# Does corporate ethics help investors forecast future earnings?

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**Abstract**

**Purpose** – A firm's ethical behavior is commonly perceived beneficial to the firm and its investors in the literature. However, activities of corporate social responsibility (CSR) are often delivered with multiple purposes, and their expenses are aggregated with other expenditures in financial statements. These two features motivate the authors to hypothesize and find that investors' ability to predict future earnings of ethical firms may not be improved through observing the CSR activities. The study aims to suggest that CSR spending should be expressed separately from other expenses in financial reports to help investors predict the future performance of CSR firms.

**Design/methodology/approach** – The authors use future (forward) earnings response coefficients (FERC) to testing whether current stock returns reflect correct information about future earnings. The basic specification of FERC framework, initially developed by Collins et al. (1994), is a regression of current-year stock returns on past, concurrent and future reported earnings with future stock returns as a control variable. A significantly positive FERC provides evidence that investors have rich and correct information about future earnings.

**Findings** – The authors find less future earnings information contained in current stock returns for firms with higher intensity of CSR activities. The association is also negative between current stock returns and future earnings reported by firms with a higher degree of CSR spending aggregated with selling, general and administrative expenses (SG&A). In additional analyses, the intensity of CSR activities is positively associated the uncertainty of benefits, measured by the standard deviation of future earnings over the next five years. This future earnings variability does not exist, even though CSR spending is aggregated with SG&A, consistent with the basic principle that accounting expenses create no future economic impacts.

**Originality/value** – The authors contribute to the current debate over consequences of CSR activities and accounting for CSR spending from a different angle. A common belief is that voluntary disclosure on CSR activities would aid in reducing costs of equity capital and financial reporting errors. These studies provide corporate managers with good reasons and motivations to expect beneficial consequences of voluntary disclosure. The results show that general investors are less capable of predicting future earnings when there is a higher degree of CSR spending aggregated with SG&A. It also highlights potential problems in the disclosure of general-purpose financial reporting to accounting standard setters.

**Keywords** Corporate social responsibility, CSR activities, CSR spending, Future (forward) earnings response coefficients

**Paper type** Research paper

## 1. Introduction

The first impression is often positive for a firm delivering corporate social responsibility (CSR) activities. It is also perceived beneficial to the firm, and its investors in studies of accounting and finance literature where investors and capital markets are the major interests of study. For example, Kim et al. (2012) show that corporate managers in socially responsible firms are willing to provide high quality of information to investors in the capital markets. Mutual fund managers tend to favor CSR firms while making investment portfolios, as empirically shown in Hong and Kostovetsky (2012). Voluntary disclosures on CSR

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activities also provide additional information to reduce the costs of equity capital (Dhaliwal et al., 2011) and the errors of analysts forecast (Dhaliwal et al., 2012)[1].

However, theories vary substantially in their explanation for CSR activities because CSR activities have multiple dimensions (McWilliams et al., 2006)[2]. For example, Arora and Dharwadkar (2011) argue that different types of institutional investors have different interests in CSR. Some institutional investors focus on the benefits of CSR, but other treats CSR as the process of assessing an organization's impact on society and evaluating its responsibilities instead of profits. Given the multiple dimensions and explanations of CAR, investors are unlikely to correctly expect returns on resources consumed by the CSR activities. In particular, CSR spending is not separately reported under current accounting practices.

This study tests whether the multi-purpose and expense aggregation features of CSR activities reduce investors' ability to foresee future earnings. Following Di Giuli and Kostovetsky (2014), we estimate the latent CSR spending from selling, general and administrative expenses (SG&A) and use it as a proxy for the degree of expense aggregations[3]. The aggregation of CSR spending with SG&A is considered one of the reasons that reduce investors' performance in predicting future earnings in our study. After controlling for the aggregation of CSR spending with SG&A, the intensity of CSR activities can be a proxy for the multi-purpose dimensions of CSR activities with less noise.

The expense nature of CSR spending is a pure waste of corporate resources. Such outlay of assets should create no future economic benefits. Empirically, this kind of CSR spending that is aggregated with SG&A should be largely independent from future earnings variability. However, a firm can carefully spend resources on some kinds of CSR activities that may win new business, increase customer retention, develop and enhance relationships with customers, suppliers and networks. Because of their impacts on societies and environments, such kinds of CSR spending can generate future economic benefits and increase future earnings variability because of uncertainties.

Consistent with the above arguments, we find less future earnings information contained in current stock returns for firms with higher intensity of CSR activities. The association is also negative between current stock returns and future earnings reported by firms with a higher degree of CSR spending aggregated with SG&A. In additional analyses, the intensity of CSR activities is positively associated the uncertainty of benefits, measured by the standard deviation of future earnings over the next five years. This future earnings variability does not exist, even though CSR spending is aggregated with SG&A, consistent with the basic principle that accounting expenses create no future economic impacts.

This study contributes to the current debate over consequences of CSR activities and accounting for CSR spending from a different angle. A number of studies report convincing evidence that voluntary disclosure on CSR activities would aid in reducing costs of equity capital (Dhaliwal et al., 2011) and financial reporting errors (Dhaliwal et al., 2012). These studies provide corporate managers with good reasons and motivations to expect beneficial consequences of voluntary disclosure. However, these studies do not examine the quality of information provided by CSR activities. Our study provides evidence that general investors are less capable of predicting future earnings when there is a higher degree of CSR spending aggregated with SG&A. It also highlights potential problems in the disclosure of general-purpose financial reporting to accounting standard setters.

The rest of the paper is organized as follows. Section 2 reviews the literature to develop hypotheses. Section 3 explains research design. Section 4 reports the sample and descriptive statistics. Section 5 discusses regression results and Section 6 concludes.

## 2. Literature review and hypothesis development

The term "corporate social responsibility (CSR)" was coined by Sethi (1975) and became popular in the 1970s. CSR is sometimes used indiscriminately to cover both legal and moral responsibility. This is because in the 1800s, the US government could even take away the license of a socially irresponsible firm. It is not until 1819 that the US Supreme Court in Dartmouth College vs Woodward established a corporation as a legal person in specific contexts and protected under the Constitution.

Some studies define CSR as a company's sense of responsibility toward the community and environment (both ecological and social) in which it operates. Companies often express this citizenship through their waste and pollution reduction processes, by contributing educational and social programs and earning adequate returns on the employed resources. Sethi (1975) refers these ways to deliver a firm's social responsibility as a three-level model. Other studies even expand CSR from a focus on stakeholders to include philanthropy and volunteering. This forms a four-dimensional pyramid model of CSR, including economic, legal, ethical and philanthropic (Carroll, 1991).

There are other ways to define CSR. For example, based on the stakeholder theory by Freeman (1984), Donaldson and Preston (1995) elaborate the theory into three "mutually supportive" aspects (or components) of CSR: the instrumental, normative ethics and descriptive aspects[4]. The instrumental aspect suggests that corporate managers engage in CSR because CSR is good for business. In the normative ethics aspect, CSR is the right thing or moral obligation for a firm to do[5]. The descriptive aspect combines the two points of view, suggesting that CSR, at least potentially, is the right thing to do both financially and morally. In summary, prior studies partition CSR activities with a hope to address different questions regarding their contents of CSR. As the focuses vary substantially so do their definitions of CSR activities among the studies (McWilliams et al., 2006).

It is also an empirical question without sufficient evidence whether investors' improve their ability to predict a firm's future earnings through analyzing the firm's CSR activities captured by a professional third party. A study close to this research question is that reported by Kim et al. (2012), who find a negative association between corporates' being socially responsible and earnings management in corporates' financial reporting. However, two of their earnings management measures, discretionary accruals and real earnings manipulation, are purely corporate decisions rather than investors[6]'. It provides inadequate implications about whether analyzing CSR activities is beneficial to investors who want to forecast future earnings, even if those socially responsible firms may not have intention to manipulate financial reporting. Similarly, the third measure of their earnings management, which is the likelihood for socially responsible firms to be formally investigated by the authority (i.e. SEC), provides indirect evidence on how investors utilize CSR information to predict future earnings.

The theory that ethical managers are more likely to produce high-quality financial reports is the core argument empirically tested by Kim et al. (2012). This theory is derived from the normative ethics aspect of CSR rather than the instrumental aspect of the stakeholder theory. The normative ethics aspect of CSR suggests that corporate managers improve financial reporting quality because it is the right thing to do. In other words, doing the right things or achieving a good society is firms' necessity without adequate justifications. However, Dhaliwal et al. (2011) take the instrumental aspect of CSR, finding empirical evidence that CSR activities are an alternative tool for managers to maximize firm value. In their study, a firm uses voluntary disclosures on CSR activities to reduce its cost of equity capital and exploit the benefits when issuing new equity.

In summary, the theoretical association between CSR activities and their predictive value about future earnings can be an empirical issue based on theories used to explain managers' behavior. This is because CSR activities may be used for multiple purposes.

Diverse strategies used by managers to implement CSR make it difficult for investors to measure the real effects of CSR activities (McWilliams and Siegel, 2001). In particular, the agency theory by Friedman (1970) that competes with the stakeholder theory argues that managers' engagement in CSR activities is a symptom of agency problem or a conflict of interests between managers and shareholders. He suggests that resources devoted to CSR activities would be more wisely spent to increase firm value. In this case, low financial reporting quality is a desirable strategy for managers who use CSR activities as disguised ways to obtain their own benefits at the expense of shareholders. The above discussions lead to our first hypothesis.

> *H1.* The intensity of corporate social responsibility activities reduces investors' ability to foresee future earnings.

In addition to the multiple purposes of CSR activities, the aggregation of CSR spending with other expenses also has a negative impact on investors' ability to predict future earnings. Current accounting standards require no specific disclosure on CSR spending. Investors who view CSR as a form of investment need information about CSR spending to expect returns on the resources consumed by the CSR activities (McWilliams and Siegel, 2001, Barnea and Rubin, 2010)[7]. Investors who advocate the agency theory also need information about CSR spending to blame managers for resources wastefully devoted to CSR activities. However, no investors could find specific information about CSR spending, using financial statements to measure economic consequences of CSR activities[8].

CSR spending is likely aggregated with SG&A as suggested by Barnea and Rubin (2010) and Di Giuli and Kostovetsky (2014). This expense aggregation is harmful for investors to forecast future earnings. The discretionary nature of SG&A is highlighted in Roychowdhury (2006) and is often associated with earnings manipulation in many studies. Furthermore, aggregating expenses with different functions violates the basic accounting principle of separating income statement items to aid investors' prediction of future performance (Demski, 1973; Hodge *et al.*, 2004)[9]. Fairfield *et al.* (1996) empirically show that disaggregation of earnings (into operating earnings, non-operating earnings and taxes and special items) improves forecasts of future return on equity. Libby and Brown (2013) find that senior auditors believe that disaggregation of income statement numbers facilitates the identification of errors in financial statements. The above arguments can be summarized in the following hypothesis.

> *H2.* The degree of corporate social responsibility spending aggregation with selling, general and administrative expenses reduces investors' ability to foresee future earnings.

## 3. Research design

### 3.1 Proxy for the multi-purpose dimensions of corporate social responsibility activities

This study uses the intensity of CSR activities as a proxy for the multi-purpose dimensions of CSR activities, assuming a positive association between them. The intensity of CSR activities is measured from the Kinder, Lydenberg, Domini Research & Analytics (KLD) data, following prior studies[10]. The KLD data have seven qualitative issue areas (QIAs) to cover 81 ratings (either a zero or one) for 44 "strengths" (positive CSR policies) and 37 "concerns" (negative CSR policies)[11]. Similar to prior studies that have partitioned CSR activities into different groups, levels or tiers, we further use KLD database to isolate some areas when testing the hypotheses. For example, Di Giuli and Kostovetsky (2014) exclude ratings on corporate governance from their KLD score because corporate governance issues are different from CSR. Similarly, while examining whether socially responsible firms behave differently from other firms in their financial reporting, Kim *et al.* (2012) separately use a net score of KLD's corporate governance ratings as a control variable, arguing that corporate governance improves financial reporting practice in Klein (2002) and Bergstresser and Philippon (2006)[12].

Following prior studies using KLD data, we exclude corporate governance and add up our KLD scores across the remaining six issue areas to get an aggregate KLD Score[13]. This KLD Score is equal to KLD strengths score minus KLD concerns score. The KLD strengths score is the sum of all the dummy variables over the six strengths. Similarly, we add up the total number of concerns (and multiply it by negative one) to calculate a KLD concerns score. For each of the three scores, higher numbers correspond to better levels of CSR. Finally, KLD score is standardized to have a mean of zero and a standard deviation of one to simplify the interpretation of regression coefficients[14]. All data definitions are presented in the data appendix.

### 3.2 Proxy for corporate social responsibility spending

Despite a growing importance of CSR activities in business strategies, there is no disclosure requirement of CSR spending. Several CSR studies, including Waddock and Graves (1997), Johnson and Greening (1999), Chatterji *et al.* (2009), Kim *et al.* (2012) and Di Giuli and Kostovetsky (2014), rely on CSR ratings provided by KLD database to avoid the research limitation imposed by the latent CSR spending variable.

In this study, we follow Di Giuli and Kostovetsky (2014) and use KLD ratings to estimate the latent CSR expenditure level. Similar to Di Giuli and Kostovetsky (2014), we regress the natural logarithm of SG&A expenses on standardized KLD ratings while controlling for industry, firm characteristics and chief executive officer (CEO) characteristics. This regression specification permits the coefficient on the KLD ratings to reflect an extra percentage change in SG&A expenses because of a one-standard deviation increase in KLD ratings. Using the regression coefficient on the KLD ratings, we estimate a proxy for CSR spending that is aggregated with SG&A, $Spending_{i,t}$, as follows:

$$Spending_{i,t} = SG\&A_{i,t} \times KLD\ ratings_{i,t} \times Coefficient \qquad (1)$$

where $SG\&A_{i,t}$ is selling, general and administrative expenses (XSGA) from Compustat, KLD ratings$_{i,t}$ is measured in three ways according to regression specification – KLD score, KLD strengths score and KLD concerns score – and Coefficient is $\alpha_1$ in the following regression. We scale $Spending_{i,t}$ by market value of equity (PRCC_f × CSHO) three months after $t - 1$ fiscal year-end:

$$Ln(SG\&A_{i,t}) = \alpha_0 + \alpha_1 KLD\ ratings_{i,t} + Controls + \varepsilon_{i,t} \qquad (2)$$

where Controls include the following three groups of variables to control for industry, firm characteristics and CEO characteristics.

#### 3.2.1 Control variables for firm characteristics

$Ln(Sale_{i,t-1})$ = the natural log of sales (SALE) year $t - 1$;
$ROA_{i,t-1}$ = the ratio of income before extraordinary items ("IB") in year $t - 1$ to average total assets ("AT");
$Ln(AT_{i,t-1})$ = the natural log of total assets (AT) at the end of year $t - 1$;
$BtM_{i,t-1}$ = the ratio of book value of the equity ("CEQ") over the market value of equity measured as absolute value of price. "PRC", times shares outstanding, "SHROUT", from CRSP at the end of year $t - 1$;
$Cash_{i,t-1}$ = the ratio of cash balances ("CHE") over total assets at the end of year $t - 1$;
$DIV_{i,t-1}$ = the ratio of cash dividends ("DVC" + "DVP") in year $t - 1$ over total assets at the end of year $t - 1$; and
$Debt_{i,t-1}$ = the ratio of total debt ("DLTT" + "DLC") over total assets at the end of year $t - 1$.

#### 3.2.2 Control variables for CEO characteristics

$Dmy\_Female_{i,t}$ = a dummy variable equal to 1, if CEO gender is female;
$Age_{i,t}$ = age of the CEO; and
$Dmy\_Dual_{i,t}$ = a dummy variable equal to 1, if CEO is also a director.

### 3.2.3 Control variables for industry and year

$Avg\_Ln(SG\&A_{i,t})$ = the average of $Ln(SG\&A_{i,t})$ over each year of Fama–French 49 industries; and

$Std\_Ln(SG\&A_{i,t})$ = the standard deviation of $Ln(SG\&A_{i,t})$ over each year of Fama–French 49 industries.

### 3.3 Returns tests on investors' forecasting performance

Our major research question asks whether investors can improve their ability to predict future earnings by analyzing a firm's CSR activities under the assumption of efficient-market hypothesis. If CSR activities provide additional information that is incrementally helpful in predicting future performance, investors in an efficient market should reflect such information in current stock returns because of competition for investment profits. Alternatively, the multiple purposes of CSR activities and the aggregation of CSR spending with SG&A may deteriorate investors' ability to predict future earnings. In this case, current stock returns reflect less correct information about future earnings even though investors in an efficient market use all available information to make profits.

The FERC framework as shown in equation (3), initially developed by Collins *et al.* (1994), is particularly relevant to testing whether current stock returns reflect correct information about future earnings. Its basic specification is a regression of current-year stock returns on past, concurrent and future reported earnings with future stock returns as a control variable. Previous studies (Lundholm and Myers, 2002; Ettredge *et al.*, 2005; Tucker and Zarowin, 2006) refer the coefficient on future earnings [i.e. $b_3$ in equation (3)] as the future (or forward) earnings response coefficient (FERC). A significantly positive FERC, $b_3$, provides evidence that investors have rich and correct information about future earnings:

$$R_t = b_0 + b_1 X_{t-1} + b_2 X_t + b_3 X_{t3} + b_4 R_{t3} + \varepsilon_t \tag{3}$$

where $R_t$ is annual common stock returns starting from three months after $t - 1$ fiscal year-end measured from (PRCCQ) and adjusted for stock splits (ADJEX) and stock dividends (DVPSXQ); $X_{t-1}$ and $X_t$ are annual earnings before interest and taxes (EBIT) for fiscal year $t - 1$ and $t$, respectively, and both are deflated by market value of equity (PRCC_f × CSHO) three months after $t - 1$ fiscal year-end; $X_{t3}$ is the sum of earnings before interest and taxes for fiscal years $t + 1$ through $t + 3$ and deflated by the market value of common equity; and $R_{t3}$ is common stock returns for the next three years.

In an efficient market, where investors use all possible ways to compete for profits, the dependent variable, annual common stock returns, $R_t$, should contain all information available and useful to investors. The independent variable of our interest is future earnings, $X_{t3}$. If investors have information about future earnings, they will use it to make profits in an efficient market. As a result, we expect $b_3$ to be positive because higher future earnings lead to higher current annual common stock returns.

As demonstrated by Lundholm and Myers (2002), the inclusion of $X_{t-1}$ and $X_t$ rather than $\Delta X_{t-1}$ in the model avoids the restricted specification, where earnings follow a random walk and $b_1 = -b_2$. Based on their study, we expect $b_1$ to be negative and $b_2$ and $b_3$ to be positive. A more positive coefficient on $X_{t3}$ (i.e. $b_3$ or FERC) indicates that investors have richer and more correct information about future earnings. For return measures, we incorporate a three-month lag to ensure that the financial statements have been released. Following Lundholm and Myers (2002), we combine three future years' earnings in $X_{t3}$ and three future years' returns in $R_{t3}$ to increase the power of the test.

To statistically test whether CSR activities enhance or deteriorate FERC, we add a proxy variable for the intensity of CSR activities into the regression and interact this variable with all other independent variables as in the following regression model (firm subscript $i$ is omitted):

$$R_t = b_0 + b_1 X_{t-1} + b_2 X_t + b_3 X_{t3} + b_4 R_{t3} + KLD_t \times (b_5 + b_6 X_{t-1} + b_7 X_t + b_8 X_{t3}$$
$$+ b_9 R_{t3}) + \textit{industry and year conrols} + \varepsilon_t \qquad (4)$$

where $KLD_t$ is one of the three ways to measure CSR activities: KLD score, KLD strengths score and KLD concerns score.

As explained for equation (3), we expect $b_3$ to be positive when investors in an efficient market incorporate future earnings information into current stock returns. If CSR activities provide useful and available information regarding future earnings to investors, $b_8$ is expected to be positive. In this case, the sum of $b_3$ and $b_8$ represents the total information regarding future earnings in current stock returns of socially responsible firms.

### 3.4 Uncertainty of future earnings from corporate social responsibility activities versus corporate social responsibility spending

The research design in this section aims to identity the uncertainty of future earnings from the aggregation of CSR spending with SG&A and from the multi-purpose dimensions of CSR activities. We follow Kothari *et al.* (2002) and estimate the following annual cross-sectional model (firm subscript *i* is suppressed) to compare the relative contributions of the aggregated CSR spending and the multi-purpose dimensions of CSR activities to future earnings variability:

$$SD(X_{t+1, t+5}) = \alpha_0 + \beta_1 KLD\ ratings_t + \beta_2 Spending_t + \beta_3 CapEx_t + \beta_4 R\&D_t + \beta_5 AD_t$$
$$+ \beta_6 MV_t + \beta_7 Lev_t + \textit{industry and year conrol} + \varepsilon_t \qquad (5)$$

where $SD(X_{t+1, t+5})$ is the standard deviation of income available to common shareholders before extraordinary items (EBIT); the standard deviation is calculated using five annual earnings observations for years $t + 1$ through $t + 5$; each earnings observation is deflated by market value of equity (PRCC_f $\times$ CSHO) at the beginning of the period $t$[15]; $CapEx_t$ is the capital expenditure per share deflated by the market value of equity; $R\&D_t$ is research and development, deflated by the market value of equity; $AD_t$ is research and development, deflated by the market value of equity; $MV_t$ is the natural logarithm of the market capitalization of equity at the end of year $t$; and $Lev_t$ is the ratio of long-term debt to the market value of equity plus long-term debt, both at the end of year $t$.

Because $KLD\ ratings_t$ is used to capture the multi-purpose dimensions of CSR and $Spending_t$ is used to capture the aggregated portion of CSR spending, we expect the coefficient on $KLD\ ratings_t$ in the regression to exceed that on $Spending_t$. In our empirical analysis, the regression model (2) contains several expenses that likely generate future benefits with uncertainty, including capital expenditure, research and development and advertising expense. Similar to Kothari *et al.* (2002), we include in the regression financial leverage and market value of equity as economic determinants of earnings variability. Finance theory predicts that, other things equal, earnings variability increases in financial leverage but decrease in firm size. Large firms are more likely to even their earnings by diversification than small firms.

## 4. Data and sample descriptions

Table I summarizes the data selection process. A total of 38,098 observations were obtained from the KLD database, which has compiled CSR information since 1991. However, because of data constraints on the CRSP and Compustat databases, we eliminate a total of 20,940 firm-year observations without earnings and/or return data. This exclusion gives us a number of 17,158 firm-year observations between 1995 and 2012. We then further delete 1972 firm-year observations from financial institutions (SIC code 6000-6999). Our final sample is 15,186 firm-year observations.

Our study will be of interest to an international audience, although KLD is US-based database and our sample includes only US firms. We focus on US-based database to gain the benefits of efficient capital markets because our research design is based on the market efficiency hypothesis. In an efficient market, investors are supposed to incorporate all useful information into stock price because of competition for making profits from

**Table I** Sample selection

| Sample selection criteria | No. of firms | No. of firm-years |
|---|---|---|
| Firms with KLD ratings | 6,161 | 38,098 |
| Delete if $X_{t-1}$, $X_t$ or $X_{t3}$ data are missing | (2,406) | (14,537) |
| Sample with earnings data available | 3,755 | 23,561 |
| Delete if $R_t$ or $R_{t3}$ data are missing | (890) | (6,403) |
| Sample with earnings and return data available | 2,865 | 17,158 |
| Delete if data are in the financial industry[a] | (398) | (1,972) |
| Final sample | 2,467 | 15,186 |

Note: [a]Firms with SIC code 4000-4999 are in the financial industry

investment. If stock prices do not contain CSR information in efficient US markets, CSR activities in other countries are unlikely informative when capital markets are inefficient.

The first five rows of Table II list the variables for tests of FERC. Both current period and future three-year stock returns are, on average, positive, consistent with intuition and prior studies (Ettredge *et al.*, 2005; Tucker and Zarowin, 2006). Annual earnings scaled by market value of equity are similar between fiscal year $t-1$ and $t$, as most of observations are cross-sectionally overlapped.

Table II also reports two KLD database variables – CSR score and CSR concern score – before they are standardized by the standard deviation of CSR score. CSR concern score is negative for all observations. Thus, a higher number of CSR concern score corresponds to better levels of CSR rating. The remaining rows of Table II report several variables for corporate and CEO characteristics.

Table III presents pairwise correlations, where CSR score and CSR concern score are negatively associated with past, current and future earnings. This might suggest that CSR activities consume corporate resources so that socially responsible firms have smaller net

**Table II** Descriptive statistics

| Variable | Mean | SD | Median | Minimum | Maximum |
|---|---|---|---|---|---|
| *Variables for FERC* | | | | | |
| $R_t$ | 0.175 | 0.553 | 0.097 | −0.762 | 2.682 |
| $X_{t-1}$ | 0.078 | 0.096 | 0.076 | −0.309 | 0.442 |
| $X_t$ | 0.085 | 0.095 | 0.084 | −0.278 | 0.429 |
| $X_{t3}$ | 0.414 | 1.343 | 0.312 | −10.53 | 93.11 |
| $R_{t3}$ | 0.523 | 0.896 | 0.183 | −1.772 | 3.254 |
| | | | | | |
| *Variables from KLD database* | | | | | |
| CSR Score$_{i,t}$ (un-standardized)[a] | 0.073 | 2.455 | 0 | −6 | 15 |
| CSR Concern Score$_{i,t}$ (un-standardized)[a] | −1.644 | 1.866 | 0 | −15 | −1 |
| | | | | | |
| *Variables for corporate characteristics* | | | | | |
| SG&A$_t$ ($millions) | 835.51 | 2,617.2 | 172.73 | 0 | 81,020 |
| Sale$_t$ ($millions) | 6,572.0 | 19,388.2 | 1,627.95 | 2.96 | 425,071 |
| ROA$_{t-1}$ | 0.054 | 0.116 | 0.057 | −1.541 | 4.826 |
| AT$_{t-1}$ ($millions) | 9,927.3 | 68,018.2 | 1,746.9 | 19.748 | 2,223,299 |
| BtM$_{t-1}$ | 0.479 | 0.341 | 0.403 | 0.025 | 2.233 |
| Cash$_{t-1}$ | 0.147 | 0.165 | 0.078 | 0 | 0.907 |
| DIV$_{t-1}$ | 0.013 | 0.019 | 0.005 | 0 | 0.100 |
| Debt$_{t-1}$ | 0.198 | 0.160 | 0.191 | 0 | 0.989 |
| | | | | | |
| *Variables for CEO characteristics* | | | | | |
| Dmy_Female$_t$ | 0.041 | 0.199 | 0 | 0 | 1 |
| Age$_t$ | 55.07 | 6.475 | 55 | 32 | 84.5 |
| Dmy_Dual$_t$ | 0.312 | 0.464 | 0 | 0 | 1 |

Notes: $N$ = 15,186 firm-years during 1994-2012; [a]this number is not standardized by the standard deviation of CSR score. Section 3 contains detailed variable definitions

**Table III** Pairwise Pearson (Spearman) correlations above (below) the diagonal

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) $R_t$ | | 0.03 | 0.05 | 0.14 | −0.01 | −0.01 | 0.00 | 0.00 | −0.03 | 0.00 | 0.01 | −0.01 | −0.01 | 0.02 | 0.00 | −0.01 | 0.01 |
| (2) $X_{t-1}$ | 0.08 | | 0.35 | 0.08 | 0.01 | 0.00 | −0.03 | 0.08 | 0.10 | 0.06 | −0.01 | −0.09 | 0.02 | 0.09 | 0.03 | 0.02 | 0.01 |
| (3) $X_t$ | 0.25 | 0.71 | | 0.50 | −0.03 | −0.06 | −0.11 | 0.21 | 0.13 | 0.17 | 0.01 | −0.29 | 0.02 | 0.29 | 0.01 | 0.06 | 0.00 |
| (4) $X_{t3}$ | 0.45 | 0.48 | 0.62 | | 0.24 | −0.08 | −0.10 | 0.13 | −0.08 | 0.12 | 0.26 | −0.24 | −0.05 | 0.29 | −0.01 | 0.05 | 0.01 |
| (5) $R_{t3}$ | −0.08 | 0.09 | 0.03 | 0.32 | | −0.01 | 0.00 | 0.00 | 0.07 | −0.02 | 0.08 | −0.02 | −0.02 | 0.03 | −0.02 | −0.01 | 0.00 |
| (6) CSR Score$_{i,t}$ | −0.03 | −0.08 | −0.11 | −0.10 | 0.00 | | 0.40 | 0.15 | 0.07 | 0.17 | −0.15 | 0.09 | 0.11 | −0.07 | 0.14 | −0.05 | 0.04 |
| (7) CSR Concern Score$_{i,t}$ | 0.00 | −0.12 | −0.13 | −0.10 | 0.03 | 0.53 | | −0.50 | 0.01 | −0.48 | 0.00 | 0.15 | −0.14 | −0.15 | 0.03 | −0.08 | −0.02 |
| (8) ln(SG&A$_t$) | −0.02 | 0.30 | 0.26 | 0.19 | 0.00 | 0.12 | −0.37 | | 0.10 | 0.86 | −0.07 | −0.36 | 0.21 | 0.24 | 0.00 | 0.09 | 0.10 |
| (9) ln(Sale$_t$) | −0.06 | 0.14 | 0.03 | −0.10 | 0.00 | 0.12 | 0.06 | 0.10 | | 0.00 | −0.32 | 0.02 | 0.20 | −0.17 | 0.02 | 0.00 | −0.01 |
| (10) ROA$_t$ | −0.05 | 0.26 | 0.23 | 0.17 | 0.04 | 0.14 | −0.35 | 0.85 | −0.07 | | −0.01 | −0.33 | 0.13 | 0.30 | −0.02 | 0.10 | 0.09 |
| (11) ln(AT$_{t-1}$) | 0.14 | 0.24 | 0.17 | 0.22 | −0.04 | −0.17 | −0.04 | −0.10 | −0.54 | 0.00 | | −0.16 | −0.23 | 0.07 | 0.01 | 0.08 | 0.01 |
| (12) BtM$_{t-1}$ | −0.01 | −0.43 | −0.40 | −0.32 | 0.02 | 0.08 | 0.09 | −0.29 | 0.16 | −0.04 | −0.19 | | −0.11 | −0.41 | 0.02 | −0.12 | −0.04 |
| (13) Cash$_{t-1}$ | −0.02 | 0.19 | 0.14 | 0.07 | 0.03 | 0.08 | −0.14 | 0.32 | 0.22 | −0.31 | −0.15 | −0.25 | | 0.00 | 0.00 | 0.05 | 0.00 |
| (14) DIV$_{t-1}$ | 0.03 | 0.35 | 0.36 | 0.31 | −0.03 | −0.07 | −0.16 | 0.30 | −0.29 | 0.26 | 0.08 | −0.51 | 0.10 | | −0.05 | 0.06 | 0.00 |
| (15) Dmy_Female$_t$ | −0.02 | 0.02 | 0.00 | −0.02 | 0.00 | 0.15 | 0.05 | 0.00 | 0.03 | 0.37 | −0.01 | 0.04 | 0.00 | −0.05 | | −0.06 | 0.09 |
| (16) Age$_t$ | 0.01 | 0.09 | 0.09 | 0.06 | 0.00 | −0.04 | −0.05 | 0.10 | −0.01 | −0.03 | 0.09 | −0.11 | 0.13 | 0.06 | −0.06 | | 0.04 |
| (17) Dmy_Dual$_t$ | −0.03 | 0.02 | 0.01 | 0.00 | −0.01 | 0.04 | −0.02 | 0.10 | 0.03 | 0.10 | 0.00 | −0.03 | 0.00 | 0.00 | 0.09 | 0.05 | |

**Notes:** $N = 15{,}186$; correlations in italic are statistically significant at 10% or lower in a two-tailed test. Correlations with underlines are statistically insignificant. Section 3 contains detailed variable definitions

income and stock returns than other companies. The correlation coefficients between CSR score and CSR concern score are positive (i.e. 0.53 for Spearman and 0.40 for Pearson) but insufficiently large to make a regression with the two variables collinearity. The largest correlation coefficient appears (0.85 or 0.86) between log sales and return on assets, but they are used as control variables.

## 5. Regression results

### 5.1 KLD ratings and selling, general and administrative expenses expenditures

As the first step to estimate the degree of CSR spending aggregation with SG&A, Table IV reports estimated coefficients on standardized KLD ratings (i.e. CSR score and CSR concern score) from multivariate regressions with control variables for characteristics of manager, firm, industry and year. Model (1) of the table reports a significant and positive coefficient of 0.185 on KLD score with a $t$-statistic of 25.73. Because CSR score in the regression is scaled by its standard deviation to have a standard deviation of one, the result means that a one standard-deviation shock (to the higher CSR image) in the KLD Score is associated with an increase of extra 18.5 per cent of SG&A.

Model (2) includes CSR concern score (scaled by the standard deviation of CSR score) to highlight differences in SG&A expenses between KLD score and KLD concern score. Consistent with prior studies (Di Giuli and Kostovetsky, 2014), being rated positively by KLD database consumes corporate resources. The coefficient on KLD score is 0.172 and significant at the 1 per cent level ($t$-statistic = 19.33), representing the effect of KLD (strength) score on SG&A[16]. Somewhat surprisingly, but consistent with the user manual of Kinder et al. (2006), a firm needs a total of 20.3 per cent (i.e. 0.172 + 0.031) SG&A to get rid of one standard deviation deterioration in CSR concern score. CSR concerns represent socially irresponsible activities which, as described in the KLD user manual, include resolving controversies or civil penalties for environmental contamination, water rights, plant closings or waste management violations. These events entail significant expenditures, increasing SG&A.

**Table IV** Estimation of CSR spending aggregated with SG&A

| Variable | Model (1) Estimate | t value | Model (2) Estimate | t value |
|---|---|---|---|---|
| Intercept | −0.968 | (−8.45)*** | −1.038 | (−8.79)*** |
| CSR Score$_{i,t}$ | 0.185 | (25.73)*** | 0.172 | (19.33)*** |
| CSR Concern Score$_{i,t}$ | | | 0.031 | (2.41)** |
| Avg_Ln(SG&A$_{i,t}$) | 0.230 | (23.42)*** | 0.230 | (23.4)*** |
| Std_Ln(SG&A$_{i,t}$) | −0.005 | (−0.20) | 0.002 | (0.06) |
| Ln(Sale$_{i,t-1}$) | 0.631 | (62.44)*** | 0.635 | (61.82)*** |
| ROA$_{i,t-1}$ | −0.437 | (−6.77)*** | −0.444 | (−6.88)*** |
| Ln(AT$_{i,t-1}$) | 0.218 | (22.63)*** | 0.224 | (22.58)*** |
| BtM$_{i,t-1}$ | −0.459 | (−20.48)*** | −0.46 | (−20.52)*** |
| Cash$_{i,t-1}$ | 0.971 | (19.74)*** | 0.987 | (19.88)*** |
| DIV$_{i,t-1}$ | 2.036 | (5.28)*** | 2.158 | (5.55)*** |
| Debt$_{i,t-1}$ | −0.343 | (−6.95)*** | −0.348 | (−7.04)*** |
| Dmy_Female$_{i,t}$ | −0.061 | (−1.73)* | −0.055 | (−1.54) |
| Age$_{i,t}$ | −0.004 | (−3.66)*** | −0.004 | (−3.65)*** |
| Dmy_Dual$_{i,t}$ | −0.045 | (−2.98)** | −0.045 | (−3.03)*** |
| Adjusted $R^2$ | 0.8077 | | 0.8078 | |

Notes: ***; **, and; *denote levels significantly different from zero at 1%, 5%, and 10% in a two-tailed $t$ test; $N$ = 15,186; the dependent variable is the natural logarithm of selling, general and administrative expenses (XSGA), Ln(SG&A$_{i,t}$). Section 3 contains detailed variable definitions

### 5.2 Future (forward) earnings response coefficients regressions with KLD score and corporate social responsibility spending

Table V reports results from FERC regressions of current stock returns on future earnings with three control variables. Model 1 indicates that the market reacts more to current earnings than to past earnings. This is because the coefficient is negative on prior period earnings, $X_{t-1}$, whereas it is positive on current earnings (the traditional ERC). The coefficient on future returns, $R_{t3}$, is negative and significant, consistent with its role to control for measurement error. This basic tenor is qualitatively the same over the other three models. The coefficient on future earnings (the FERC) is always positive and significant in Model 1 and across the other three models, providing evidence that current stock prices contain rich information about future earnings.

Model 2 starts with the inclusion of KLD score measured as the number of total strengths minus the number of total concerns scaled by its standard deviation. The results in Model 2 show a negative coefficient of $-1.006$ on the interaction term between future earnings ($X_{t3}$) and $KLD_t$, with significance at the 1 per cent level ($t$-statistic $= -40.42$). This result suggests that current stock prices move in a direction opposite to future earnings when firms deliver a high intensity of CSR activities. The significantly negative coefficient also provides evidence for the hypothesis that investors' ability to foresee future earnings decreases with the intensity of CSR activities.

Models 3 and 4 include a proxy for the degree of CSR spending aggregation with SG&A to highlight its effect on investors' ability to foresee future earnings. Results indicate that investors' ability to predict future earnings decreases with the degree of CSR spending aggregation with SG&A. In Model 3, where CSR spending is measured from the regression of SG&A on KLD score, the coefficient is $-0.986$ on the interaction term between future earnings, $X_{ts}$, and the CSR spending, with the significance level of 1 per cent ($t$-statistic $= -27.94$). This coefficient becomes even more negative from $-0.986$ in

**Table V** FERC regressions with KLD score and CSR spending

| Variable | Model (1) Estimate | Model (1) t value | Model (2) Estimate | Model (2) t value | Model (3) Estimate | Model (3) t value | Model (4) Estimate | Model (4) t value |
|---|---|---|---|---|---|---|---|---|
| Intercept | −0.862 | (−1.20) | −2.373 | (−4.04)*** | −1.454 | (−3.20)*** | −2.242 | (−4.10)*** |
| $X_{t-1}$ | −2.823 | (−13.67)*** | −1.054 | (−5.90)*** | 0.014 | (0.10) | −0.210 | (−1.16) |
| $X_t$ | 5.581 | (20.34)*** | 0.320 | (1.28) | 2.309 | (10.06)*** | 7.196 | (22.37)*** |
| $X_{t3}$ | 1.191 | (24.59)*** | 3.081 | (56.11)*** | 0.962 | (13.84)*** | 0.455 | (5.07)*** |
| $R_{t3}$ | −0.182 | (−1.42) | −0.782 | (−7.38)*** | −0.451 | (−5.42)*** | −0.125 | (−1.25) |
| $CSR\ Score_{i,t}$ | | | 1.107 | (21.42)*** | −0.078 | (−1.37) | 0.801 | (11.87)*** |
| $CSR\ Score_{i,t} \cdot X_{t-1}$ | | | 2.031 | (8.84)*** | 0.623 | (1.79)* | 6.623 | (16.88)*** |
| $CSR\ Score_{i,t} \cdot X_t$ | | | −8.407 | (−31.68)*** | −1.394 | (−3.96)*** | −15.411 | (−42.66)*** |
| $CSR\ Score_{i,t} \cdot X_{t3}$ | | | −1.006 | (−40.42)*** | −0.258 | (−7.88)*** | 0.246 | (6.11)*** |
| $CSR\ Score_{i,t} \cdot R_{t3}$ | | | 0.194 | (2.08)** | 0.163 | (1.62) | −0.277 | (−2.33)** |
| $Spending_t^1$ | | | | | 1.122 | (21.3)*** | | |
| $Spending_t^1 \cdot X_{t-1}$ | | | | | 0.989 | (10.95)*** | | |
| $Spending_t^1 \cdot X_t$ | | | | | −3.618 | (−20.09)*** | | |
| $Spending_t^1 \cdot X_{t3}$ | | | | | −0.986 | (−27.94)*** | | |
| $Spending_t^1 \cdot R_{t3}$ | | | | | 0.014 | (0.16) | | |
| $Spending_t^2$ | | | | | | | 0.43 | (6.89)*** |
| $Spending_t^2 \cdot X_{t-1}$ | | | | | | | −1.685 | (−18.00)*** |
| $Spending_t^2 \cdot X_t$ | | | | | | | 5.349 | (36.93)*** |
| $Spending_t^2 \cdot X_{t3}$ | | | | | | | −1.514 | (−39.07)*** |
| $Spending_t^2 \cdot R_{t3}$ | | | | | | | 0.589 | (5.73)*** |
| Adjusted $R^2$ | 0.207 | | 0.4722 | | 0.6840 | | 0.5464 | |

Notes: ***; **, and; *denote levels significantly different from zero at 1%, 5%, and 10% in a two-tailed $t$ test; the dependent variable is current stock returns, $R_t$; $Spending_t^1$ = CSR spending measured from equation (1) and Model 1 of Table IV, scaled by its standard deviation; $Spending_t^2$ = CSR spending measured from equation (1) and Model 2 of Table IV, scaled by the standard deviation of; $Spending_t^1$. Section 3 contains detailed definitions for other variables

Model 3 to −1.514 in Model 4 where CSR spending is presumably more precisely measured from the regression of SG&A on KLD strength and concern scores. The significance level also improves from a *t*-statistic of −27.94 in Model 3 to −39.07 in Model 4. We interpret these results as supporting *H2* that the aggregation of CSR spending with SG&A deteriorates investors' forecasting performance.

While results in Model 3 lend some supports to *H1* that investors' ability to foresee future earnings decreases with the intensity of CSR activities, Model 4 has results more consistent with the prior studies. In Model 3, the coefficient on the interaction term between future earnings and CSR activities is significantly negative, consistent with *H1*. In contrast, the correspondent coefficient is positive and highly significant when an improved measure of CSR spending is included, supporting the bright sides of CSR activities in prior studies.

### 5.3 Uncertainty of future earnings from multiple purposes versus spending

Table VI reports results that expense nature of CSR spending makes less contribution to total earnings variability over the next five years than CSR activities. This difference supports the validity of our measure of the latent expense of CSR spending. Expenses, by accounting definition, are outflows or depletions of assets that create no future economic benefits. Thus, while both the CSR expense aggregation and the multi-purpose dimensions of CSR deteriorate investors' forecast of future earnings, their economic impacts on future earnings should be different, as shown in Table VI. The expense nature of CSR spending that is aggregated with SG&A creates no future economic benefits.

Model 1 of Table VI reports results very similar to those in Kothari *et al.* (2002). R&D investments have a higher uncertainty of future benefits than either advertising expenses or capital expenditures. The coefficients on advertising expenses and capital expenditures are approximately the same magnitude[17]. Earnings variability decreases with firm size because larger firms have more diversified earnings streams. Finance theory predicts that, when other things equal, earnings variability increases with financial leverage (Beaver *et al.*, 1970).

Model 2 starts with KLD score (scaled by its standard deviation). The coefficient on KLD score is 0.016 (*t*-statistic = 2.63), providing evidence that benefits from CSR activities are uncertain. This uncertain future benefits from CSR activities are also consistent with the difficulties for investors to predict future earnings. Moreover, this positive and significant coefficient is consistent across the other two models, when the proxy for expense aggregation of CSR spending with SG&A is included and improved.

Both Models 3 and 4 include the proxy for the expense aggregation of CSR spending with SG&A. This proxy variable has a coefficient that is negative and approximately closes to

**Table VI** Uncertainty of future earnings from CSR activities versus CSR spending

| Variable | Model (1) Estimate | t value | Model (2) Estimate | t value | Model (3) Estimate | t value | Model (4) Estimate | t value |
|---|---|---|---|---|---|---|---|---|
| Intercept | 1.047 | (11.03)*** | 1.083 | (11.3)*** | 1.084 | (11.29)*** | 1.086 | (11.31)*** |
| $CSR\ Score_{i,t}$ | | | 0.016 | (2.63)*** | 0.017 | (2.00)** | 0.020 | (2.28)** |
| $Spending_t^1$ | | | | | −0.002 | (−0.16) | | |
| $Spending_t^2$ | | | | | | | −0.006 | (−0.57) |
| $CapEx_t$ | 0.297 | (6.66)*** | 0.292 | (6.54)*** | 1.292 | (6.53)*** | 0.291 | (6.53)*** |
| $R\&D_t$ | 0.599 | (7.40)*** | 0.580 | (7.13)*** | 0.580 | (7.13)*** | 0.579 | (7.12)*** |
| $AD_t$ | 0.234 | (2.71)*** | 0.222 | (2.57)** | 0.222 | (2.57)** | 0.221 | (2.56)** |
| $Ln(MV_t)$ | −0.134 | (−32.49)*** | −0.137 | (−32.35)*** | −0.137 | (−32.28)*** | −0.137 | (−32.28)*** |
| $Lev_t$ | 0.133 | (3.70)*** | 0.141 | (3.92)*** | 0.141 | (3.92)*** | 0.141 | (3.90)*** |
| Adjusted $R^2$ | 0.2124 | | 0.2132 | | 0.2130 | | 0.2131 | |

**Notes:** ***; **, and; *denote levels significantly different from zero at 1%, 5%, and 10% in a two-tailed *t* test; the dependent variable is $SD(X_{t+1,\ t+5})$. Section 3 contains detailed variable definitions

zero, without statistical significance ($t$-statistic $= -0.16$ or $-0.57$)[18]. It is consistent with the accounting principle that expenses, even though being aggregated, has no real economic benefits.

When we improve the expense measure of CSR spending aggregated with SG&A in Model 4 by allowing KLD strength and concern scores to have different impacts on SG&A, the coefficient on KLD score increases slightly from 0.016 ($t$-statistic $= 2.63$) in Model 3 to 0.017 ($t$-statistic $= 2.00$) in Model 4. These results not only provide robust checks between Models 3 and 4 but also lend further supports to the validity of our proxy for the expense nature of CSR spending aggregated with SG&A. Thus, the expense nature of CSR spending aggregated with SG&A appears to contribute significantly less to future earnings variability compared to the multi-purpose dimensions of CSR activities.

## 6. Conclusion

Recent studies have shown that voluntary disclosures on CSR activities improve information transparency (Dhaliwal *et al.*, 2011, 2012). Studies also report a negative association between firms' being ethical and earnings management (Kim *et al.*, 2012). Our study explores the effects of CSR activities on the predictability of future earnings from investor perspectives. It extends the literature by examining two reasons that may reduce investors' ability to forecast future earnings. First, according to the agency and stakeholder theories, among many others that explain managerial motivation to do CSR activities, the purposes for firms' to deliver CSR activities are normally diverse. The multi-purpose dimensions make it difficult for investors to predict the required rate of returns on resources devoted to CSR activities. Second, resources devoted to CSR activities are unobservable because spending on CSR is usually aggregated with SG&A. There is no adequate information for investors to measure the resources spent on CSR activities.

This study also predicts and finds a stark difference in the volatility of future earnings from CSR spending versus CSR activities. CSR spending that is a proxy for expense aggregation in SG&A has no future economic impacts. In contrast, the multi-purpose dimensions of CSR activities produce high uncertain benefits over the next five years. This difference in the uncertainty of future earnings not only reinforces the validity of our proxy for the aggregated CSR spending but also explains adverse impacts of CSR activities on investors' ability to forecast future performance.

Overall, this study generates implications for academics and practitioners by highlighting the difficulties of investors to predict future earnings through a firm's CSR activities. In particular, this study emphasizes the potential problems arising from aggregating expenses in financial statements and calls for a new and specific accounting classification for spending on CSR activities.

## Notes

1. CSR activity is also related to a positive image in management literature. For example, Benabou and Tirole (2010) review theories that predict corporate goodness boosts a firm's operating performance. Socially responsible firms are well-positioned in the market to access consumers. Alternatively, corporate goodness improves employee efficiency, lessens conflicts among stakeholders, mitigates litigation risk, deters potential regulation, signals product quality, etc.

2. McWilliams *et al.* (2006) highlight the diversity and unclear definition of CSR which make theoretical development and measurement difficult. In addition, the importance of corporate social responsibility in managerial practice worldwide has encouraged researchers to study its effects and how firms obtain benefits from CSR investments.

3. Barnea and Rubin (2010) suggest that spending on CSR is likely aggregated with SG&A. Similarly, Banker *et al.* (2011) argue that SG&A contains spending on a number of activities commonly observed as CSR activities, such as brand development, information technology and employee training costs. Other CSR activities, including childcare, employee health and safety programs, also involve significant cash outlays and would increase SG&A levels. Empirically, Di Giuli and Kostovetsky (2014) find a positive and significant association between SG&A and CSR scores measured as the number of CSR strengths minus the number of weaknesses assigned by Kinder *et al.* (2006, hereafter KLD).

4. The major theme of the stakeholder theory as a whole is that firms have relationships with many constituent groups and these stakeholders both affect and are affected by the actions of the firm for one or some of the aspects.

5. Normative ethics include both deontological ethics and virtue ethics. Most virtue ethics theories take their inspiration from Aristotle who declared that a virtuous person is someone who has idea character traits. Theories of deontological ethics base morality on specific, foundational principles of obligation ethics. Based on the theories of deontological ethics, many of us feel that there are clear obligations we have as human beings, such as to care for our children, and to not commit murder.

6. See page 769 of Kim *et al.* (2012) for details of their measure of the variables.

7. Consistent with the theoretical explanations of CSR, empirical studies show that being socially responsible consumes considerable corporate resources. For example, Di Giuli and Kostovetsky (2014) documented that "companies are allocating significant portions of their expense budgets to CSR – large US firms spent a total of $28 billion on sustainability and $15 billion on corporate philanthropy in 2010". Hong and Kostovetsky (2012) show how financial constraints affect firms' KLD ratings, suggesting that social responsibility is a luxury that firms eliminate when they need money.

8. Barnea and Rubin (2010) explicitly identify the difficulties on quantifying the amount of US companies' CSR spending because these types of expenses are included under regular financial accounts, which include non-CSR expenses. McWilliams and Siegel (2000) suggest a downward bias for CSR spending measures because CSR expenditures that are relatively small amounts are not required to be accounted for in separate accounts in 10-K statements.

9. Schipper (2007) describes disaggregation of revenues to aid prediction as one of three primary purposes of accounting disclosure standards.

10. Chatterji *et al.* (2009), Deckop *et al.* (2006) and Mattingly and Berman (2006) all cite the KLD's wide acceptance, great influence, multidimensional coverage and quantitative measurement of corporate social actions.

11. The seven QIAs include corporate governance, community relations, diversity, employee relations, environment, human rights and product.

12. Kim *et al.* (2012) also exclude the areas of human rights and firearms from constructing their CSR scores because data is not available before 2002.

13. It is qualitatively the same for our results with and without the exclusion of corporate governance.

14. KLD concerns score is divided by the standard deviation of (un-standardized) KLD score.

15. The empirical results are qualitatively the same, if we scale the variable by book value of equity (CEQ).

16. KLD score is equal to the number of KLD strengths minus the number of concerns (i.e. KLD concern score is the number of concerns). The coefficient on KLD score represents the effect of KLD strengths on SG&A, when KLD concern score is added to the regression.

17. Kothari *et al.* (2002) explain the similarity in the coefficients by argument that advertising yields fairly short-lived future benefits and most corporate advertising is about products that corporations have already introduced in the market.

18. The coefficient on CSR spending (scaled by its standard deviation) is 0.013 when KLD score is not included in the regression model. However, its *t*-statistic is barely significant at 1.72 ($p = 0.086$).

Given the positive association between CSR spending and KLD score, the positive coefficient of 0.013 may capture some effects from KLD score.

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