems research: review, extension, and suggestions for future research", *MIS Quarterly*, Vol. 28 No. 1, pp. 107-42.

Further reading

Salama, A. (2005), "A note on the impact of environmental performance on financial performance", *Structural Change and Economic Dynamics*, Vol. 16, pp. 413-21.

Corresponding author

Khaled Hussainey can be contacted at: Khaled.Hussainey@stir.ac.uk