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# Environmental and Social Disclosures and Firm Risk

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**Abstract** We examine the link between a firm's environmental (E) and social (S) disclosures and measures of its risk including total, systematic, and idiosyncratic risk. While we do not find any link between a firm's E and S disclosures and its systematic risk, we find a negative and significant association between these disclosures and a firm's total and idiosyncratic risk. These are novel findings and are consistent with the predictions of the stakeholder theory and the resource-based view of the firm suggesting that firms which make extensive and objective E and S disclosures promote corporate transparency that can help them build a positive reputation and trust with their stakeholders. This in turn can help mitigate the firms' idiosyncratic/operational risk. These findings are important for all corporate stakeholders including managers, employees, and suppliers who have a significant economic interest in the survival and success of the firm.

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**Keywords** Environmental and social disclosures · Firm risk · Voluntary disclosure · Corporate social responsibility · Stakeholder theory · Resource-based view · Risk management

**Abbreviations**

| | |
|---|---|
| CAPM | Capital asset pricing model |
| CFP | Corporate financial performance |
| CSD | Corporate social disclosure |
| CSP | Corporate social performance |
| CSR | Corporate social responsibility |
| E | Environmental |
| FTSE | Financial Times Stock Exchange Group |
| GHG | Green house gas |
| GRI | Global reporting initiative |
| ISO | International Organization for Standardization |
| MTB | Market to book ratio |
| RBV | Resource-based view (of the firm) |
| ROA | Return on assets |
| S | Social |
| SIC | Standard industrial classification |
| UK | United Kingdom |

## Introduction

In recent years, there has been a growing interest in environmental and social issues on the part of a variety of corporate stakeholders including investors, employees, suppliers, customers, government, and the wider society. In line with this trend, a considerable body of academic research has focused on examining the various stakeholder-related implications of a firm's actions aimed at addressing its corporate environmental and social responsibility, generally referred to as CSR. Scholars have found investments

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in CSR to be associated with a number of benefits, including superior economic performance (see Beurden and Gossling 2008, for a recent literature review) and reduced firm risk (see Orlitzky and Benjamin 2001, for a meta-analytic review). In the latter context, scholars to date have tended to view a firm's investments in CSR as a risk management strategy that can provide an insurance-like protection for its cash flows, reducing their riskiness vis-à-vis the market (see Godfrey 2005) and thus impacting the firm's financial/systematic risk (see Hasseldine et al. 2005; Jo and Na 2012; Oikonomou et al. 2012). There is also, however, a view in the literature that investments in CSR-related activities that help build good relations with a firm's stakeholders are like a real option that a firm can use to reduce its operational costs and/or input prices thus reducing the firm's operational i.e. idiosyncratic risk (Husted 2005). This theoretical view, however, has not been explicitly tested in the literature although there is some indirect empirical evidence supporting it (see Lee and Faff 2009). Moreover, while the link between corporate social performance and financial risk has been examined to some extent, corresponding studies related to environmental (E) and social (S) disclosures are lacking. Our paper attempts to address both these gaps.

Increasingly public limited companies around the world are making extensive (i.e. covering a wide number of relevant issues, cf. Clarkson et al. 2008) and objective (i.e. 'hard' quantified and hence more reliable, cf. Clarkson et al. 2008; Cormier and Magnan 2013) environmental (E) and social (S) disclosures. In line with this trend, academic studies have also been conducted to investigate various capital market implications of such disclosures. While there is an ongoing debate in the literature as to whether extensive E disclosures relate to superior environmental performance (see Al-Tuwaijri et al. 2004; Clarkson et al. 2008; Cho and Patten 2007; Guidry and Patten 2012; Patten 2002), evidence to date suggests that extensive and objective E (and S) disclosures reduce the information asymmetry between the firm and its investors (Cormier et al. 2009). Such E disclosures are also found to be associated with lower implied cost of capital (Orens et al. 2010) and with improved informational context of the firm enabling analysts to make better earnings forecasts (Cormier and Magnan 2013, 2014). Recently, Qiu et al. (2016) find that firms making more extensive and objective E and S disclosures and particularly S disclosures enjoy higher market values. They, however, find this relation to be driven by the higher expected growth rates in the cash flows of such firms rather than by a reduction in the cost of equity capital for such firms (as prior evidence seems to find, cf. Orens et al. 2010). Thus, a relevant question to ask is whether such disclosures also reduce a firm's risk and if so, which measure of risk is impacted, i.e. systematic and/or idiosyncratic (operational) risk. From a stakeholder theory perspective, studying the relation between E and S disclosures and both measures of risk is important. First, systematic risk may *prima facie* matter only (or mostly) for corporate investors. However, as socially responsible investment continues to grow around the world, *ceteris paribus*, evidence of lower systematic risk enjoyed by firms making greater E and S disclosures can also help direct more funds to firms seen as being socially responsible as well as promote corporate transparency. Moreover, as more firms publicly reveal what they actually do in terms of their CSR, this can promote environmentally and socially responsible business practices and their reporting in companies around the world. Second, if extensive and objective E and S disclosures are associated with lower firm operational/idiosyncratic risk, consistent with RBV theory (Hart 1995), these would be reflective of reputation and trust building activities on the part of the corporation with its key stakeholders like employees, suppliers, and customers. This finding would also provide support for Husted's (2005) assertion that investments in CSR (which we presume would also include investments in CSR-related disclosure) to be a real option that can help a firm reduce its operational risk. Stakeholders, particularly employees, suppliers, and managers with their human and/or financial capital directly tied to the operational success of the firm would benefit from reduced firm operational or idiosyncratic risk. In this paper, we directly test the link between a firm's E and S disclosures and both measures of risk.

Employing a panel data-set of UK listed firms covering the years 2005–2013, we find a negative and significant association between a firm's E and S disclosures and its idiosyncratic but not with its systematic risk. We find these results to hold even after controlling for the firm's environmental and social performance. These findings are of relevance for all corporate stakeholders, in particular those who have their tangible and intangible assets tied to the fortunes of the firm, such as its employees, suppliers, customers, and managers.

## Literature Review and Hypotheses Development

### Environmental and Social Disclosures and Firm Systematic Risk

A considerable body of academic research has investigated various financial implications of a firm's corporate social

performance, CSP, including the link between CSP and measures of corporate financial performance, CFP (e.g. Brammer et al. 2006; Beurden and Gossling 2008; Dowell et al. 2000), between CSP and a firm's cost of capital (Sharfman and Fernando 2008), as well as between CSP and a firm's systematic risk (e.g. Jo and Na 2012; Oikonomou et al. 2012; Salama et al. 2011). Overall this body of research suggests that better CSP tends to be associated with better financial performance and also lower overall cost of capital. The link with systematic risk, however, is less than clear—while Salama et al. (2011) and Oikonomou et al. (2012) find at best a weak negative link between CSP and systematic risk, Jo and Na (2012) find a strong negative link between CSP and systematic risk. It is worth noting though that Jo and Na's study is limited to only the 'controversial' industries, that is, those that are socially undesirable, where CSR may particularly help play a positive role in improving firm image among investors.

In terms of E (and at times S disclosures), while there is still an ongoing debate as to whether extensive E (and S) disclosures reflect superior E (and S) performance (see Al-Tuwaijri et al. 2004; Clarkson et al. 2008; Cho and Patten 2007; Guidry and Patten 2012; Patten 2002), emerging evidence appears to suggest that objective and extensive E and S disclosures are beneficial. For example, Qiu et al. (2016) find a positive link between combined E and S and particularly S disclosures and a firm's market value. Cormier et al. (2009) find such disclosures to reduce the information asymmetry between the firm and its investors, while Cormier and Magnan (2013, 2014) find such E disclosures to also reduce the information uncertainty faced by financial analysts, allowing them to make better earnings forecasts. Finally, Orens et al. (2010) find web-based non-financial disclosures to be linked with lower implied cost of equity capital.

Few studies to date have directly examined the link between a firm's E and/or S disclosures and its systematic risk. Moreover, the studies which do examine this link tend to treat systematic risk as an independent variable explaining a firm's E and/or S disclosures (cf. Hasseldine et al. 2005; Toms 2002). The theoretical motivation for this empirical treatment is also not clearly articulated in these studies.

In this study, based on clear theoretical motivation, we examine the impact of a firm's E and S disclosures on its systematic risk. The theoretical argument for examining the link is developed as follows. First, according to agency theory (Jensen and Meckling 1976), investors benefit from extensive and objective corporate disclosures. Second, according to proprietary costs theory (Dye 1985), disclosures are more reliable when there are proprietary costs associated with them (e.g. regulatory costs such as environmental fines in the context of E disclosures or commercial costs e.g. threat to competitiveness due to disclosure of environmental innovation information, sensitive employee health, safety plans and practices, etc.). Third, managers are more likely to make more extensive and objective disclosures if they perceive the potential benefits of such disclosures to exceed their costs (as per voluntary disclosure theory, VDT, Verrecchia 1983, 2001). Finally, prior theoretical arguments (Hart 1995) and empirical evidence show that more extensive and objective voluntary corporate disclosures, including E and S disclosures, have been associated with a number of corporate benefits (discussed earlier) including reduced information asymmetry between firm and its investors and analysts (Cormier et al. 2009; Cormier and Magnan 2013) and lower implied cost of equity capital (cf. Orens et al. 2010). Thus, in the light of this theoretical motivation and the supporting empirical evidence, we hypothesize that (stated in alternative form):

**H1** Extensive and objective E (and S) disclosures are negatively related to a firm's systematic risk.

## Environmental and Social Disclosures and Firm Idiosyncratic Risk

As per agency theory (Jensen and Meckling 1976), shareholders are assumed to be the only corporate stakeholders to have an incomplete contract with the firm and accordingly are assumed to be the only residual risk bearers of a firm. However, scholars (e.g. Asher et al. 2005) drawing on the property rights theory, the stakeholder theory, and numerous real-world examples have argued that stakeholders other than shareholders (e.g. employees, bank borrowers in the recent crisis, customers, and suppliers) also have incomplete contracts with a firm and, accordingly, are also the residual risk bearers of a firm. In fact, employees with their undiversified human and financial capital tied to the firm can be easily argued to be among the biggest losers if a firm collapses. Hence, stakeholders other than shareholders have a significant stake in a firm's continued operational success and hence care about its idiosyncratic or unique business risk. Accordingly, as per agency theory and instrumental stakeholder theory (cf. Jones 1995), stakeholders would prefer to transact with a firm with higher transparency and lower operational risk. The recent financial crisis and its continued aftermath provide enough evidence to make a compelling case for firms to follow operational strategies that increase corporate transparency and reduce their idiosyncratic risk. Making extensive and objective E and S disclosures can be seen as an integral part of a firm's business risk reduction strategy for a number of reasons discussed below.

First, studies drawing on the resource-based view of the firm, i.e. RBV theory, have theoretically argued and empirically found that reliable E disclosures, by influencing perceptions about the firm, contribute to building a positive firm reputation (Hart 1995; Hasseldine et al. 2005; Toms 2002). Such positive perceptions can contribute significantly to reducing a firm's reputational risk (Heal 2005). Second, one can argue that such reporting by promoting corporate transparency and building trust with a firm's economic stakeholders can help reduce the transactional/operating risk arising from potential distributional conflicts with a firm's stakeholders (*ibidem*). For example, objective reporting of product stewardship practices, fair remuneration, training policy and practices, good working conditions/environment for employees, human rights policy, and reporting of corporate equality and diversity policies and practices, etc., can minimize the risks of distributional and hence operational conflicts with a firm's key economic stakeholders. Consistent with such arguments, Qiu et al. (2016) find that firms which make extensive and objective E and S disclosures tend to enjoy higher expected growth rates of their cash flows. Cheng et al. (2014) also find that firms making higher CSR-related disclosures face lower idiosyncratic capital constraints and better access to finance, due to enhanced corporate transparency. Finally, Husted (2005) argues that investments in CSR (which we assume would also include costly investments in CSR-related disclosures) are real options involving strategic and operating decisions by managers that can help reduce business risk of the firm.

Thus based on prior relevant theoretical arguments (Hart 1995; Heal 2005; Husted 2005) and related empirical evidence (Cheng et al. 2014; Qiu et al. 2016), we expect that extensive and objective E and S disclosures should also be associated with reduced firm idiosyncratic risk.[1] Accordingly we hypothesize that (stated in alternative form):

**H2** Extensive and objective E (and S) disclosures are negatively related to a firm's idiosyncratic risk.

## Sample, Variables, and Models

### Sample

Table 1 presents a description of our sample. While the total number of observations available for Bloomberg E and S disclosure scores (used for measuring the disclosures in our study and discussed in detail below) is 1835 firm-years, matching it with financial variables collected from Datastream leaves a usable sample of 1755 firm-year observations covering the period 2005–2013. Based on the two-digit Standard Industrial Classification (SIC), the Bloomberg sample represents the following 8 industry sectors (with proportion of total sample presented in brackets): construction industries (3.92), financial sector (18.53), manufacturing (26.95), mineral industries (10.95), retail trade (10.90), service industries (14.71), transportation and communications (10.95), and wholesale trade (3.43). Thus our sample covers a wide cross-section of industries (see Table 1, panel A).

### Variables

The financial variables used in our analyses are obtained from Datastream, including the data used to calculate total, systematic, and idiosyncratic risks, the three dependent variables used in our analyses. Environmental and social disclosure scores, the main explanatory variables are collected from Bloomberg. In our robustness test, we also use the Thomson Reuters Asset4 environmental and social performance scores retrieved from Datastream. Table 5 in Appendix 1 describes the variables, their measurements, and sources in detail.

#### *E and S Disclosure Scores*

The primary explanatory variables of interest in this study are the E and S disclosure scores of companies developed by Bloomberg. Bloomberg assigns E and S disclosure scores to companies based on data points collected via multiple sources including annual reports, standalone sustainability reports, company websites, etc. The data points used for calculating E and S disclosure scores are based on the GRI framework and capture standardized cross-sector and industry-specific metrics. The weighted score is normalized to range from zero, for companies that do not disclose any E and S data, to 100 for those disclosing every data point collected. Moreover, within each E and S category, the individual company score is expressed as a percentage, so as to make the score comparable across companies. The score is also tailored to be industry relevant, so that each company is evaluated only in terms of the data that is relevant to its industry sector. For example, 'Phones Recycled' is only considered in the score for telecommunications companies and not for other sectors. Similarly, 'Gas Flaring' only goes into computing the disclosure score for oil and gas exploration and production companies while companies in other sectors are not penalized for not disclosing it. The data points are also weighted (based on a proprietary weighting scheme) in terms of importance within each category, so that 'Green

[1] While we do not have a specific hypothesis for the link between E and S disclosures and total risk of the firm as measured by stock volatility, for comparability of results with prior relevant studies (e.g. Jo and Na 2012), we also test this link.

**Table 1** Descriptive statistics for the variables of the study

Panel A: Sample breakdown by industry

| Industry | *N* | % |
|---|---|---|
| Construction industries | 72 | 3.92 |
| Financial sector | 340 | 18.53 |
| Manufacturing | 488 | 26.59 |
| Mineral industries | 201 | 10.95 |
| Retail trade | 200 | 10.9 |
| Service industries | 270 | 14.71 |
| Transportation and communications | 201 | 10.95 |
| Wholesale trade | 63 | 3.43 |
| | 1835 | 100 |

Panel B: Descriptive statistics

| Variable | *N* | Mean | SD | Min | Max | Median |
|---|---|---|---|---|---|---|
| VOL | 1835 | 0.350 | 0.160 | 0.133 | 1.287 | 0.309 |
| BETA | 1835 | 0.979 | 0.291 | 0.255 | 2.344 | 0.977 |
| IDIO | 1835 | 0.019 | 0.009 | 0.007 | 0.073 | 0.017 |
| ENV_DISC | 1835 | 22.319 | 15.099 | 1.550 | 69.422 | 19.380 |
| SOC_DISC | 1835 | 33.449 | 12.986 | 3.509 | 84.211 | 29.822 |
| MTB | 1788 | 2.375 | 17.822 | −39.46 | 19.68 | 2.290 |
| SIZE | 1834 | 14.928 | 1.858 | 11.069 | 21.596 | 14.551 |
| LEV | 1835 | 0.212 | 0.189 | 0.000 | 1.672 | 0.190 |
| ROA | 1805 | 0.097 | 0.100 | −0.801 | 0.714 | 0.085 |
| CAPEX | 1831 | 0.045 | 0.048 | 0.000 | 0.353 | 0.031 |
| ASST_GROW | 1833 | 0.150 | 1.816 | −0.888 | 76.843 | 0.057 |
| ENV_PER | 1755 | 66.509 | 24.267 | 10.040 | 96.720 | 73.220 |
| SOC_PER | 1755 | 66.686 | 22.645 | 6.490 | 98.720 | 74.900 |
| GOV_PER | 1755 | 76.147 | 15.217 | 2.190 | 96.720 | 79.870 |

This table shows descriptive statistics for the main variables of our study. Panel A presents the sample breakdown by industry. While Panel B provides the number of observations, the mean, the standard deviation, the minimum, the maximum, and the median for all variables. Definitions of all variables are presented in Table 5 in Appendix 1

House Gas emissions' for example would be weighted more heavily than other data points within the environment category. Hence, the disclosure scores are both relevant as well as weighted in terms of importance to their users (particularly investors). These thus capture the quantity (i.e. number of data points reported by a company) but more importantly the quality (in terms of objective and industry-relevant data points) of E and S disclosures. A number of prior CSR-related studies have used Bloomberg disclosure scores (e.g. Eccles et al. 2012; Ioannou and Serafeim 2015; Qiu et al. 2016; Utz and Wimmer 2014). A short description of data points covered in each score is discussed below. The complete list of the data points covered under the E and S categories is given in Table 6 in Appendix 2.

The 'E' score covers various types of environmental information that could broadly be classified as 'hard' items and 'soft' items. 'Hard' items include quantifiable data like Carbon/GHG emissions, energy/water consumption, waste recycled, investments in sustainability, and ISO certification, among others. 'Soft' items include firms' environmental policies and initiatives such as waste reduction policy, energy efficiency policy, and green building policy, among others. Approximately, 80 % of environmental disclosure items covered are 'hard' objective data items, while only 20 % are 'soft' data points. Thus, these environmental scores largely capture what Clarkson et al. (2008) would call a firm's 'hard' environmental disclosure. As mentioned earlier, Cormier et al. (2009) find such 'hard' disclosures to be more strongly associated with reducing the information asymmetry between the firm and its investors, while Cormier and Magnan (2013) find such relevant, objective and reliable disclosures help analysts make better earnings forecasts.

The 'S' score developed by Bloomberg mostly covers reporting of issues related to employee relations, such as employee health and welfare, as well as their training and development including training in CSR. The 'S' score also covers disclosure of issues of equality and diversity in employment, community spending, and human rights. Based on the type of information covered, about 70 % of social score is based on 'hard' items, while 'soft' information makes up about 30 % of the score. Such 'hard' S disclosures are also likely to enhance a firm's social legitimacy, its social reputation, and as Cormier et al. (2009) find, help reduce the information asymmetry between the firm and its investors.

*Measures of Financial Risk*

Following prior literature, a firm's total risk is measured by the standard deviation of the firm's daily stock's return (cf. Jo and Na 2012). Furthermore, we use the CAPM beta as the measure of a firm's systematic risk (Jo and Na 2012) and estimate it by regressing the daily stock return on the daily market return of the FTSE-350 over the year:

$$R_{it} = \alpha_i + \beta_i R_{mt} + e_i, \quad (1)$$

where $R_{it}$ is the return on security $i$ for day $t$, $\alpha_i$ is the intercept term, $\beta_i$ is the systematic risk of security $i$ (BETA), $R_{mt}$ is the return on the market $m$ for day $t$, and $e_i$ is an error term.

Finally, we measure a firm's idiosyncratic i.e. unique business risk as the standard deviation of residuals from CAPM based on daily stock returns (cf. Amit and Wernerfelt 1990; Lee and Faff 2009).

*Control Variables*

Following prior-related studies, we control for a number of variables that can affect the individual firm's risk. First, to discern the marginal effect of E and S disclosures on risk, following Qiu et al. (2016), we control for the firm's E and S performance in the corresponding equations. Consistent with Jo and Na (2012), we expect a negative link between E or S performance and all measures of risk. E and S performance scores are provided by Asset4, a Thomson Reuters database (used by prior literature, e.g. Ioannou and Serafeim 2015; Shaukat et al. 2016). In addition, we control for firm size (SIZE) as measured by the natural logarithm of total assets. We expect a negative relationship between size and firm's risk. Prior studies suggest that large firms are less exposed to risk, as they are more able to manage risk especially in times of high volatility (e.g. Jo and Na 2012). We also control for investment opportunities as measured by market to book ratio (MTB). It is argued that firms with low growth opportunities are characterized by low share prices and low market to book ratios (e.g. Lewellen 1999). Moreover, analysts consider firms with poor perspectives of growth (low MTB ratio) as being more exposed to market volatility (e.g. Bouslah et al. 2013; Lewellen 1999). Hence, we expect a negative relationship between risk and MTB. Leverage (LEV) is measured by total debt to total assets ratio. Prior evidence suggests higher leverage to be associated with higher firm risk (Abdelghani 2005). Thus, a positive association is expected between firm's leverage and risk; profitability is measured by return on assets (ROA). Prior research finds more profitable firms to be less risky (e.g. Jo and Na 2012). Following prior studies, we also control for capital expenditure scaled by total assets (CAPEX) and asset growth (ASST_GROW) as measured by total assets in year t minus total assets in year $t-1$ divided by total assets in year $t-1$ (cf. Jo and Na 2012; Salama et al. 2011). We include industry and year fixed effects in all models. Finally, in our robustness checks, we employ governance performance score, GOV_PER, provided by Asset4.

## Model Specification

Following prior literature (e.g. Jo and Na 2012), we use the following model to test our hypotheses:

$$\begin{aligned}\text{Firm risk}_{it} = {} & \alpha + \beta_1 \times \text{Disclosure score}_{it} + \beta_2 \\ & \times E \text{ or } S\text{Performance}_{it} + \beta_3 \times \text{Size}_{\text{it}} + \beta_4 \\ & \times \text{MTB}_{it} + \beta_5 \times \text{LEV}_{it} + \beta_6 \times \text{ROA}_{it} + \beta_7 \\ & \times \text{CAPEX}_{it} + \beta_8 \\ & \times \text{ASST\_GROW}_{it} + \sum_j \beta_j \times \text{Industry fixed effects}_j \\ & + \sum_l \beta_l \times \text{Year fixed effects}_l + \varepsilon_{it}. \end{aligned} \quad (2)$$

In Eq. 2, Firm risk$_{\text{it}}$ is one of the risk measures, namely stock volatility, systematic risk (i.e. beta), or idiosyncratic risk. Disclosure score$_{it}$ represents E or S disclosure score, and the control variables are defined above. All regressions are run as random effect panel data models.

## Descriptive Statistics

Table 1 (panel B) provides the descriptive statistics for the variables used in this study. It shows that the mean value of stock volatility is 0.350, the average systematic risk is 0.979 (which is approximately equal to one, the value of the market beta), and the average firm specific risk is 0.019 (which is in line with values in prior studies, e.g. Amit and Wernerfelt 1990). With respect to E and S disclosure scores, it can be seen that the S disclosure has a mean score of 33 % and E disclosure of 22 %. This suggests that on average our sample of firms make more extensive S

**Table 2** Pearson correlation coefficients between the variables

| | VOL | BETA | IDIO | ENV_DISC | SOC_DISC | MTB | SIZE | LEV | ROA | CAPEX | ASST_GROW | ENV_PER | SOC_PER | GOV_PER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VOL | **1.000** | | | | | | | | | | | | | |
| BETA | **0.439** | **1.000** | | | | | | | | | | | | |
| IDIO | **0.950** | **0.271** | **1.000** | | | | | | | | | | | |
| ENV_DISC | **−0.113** | **0.149** | **−0.213** | **1.000** | | | | | | | | | | |
| SOC_DISC | **−0.092** | **0.161** | **−0.185** | **0.668** | **1.000** | | | | | | | | | |
| MTB | −0.055 | −0.037 | −0.039 | 0.028 | 0.012 | **1.000** | | | | | | | | |
| SIZE | **−0.057** | **0.289** | **−0.202** | **0.590** | **0.492** | −0.010 | **1.000** | | | | | | | |
| LEV | −0.021 | −0.028 | −0.005 | **0.065** | **0.075** | **−0.051** | **0.054** | **1.000** | | | | | | |
| ROA | **−0.132** | **−0.127** | **−0.126** | **−0.088** | **−0.054** | **0.052** | **−0.281** | −0.032 | **1.000** | | | | | |
| CAPEX | **0.085** | 0.076 | **0.095** | −0.004 | 0.011 | −0.013 | **−0.088** | **0.091** | **0.184** | **1.000** | | | | |
| ASST_GROW | **0.074** | 0.012 | **0.051** | −0.042 | −0.035 | 0.004 | 0.023 | −0.032 | −0.008 | −0.011 | **1.000** | | | |
| ENV_PER | **−0.150** | **0.089** | **−0.230** | **0.591** | **0.464** | 0.025 | **0.468** | **0.085** | **−0.159** | **−0.100** | **−0.043** | **1.000** | | |
| SOC_PER | **−0.191** | **0.076** | **−0.272** | **0.563** | **0.515** | 0.003 | **0.468** | **0.115** | **−0.047** | **−0.096** | −0.042 | **0.697** | **1.000** | |
| GOV_PER | **−0.169** | **0.064** | **−0.225** | **0.376** | **0.383** | 0.043 | **0.294** | −0.006 | **−0.102** | **−0.070** | −0.032 | **0.475** | **0.496** | **1.000** |

This table presents Pearson pair-wise correlation between all the variables of the study. Correlation coefficients in boldface are significant at less than 5 % level. Definitions of all variables are presented in Table 5 in Appendix 1

disclosures (as also found by Qiu et al. 2016). With respect to performance, however, the average E performance score is almost equal to the average S performance score (about 66.6 %). The average MTB ratio is 2.375. Average size measured as natural log of total assets is 14.928 (i.e. about £3041 million). The average leverage and ROA are 21.2 and 9.7 %, respectively. Capital expenditure over total assets (CAPEX) and asset growth (ASST_GROW) are 4.5 and 15.0 %, respectively.

Table 2 presents the pair-wise Pearson correlations for all variables. It shows a high correlation between total risk (i.e. volatility) and systematic (0.44) and idiosyncratic risk (0.95). Moreover, the correlation between total and idiosyncratic (but not systematic) risk and E and S disclosure scores are negative and significant. Finally, weak correlations between the control variables indicate that our models are unlikely to suffer from multicollinearity problems.

## Empirical Results

### Multivariate Analyses

Table 3 reports results from estimating Eq. (2). Models 1–2 report results from regressing stock volatility on E and S disclosures and control variables. We find that the coefficients on E and S disclosures are negative and statistically significant at the 10 and 5 % level, respectively. This suggests that extensive and objective E and S disclosures help increase firm transparency, reduce information asymmetry and, by building trust and confidence between the firm and its investors, reduce its stock's volatility. The results are also economically significant: one standard deviation increase in the E and S disclosure scores reduces stock volatility by 0.0077 and 0.0091, respectively (i.e. by 4.81 and 5.66 % of the corresponding standard deviation of the volatility variable).

We then run the same regressions by replacing stock volatility with systematic risk (Models 3–4) and idiosyncratic risk measures (Models 5–6). In terms of systematic risk, we find that the coefficient estimates on E and S disclosure scores are statistically insignificant. It appears that E and S disclosures do not affect significantly the firm's systematic risk. On the other hand, in Models 5–6, when the dependent variable is the idiosyncratic risk, it is clear that the coefficients on E and S disclosures are negative and statistically significant at the 10 and 5 % level, respectively. It appears that the reduction in stock volatility among high disclosure firms is mainly due to a reduction in the firm's idiosyncratic risk. The results are also economically significant: one standard deviation increase in the E and S disclosure scores reduces idiosyncratic risk by

**Table 3** Environmental and social disclosures and firm financial risk

| Dependent variables | Stock volatility | | Systematic risk (beta) | | Idiosyncratic risk | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| ENV_DISC | −0.5106* | | −0.1013 | | −0.0302* | |
| | (−1.74) | | (−0.14) | | (−1.70) | |
| SOC_DISC | | −0.6974** | | 0.3077 | | −0.0475** |
| | | (−2.24) | | (0.31) | | (−2.53) |
| ENV_PER | −0.3354* | | −0.3146 | | −0.0300*** | |
| | (−1.92) | | (−0.76) | | (−2.85) | |
| SOC_PER | | −0.6993*** | | −0.0197 | | −0.0528*** |
| | | (−4.07) | | (−0.05) | | (−5.10) |
| MTB | 0.0275 | 0.0096 | −0.1503 | −0.1597 | 0.0049 | 0.0035 |
| | (0.24) | (0.08) | (−0.56) | (−0.59) | (0.70) | (0.51) |
| SIZE | −8.4419** | −5.9343* | 46.1721*** | 42.0061*** | −1.2408*** | −1.0669*** |
| | (2.38) | (−1.75) | (5.26) | (4.94) | (−5.72) | (−5.19) |
| LEV | 45.3143** | 46.0302** | 118.2822** | 115.4392** | 2.9620** | 2.9660** |
| | (2.14) | (2.19) | (2.31) | (2.26) | (2.31) | (2.43) |
| ROA | −129.7458*** | −123.5210*** | −236.2568*** | −238.9591*** | −9.7737*** | −9.3191*** |
| | (−4.54) | (−4.34) | (−3.51) | (−3.54) | (−5.70) | (−5.47) |
| CAPEX | −136.7922 | −162.6625* | 58.7855 | 64.6757 | −7.2194 | −9.0534* |
| | (−1.58) | (−1.89) | (0.28) | (0.31) | (−1.38) | (−1.75) |
| ASST_GROW | 1.2527 | 1.2492 | −0.8352 | −0.7378 | 0.0087 | 0.0081 |
| | (1.12) | (1.13) | (−0.32) | (−0.28) | (0.13) | (0.12) |
| INTERCEPT | 585.5906*** | 593.8031*** | 717.3098*** | 753.0364*** | 45.2253*** | 45.7634*** |
| | (10.11) | (10.86) | (5.01) | (5.48) | (12.78) | (13.77) |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes |
| No. of observations | 1681 | 1681 | 1681 | 1681 | 1681 | 1681 |
| No. of firms | 295 | 295 | 295 | 295 | 295 | 295 |
| $R^2$ (%) | 64.06 | 64.69 | 35.48 | 35.31 | 59.89 | 60.97 |

This table reports random-effect panel regression estimates for the relation between environmental and social disclosures and financial risk. As measures of financial risk (our dependent variables), we employ the stock volatility (Models 1–2), CAPM beta to measure systematic risk (Models 3–4), and idiosyncratic risk from the CAPM (Models 5–6), respectively. All the models include industry and time fixed effects. Definitions of all variables are presented in Table 5 in Appendix 1. All the coefficients reported have been multiplied by 1000 due to variable scaling issues. The numbers in parentheses are *t* values

*, **, and *** denote statistical significance at the 10, 5, and 1 % level, respectively

0.0005 and 0.0006, respectively (i.e. by 5.07 and 6.85 % of the corresponding standard deviation in the idiosyncratic risk variable).

One might argue that the relationship between E and S disclosures and measures of risk is found only because the disclosures are a proxy for the companies E and S performance measures. Table 3 shows that it is not the case: the negative effect of E and S disclosures on measures of risk holds after controlling for the respective measures of E and S performance. This confirms that the disclosure about a firm's E and S practices is of value in itself. Furthermore, the negative and significant coefficients on E and S performance scores are consistent with expectations and previous findings (e.g. Benlemlih and Girerd-Potin 2014; Jo and Na 2012).

Additionally, we document several significant relationships between our measures of risk and the control variables used in the study. First, our results show that firm's size is positively related to systematic risk and negatively related to total and idiosyncratic risks. Second, firms with high leverage are more risky, possibly because of high leverage being associated with higher default risk. Third, the coefficients on firm's profitability (ROA) load negatively and statistically significantly (at the 1 % level) for all the three measures of firm's risk (total, systematic, and specific risks). This result suggests that more

profitable firms are less risky. Fourth, companies with higher capital expenditures (as proxied by CAPEX) tend to have lower total and idiosyncratic risk although this effect is not fully robust across model specifications. Finally, other control variables such as MTB and ASST_GROW appear to be less likely to affect firm's risk. Taken together, the results from the control variables are largely in line with previous relevant studies including Jo and Na (2012) and Salama et al. (2011).

### Additional Analyses

In this section, we investigate the robustness of our main findings using instrumental variables approach to address the endogeneity issue and additional controls to rule out potentially omitted variable biases that could affect our results.

There is a suggestion in the literature that a firm's CSR-related activities and its risk could be endogenous (Jo and Na 2012), perhaps being simultaneously determined by some omitted variable such as the firm's management quality or by E and S performance (cf. Al-Tuwaijri et al. 2004; Clarkson et al. 2008, 2011). Hence, without correcting for potential endogeneity, our results could be biased. To mitigate against such a possibility, we follow the arguments of Cormier and Magnan (2014) who find that E and S disclosures are related to corporate governance performance (as disclosures and good governance could be seen as substitutes). We therefore instrument E and S disclosures with governance performance, GOV_PER (as provided by Asset4, a Thomson Reuters database) and other exogenous variables explaining the risk measures employed. We then re-estimate panel data regressions reported above employing the aforementioned instrumental variable approach. The corresponding estimates are reported in Table 4 below. While the results obtained here are somewhat weaker than those reported in the main part of the paper, we still find that more extensive and objective S disclosures help firms in reducing their idiosyncratic risk (cf. Model 12). We do not observe the same effect for E disclosures anymore, possibly because S disclosures are likely to be more relevant to key stakeholders (cf. Qiu et al. 2016). The effects of control variables are also weakened. In particular, neither E nor S performance indicators are significant in the amended model specifications.

We have also considered extending our basic model specifications to include a number of additional control variables shown to be relevant in the current context by some prior studies.[2] In particular, while modelling firm risk, Jo and Na (2012) control also for R&D expenses and financial slack. Given that data on R&D expenditures is not available for more than 2/3 of our sample, inclusion of the corresponding variables (i.e. R&D scaled either by sales or by total assets) reduces the sample size considerably lowering the power of tests. Instead, we employ an alternative proxy, i.e. the ratio of intangible assets to total assets, and re-estimate all the regressions. While this new variable does not have a consistently significant effect on the risk measures, the main results of the paper are upheld. Similarly, while inclusion of the proxy for financial slack (i.e. the ratio of cash and short-term investments to total assets, cf. Qiu et al. 2016) does not affect the conclusions of the preceding analyses, the variable itself is again insignificant.

[2] For sake of brevity, the results discussed in this paragraph are not reported in the text, but are available upon request.

## Discussion and Conclusions

In this paper, we examine the link between E and S disclosures of UK listed firms and measures of firm risk, namely total, systematic, and idiosyncratic risk. First, drawing on the agency theory (Jensen and Meckling 1976), the proprietary costs theory (Dye 1985), and the voluntary disclosure theory (VDT, Verrecchia 1983, 2001), we hypothesize that firms make extensive and objective E and S disclosures which by reducing the information asymmetry between the firm and its stock market participants, and also reduce the firm's systematic risk. However, we find no evidence to support this claim. This finding suggests that while extensive and objective (and hence reliable) E and S disclosures may help enhance a firm's market value (as Cormier et al. 2009; Qiu et al. 2016, find), the effect may not be through a reduction in the firm's systematic risk.

However, our findings are consistent with Hart's (1995) RBV theory-based theoretical arguments and findings by Hasseldine et al. (2005) and Toms (2002) that extensive and objective E and S disclosures enhance a firm's reputation. Our findings are also consistent with Qiu et al. (2016)'s RBV and VDT theory-based findings that the gains from extensive and objective E and S disclosures (that potentially enhance a firm's reputation among its key stakeholders), come from real economic benefits like higher expected growth rates of the cash flows of such firms. Our findings complement Qiu et al.'s (2016) evidence, as we find such disclosures to also reduce a firm's idiosyncratic or business risk. These findings are also consistent with Amit and Wernerfelt's (1990) findings that firms operating in uncertain and risky environments, as most global firms do today, care about reducing their business risk. Such disclosures can thus be seen as part of the overall business risk reduction strategy of a firm. These findings further help in reconciling the legitimacy (e.g. Hackston and Milne 1996; Patten 1991) and economics-

**Table 4** Environmental and social disclosures and firm financial risk – models controlling for endogeneity of disclosure

| Dependent variables | Stock volatility | | Systematic risk (beta) | | Idiosyncratic risk | |
|---|---|---|---|---|---|---|
| | (7) | (8) | (9) | (10) | (11) | (12) |
| ENV_DISC | 3.5509 | | −2.9970 | | 0.2769 | |
| | (0.65) | | (−0.22) | | (0.72) | |
| SOC_DISC | | −4.1616 | | −5.3807 | | −0.3571* |
| | | (−1.38) | | (−0.39) | | (−1.93) |
| ENV_PER | −0.9502 | | 0.0082 | | −0.0594 | |
| | (−1.31) | | (0.01) | | (−1.49) | |
| SOC_PER | | −0.1375 | | 0.5278 | | 0.0037 |
| | | (−0.21) | | (0.30) | | (0.09) |
| MTB | 0.0068 | −0.0200 | −0.1109 | −0.1607 | 0.0029 | 0.0039 |
| | (0.05) | (−0.13) | (−0.39) | (−0.58) | (0.37) | (0.39) |
| SIZE | −15.4351 | 12.0197* | 65.0650 | 64.9430* | −1.9446 | 0.2692 |
| | (−0.75) | (1.71) | (1.29) | (1.76) | (−1.37) | (0.62) |
| LEV | 27.2299 | −18.3821 | 69.6765 | 59.3682 | 3.1759** | 0.0095 |
| | (1.15) | (−1.02) | (1.25) | (0.91) | (2.06) | (0.01) |
| ROA | −113.5352*** | −85.4047** | −197.8566*** | −173.4584** | −8.4842*** | −7.1595*** |
| | (−3.26) | (−2.33) | (2.62) | (−2.03) | (−4.24) | (−3.17) |
| CAPEX | 16.5728 | 248.4929*** | 159.6845 | 208.4922 | −4.8434 | 16.2726*** |
| | (0.17) | (3.42) | (0.70) | (0.79) | (−0.77) | (3.63) |
| ASST_GROW | 2.0112 | 0.9988 | −1.3147 | −1.0181 | 0.0636 | −0.0156 |
| | (1.30) | (0.63) | (−0.37) | (−0.36) | (0.64) | (−0.16) |
| INTERCEPT | 426.5915 | 117.6580 | 11.6532 | 62.5593 | 41.1083** | 16.5987*** |
| | (1.52) | (1.45) | (0.02) | (0.08) | (2.21) | (3.32) |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes |
| No. of observations | 1681 | 1681 | 1681 | 1681 | 1681 | 1681 |
| No. of firms | 295 | 295 | 295 | 295 | 295 | 295 |
| $R^2$ | 44.47 | 46.34 | 17.46 | 14.92 | 36.09 | 39.67 |

This table reports instrumental variable random effect panel regression estimates for the relation between environmental and social disclosures and financial risk. The disclosure scores are instrumented by governance performance indicator and exogenous regressors included in the model specifications. As measures of financial risk (our dependent variables), we employ the stock volatility (Models 1–2), CAPM beta to measure systematic risk (Models 3–4), and idiosyncratic risk from the CAPM (Models 5–6), respectively. All the models include industry and time fixed effects. Definitions of all variables are presented in Table 5 in Appendix 1. All the coefficients reported have been multiplied by 1000 due to variable scaling issues. The numbers in parentheses are *t* values

*, **, and *** denote statistical significance at the 10, 5, and 1 % level, respectively

based (e.g. Clarkson et al. 2008) arguments in the disclosure literature (cf. Cormier and Magnan 2013). As long as extensive and objective E and S disclosures help promote corporate transparency and help mitigate the firm's business risk, it probably does not matter whether these reflect (or not) superior E and S performance. Our finding that these disclosures matter for operational risk, even after controlling for a firm's E and S performance further strengthen our assertion that such disclosures are of value in themselves. In this context, future research could examine whether CSP should be considered a contextual factor for CSD, i.e. whether reliable disclosures benefit firms with stronger CSP more (or less).

These findings are relevant for all key corporate stakeholders having tangible and intangible assets tied to the fortunes of the firm, including its employees (having developed firm specific skills and competence and having their pensions tied to the continued success of the firm); key suppliers (having invested in intangible and tangible resources specifically for the firm); as well as managers (having human and financial capital tied to the firm). Our findings suggest that extensive and objective E and S

disclosures by promoting corporate transparency can allow both firms and their stakeholders to make more informed economic decisions.

While our study sheds some initial light on the link between E and S disclosures and firm risk, it probably raises more questions than it answers. Future research can fruitfully explore these. One obvious avenue for future research is to explore more in depth the inter-relations between E and S performance, disclosures, and firm risk using more fine-grained and different measures of each variable. For example, in addition to the risk measures used in this study, future studies can employ alternative measures of risk such as option-based implied volatility measures or variability of accounting performance indicators. Moreover, as there is now a wide range of commercially available CSR indicators (mostly of CSP), future research can employ these in addition to those employed in our study. Importantly, the Bloomberg disclosure measures used here are geared towards a particular group of stakeholders, i.e. investors. If anything, this biases us against finding the result that we report. If other measures of CSP/CSD that better reflect the interests of other stakeholder groups are employed, the impact of CSP/CSD on business risk could be even more potent than reported in this paper. It might also be worth exploring the link between employee-related aspect of CSP, CSD, and firm operating risk, given the wider socio-political and of course the economic importance of this group of stakeholders in UK as in all countries (Gray et al. 1995; Huselid 1995). The effect of CSD might also be context-specific, e.g. social disclosures could bring more substantial economic benefits in labour-intensive industries.

Examining the inter-links between E and S disclosures, firm risk, and financial performance over the longer run is also important as Orlitzky and Benjamin (2001) raise concern that actions that reduce firm business risk in the short run may promote complacency on the part of firms which may be detrimental to firm health in the long run. Alternatively, such actions may just be a sign of agile business management. Longer run study of these links would shed more light on these possible explanations. Moreover, while this study sheds light on the contemporaneous associations between E and especially S disclosures and firm risk, future research can examine the lead lag aspects of this link using various market- and accounting-based measures of risk (cf. Orlitzky and Benjamin 2001). Future research should also explicitly examine the specific channels through which CSD influences business risk, e.g. higher employee-relevant disclosures could boost employee morale and productivity, and thus boost operating performance and lower operating risk.

Finally, E and S disclosures and their economic implications are also believed to vary by the institutional and regulatory disclosure-related settings. Future research can fruitfully examine the generalisability of these findings by testing these links in a multi-country setting that control for variations in institutional and regulatory disclosure environments.

## Appendix 1

See Table 5.

**Table 5** Variables, definitions and data sources

| Variables | Definition | Source |
|---|---|---|
| VOL | Stock volatility measured as the standard deviation of daily stock returns in current year (annualized) | Datastream |
| BETA | Market beta (from CAPM) of individual stocks in current year, based on daily stock returns | Datastream |
| IDIO | Idiosyncratic risk measured as the standard deviation of residuals from CAPM based on daily stock returns | Datastream |
| ENV_DISC | Environmental disclosure score | Bloomberg |
| SOC_DISC | Social disclosure score | Bloomberg |
| MTB | Market value of assets over book value of assets | Datastream |
| SIZE | Firm size. It is the natural logarithm of total assets | Datastream |
| LEV | Book value of total debt divided by total assets | Datastream |
| ROA | Return on assets | Datastream |
| CAPEX | Capital expenditures expense divided by total assets | Datastream |
| ASST_GROW | The evolution of total assets from year $t-1$ to year t to total assets in year $t-1$ | Datastream |
| ENV_PER | Environmental performance score | Asset4 |
| SOC_PER | Social performance score | Asset4 |
| GOV_PER | Governance performance score | Asset4 |

## Appendix 2

See Table 6.

**Table 6** E and S indicators with Bloomberg fields

| Environmental | |
|---|---|
| Direct $CO_2$ Emissions | DIRECT_CO2_EMISSIONS |
| Indirect $CO_2$ Emissions | INDIRECT_CO2_EMISSIONS |
| Travel Emissions | TRAVEL_EMISSIONS |
| Total $CO_2$ Emissions | TOTAL_CO2_EMISSIONS |
| $CO_2$ Intensity (Tonnes) | CO2_INTENSITY |
| $CO_2$ Intensity per Sales | CO2_INTENSITY_PER_SALES |
| GHG Scope 1 | GHG_SCOPE_1 |
| GHG Scope 2 | GHG_SCOPE_2 |
| GHG Scope 3 | GHG_SCOPE_3 |
| Total GHG Emissions | TOTAL_GHG_EMISSIONS |
| NOx Emissions | NOX_EMISSIONS |
| SO2 Emissions | SO2_EMISSIONS |
| SOx Emissions | SULPHUR_OXIDE_EMISSIONS |
| VOC Emissions | VOC_EMISSIONS |
| CO Emissions | CARBON_MONOXIDE_EMISSIONS |
| Methane Emissions | METHANE_EMISSIONS |
| ODS Emissions | ODS_EMISSIONS |
| Particulate Emissions | PARTICULATE_EMISSIONS |
| Total Energy Consumption | ENERGY_CONSUMPTION |
| Electricity Used (MWh) | ELECTRICITY_USED |
| Renewable Energy Use | RENEW_ENERGY_USE |
| Water Consumption | WATER_CONSUMPTION |
| Water/Unit of Prod (in l) | WATER_PER_UNIT_OF_PROD |
| % Water Recycled | PCT_WATER_RECYCLED |
| Discharges to Water | DISCHARGE_TO_WATER |
| Waste Water (Thousand Cubic Metres) | WASTE_WATER |
| Hazardous Waste | HAZARDOUS_WASTE |
| Total Waste | TOTAL_WASTE |
| Waste Recycled | WASTE_RECYCLED |
| Paper Consumption | PAPER_CONSUMPTION |
| Paper Recycled | PAPER_RECYCLED |
| Fuel Used (Thousand Litres) | FUEL_USED |
| Raw Materials Used | RAW_MAT_USED |
| % Recycled Materials | PCT_RECYCLED_MATERIALS |
| Gas Flaring | GAS_FLARING |
| Number of Spills | NUMBER_SPILLS |
| Amount of Spills (Thousand Tonnes) | AMOUNT_OF_SPILLS |
| Nuclear % Total Energy | NUCLEAR_%_ENERGY |
| Solar % Total Energy | SOLAR_%_ENERGY |
| Phones Recycled | PHONES_RECYCLED |
| Environmental Fines # | NUM_ENVIRON_FINES |
| Environmental Fines $ | ENVIRON_FINES_AMT |
| ISO 14001 Certified Sites | ISO_14001_SITES |
| Number of Sites | NUMBER_OF_SITES |
| % Sites Certified | %_SITES_CERTIFIED |

**Table 6** continued

| Environmental | |
|---|---|
| Environmental Accounting Cost | ENVIRONMENTAL_ACCTG_COST |
| Investments in Sustainability | INVESTMENTS_IN_SUSTAINABILITY |
| Energy Efficiency Policy | ENERGY_EFFIC_POLICY |
| Emissions Reduction Initiatives | EMISSION_REDUCTION |
| Environmental Supply Chain Management | ENVIRON_SUPPLY_MGT |
| Green Building Policy | GREEN_BUILDING |
| Waste Reduction Policy | WASTE_REDUCTION |
| Sustainable Packaging | SUSTAIN_PACKAGING |
| Environmental Quality Management Policy | ENVIRON_QUAL_MGT |
| Climate Change Policy | CLIMATE_CHG_POLICY |
| New Products—Climate Change | CLIMATE_CHG_PRODS |
| Biodiversity Policy | BIODIVERSITY_POLICY |
| Environmental Awards Received | ENVIRONMENTAL_AWARDS_RECEIVED |
| Verification Type | VERIFICATION_TYPE |
| Social | |
| Number of Employees | NUMBER_EMPLOYEES_CSR |
| Employee Turnover % | EMPLOYEE_TURNOVER_PCT |
| % Employees Unionized | PCT_EMPLOYEES_UNIONIZED |
| Employee Average Age | EMPLOYEE_AVERAGE_AGE |
| % Women in Workforce | PCT_WOMEN_EMPLOYEES |
| % Women in Mgt | PCT_WOMEN_MGT |
| % Minorities in Workforce | PCT_MINORITY_EMPLOYEES |
| % Disabled in Workforce | PCT_DISABLED_IN_WORKFORCE |
| % Minorities in Mgt | PCT_MINORITY_MGT |
| Workforce Accidents | WORK_ACCIDENTS_EMPLOYEES |
| Lost Time from Accidents | LOST_TIME_ACCIDENTS |
| Lost Time Incident Rate | LOST_TIME_INCIDENT_RATE |
| Fatalities—Contractors | FATALITIES_CONTRACTORS |
| Fatalities—Employees | FATALITIES_EMPLOYEES |
| Fatalities—Total | FATALITIES_TOTAL |
| Community Spending | COMMUNITY_SPENDING |
| Employee Training Cost | EMPLOYEE_TRAINING_COST |
| SRI Assets Under Management | SRI_ASSETS_UNDER_MANAGEMENT |
| # Awards Received | AWARDS_RECEIVED |
| Health and Safety Policy | HEALTH_SAFETY_POLICY |
| Fair Remuneration Policy | FAIR_REMUNERATION_POLICY |
| Training Policy | TRAINING_POLICY |
| Employee CSR Training | EMPLOYEE_CSR_TRAINING |
| Equal Opportunity Policy | EQUAL_OPPORTUNITY_POLICY |
| Human Rights Policy | HUMAN_RIGHTS_POLICY |
| UN Global Compact Signatory | UN_GLOBAL_COMPACT_SIGNATORY |

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