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Accounting conservatism and corporate social responsibility

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ABSTRACT

In this paper, we examine whether a firm's stakeholder orientation, as manifested by its social responsibility endeavors, matters for its choice of accounting conservatism. We find that the level of conservatism in financial reporting significantly increases with socially responsible activities. This result is robust to several conservatism aspects, including market-based conservatism measure, the aggregate of R&D reserves, advertising reserves, and LIFO reserves, and accrual-based conservatism construct. Moreover, our two-stage regression results validate that conservatism is more pronounced for firms that devote more resources to social responsibility programs. Consistent with stakeholder theory, these findings indicate that CSR-oriented firms are more likely to use accounting conservatism to credibly commit to acting in the interests of stakeholders. As a whole, our results provide a novel implication that the extent of accounting conservatism can be entailed by a firm's efforts to enhance stakeholder relations.

1. Introduction

It has long been recognized that accounting conservatism can facilitate efficient contracting in a world where the firm's boundaries include explicit and implicit contracts among stakeholders, such as customers, suppliers, investors, workers, and the society (Ball, 2001; Watts, 2003a; Watts, 2003b; Watts & Zimmerman, 1986). Researchers have provided valuable insights into the effects of capital structure, firm size, liquidation exposure, growth opportunities, bargaining power, governance mechanisms, CFO gender, and other factors on the level of conservative reporting (Ahmed & Duellman, 2007; Francis, Hasan, Park, & Wu, 2015; Krishnan & Visvanathan, 2008; LaFond & Watts, 2008; Qiang, 2007). To date, however, little research has investigated whether stakeholder-focused firms utilize accounting conservatism as a bonding mechanism to alleviate the downside risk faced by stakeholders. Equivalently, is accounting conservatism influenced by the firm's endeavors to enhance its relationships with stakeholders? This inquiry is particularly important because a growing body of literature suggests that corporate decisions are frequently affected by corporate investment in stakeholder relations (Bae, Kang, & Wang, 2011; Banerjee, Dasgupta, & Kim, 2008; Hoi, Wu, & Zhang, 2013).

Stakeholder theory posits that stakeholder-oriented firms are likely to use overall corporate strategy as a pre-conditioning or commitment mechanism to benefit their stakeholders. For example, Titman (1984) argues that firms with unique assets or products tend to address concerns over liquidation costs imposed on their customers and suppliers by maintaining lower debt ratios. This theoretical argument suggests that the degree of conservatism in financial reporting should increase with the firm's efforts to improve its relationships with stakeholders, because conservative reporting provides stakeholders with risk protection by reporting a verifiable lower bound on the firm's financial condition. Alternatively, agency theory suggests that executives embark on stakeholder relations to conceal self-dealing activities or enhance their personal reputations as socially responsible executives (Bhandari & Javakhadze, 2017; Cennamo, Berrone, & Gomez-Mejia, 2008; Ferrell, Liang, & Renneboog, 2016; Friedman, 1970; Jensen & Meckling, 1976). The agency perspective implies an inverse association between the firm's commitment to stakeholder management and conservative reporting. Consequently, the interaction between corporate efforts toward stakeholder relations and accounting conservatism is an empirical question.

The corporate social responsibility (CSR) ratings compiled by the MSCI KLD social ratings data provides a good opportunity for such research. To generate CSR Scores, the KLD database assesses each sample firm along several dimensions, such as community services, workforce diversity, product design, employee relations, and environment protection. As in Kim, Park, and Wier (2012), we consider net CSR score as a proxy for the firm's overall investment or expenditures in stakeholder management.

Using a sample of 18,076 firm-year observations covered by the KLD database and COMPUSTAT over the period 2003 to 2013, we examine the cross-sectional relation between accounting conservatism and

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corporate social responsibility after controlling for other factors that influence a firm's conservative financial reporting decisions documented in prior research. We identify a significantly positive relation between corporate social responsibility and accounting conservatism. We find that socially responsible firms (CSR firms) engage in more accounting conservatism than their non-CSR counterparts, which is consistent with stakeholder theory. Our results are robust to three measures of corporate social responsibility: the first is a continuous variable constructed as total strengths minus total concerns in KLD's five social rating categories of community, diversity, employee relations, environment, and product (Kim et al., 2012); the second is a standardized CSR for a valid comparison between years (Di Giuli & Kostovetsky, 2014; Kotchen & Moon, 2012), and the third is an indicator variable that equals one if net CSR score is positive and zero otherwise. We further examine the individual effects of the five CSR components on accounting conservatism and find that diversity and community have stronger influences on accounting conservatism than other CSR components. Our findings are robust to three empirical proxies for accounting conservatism: (i) a market-based measure, (ii) the sum of R&D reserves, advertising reserves and LIFO reserves, and (iii) an accrual-based conservatism measure. Further, our results are robust after controlling for potential endogeneity of CSR activities.

We contribute to the literature along several dimensions. First, this study adds to extant research that explores the determinants of conservatism in financial reporting (e.g., Ahmed, Billings, Morton, & Stanford-Harris, 2002; Francis et al., 2015; Givoly & Hayn, 2000; Krishnan & Visvanathan, 2008). While Kim et al. (2012) provide valuable insight into the effect of CSR on earnings management, we focus on its impact on accounting conservatism, with which stakeholders are particularly concerned. Notably, Hui, Klasa, and Yeung (2012) contend that suppliers and customers prefer the firm to account more conservatively because they could incur significant costs in the event of financial distress. Further, Biddle, Ma, and Song (2020) find that accounting conservatism can benefit stakeholders by reducing bankruptcy risk via the channels of cash enhancement and earnings management mitigation. In contrast to Cheng and Kung (2016), we study firms' voluntary, in lieu of government-mandated, CSR activities. Different from Francis, Harrast, Mattingly, and Olsen (2013) examining the impact of accounting conservatism on CSR, we investigate the effect of CSR on accounting conservatism. As a whole, our study contributes to this strand of literature by documenting that CSR-oriented firms are more likely to use accounting conservatism to credibly commit to acting in the interests of stakeholders.

Second, at a broader level, this paper relates to a burgeoning literature on the explanatory power of stakeholder theory in corporate policies. Maksimovic and Titman (1991) propose that debt financing is more prevalent in industries in which stakeholder orientation is paramount than in industries in which firm-stakeholder relationships are less likely to be an issue. Supporting this paradigm, Banerjee et al. (2008) and Bae et al. (2011) find that capital structure choices are contingent on the firm's efforts to attend to stakeholders' concerns. Huang, Huang, and Zhang (2019) document that firms use currency hedging policies as a commitment to benefit their employees. Our work adds to this literature by demonstrating that systematic corporate attention to stakeholder interests explains variation in corporate decisions along the dimension of accounting conservatism.

Finally, our paper relates to a considerable literature on why firms invest in socially responsible activities to improve their reputations among stakeholders. On one hand, extant research shows that socially responsible activities enhance stakeholder benefits by attracting analyst following (Hong & Kacperczyk, 2009), yielding higher analyst forecast accuracy (Dhaliwal, Radhakrishnan, Tsang, & Yang, 2012) and more favorable analyst recommendations (Ioannou & Serafeim, 2010), reducing cost of equity (Dhaliwal, Li, Tsang, & Yang, 2011) and reducing internal control weaknesses and financial restatements (Guo, Huang, Zhang, & Zhou, 2016). On the other hand, Hemingway and Maclagan (2004) and Barnea and Rubin (2010) suggest that corporate social responsibility programs are intended to maximize managers' utility. We contribute to this debate by documenting that firms that embark on socially responsible activities are more likely to serve the interests of their stakeholders rather than pursue private gains by adopting more conservative accounting.

The reminder of the article is organized as follows. In Section 2, we review the related literature and develop our hypothesis. In Section 3, we describe our research design and our measures of corporate social responsibility and accounting conservatism. Section 4 discusses our sample and data. In Section 5, we present our empirical results. Section 6 concludes the paper.

2. Literature review and hypothesis development

Stakeholder theory argues that managing a firm's relationships with its stakeholders, including but not limited to auditors, creditors, shareholder, workers, and society, is essential for its success (Caplan, Dutta, & Lawson, 2013; Freeman, 1984; Jensen, 2002; Titman, 1984). A seemingly unending series of corporate failures suggests that conflicts of interest between the firm and other parties are closely tied to a misleading picture of the firm's financial viability and long-term prospects. For example, WorldCom overstated its profits by improperly classifying expenses as investments, thereby resulting in one of the largest bankruptcies in U.S. history. The corporate demise inflicted serious harm on not only financial- but also nonfinancial stakeholders of WorldCom. Similarly, Enron used its special-purpose entities to present an upwardly-biased assessment of its financial status by moving debt off its balance sheet. When Enron's true financial condition emerged, it resulted in bankruptcy, the collapse of Enron's external auditor (Arthur Andersen), and the loss of retirement savings of ordinary Americans many of whom had minimal connection with the firm. These episodes exemplify the damage that an accounting scandal and corporate bankruptcy can wreak on society and its constituencies.

Prior research suggests that accounting conservatism promoting the exercise of caution in the recognition of income and assets can reduce the risk that the firm's financial outlook is overstated. As in Beaver and Ryan (2000), conservatism enables the firm to understate book value of equity relative to market value of equity, thus creating lower book-to-market ratios. Similarly, Givoly and Hayn (2000) maintain that conservative reporting alleviates the risk that the firm's accounting-based measure of performance significantly exceeds its cash flows from operations. Moreover, Penman and Zhang (2002) indicate that conservatism helps to depress reported earnings via the choice of accounting methods and estimates for inventory, R&D investment, and advertising expenditures that yield relatively lower book value of net assets and comparatively higher expenses.

A broad set of stakeholders can benefit from conservatism in financial reporting. As Watts and Zimmerman (1986) and Watts (2003a, 2003b) indicate, accounting conservatism constrains opportunistic behavior and enhances contracting efficiency within the firm. Given that stakeholders bear substantial downside risk from overstated accounting information, conservatism provides stakeholders with risk protection by reporting a verifiable lower bound of the firm's net assets and earnings. Consistent with this argument, Zhang (2008) argues that accounting conservatism benefits lenders by understating net assets and providing more timely signals of default risk. Leung, Li, and Rui (2009) cite anecdotal evidence that since the 1940s, unions have called for the development of accounting techniques and measures more attuned to the needs of workers. In a *Forbes* story reported by Coster (2010), Audit Integrity, an independent financial analytics company in Los Angeles, finds that its 100 most trustworthy companies have consistently shown transparent and conservative accounting practices for the potential benefits of their stakeholders. Moreover, Biddle et al. (2020) provide empirical evidence that accounting conservatism can

benefit stakeholders by reducing bankruptcy risk via the channels of cash enhancement and earnings management mitigation.

To the extent that stakeholders' incentives to make firm-specific investments depend on the firm's liquidation risk, the firm's employees, customers, and suppliers benefit from conservatism as well. The underlying logic is that specific-investments, for example, in human capital, contractual relations, and product warranty, made by employees, suppliers, and customers lose value if the firm goes into liquidation (Bae et al., 2011; Banerjee et al., 2008; Huang et al., 2019). Accounting conservatism enables those stakeholders to mitigate their downside risks through the downwardly-biased valuation of assets and reported earnings, an acceleration of covenant violations, greater cash reserves, and/or mitigation of earnings management. Moreover, conservative reporting benefits investors and society as a whole by alleviating the risk of a stock market bubble and subsequent market crash.

While stakeholders generally prefer conservative reporting to aggressive reporting, little research thus far has examined whether accounting conservatism is at least partially induced by the firm's efforts to improve stakeholder relations. Consistent with Roberts (1992) and Barnett (2007), we measure a firm's efforts to maintain relations with all stakeholders by its investment in its corporate social responsibility program. In particular, our strengths and concerns ratings in socially-responsible activities derive from MSCI KLD, which bases its social rating criteria on several major areas, including community services, workforce diversity, product design, employee relations, and environmental protection.

There are potentially two important theories to explain why a firm's social responsibility engagement is relevant to its accounting choices. The first argument is based on stakeholder theory. As in Keim (1978), CSR-oriented firms exhibit a stronger commitment to stakeholders and behave more responsibly by acting in the interests of stakeholders than do non-CSR firms. Carroll (1979) claims that managers who are conscious of corporate social responsibility behave not only legally but also morally, suggesting that CSR-committed managers are likely to fulfill their fiduciary duty toward stakeholders. Proposing instrumental stakeholder theory, Jones (1995) further clarifies that CSR-committed firms are likely to gain a competitive advantage by enhancing the trustworthiness and cooperativeness of firms. This insight suggests that firms that embark on stakeholder relations via social responsibility endeavors are likely to reduce stakeholders' downside risk arising from misleading accounting information through conservatism in financial reporting.

The second argument is based on agency theory proposed by Friedman (1970) and Jensen and Meckling (1976). While corporate investment in socially responsible activities signals a firm's efforts to maintain or strengthen stakeholder relations, CSR firms do not necessarily commit to providing better benefits to their stakeholders. This perspective suggests that a stakeholder-focused firm, as captured by its devotion to socially responsible activities, can still act self-interestedly. To the extent that managers overinvest in socially responsible practices to mask their opportunistic behaviors or enhance their own reputation as socially responsible managers, CSR-oriented executives have little incentive to tie their hands by understating firms' income and net assets (Barnea & Rubin, 2010; Hemingway & Maclagan, 2004). An alternative explanation is that a more stakeholder-oriented firm may have fewer agency problems and therefore shareholders may demand less conservatism.

To summarize, accounting conservatism can be induced by a firm's efforts to build stakeholder relations, as manifested by its social responsibility engagement. To the extent that firms allocate resources to stakeholder management in order to act in the interests of stakeholders, CSR-oriented firms should be more likely to place a lower bound on net assets and profits via accounting conservatism than their non-CSR counterparts. This notion suggests that CSR firms use accounting conservatism as a commitment mechanism to enhance stakeholder benefits. Therefore, consistent with stakeholder theory, we predict that CSR firms are more likely to behave conservatively in financial reporting. We expect a positive relation between CSR and accounting conservatism. We propose our research hypothesis as follows:

Hypothesis A. Corporate social responsibility is positively related to accounting conservatism.

On the other hand, if firms embark on stakeholder relations in an attempt to conceal their self-serving policies, CSR-focused firms would be less likely to report accounting information conservatively, thereby gaining an information advantage over their stakeholders. Some previous studies (Ramalingegowda & Yu, 2012; Francis, et al. 2013) argue that conservatism could be perceived as a governance mechanism that mitigates information risk and agency problems. If CSR captures stakeholder orientation, a more stakeholder-oriented firm may have fewer agency problems and therefore shareholders may demand less conservatism. This perspective also suggests that CSR is inversely associated with accounting conservatism. Therefore, we predict that there is a negative relation between CSR and accounting conservatism. We propose our second research hypothesis as follows:

Hypothesis B. Corporate social responsibility is negatively related to accounting conservatism.

3. Empirical research design

3.1. Proxy for corporate social responsibility

We derive our CSR measures from the MSCI Kinder, Lydenberg, and Domini (KLD) database. There are around 80 indicators included in seven major qualitative issue areas of the KLD database covering community services, employee relations, diversity, corporate governance, environmental issues, human rights, and product quality. The independent research analysts of KLD set positive (strengths) and negative (concerns) ratings of each area based on a variety of information sources, such as annual or quarterly reports, proxy statements, annual surveys, and external data sources from business articles.

We employ three proxies for corporate social responsibility following prior research. Consistent with Kim et al. (2012), we first measure *CSR* as total strengths minus total concerns in KLD's five social rating categories: community, diversity, employee relations, environment, and product. Secondly, we use a standardized CSR measure (*SCSR*) in order to make our *CSR* measure comparable between years (Di Giuli & Kostovetsky, 2014; Kotchen & Moon, 2012). Specifically, we standardize the CSR score by subtracting the mean CSR score of companies for the same year from a firm's CSR raw score and then scaling it by its standard deviation. Finally, we use an indicator variable of high corporate social responsibility (*CSRIN*) defined as one if CSR net score is positive, and zero otherwise.

3.2. Proxies for accounting conservatism

We follow prior literature and use three measures to capture accounting conservatism: (i) *CONMKT,* a market-based proxy defined as negative book-to-market ratio, (ii) *CONCAP*, the hidden reserves resulting from the treatment of specific items, computed as the sum of the LIFO (last-in, first-out) reserve, research and development reserve, and advertising reserves, and (iii) *CONACC,* an accrual-based proxy captured by the accumulated three-year negative non-operating accruals.

The first accounting conservatism measure that we use is negative book-to-market ratio (defined as (−1) * *CEQ/PRCC_F*CSHO* from COMPUSTAT items). Feltham and Ohlson (1995) use the term

"conservative accounting" to mean that the expected market value of a firm's equity exceeds the expected book value of its equity in the long run and argue that the dichotomy between unbiased and conservative accounting is defined in terms of how the market value differs from the book value. They state that under unbiased (conservative) accounting, the market value equals (exceeds) the book value. Although Roychowdhury and Watts (2007) argue that the efficacy of market to book as a measure of conservatism depends on the role of accounting, the market-to-book ratio is the right measure of accounting conservatism if the role of accounting is to report equity value. Therefore, we multiply book-to-market ratio by negative one. Francis et al. (2015) support that the market-to-book ratio captures understatement of net assets relative to market value because it reflects asymmetric information due to earlier recognition of expenses and losses and to deferred revenue recognition. A higher value of *CONMKT* indicates more conservative financial reporting.

We derive our second measure of accounting conservatism from Penman and Zhang (2002). By their definition, accounting conservatism indicates the accounting methods and estimates that keep book values of net assets relatively low. For example, LIFO accounting for inventories is conservative relative to FIFO, and expensing research and development expenditures is conservative compared with capitalizing and amortizing them. This conservatism measure captures the extent to which assets are understated due to conservative accounting practices in inventory, R&D, and advertising expenditures. Thus, we calculate the second measure of accounting conservatism, *CONCAP* as follows[1]:

$$\mathrm{CONCAP} = \mathrm{LIFOCAP} + \mathrm{RDCAP} + \mathrm{ADCAP}.$$

LIFOCAP is the LIFO reserve (COMPUSAT item *LIFR*) scaled by the beginning total assets. *RDCAP* is the firm's R&D asset that would be estimated if R&D were capitalized and amortized. *ADCAP* is the estimated advertising reserves created by the unrecorded brand assets resulting from advertising expenditures. We follow Penman and Zhang (2002) to define *RDCAP* by assuming the R&D expenditure is incurred evenly during the year and use a uniform straight-line amortization rate of 20%. Specifically, $RDCAP = 0.9^{*}XRD_t + 0.7^{*}XRD_{t-1} + 0.5^{*}XRD_{t-2} + 0.3^{*}XRD_{t-3} + 0.1^{*}XRD_{t-4}$, where XRD_t is the R&D expenditure for year *t*, and *RDCAP* is scaled by the beginning total assets. We capitalize the advertising expenditures as estimated advertising assets and assume that it is amortized with a two-year useful life with the sum-of-the-years' digits amortization schedule; $ADCAP = XAD_t + 1/3\ XAD_{t-1}$, where XAD_t is the advertising expenditure for year *t*, and *ADCAP* is scaled by the beginning total assets.

Our third proxy for accounting conservatism is the accrual-based measure, *CONACC*. Givoly and Hayn (2000) argue that the consistent predominance of negative non-operating accruals across firms is an indication of accounting conservatism. We follow Ahmed and Duellman (2007) and Francis, Hasan, and Wu (2013) to define the accrual-based accounting conservatism measure *CONACC*, as income before extraordinary items plus depreciation expense less operating cash flows deflated by average total assets, averaging over a three-year period centered at year *t*, multiplied by negative one. Since accruals tend to reverse within a short time period, averaging non-operating accrual over a three-year period mitigates temporary changes. We multiply non-operating accruals by negative one so that a larger value of *CONACC* indicates more conservative financial reporting.

[1] The limitation of this measure is that it does not consider the other possible accounting choices; however, we cannot underestimate its advantage considering the role of accounting policy choice in conservatism (Krishnan & Visvanathan, 2008).

3.3. Empirical model

To examine the association between corporate social responsibility and accounting conservatism, we estimate the following empirical model[2]:

$$\begin{aligned} CONSERVATISM = {} & \beta_0 + \beta_1 CSR + \beta_2 SIZE + \beta_3 RDADV + \beta_4 SGROW \\ & + \beta_5 CFO + \beta_6 LEVERAGE + \beta_7 LITIGATION + \beta_8 BIG4 \\ & + \beta_9 INST + \varepsilon. \end{aligned}$$

Where *CONSERVATISM* is one of the three measures of accounting conservatism, namely, *CONMKT, CONCAP,* or *CONACC. CSR* is a continuous variable, the summation of net scores from five sub-categories in the KLD ratings: employee relations, environment protection, product design, community services, and workforce diversity (Kim et al., 2012). We also use standardized CSR (*SCSR*) as an alternative measure for a valid comparison of CSR between years (Di Giuli & Kostovetsky, 2014).

We control for other factors that may affect a firm's accounting conservatism documented in the literature. We include firm size (*SIZE*), the natural log of average total assets, as a control variable. There are two different views about the size effect on accounting conservatism. On one hand, the political cost hypothesis predicts that larger firms will use more conservative accounting (Watts & Zimmerman, 1978). On the other hand, the hypothesis of income aggregation and information asymmetries predicts that larger firms are less conservative, as documented in LaFond and Watts (2008).

We use annual percentage change in sales (*SGROW*) to control for growth opportunities. Ahmed et al. (2002) argue that sales growth affects accruals, such as inventory and receivables, which in turn affect accounting conservatism. Skinner and Sloan (2002) provide evidence that high-growth firms have more pronounced incentives to use their reporting discretion to measure up to analysts' and market expectations and are likely to be more aggressive in reporting their earnings performance. Following Krishnan and Visvanathan (2008), we control for R&D expenditures and advertising expenditures scaled by net sales (*RDADV*), in the regression model where we use accrual-based or market-based conservatism measure as the dependent variable.

We include cash flow from operations (*CFO*), measured as cash flow from operations scaled by average total assets in the regression model to capture the effect of profitability and liquidity on accounting conservatism. Ahmed et al. (2002) argue that profitable firms tend to use more conservative accounting. Prior studies document that debtholders demand conservative accounting to reduce the likelihood that shareholders will receive a liquidating dividend at their expense (Ahmed et al., 2002). Thus, we control for *LEVERAGE*, measured as total long term liabilities scaled by average total assets, in the regression models. The greater the firm's leverage, the greater possibility that lenders demand more accounting conservatism.

We also include litigation risk in the model since firms with different levels of litigation exposure will have various incentives to use accounting conservatism. Ball, Kothari, and Robin (2000) provide evidence that firms in countries where shareholder litigation risk is higher are more likely to report financial statements conservatively. Qiang (2007) finds that the litigation theory is related to both conditional and unconditional conservatism. We follow Francis, Philbrick, and Schipper (1994) and LaFond and Roychowdhury (2008) and define *LITIGATION* as a dummy variable that equals one if the firm is in the high litigation risk industries with SIC codes of 2833–2836, 3570–3577, 3600–3674, 5200–7370, and zero otherwise. Menon and Williams (1994) has shown that firms with higher litigation risk tend to have larger auditors to shield the firm from litigation risk. Cahan and Zhang (2006) examine

[2] When *CONCAP* is the dependent variable, we don't include *RDADV* in the regression model.

whether the successor auditors in the post-demise of Arthur Andersen required more conservative accounting for their ex-Andersen clients in order to minimize litigation risk. Consistent with auditor conservatism, they find evidence that the successor auditors viewed an Andersen audit as a unique source of litigation risk. Therefore, we also control for auditor size (*BIG4*) in the model, where firms with Big Four auditors (or the earlier equivalents) are assigned a value of one for *Big4*, and zero otherwise, to capture the effect of litigation risk and auditor conservatism on manager's conservative reporting behavior.

To account for external monitoring by institutional investors, we control for *INST*, measured as the number of common shares held by institutional investors divided by the number of common shares outstanding.[3] We also control for Fama-French 48 industry in the regressions to account for the possibility that unspecified industry-specific factors may impact accounting conservatism. In addition, the test statistics and significance levels are based on the standard errors adjusted for clustering at the firm level.

4. Sample selection and data

4.1. Sample selection

We begin our sample with 122,249 firm-year observations for all firms covered by COMPUSTAT over the fiscal years 2003–2013. We retrieve information on corporate social responsibility from the KLD (Kinder, Lydenberg, and Domini) database. The KLD ratings of corporate social responsibility are conducted by independent research analysts, and its ratings expanded coverage to include the largest 3000 U.S. companies since 2003. The most recent KLD data is available until 2013. KLD is a widely used measure of corporate social responsibility and has been identified as the best source of social responsibility measures (Hillman & Keim, 2001). After merging the KLD database with COMPUSTAT and requiring firm-year observations to have institutional ownership information from Thomson-Reuters *Institutional* Holdings (*13F*), we have a final sample of 18,076 firm-year observations for 3621 firms.

4.2. Descriptive statistics

Table 1 presents the summary statistics of variables included in our regression models. We winsorize all continuous variables at the 1% and 99% levels to mitigate the potential outlier problem. The mean and median of the market-based conservatism measure (*CONMKT*) are −0.506 and − 0.435, respectively. The average unrecorded reserves conservatism measure (*CONCAP*) is 0.074. The mean value of the accrual-based conservatism measure (*CONACC*) is 0.018 in our sample. The mean CSR score is negative (−0.102), suggesting that the sum of total strengths is lower than that of total concerns on average. However, the median CSR score is zero. Among the statistics of CSR components, the average scores of environmental policy (*ENV*) and community (*COM*) are 0.070 and 0.067, respectively. All the means of employee relations (*EMP*), diversity (*DIV*), and product innovation (*PRO*) are negative. Concerning firm size, the sample mean (median) of the natural logarithm of total assets is 7.082 (6.899). The average sales growth over the previous year is 13.6%, whereas the median sales growth is nearly 9%. For a typical firm, the median of research & development cost and advertising expenses accounts for 13.1% of net sales. The mean (median) of cash flows from operations accounts for 9% (9.4%) of average total assets. The average leverage ratio of long-term debt to average total assets for our sample firms is 0.18. Nearly 40% of firm-year observations are in industries facing high litigation risk. 88% of firm-year observations are audited by Big Four accounting firms. On average, 72% of outstanding shares are held by institutional investors.

Table 1
Descriptive statistics.

VARIABLE	N	Mean	Std Dev	Q1	Median	Q3
CONMKT	18,076	−0.506	0.374	−0.680	−0.435	−0.257
CONCAP	18,076	0.074	0.084	0.020	0.047	0.102
CONACC	18,076	0.018	0.054	−0.006	0.012	0.036
CSR	18,076	−0.102	2.307	−1.000	0.000	1.000
SCSR	18,076	0.000	1.000	−0.588	−0.272	0.235
DIV	18,076	−0.090	1.310	−1.000	0.000	0.000
COM	18,076	0.067	0.459	0.000	0.000	0.000
EMP	18,076	−0.041	1.020	0.000	0.000	0.000
ENV	18,076	0.070	0.741	0.000	0.000	0.000
PRO	18,076	−0.108	0.557	0.000	0.000	0.000
SIZE	18,076	7.082	1.670	5.857	6.899	8.090
SGROW	18,076	0.136	0.305	0.001	0.087	0.204
RDADV	18,076	0.131	0.492	0.000	0.017	0.083
CFO	18,076	0.090	0.112	0.042	0.094	0.148
LEVERAGE	18,076	0.180	0.199	0.003	0.125	0.282
LITIGATION	18,076	0.404	0.491	0.000	0.000	1.000
BIG4	18,076	0.882	0.322	1.000	1.000	1.000
INST	18,076	0.722	0.252	0.580	0.780	0.904

This table describes the variables used in the regression analysis over the sample period from 2003 to 2013. All variables are defined in the Appendix.

5. Empirical results

5.1. Univariate tests

Table 2 reports mean and median tests. We classify sample firms into two groups based on standardized CSR ratings. Specifically, socially responsible firms (high CSR firms) are those with a standardized CSR score greater than the median, and low CSR firms are those with a CSR score equal to or less than the median of standardized CSR scores.[4] We find that for all three conservatism measures, the mean value is significantly greater for high CSR firms than for low CSR firms. For example, the mean value of market-based accounting conservatism (*CONMKT*) for the high CSR group is −0.651 versus −0.665 for the low CSR peers. The mean difference of 0.014 is statistically significant at the 1% level. We find that the median values exhibit a similar pattern. The mean of unrecorded reserves measure of *CONCAP* in High CSR firms is also significantly larger than that for Low CSR firms. The mean value of accrual-based accounting conservatism (*CONACC*) for the high CSR group is 0.019 and 0.017 for the low CSR group with the difference being statistically significant at the 1% level. This evidence indicates that the group of high CSR firms has more negative operating accruals and greater accounting conservatism than the group of low CSR firms. We also find that the net scores of all five components of CSR in the high CSR group (*DIV, COM, EMP, ENV,* and *PRO*) are significantly higher than those in the low CSR group. Among these five components, diversity (*DIV*) exhibits the most pronounced difference between the high CSR subsample and the low CSR subsample. Specifically, the mean diversity level in the high CSR group is 1.416 higher than that in the low CSR group, suggesting that CSR firms are more likely to have female executives, female or minority board members, and a diversified workforce. Taken together, these univariate test results provide preliminary evidence that socially responsible firms are more conservative in their financial reporting. Consistent with extant CSR literature, we find that high CSR firms are larger in size, have lower leverage ratio, and are more likely to hire Big Four auditors than low CSR firms.

In an untabulated table of Pearson correlation coefficients, we find that the absolute values of pairwise correlations among the explanatory variables are mostly below 0.40. No extreme correlations among the

[3] We also use dedicated institutional investors, defined as the percentage of shares held by the top five institutional investors as an alternative measure of institutional ownership (Dikolli, Kulp, & Sedatole, 2009). The results are qualitatively similar.

[4] We alternatively define the high CSR firms as those with positive net CSR scores. The new results are similar to the results for which we use the sample median of standardized CSR ratings to classify firms as high/low CSR firms.

Table 2
Mean and median comparisons for High CSR firms and Low CSR firms.

Variable	High CSR	Low CSR	Difference
	Mean (Median)	Mean (Median)	Mean (Median)
CONMKT	−0.651	−0.665	0.014***
	(−0.646)	(−0.662)	(0.016)***
CONCAP	0.148	0.141	0.007**
	(0.088)	(0.070)	(0.018)***
CONACC	0.019	0.017	0.002***
	(0.013)	(0.011)	(0.002)***
DIV	0.556	−0.860	1.416***
	(0.000)	(−1.000)	(1.000)***
COM	0.163	−0.056	0.219***
	(0.000)	(0.000)	(0.000)***
EMP	0.252	−0.420	0.672***
	(0.000)	(0.000)	(0.000)***
ENV	0.249	−0.153	0.402***
	(0.000)	(0.000)	(3.000)***
PRO	−0.015	−0.184	0.169***
	(0.000)	(0.000)	(0.000)***
SIZE	7.381	6.796	0.585***
	(7.287)	(6.679)	(0.608)***
SGROW	0.115	0.129	−0.014***
	(0.079)	(0.094)	(−0.015)***
RDADV	0.106	0.101	0.005
	(0.018)	(0.011)	(0.007)***
CFO	0.094	0.088	0.006***
	(0.093)	(0.088)	(0.005)***
LEVERAGE	0.166	0.176	−0.010***
	(0.119)	(0.125)	(−0.006)**
LITIGATION	0.452	0.394	0.058***
	(0.000)	(0.000)	(0.000)***
BIG4	0.915	0.843	0.072***
	(1.000)	(1.000)	(0.000)***
INST	0.748	0.735	0.013***
	(0.801)	(0.787)	(0.014)***
N	8585	9491	

This table provides comparison between high CSR firms and low CSR firms by testing the differences in means and medians between the two groups. If standardized CSR is greater than median, observations are classified into high CSR firms; otherwise they are classified into low CSR firms over the period 2003–2013. All variables are defined in the Appendix.
*** Indicate significance at the 0.01 level, respectively using two-tailed test.
** Indicate significance at the 0.05 level, respectively using two-tailed test.

data exists. This evidence suggests that multicollinearity should not pose an econometric challenge in the following regression results.

5.2. Multivariate results

In the previous subsection, we established preliminary evidence that socially responsible firms are more likely to be conservative in their financial reporting. In this subsection, we perform further tests to examine the association between CSR and accounting conservatism in the multivariate setting. We employ three accounting conservatism proxies in the empirical analysis. Table 3 presents regression results of the association between accounting conservatism and *CSR* with *CONMKT*, *CONCAP*, and *CONACC* as the dependent variables. (See Table 3.)

Consistent with Kim et al. (2012), we use the continuous variable of *CSR*, defined as the sum of net scores from five sub-categories in the KLD database: community service (*COM*), workforce diversity (*DIV*), employee relations (*EMP*), environmental protection (*ENV*), and product design (*PRO*). We also use standardized CSR (*SCSR*) as an alternative measure because KLD indicators within each category have changed from time to time over the years. We control for year fixed effects and industry fixed effects in all regression models.

In Model 1, we use market-based accounting conservatism (*CONMKT*) as the proxy for a firm's accounting conservatism. We find that the coefficient on *CSR* is 0.014, significant at the 1% level, suggesting that CSR firms are conservative in reporting their book value of equity. Specifically, *CONMKT* increases by 0.028 (=0.014*2) when CSR improves from the 25th percentile to the 75th percentile. We find similar evidence with a coefficient of 0.030 on *SCSR*, significant at the 1% level when we use the standardized CSR (*SCSR*) measure. One advantage of standardizing the CSR scores within each year is to make CSR scores comparable between years to account for the annual variation (Di Giuli & Kostovetsky, 2014). We also find significantly positive impacts of sales growth, R&D and advertising expenses, and Big Four auditors on accounting conservatism.

Model 2 relates *CONCAP*, an accounting conservatism measure based on the unrecorded reserves on the balance sheet, to *CSR* and other firm characteristics. Consistent with our results from Model 1, we report that the coefficients on both CSR and *SCSR* are positively related to this conservatism measure at the 1% level of statistical significance. Notably, an enhancement in *CSR* from the lower quartile to the upper quartile translates to a 3.2% (=0.0012*2/0.074) increase in *CONCAP* for the average firm.

In Model 3, we use an accrual-based conservatism measure (*CONACC*). We find that the coefficients on *CSR* and SCSR continue to be highly significant. In particular, the average firm increases its *CONACC* by 5.6% (=0.0005*2/0.018) when its CSR score elevates from the 25% quartile to the 75th quartile. Our results also show that larger firms are less likely to use conservative accounting, consistent with the hypothesis of income aggregation and information asymmetries advanced by LaFond and Watts (2008). As for other control variables, as expected, the coefficient on cash flows from operating activities is significantly positive, suggesting that a firm's financial performance is positively related to the accrual-based conservatism of *CONACC*. Highly levered firms and firms with high R&D and advertising expenditures are also more conservative in financial reporting. Additionally, we find that Big Four clients are more likely to be conservative in their financial reporting, consistent with Krishnan and Visvanathan (2008).

5.3. CSR indicator and accounting conservatism

In the previous section, we used a continuous variable of corporate social responsibility. In this subsection, we alternatively use an indicator variable of high corporate social responsibility (*CSRID*), defined as one if CSR net score is positive, and zero otherwise. We find that our basic conclusion is unchanged with the results reported in Table 4. Specifically, the coefficients of *CSRID* are significantly positive in all three models at the 1% significance level. In further support of stakeholder theory, these findings provide supplemental evidence that CSR firms tend to be more conservative in their financial reporting practices.

5.4. Two-stage least squares regression

Thus far, we have not explicitly accounted for endogeneity bias caused by omitted variables or reverse causality. It seems plausible that firms use better financial quality to signal their substantive commitment to CSR to reduce the concern that their CSR activities could be associated with agency problems. To address this possibility, we use two-stage least-squares (2SLS) regressions. As Raphael and Winter-Ebmer (2001) and Bae et al. (2011) point out, this approach is beneficial because the direction of causality is clearly established. Thus, this approach helps alleviate the concern of reverse causality that CSR could be the outcome of accounting conservatism rather than promotes accounting conservatism. In addition, this instrumental variables approach can force the exogenous portion of CSR to explain accounting conservatism (Butler & Cornaggia, 2011). Further, the 2SLS regressions can help alleviate omitted variables bias (Greene, 2018; Wooldridge, 2002).

In the first-stage regression, we use an OLS model to predict a firm's corporate social responsibility score. In the second-stage regression, we regress accounting conservatism on the predicted value of the CSR score from the first-stage regression and other control variables. In this

Table 3
Corporate social responsibility (CSR) and accounting conservatism.

	Model 1		Model 2		Model 3	
	CONMKT		*CONCAP*		*CONACC*	
INTERCEPT	−0.476***	−0.465***	0.114***	0.114***	0.020***	0.020***
	(−15.47)	(−14.81)	(15.96)	(15.90)	(4.44)	(4.48)
CSR	0.014***		0.001***		0.001**	
	(7.04)		(3.28)		(1.96)	
SCSR		0.030***		0.003***		0.001**
		(6.70)		(3.03)		(2.01)
SIZE	−0.028***	−0.028***	−0.009***	−0.009***	−0.004***	−0.004***
	(−7.66)	(−7.51)	(−10.80)	(−10.73)	(−8.10)	(−8.17)
RDADV	0.141***	0.141***			0.029***	0.029***
	(12.37)	(12.38)			(11.19)	(11.19)
SGROW	0.126***	0.126***	0.018***	0.018***	0.000	0.000
	(11.36)	(11.35)	(6.44)	(6.43)	(0.14)	(0.14)
CFO	0.965***	0.966***	−0.011	−0.011	0.073***	0.073***
	(18.51)	(18.50)	(−0.84)	(−0.83)	(7.56)	(7.55)
LEVERAGE	0.347***	0.347***	−0.016***	−0.016***	0.016***	0.016***
	(11.80)	(11.77)	(−2.73)	(−2.74)	(4.33)	(4.34)
LITIGATION	−0.039**	−0.039**	0.016***	0.016***	−0.002	−0.002
	(−2.11)	(−2.10)	(3.77)	(3.77)	(−0.76)	(−0.76)
BIG4	0.064***	0.064***	0.014***	0.014***	0.013***	0.013***
	(4.26)	(4.29)	(3.99)	(4.00)	(5.27)	(5.27)
INST	0.022	0.020	−0.002	−0.002	0.002	0.002
	(1.20)	(1.09)	(−0.44)	(−0.48)	(0.84)	(0.82)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,076	18,076	18,076	18,076	18,076	18,076
Adj. R^2	27.89%	27.87%	50.63%	50.62%	14.08%	14.08%

This table provides the regression results with the dependent variable as *CONMKT*, *CONCAP*, or *CONACC* separately over the sample period 2003–2013. All variables are defined in the Appendix. We present robust *t*-statistics with firm-level clustered standard errors. ***, **, and * indicate significance at 0.01, 0.05 and 0.10, respectively using two-tailed test.

context, a good instrumental variable must be related to the CSR score but be unrelated to the error term in the second-stage equation. We select industry-median CSR (*MED_CSR*) as the instrumental variable because a firm's CSR performance is generally related to its industry's CSR performance (Bae et al., 2011). Moreover, a firm's policy (e.g., accounting conservatism) is less likely to be influenced directly by its industry-level CSR performance (Huang et al., 2019).

Table 5 shows that our instrumental variable (*MED_CSR*) with a coefficient of 0.644 is highly significant in explaining the first-stage regression's dependent variable (*CSR*). Therefore, our 2SLS results are less likely to suffer from bias attributable to weak instruments (Bound, Jaeger, & Baker, 1995). In the next 3 columns, we report the second-stage regression results with the three measures of accounting conservatism measures as the dependent variables. As anticipated, the individual coefficients of *IV_CSR* in the three models are significantly positive, substantiating the effect of CSR activities on accounting conservatism. Consequently, our main inferences are less likely to be driven by the potentially endogenous nature of CSR efforts.

Table 4
CSR indicator and accounting conservatism.

	Model 1	Model 2	Model 3
	CONMKT	*CONCAP*	*CONACC*
INTERCEPT	−0.500*** (−16.76)	0.139*** (18.87)	0.019*** (6.70)
CSRID	0.053*** (6.13)	0.007*** (3.96)	0.002*** (2.57)
SIZE	−0.026*** (−7.32)	−0.010*** (−12.39)	−0.004*** (−13.62)
RDADV	0.143*** (12.45)		0.029*** (16.30)
SGROW	0.126*** (11.35)	0.018*** (5.97)	0.000 (0.18)
CFO	0.979*** (18.71)	−0.104*** (−7.50)	0.074*** (11.39)
LEVERAGE	0.345*** (11.74)	−0.020*** (−3.17)	0.016*** (6.53)
LITIGATION	−0.036** (−1.96)	0.016*** (3.61)	−0.002 (−1.26)
BIG4	0.065*** (4.34)	0.018*** (4.83)	0.013*** (8.83)
INST	0.015* (0.81)	−0.002 (−0.57)	0.002 (1.12)
Year effect	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes
Observations	18,076	18,076	18,076
Adj. R^2	27.68%	45.04%	14.07%

This table provides regression results with the dependent variable as *CONMKT*, *CONCAP*, or *CONACC* separately over the sample period 2003–2013. All variables are defined in the Appendix. We present robust *t*-statistics with firm-level clustered standard errors. ***, **, and * indicate significance at 0.01, 0.05 and 0.10, respectively using two-tailed test.

5.5. CSR components and accounting conservatism

In this subsection, we examine the five components of CSR to identify the CSR dimensions that are most important in enhancing accounting conservatism. Specifically, we split CSR into five components: diversity, community, employee relations, environmental policies, and product innovations. We then analyze each individual component's association with accounting conservatism. Table 6 reports the regression results. We find that firms with higher diversity (*DIV*) scores are more likely to promote accounting conservatism. The coefficients of *DIV* are significantly positive at the 1% level in all three models. For example, the coefficient of *DIV* is 0.031 in the first model. KLD diversity ratings are based on the inclusion of women and minorities in top management, directorships, and promotions, and policies for diversified employees. One possible interpretation of this interesting finding is that firms with high diversity ratings have more female executives and board members who are more risk averse and thus promote conservative financial reporting. This evidence is in line with Krishnan and Parsons (2008) who find that gender is related to accruals management. Our results also suggest that firms with a diversified workforce tend to engage in conservative accounting practice. We also document that firms with philanthropic activities to community (*COM*) are positively associated with accounting conservatism in the first two models. Their respective coefficients of 0.017 and 0.003 are statistically significant at

Table 5
Two-stage least square regressions: corporate social responsibility (CSR) and accounting conservatism.

First Stage		Second Stage		
	CSR	CONMKT	CONCAP	CONACC
INTERCEPT	−3.624*** (−29.22)	−0.041 (−1.27)	0.543*** (17.01)	0.020*** (6.40)
MED_CSR	0.644*** (6.97)			
IV_CSR		0.555*** (18.83)	0.503*** (13.25)	0.004** (2.16)
SIZE	0.574*** (54.30)	−0.207*** (−20.63)	−0.178*** (−13.98)	−0.005*** (−6.59)
RDADV	0.321*** (7.69)	0.084*** (8.42)		0.028*** (15.66)
SGROW	0.039 (0.75)	0.297*** (20.46)	0.172*** (13.94)	0.001 (0.41)
CFO	2.103*** (12.97)	0.832*** (6.91)	−0.909*** (−14.35)	0.067*** (8.99)
LEVERAGE	−0.795*** (−9.57)	0.668*** (19.14)	0.284*** (12.23)	0.019*** (6.63)
LITIGATION	0.109* (1.75)	0.638*** (15.83)	0.627*** (13.59)	0.001 (0.32)
BIG4	0.174*** (3.48)	0.108*** (7.12)	0.052*** (12.17)	0.006** (2.17)
INST	−0.718*** (−11.10)	0.781*** (17.58)	0.694*** (13.13)	0.013*** (8.80)
Year effect	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes
Observations	18,076	18,076	18,076	18,076
Adj. R^2	22.79%	21.78%	50.55%	14.05%

This table presents first-stage and second-stage regression coefficients for the sample period 2003–2013. The dependent variable in regression (1) is CSR, and we use industry-median CSR (*MED_CSR*) as an instrument. In the second stage regression (2), we use the estimated CSR from the first-stage regression as an independent variable and rerun our baseline regression of unconditional accounting conservatism measures with instrumented CSR (*IV_CSR*). All variables are defined in the Appendix.

*** Indicate significance at the 0.01 level, respectively using two-tailed test.
** Indicate significance at the 0.05 level, respectively using two-tailed test.
* Indicate significance at the 0.10 level, respectively using two-tailed test.

Table 6
CSR components and accounting conservatism.

VARIABLE	Model 1	Model 2	Model 3
	CONMKT	CONCAP	CONACC
INTERCEPT	−0.387 (−11.81)	0.158 (19.52)	0.022 (4.56)
DIV	0.031 (8.10)	0.005 (6.62)	0.001 (2.37)
COM	0.017 (2.04)	0.003 (2.03)	−0.000 (−0.06)
EMP	0.006 (1.73)	0.001 1.67)	−0.000 (−0.44)
ENV	0.008 (1.39)	−0.002 (−1.80)	0.001 (0.85)
PRO	−0.024 (−3.15)	−0.003 (−2.28)	0.000 (0.26)
SIZE	−0.038 (−9.86)	−0.012 (−13.35)	−0.004 (−7.63)
RDADV	0.141 (12.51)		0.029 (11.21)
SGROW	0.128 (11.60)	0.018 (6.09)	0.000 (0.16)
CFO	0.966 18.71)	−0.105 (−7.66)	0.073 (7.60)
LEVERAGE	0.358 (12.34)	−0.017 (−2.81)	0.016 (4.36)
LITIGATION	−0.037 (−2.01)	0.016 (3.61)	−0.002 (−0.73)
BIG4	0.065 (4.41)	0.018 (4.86)	0.013 (5.26)
INST	0.022 (1.21)	−0.002 (−0.43)	0.002 (0.79)
Year effect	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes
Observations	18,076	18,076	18,076
Adj. R^2	28.44%	45.46%	14.09%

This table provides the regression results with the dependent variable of accounting conservatism (*CONMKT, CONCAP, CONACC*). We split CSR into 5 components: community, diversity, employee relations, product innovations, and environmental policies. All variables are defined in the Appendix. We present robust t-statistics with firm-level clustered standard errors.

conventional levels, suggesting that firms with greater devotion to their communities are more likely to report earnings conservatively.

6. Conclusion

This paper examines the question of whether a firm's stakeholder orientation, as manifested by its social responsibility efforts, matters for its choice of accounting conservatism. Accounting conservatism is particularly interesting in this context because it provides stakeholders with trustworthy accounting numbers by producing downwardly-biased reported earnings and net assets. Supporting stakeholder theory, we find that companies that commit to stakeholders through socially responsible practices significantly promote accounting conservatism. While corporate social responsibility certainly is not the only driving force behind the implementation of accounting conservatism, our paper identifies corporate social responsibility as an important channel through which stakeholders influence corporate selection of conservative reporting practices. As a whole, our results support the inference that the level of accounting conservatism can be influenced by a firm's efforts to enhance its stakeholder relations.

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Appendix A. Appendix: Variable definition

CONMKT	Book-to-market ratio multiplied by negative one (Ahmed & Duellman, 2007; Beaver & Ryan, 2000).
CONCAP	The sum of R&D reserves, advertising reserves, and LIFO reserves. CONCAP = RDCAP + ADCAP + LIFOCAP, where RDCAP is the firm's R&D asset that would be estimated if R&D were capitalized and amortized, RDCAP = $0.9*XRD_t + 0.7*XRD_{t-1} + 0.5*XRD_{t-1} + 0.3*XRD_{t-3} + 0.1*XRD_{t-4}$; ADCAP is the advertising asset if advertising expenditures were capitalized and amortized, ADCAP = $XAD_t + 1/3\ XAD_{t-1}$; LIFOCAP is the LIFO reserve reported in the financial statements (Penman & Zhang, 2002).
CONACC	Mean total accruals (net income before extraordinary items plus depreciation expense less cash flows from operations) scaled by average total assets, averaged over 3 years centered on year t and multiplied by negative one (Givoly & Hayn, 2000).
CSR	Overall CSR rating, the summation of net scores from five sub-categories in the KLD ratings data: employee relations, environment protection, product design, community services, and workforce diversity (Kim et al., 2012).
DIV	Net rating score (total strengths minus total concerns) of workforce diversity. Strengths include woman or minority CEO, promotions of women and minorities, board with four or more women, minorities,

	and/or disabled directors, work/life balance, women & minority contracting, employment of the disabled, gay & lesbian policies, and other diversity strengths; concerns include controversies, non-representation, and other diversity controversies.
COM	Net rating score (total strengths minus total concerns) of community services. Strengths include charitable giving, innovative giving, non-U.S. charitable giving, support for housing, support for education, volunteer programs and other strengths on positive community activities or in-kind giving programs; concerns include investment controversies, negative economic impact, tax disputes, and other concerns on community controversies.
EMP	Net rating score (total strengths minus total concerns) of employee relations. Strengths include strong union relations, cash profit-sharing, worker involvement and/or ownership, retirement benefits, health and safety programs, and other strengths; concerns include poor union relations, health and safety concerns, workforce reductions, underfunded defined benefit pension plan or inadequate retirement benefits, and other concerns.
ENV	Net rating score (total strengths minus total concerns) of environmental protections. Strengths include beneficial products and services, pollution prevention, recycling, clean energy, environmental management systems, and other strengths; concerns include hazardous waste, regulatory problems on air, water, or other environmental regulations, ozone depleting chemicals, substantial emissions, agricultural chemicals, climate change, and other environmental concerns.
PRO	Net rating score (total strengths minus total concerns) of product design. Strengths include quality, R&D/Innovation, benefits to economically disadvantaged, and other strengths on social benefits of products; concerns include product safety, marketing/contracting concern, antitrust and other product-related controversies.
SCSR	Standardized CSR, CSR score is standardized by subtracting the mean CSR score of companies for the same year from a firm's CSR raw score and then scaling it by its standard deviation in order to make the CSR measure comparable between years (Di Giuli & Kostovetsky, 2014; Kotchen & Moon, 2012).
CSRID	Indicator variable, equal to one if CSR score is positive, zero otherwise.
SIZE	Natural logarithm of average total assets.
SGROW	Percentage of annual growth in total sales.
RDADV	R&D costs plus advertising expenses scaled by net sales.
CFO	Cash flow from operations scaled by average total assets.
LEVERAGE	Total long term liabilities scaled by average total assets.
LITIGATION	A dummy variable that equals 1 if the firm operates in industries with SIC codes of 2833–2836, 3570–3577, 3600–3674, 5200–7370, and 0 otherwise.
INST	Total common shares held by institutional investors divided by total common shares outstanding.
BIG4	A dummy variable that equals 1 if the company's auditor is one of the Big 4 audit firms and equals 0 otherwise.

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