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Sales order backlog and corporate social responsibility

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ABSTRACT

We examine the impact of sales order backlog, an important leading indicator of firm performance, on corporate social responsibility (CSR) performance (measured as responsible and irresponsible CSR performance). We rely on the stakeholder and resource availability views of CSR to develop our hypotheses. Under the stakeholder view, we posit a positive relation between sales order backlog and CSR performance. Under the resource availability view, we posit this relationship to be negative. Our empirical evidence shows a significant positive relation between order backlog and irresponsible CSR performance, suggesting that firms with higher order backlog demonstrate lower overall CSR performance. This evidence is consistent with the resource availability view that engaging in CSR activities consumes valuable firm resources, and thus, firms with limited resources are less likely to invest in CSR initiatives. Firms with high levels of unfulfilled sales orders must focus on fulfilling those orders, and may not be able to devote resources to CSR.

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1. Introduction

The purpose of our study is to examine the relation between sales order backlog and CSR performance. Sales order backlog refers to the contractual orders that are unfulfilled in the current period but will be executed in later periods. Order backlog is regarded as positive news, as it reflects a high level of customer demand. Academic research suggests that order backlog is an important leading indicator of the firm's future performance. For example, Behn (1996) finds that order backlog is value-relevant, suggesting that it contains important information to investors. Rajgopal, Shevlin, and Venkatachalam (2003) highlight the importance of order backlog as a leading indicator of firm performance, and suggest that order backlog contains information about future earnings. Baik and Ahn (2007) examine the association between change in order backlog and future returns, and conclude that the market under-values the important implications of order backlog to investors. Penman (2007) further argues that a decrease in order backlog is a red flag when investors forecast a firm's future operating performance and market value. Taken together, prior research stresses the importance of order backlog to stakeholders such as financial statement users, as it is a leading indicator of a firm's financial future.

Despite the valuable information contained in order backlog, the number of studies on order backlog is limited. Additionally, prior research mainly focuses on the financial implications of order backlog. Little research has investigated the impact of order backlog on non-financial performance dimensions such as a firm's corporate social responsibility (CSR) performance. Recent years have witnessed a rapidly increasing number of studies on CSR.¹ Thus, it is interesting to explore whether and how order backlog can influence CSR performance, which has not been examined in prior research.

To predict the direction of this relation, we rely on two widely accepted views of CSR, namely the stakeholder view and the resource availability view. The stakeholder view (e.g., Moser & Martin, 2012) argues that companies have obligations to recognize and serve the needs of all stakeholder groups including customers, employees, and suppliers. Additionally, many prior studies suggest that engaging in CSR activities can bring benefits to firms. We therefore predict that under the stakeholder view, there will be a positive relation between investment in CSR and order backlog, because order backlog results from the improved financial performance obtained from CSR activities.

On the other hand, prior research (e.g., Sun & Gunia, 2018) argues that the level of CSR performance is mainly influenced by the availability of economic resources, which is known as the resource availability view of CSR.

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¹ Consistent with prior research (e.g., Cho & Patten, 2007), we use two CSR measures: responsible CSR performance (i.e., CSR strengths) and irresponsible CSR performance (i.e., CSR concerns).

Under this view, engaging in CSR activities consumes valuable firm resources (i.e., financial and human resources), and thus firms with limited resources (for CSR activities) are less likely to invest in CSR initiatives. Because firms with a high level of unfulfilled sales orders must focus on fulfilling those orders in a short period of time, these firms likely operate at maximum capacity and may not be able to devote resources to CSR activities. We expect that firms with high order backlog are less likely to improve their social performance, consistent with the resource availability view. Hence, under the resource availability view, we posit a negative relation between order backlog and CSR performance.²

Using a large panel sample from 1992 to 2016, we find a significant positive relation between order backlog and irresponsible CSR performance (i.e., CSR concerns), which suggests that firms with higher order backlog engage in more irresponsible CSR activities. In other words, firms with high order backlog demonstrate poor CSR performance. This evidence supports the resource availability view of CSR. We perform a battery of additional tests to ensure the robustness of our primary results and mitigate concerns about endogeneity issues. Specifically, we re-estimate our baseline regression using alternative CSR measures and alternative sample periods and using lagged values of order backlog. Similar results are obtained. We also perform a changes analysis and a two-stage OLS regression analysis (2SLS) and find that our primary findings still hold. In particular, supporting our primary findings, results of the changes analysis are important in our study because *Baik and Ahn (2007)* argue that the level of order backlog is often influenced by product cycles, and using changes in order backlog can eliminate such measurement errors. For completeness, we also explore the relation between order backlog and individual CSR components (i.e., community, diversity, environment, employee relations, and product) and find that order backlog is significantly and positively related to irresponsible CSR performance in the following areas: community, environment, employee relations, and product.

By documenting a significant positive relation between order backlog and irresponsible CSR performance (i.e., CSR concerns), our study makes several important contributions. First, our study contributes to the literature on sales order backlog in accounting and on CSR in business. To the best of our knowledge, this is perhaps the first empirical study that directly examines the link between order backlog and CSR performance. Second, prior research (e.g., *Attig & Cleary, 2015; Chiang, Shang, & Sun, 2017*) argues that studies on CSR should focus more on the determinants of CSR, and call for more such studies. Hence, we answer their call by showing that order backlog can significantly influence a firm's CSR performance. Third, our study informs the debate on whether and how a firm's CSR behavior can be explained by the stakeholder view, which has been adopted in many recent CSR studies. It appears that our findings cannot be explained by the stakeholder view. Lastly, our findings have practical implications. For example, firms with higher order backlog may not be interested in improving their overall CSR performance (i.e., increase responsible or reduce irresponsible CSR performance), which may discourage socially responsible investors (i.e., green investors) to invest in firms with high order backlog.

The remainder of this paper is organized as follows. In *Section 2*, we present the literature review and hypotheses development. In *Section 3*, we present our research design. In *Section 4*, we report the main results. In *Section 5*, we report results of additional tests. *Section 6* concludes our study.

2. Literature review and hypotheses development

2.1. Corporate social responsibility

There are many definitions of CSR. Consistent with *Kim, Li, and Li (2014)*, we adopt the definition by *Carroll (1979)*, which defines CSR

² In our theoretical development, we assume that many of the resources (e.g., human and financial) used to fulfill sales order backlog and to engage in CSR activities are the same.

as "social responsibility of business that encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time." The literature on CSR can be classified into two broad categories. The first category examines the impact of CSR activities on firm performance and outcomes. The second category investigates factors that can influence a firm's CSR activities and performance.

In the first category, a large body of studies examines the association between CSR performance and firm financial performance. Although some early studies (e.g., *Aupperle, Carroll, & Hartfield, 1985; Ullman, 1985; Wood & Jones, 1995*) do not find a significant association, many other studies document a significant positive association between social performance and financial performance of a firm. These studies suggest that firms with strong financial performance also demonstrate strong social performance (e.g., *Berman, Wicks, Kotha, & Jones, 1999; Beurden & Gossling, 2008; Brammer & Millington, 2008; Carmeli, Gilat, & Waldman, 2007; Margolis & Walsh, 2003; McGuire, Sundgren, & Schnessweis, 1988; Orlitzky, Schmidt, & Rynes, 2003; Porter & Van der Linde, 1995; Smith, 1994; Smith, 2003; Waddock & Graves, 1997*). According to *Beurden and Gossling (2008)*, many scholars accept the notion that socially responsible firms demonstrate strong operating performance. However, prior research (e.g., *Branco & Rodrigues, 2006*) also points out that it is not clear whether financial performance causes social performance or social performance drives financial performance. *Branco and Rodrigues (2006)* further argue that the positive impact of CSR on financial performance is mainly due to the reputation effect of CSR, and the positive impact of financial performance on CSR is largely driven by the fact that financially sound companies are able to devote more resources to CSR activities.

A growing number of studies also investigate the impact of CSR on other firm perspectives and outcomes. For example, studies find that CSR can increase firm value (e.g., *Deng, Kang, & Low, 2013; Jo & Harjoto, 2011; Malik, 2015*), improve bond credit ratings (e.g., *Attig, Ghoul, Guedhami, & Suh, 2013; Jiraporn, Jiraporn, Boeprasert, & Chang, 2014*), increase the value and the level of cash holdings (e.g., *Arouri & Pijourlet, 2017; Cheung, 2016*), improve the quality of earnings (e.g., *Kim, Park, & Wier, 2012*), reduce information asymmetry (e.g., *Cho, Lee, & Pfeiffer, 2013*), constrain tax avoidance activities (e.g., *Hoi, Wu, & Zhang, 2013*), reduce firm risks (e.g., *Godfrey, Merrill, & Hansen, 2009*), reduce cost of capital (e.g., *Dhaliwal, Li, Tsang, & Yang, 2011; Dhaliwal, Li, Tsang, & Yang, 2014*), increase analyst forecast accuracy (e.g., *Dhaliwal, Radhakrishnan, Tsang, & Yang, 2012*), influence seasoned equity offerings (e.g., *Dutordoir, Strong, & Sun, 2018*), and reduce stock price crash risks (e.g., *Kim et al., 2014*).

In the second category, prior research attempts to uncover factors that can influence a firm's CSR activities and performance. For instance, *Ioannou and Serafeim (2012)* and *Liang and Renneboog (2017)* find that country characteristics (i.e., legal origin and political system) can influence firms' CSR performance. *Roush, Mahoney, and Thorne (2012)* suggest that public pressure and firm size can impact firms' CSR activities. *Chen, Zhou, and Zhu (2018)* find that CEOs with shorter (longer) tenure engage in more (fewer) CSR activities. *McCarthy, Oliver, and Song (2017)* suggest that more confident CEOs engage in fewer CSR activities. Studies such as *Godos-Diez, Fernandez-Gago, and Martinez-Campillo (2011)*, *Attig and Cleary (2015)*, and *Chatjuthamard, Jiraporn, Tong, and Singh (2016)* find that management characteristics such as management quality and certain manager personal characteristics play an important role in a firm's CSR activities. *Sun and Gunia (2018)* find that resource availability is an important determinant of a firm's CSR activities. When a firm has sufficient economic resources, the firm is more likely to improve its overall CSR performance by reducing irresponsible CSR activities. *Chiang et al. (2017)* suggest that firms with a plus or minus specification in their bond ratings engage in fewer irresponsible CSR activities. *Jo and Harjoto (2012)* find that effective corporate governance has a positive impact of CSR. *Wu, Lin, and Liu (2016)* document that firms located in counties with more

senior residents or in more religious counties are more likely to improve their CSR performance.

2.2. Hypotheses development

Prior research (e.g., Baik & Ahn, 2007; Behn, 1996; Penman, 2007; Rajgopal et al., 2003) suggests that sales order backlog is an important leading indicator of firm financial outlook. It is intuitive to expect that a firm with high order backlog would demonstrate superior financial performance (i.e., high revenues; high earnings). On one hand, the stakeholder view argues that companies are made by the society and should recognize and serve the interests of different stakeholders such as suppliers, customers, employees, and government agencies (e.g., Moser & Martin, 2012; and many others). Under this view, shareholders are just one of a firm's stakeholder groups and the firm has the obligation to satisfy the needs of all stakeholder groups. Thus, firms are expected to engage in CSR activities. Further, prior research finds a positive association between firm operating performance and CSR performance, which suggests that engaging in CSR activities can bring more benefits to firms. Thus, we argue that firms with higher order backlog are more likely to engage in positive CSR activities, relative to firms with lower or no order backlog, because firms with higher order backlog display stronger current and future operating performance. Based on the stakeholder view, we propose the following hypotheses.

H1. Sales order backlog is positively related to responsible CSR performance.

H2. Sales order backlog is negatively related to irresponsible CSR performance.

On the other hand, Sun and Gunia (2018) argue that CSR activities are influenced by the availability of a firm's economic resources, which is known as the resource availability view of CSR. Many prior studies have documented evidence to support this view. For example, Waddock and Graves (1997) find that firms with abundant resources have stronger incentives and greater freedom to engage in CSR activities. Branco and Rodrigues (2006) argue that engaging in CSR activities involves resources (e.g., costs) because firms have to deal with CSR issues (e.g., purchase environmentally friendly equipment and produce 'greener' products). Even disclosing CSR activities to the public also involves costs. Therefore, Branco and Rodrigues (2006) suggest that companies must consider resources and capabilities carefully before engaging in any CSR activities. In a similar vein, prior research finds that CSR activities consume time and resources (e.g., Cohen & Levinthal, 1990; Penrose, 1959) and the level of CSR performance is largely constrained by the firm's resources and capacity (Brammer & Millington, 2008; Cornell & Shapiro, 1987; Tang, Hull, & Rothenberg, 2012). Taken together, the resource availability view states that a firm's CSR performance is largely influenced by the availability of economic resources.

Based on prior research (e.g., Rajgopal et al., 2003), firms with high order backlog may already operate at maximum capacity. Thereby, the ability of these firms to devote resources (e.g., time and human resources) to CSR activities is very limited. Sun and Gunia (2018) find that a decrease (an increase) in economic resources leads to an increase (a decrease) in irresponsible CSR performance, suggesting a significant link between the availability of economic resources and CSR concerns. Hence, we expect that firms with a higher level of unfulfilled sales orders are less likely to devote additional economic resources to improve social performance. We propose the following hypotheses:

H3. Sales order backlog is negatively related to responsible CSR performance.

H4. Sales order backlog is positively related to irresponsible CSR performance.

3. Research design

3.1. Measuring sales order backlog

Consistent with Rajgopal et al. (2003), we measure the level of sales order backlog using the ratio of order backlog (Compustat Item #98; OB) to the average total assets. The average total assets refers to the arithmetic mean of total assets at the beginning and the end of a fiscal year. A high value of sales order backlog indicates a high level of unfulfilled orders.

3.2. Measuring CSR performance

A significant body of prior research has used the rating data from the Morgan Stanley Capital International (MSCI)'s Environment, Social and Governance (ESG) database to measure CSR performance (e.g., Dhaliwal et al., 2011). This database evaluates a firm's CSR performance based on seven components: environment, diversity, community, employee relations, human rights, corporate governance, and product. Because each component has positive activities (i.e., strengths) and negative activities (i.e., concerns), the MSCI's ESG database provides scores on both positive and negative activities. For example, the employee relations component includes the following positive items: (positive) union relation, no-layoff policy, cash profit sharing, employee involvement, retirement benefits, and health and safety. The negative items of this component include (negative) union relation, health and safety concerns, workforce reductions, and retirement benefits concerns. Appendix A provides a detailed description of CSR strengths and concerns for each CSR component.

Many prior studies (e.g., Deckop, Merriman, & Gupta, 2006; Dhaliwal et al., 2011, 2012, 2014; Graves & Waddock, 1994; Griffin & Mahon, 1997; Johnson & Greening, 1999; Nelling & Webb, 2009; Waddock & Graves, 1997) use a net score (i.e., total CSR strengths – total CSR concerns) to capture a firm's CSR performance. However, recent studies criticize the validity of using the net CSR scores. For example, Walls, Berrone, and Phan (2012) argue that CSR strengths and concerns are two different measures because they capture different CSR dimensions. Thus, simply subtracting total CSR concerns from total CSR strengths can be problematic. Mattingly and Berman (2006) suggest that using the combined measure (i.e., the net CSR score) may lead to inaccurate and biased results in CSR studies. We argue that using the combined measure may not accurately reflect a firm's true CSR performance. For example, if two firms (e.g., Firm A and B) have the same net CSR score (e.g., net CSR = 0), it is highly possible that their CSR strengths and concerns can be dramatically different from each other (e.g., strengths and concerns of firm A are 7 and 7, respectively; strengths and concerns of firm B are 1 and 1, respectively). Collectively, prior research suggests that it is more appropriate to use these two CSR measures (namely, total CSR strengths and total CSR concerns) separately.

Consistent with recent research (e.g., Bouslah, Linares-Zegarra, M'Zali, & Scholtens, 2018; Chiu & Sharfman, 2016; Hoi et al., 2013; Mattingly & Berman, 2006), we use CSR strengths and concerns separately in our study. Kim et al. (2012) argue that corporate governance is a unique component, which mainly measures a firm's governance performance. Additionally, the data on human rights are limited in the MSCI's ESG database. Therefore, we exclude these two components, consistent with Kim et al. (2012). In summary, our CSR variable consists of five components. Specifically, we use RES_CSR to measure the total CSR strengths (i.e., responsible CSR performance) and IRRES_CSR to measure the total CSR concerns (i.e., irresponsible CSR performance). The equations are listed below:

$$\begin{aligned} \text{RES_CSR} = & \text{strengths of environment} + \text{strengths of diversity} \\ & + \text{strengths of community} \\ & + \text{strengths of employee relation} \\ & + \text{strengths of product} \end{aligned} \quad (1)$$

Table 1
Sales order backlog and corporate social responsibility. Sample distribution.

Panel A: Sample distribution by fiscal year							
Year	Number of observations	Percent	Number of new firms added to sample		Percent		
1992	82	0.90%	82		7.45%		
1993	86	0.94%	5		0.45%		
1994	90	0.98%	6		0.54%		
1995	88	0.96%	8		0.73%		
1996	90	0.98%	7		0.64%		
1997	92	1.01%	8		0.73%		
1998	92	1.01%	7		0.64%		
1999	97	1.06%	7		0.64%		
2000	102	1.12%	8		0.73%		
2001	116	1.27%	12		1.09%		
2002	185	2.02%	67		6.09%		
2003	239	2.61%	50		4.54%		
2004	533	5.83%	302		27.43%		
2005	536	5.86%	61		5.54%		
2006	562	6.15%	58		5.27%		
2007	567	6.20%	53		4.81%		
2008	609	6.66%	53		4.81%		
2009	657	7.19%	60		5.45%		
2010	655	7.16%	26		2.36%		
2011	640	7.00%	44		4.00%		
2012	631	6.90%	25		2.27%		
2013	617	6.75%	45		4.09%		
2014	632	6.91%	40		3.63%		
2015	569	6.22%	28		2.54%		
2016	575	6.29%	39		3.54%		
	9142	100.00%	1101		100.00%		

Panel B: Sample distribution by industry							
SIC	Description	Obs.	Firms	SIC	Description	Obs.	Firms
12	Coal mining	21	1	49	Electric gas & sanitary services	11	3
13	Oil & gas extraction	185	21	50	Wholesale trade-durable	283	31
15	Building construction	168	16	51	Wholesale trade-nondurable	171	16
16	Heavy construction	156	18	52	Building materials & hardware	73	4
17	Construction-special trade	43	4	53	General merchandise stores	261	19
20	Food & kindred	3	2	54	Food stores	109	16
21	Tobacco products	6	1	55	Automotive dealers	180	19
22	Textile mill	17	2	56	Apparel & accessory stores	378	39
23	Apparel	110	14	57	Home furniture	114	15
24	Lumber & wood	32	5	58	Eating & drinking	405	51
25	Furniture & fixtures	139	13	59	Miscellaneous retail	332	44
26	Paper	11	2	60	Depository institutions	5	3
27	Printing	38	6	61	Nondepository credit institutions	11	5
28	Chemicals	149	25	62	Security & commodity brokers	1	1
29	Petroleum refining	15	1	63	Insurance carriers	8	3
30	Rubber	108	14	67	Holding & investment offices	33	7
31	Leather & leather	108	11	70	Hotels rooming houses & camps	74	9
32	Stone clay glass & concrete	20	3	72	Personal services	20	2
33	Primary metal industries	143	16	73	Business services	567	97
34	Fabricated metal products	247	20	75	Auto repair services & parking	13	1
35	Industrial & commercial	1043	123	78	Motion pictures	12	1
36	Electronic equipment	1178	142	79	Amusement & recreation services	158	18
37	Transportation equipment	579	50	81	Legal services	264	37
38	Measuring instruments	742	90	82	Educational services	12	3
39	Miscellaneous manufacturing	56	5	83	Social services	14	3
44	Water transportation	6	3	87	Engineering & accounting	204	31
48	Communications	56	12	99	Nonclassified establishments	50	3
					Total	9142	1101

Panel A presents sample distribution by fiscal year. The sample consists of 9142 firm-year observations, representing 1101 unique public firms in the U.S., from 1992 to 2016.

Panel B presents sample distribution by industry, based on the first two digits of the Standard Industrial Classification (SIC) code. The sample consists of 9142 firm-year observations, representing 1101 unique public firms in the U.S., from 1992 to 2016.

$$\begin{aligned} \text{IRRES_CSR} = & \text{concerns of environment} + \text{concerns of diversity} \\ & + \text{concerns of community} \\ & + \text{concerns of employee relation} \\ & + \text{concerns of product} \end{aligned} \quad (2)$$

Provided by the MSCI's ESG database, the CSR data used in our study (i.e., environment, diversity, community, employee and product) closely reflect the definition of CSR. For example, [Holmes](#)

and [Watts \(2000\)](#) suggest that the concept of CSR relates to a firm's commitment to sustainable economic development (e.g., environmental issues) and working with employees and local communities. [Branco and Rodrigues \(2006\)](#) state that the definition of CSR is related to issues such as environmental protection, human resources management, safety and diversity at work, and relationships with local communities. Thus, we believe that our measures (i.e., RES_CSR and IRRES_CSR) accurately reflect the concept of CSR.

3.3. Empirical model

We employ the following model to test the impact of sales order backlog on CSR performance.

$$\begin{aligned} \text{CSR_Performance}_{i,t} = & \beta_0 + \beta_1 \text{OBKLG}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{LEV}_{i,t} \\ & + \beta_4 \text{MTB}_{i,t} + \beta_5 \text{ROA}_{i,t} + \beta_6 \text{OCF}_{i,t} \\ & + \beta_7 \text{FIRMAGE}_{i,t} + \beta_8 \text{ASSETAGE}_{i,t} + \beta_9 \text{ADV}_{i,t} \\ & + \beta_{10} \text{TOBINQ}_{i,t} + \beta_{11} \text{SALEGROWTH}_{i,t} \\ & + \beta_{12} \text{CGOV_NET}_{i,t} + \beta_{13} \text{LOSS}_{i,t} + \beta_{14} \text{SGA}_{i,t} \\ & + \text{Industry Indicators} + \text{Year Indicators} + \varepsilon_{i,t} \quad (3) \end{aligned}$$

CSR_Performance alternatively represents one of the two CSR measures (RES_CSR and IRRES_CSR). The primary independent variable of interest, OBKLG, captures the level of sales order backlog. If order backlog has a positive impact on CSR, we expect a significant positive (negative) coefficient on OBKLG where the dependent variable is RES_CSR (IRRES_CSR), consistent with the stakeholder view. If order backlog has a negative impact on CSR, we expect a significant negative (positive) coefficient on OBKLG where the dependent variable is RES_CSR (IRRES_CSR), consistent with the resource availability view.

In Eq. (3), we control for other factors that may influence a firm's CSR performance. Following Kim et al. (2012), we control for corporate governance (CGOV_NET). Following Chiang et al. (2017), we control for total firm assets (SIZE), leverage ratio (LEV), market to book ratio (MTB), firm profitability (ROA), operating cash flows (OCF), the age of fixed assets (ASSETAGE), and advertising expenses (ADV). We also control for the age of firms in the Compustat database (FIRMAGE), firm value (TOBINQ), sales growth (SALEGROWTH), and whether a firm reports a negative net income (LOSS). We include total selling, general and administrative expense (SGA) as a control variable. In Eq. (3), we include industry and year indicators, and winsorize the continuous variables at the 1% and 99% levels. Following Petersen (2009), we use the clustered standard errors OLS regression (by firm and by year) when estimating Eq. (3). Detailed variable definitions are provided in Appendix B.

3.4. Sample selection and descriptive statistics

Our initial sample is an intersection of data from the Compustat database for financial statement variables and from the MSCI's ESG database for CSR and governance scores. We eliminate observations with missing values to construct variables in Eq. (3). Our final sample consists of 9142 firm-year observations from 1992 to 2016, representing 1101 unique U.S. public firms. Panel A of Table 1 reports the sample distribution by fiscal year. For example, there are 82 observations in 1992, 185 observations in 2002, and 575 observations in 2016. The number of observations increases from 1992 to 2009 (657 observations) and slightly decreases from 2009 to 2016 (575 observations). Panel A shows a significant increase in the number of observations from 2003 (239 observations) to 2004 (533 observations). This increase is consistent with the action of the MSCI's ESG database to increase the number of firms from 1100 to 3100 in 2003.³

Panel B of Table 1 shows the sample distribution by industry, which is based on the first two digits of the SIC code. Electronic equipment (SIC = 36) is the most represented industry with 1178 observations and 142 unique firms in our sample. The second and third most represented industries are the industrial and commercial equipment industry (SIC = 35; 1043 observations) and the measuring instruments industry (SIC = 38; 742 observations), respectively.

³ The MSCI started to provide ESG (i.e., CSR) data in 1991. From 1991 to 2000, the ESG database included 650 firms. The number of firms increased from 650 to 1100 during the period of 2001–2002. In 2003, the ESG database significantly increased the number of firms from 1100 to 3100 by adding firms listed on the Russell 2000 index and the Broad Market Social index (source: www.msci.com).

Table 2

Sales order backlog and corporate social responsibility. Sample descriptive statistics.

Variable	Obs.	Mean	Std dev	25th Pctl	50th Pctl	75th Pctl
RES_CSR	9142	1.348	2.048	0.000	1.000	2.000
IRRES_CSR	9142	1.183	1.362	0.000	1.000	2.000
OBKLG	9142	0.361	0.655	0.000	0.118	0.384
SIZE	9142	7.311	1.506	6.183	7.178	8.305
LEV	9142	0.174	0.179	0.007	0.141	0.266
MTB	9142	2.945	3.817	1.474	2.269	3.534
ROA	9142	0.046	0.097	0.023	0.055	0.090
OCF	9142	0.101	0.077	0.060	0.098	0.142
FIRMAGE	9142	3.177	0.615	2.708	3.178	3.738
ASSETAGE	9142	0.487	0.148	0.383	0.474	0.586
ADV	9142	0.013	0.028	0.000	0.000	0.012
TOBINQ	9142	1.963	1.172	1.250	1.622	2.248
SALEGROWTH	9142	0.089	0.207	-0.007	0.069	0.162
CGOV_NET	9142	-0.216	0.681	-1.000	0.000	0.000
LOSS	9142	0.161	0.368	0.000	0.000	0.000
SGA	9142	0.261	0.195	0.115	0.207	0.367

This table presents the descriptive statistics of the sample variables. Specifically, this table reports the number of observations, pooled means, standard deviations, 25th percentile, median, and 75th percentile of the dependent variables (RES_CSR and IRRES_CSR), independent variable of interest (OBKLG), and control variables. The sample consists of 9142 firm-year observations from 1992 to 2016, representing 1101 individual public firms in the U.S. All continuous variables are winsorized at the 1% and 99% percentiles. Refer to Appendix B for variable definitions.

Table 2 presents the sample descriptive statistics. Specifically, Table 2 provides the number of observations, mean value, standard deviation, 25th percentile value, median value, and 75th percentile value of the variables in Eq. (3).⁴ The mean and median values of responsible CSR performance (RES_CSR) are 1.348 and 1.000, respectively. The mean and median values of irresponsible CSR performance (IRRES_CSR) are 1.183 and 1.000, respectively. The mean value of order backlog (OBKLG) is 0.361, suggesting that the size of order backlog, on average, represents approximately 36% of average total assets. The mean values of LEV, MTB, and ROA are 0.174, 2.945 and 0.046, respectively, suggesting that our sample firms demonstrate normal operating performance and profitability. The mean value of LOSS is 0.161, which suggests that approximately 16% of our sample firms report a loss. The average (median) value of SGA is 0.261 (0.207). Overall, our sample descriptive statistics are in line with general expectations and prior research.

Table 3 displays the Pearson correlations of the variables in Eq. (3). As shown in Table 3, the correlation coefficient between RES_CSR and OBKLG is 0.003 with a *p*-value of 0.772. The correlation coefficient between IRRES_CSR and OBKLG is 0.090 with a *p*-value of <0.0001, suggesting a significant positive correlation between order backlog and irresponsible CSR performance (i.e., CSR concerns). This evidence lends initial support to our hypothesis (H4), which is consistent with the resource availability view of CSR. In addition, Table 3 shows that most correlation coefficients are small, which indicates that multicollinearity may not be a significant concern in our study. Many *p*-values are small, suggesting that many variables are significantly correlated to RES_CSR, IRRES_CSR and OBKLG. These significant correlations suggest that we need to test our hypotheses in a multivariate setting.

4. Main results

To investigate the impact of order backlog on CSR performance, we estimate Eq. (3) using clustered standard errors OLS regression and report results in Panel A of Table 4. Columns 1 and 2 of Panel A report the results without control variables and with control variables, respectively, where the dependent variable is RES_CSR. As shown in both columns, the coefficients on OBKLG are insignificant, which suggests that order backlog does not have a significant impact on responsible CSR performance. Columns 3 and 4 report the results without control

⁴ We winsorize the continuous variables at the 1% and 99% levels.

Table 3
Sales order backlog and corporate social responsibility. Correlation matrix.

Variables	RES_CSR	IRRES_CSR	OBKLG	SIZE	LEV	MTB	ROA	OCF	FIRMAGE	ASSETAGE	ADV	TOBINQ	SALEGROWTH	CGOV_NET	LOSS
IRRES_CSR	0.216														
<i>p-value</i>	<0.0001														
OBKLG	0.003	0.090													
<i>p-value</i>	0.772	<0.0001													
SIZE	0.472	0.301	0.045												
<i>p-value</i>	<0.0001	<0.0001	<0.0001												
LEV	0.009	0.063	-0.104	0.330											
<i>p-value</i>	0.402	<0.0001	<0.0001	<0.0001											
MTB	0.089	-0.028	0.022	0.035	-0.068										
<i>p-value</i>	<0.0001	0.008	0.037	0.001	<0.0001										
ROA	0.085	-0.034	0.009	0.102	-0.121	0.141									
<i>p-value</i>	<0.0001	0.001	0.377	<0.0001	<0.0001	<0.0001									
OCF	0.102	-0.061	-0.079	0.027	-0.118	0.187	0.584								
<i>p-value</i>	<0.0001	<0.0001	<0.0001	0.009	<0.0001	<0.0001	<0.0001								
FIRMAGE	0.211	0.150	0.030	0.370	0.042	-0.042	0.087	0.007							
<i>p-value</i>	<0.0001	<0.0001	0.005	<0.0001	<0.0001	<0.0001	<0.0001	0.518							
ASSETAGE	-0.024	0.084	-0.073	0.216	0.218	0.014	0.073	0.037	-0.144						
<i>p-value</i>	0.021	<0.0001	<0.0001	<0.0001	<0.0001	0.185	<0.0001	0.001	<0.0001						
ADV	0.037	-0.044	-0.196	-0.068	-0.028	0.035	0.046	0.125	-0.100	0.014					
<i>p-value</i>	0.000	<0.0001	<0.0001	<0.0001	0.008	0.001	<0.0001	<0.0001	<0.0001	0.183					
TOBINQ	0.074	-0.101	-0.033	-0.095	-0.133	0.481	0.349	0.423	-0.150	-0.007	0.077				
<i>p-value</i>	<0.0001	<0.0001	0.002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.487	<0.0001				
SALEGROWTH	-0.066	-0.002	0.056	-0.033	-0.037	0.119	0.201	0.019	-0.138	0.149	-0.038	0.220			
<i>p-value</i>	<0.0001	0.845	<0.0001	0.002	0.001	<0.0001	<0.0001	0.073	<0.0001	<0.0001	0.000	<0.0001			
CGOV_NET	-0.073	-0.260	-0.001	-0.220	-0.052	0.010	0.033	-0.001	-0.034	-0.026	0.025	0.034	0.015		
<i>p-value</i>	<0.0001	<0.0001	0.917	<0.0001	<0.0001	0.326	0.001	0.908	0.001	0.014	0.018	0.001	0.143		
LOSS	-0.072	0.008	-0.037	-0.137	0.119	-0.074	-0.669	-0.373	-0.110	-0.086	-0.001	-0.155	-0.177	-0.024	
<i>p-value</i>	<0.0001	0.457	0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.950	<0.0001	<0.0001	0.024	
SGA	0.010	-0.140	-0.220	-0.317	-0.250	0.087	-0.037	0.115	-0.136	-0.214	0.458	0.193	-0.046	0.059	0.071
<i>p-value</i>	0.364	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

This table reports the Pearson correlations for the variables of the sample over the period of 1992–2016, representing 1101 individual public firms in the U.S. and 9142 firm-year observations. For each pair of variables, the correlation coefficient and related (two-tailed) *p*-value are displayed in this table. All continuous variables are winsorized at the 1% and 99% percentiles before the correlation analysis. Refer to [Appendix B](#) for variable definitions.

Table 4
Sales order backlog and corporate social responsibility. Main results.

Panel A: Primary analysis												
Parameter	Dependent variable = RES_CSR						Dependent variable = IRRES_CSR					
	Column 1			Column 2			Column 3			Column 4		
	Estimate	t value	Pr > t	Estimate	t value	Pr > t	Estimate	t value	Pr > t	Estimate	t value	Pr > t
Intercept	2.216***	13.74	<0.0001	-5.163***	-20.47	<0.0001	0.500***	4.65	<0.0001	-1.956***	-11.29	<0.0001
OBKLG	0.017	0.40	0.691	0.003	0.08	0.938	0.128***	4.51	<0.0001	0.110***	4.29	<0.0001
SIZE				0.862***	39.34	<0.0001				0.268***	19.88	<0.0001
LEV				-1.178***	-10.51	<0.0001				-0.086	-1.10	0.273
MTB				0.004	0.82	0.412				0.003	0.81	0.421
ROA				0.148	0.58	0.561				-0.427**	-2.17	0.030
OCF				0.509*	1.77	0.076				-1.086***	-5.37	<0.0001
FIRMAGE				0.046	1.40	0.160				0.156***	6.56	<0.0001
ASSETAGE				-0.959***	-6.59	<0.0001				0.019	0.19	0.851
ADV				-0.719	-0.87	0.384				-1.243**	-2.31	0.021
TOBINQ				0.151***	8.01	<0.0001				0.044***	3.45	0.001
SALEGROWTH				-0.597***	-7.08	<0.0001				-0.030	-0.47	0.641
CGOV_NET				0.260***	6.20	<0.0001				-0.177***	-6.95	<0.0001
LOSS				0.155**	2.59	0.010				0.072*	1.67	0.094
SGA				1.743***	11.70	<0.0001				-0.068	-0.70	0.485
YEAR	Yes			Yes			Yes			Yes		
INDUSTRY	Yes			Yes			Yes			Yes		
Observations	9142			9142			9142			9142		
Adjusted R ²	0.0731			0.3472			0.2081			0.3237		

Panel B: Granger causality analysis		
Granger causality analysis		
Null hypothesis	F-Sat.	Hypothesis testing
Order backlog does not influence responsible CSR	1.63	
Order backlog does not influence irresponsible CSR	5.55***	Reject hypothesis
Responsible CSR does not influence order backlog	0.58	
Irresponsible CSR does not influence order backlog	0.71	

Panel A reports the results of regressing firm-level corporate social responsibility performance (RES_CSR & IRRES_CSR) on sales order backlog (OBKLG) and control variables over the period of 1992–2016 based on the following equation:

$$CSR = \beta_0 + \beta_1 \times OBKLG + \beta_x \times \text{Control Variables} + \text{Year \& Industry Dummies} + \varepsilon$$

We employ standard errors OLS regression. Continuous control variables are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1% (two-tailed) confidence levels, respectively. Refer to Appendix B for variable definitions.

variables and with control variables, respectively, where the dependent variable is IRRES_CSR. Both columns show that the coefficients on OBKLG are significant positive. For example, in Column 4, the coefficient on OBKLG is 0.110 with a t-value of 4.29 and a p-value of <0.0001, suggesting that sales order backlog and irresponsible CSR performance are significantly and positively related. In other words, our results suggest that firms with a higher level of order backlog demonstrate more irresponsible CSR activities, supporting H4. Thus, this evidence is consistent with the resource availability view of CSR.

Column 4 of Panel A also shows that IRRES_CSR is positively related to SIZE, FIRMAGE, TOBINQ, and LOSS, and negatively related to ROA, OCF, ADV, and CGOV_NET. These relations are generally in line with recent research. For example, Chiang et al. (2017) find that irresponsible CSR performance (i.e., CSR concerns) is positively related to firm size (i.e., SIZE) and whether the firm reports a loss in a given year (i.e., LOSS), and negatively related to operating cash flows (i.e., OCF) and advertising expenses (i.e., ADV). These relations are also consistent with general expectations. For instance, the positive relation between IRRES_CSR and LOSS suggests that firms reporting a negative net income engage in more irresponsible CSR activities. The negative relation between IRRES_CSR and ROA suggest that firms with a higher level of operating performance engage in fewer irresponsible CSR activities. This evidence can be explained by the fact that profitable firms have more resources to reduce irresponsible CSR activities (e.g., pollution).

Our results are economically meaningful. For example, the adjusted R-squared in Column 3 is 0.2081, which indicates that approximately 21% of the variation in IRRES_CSR can be explained by OBKLG. Based on the results in Column 4, one standard deviation increase in order backlog is associated with an increase of approximately 6% in irresponsible CSR

performance.⁵ We further check and find that values of variable inflation factor (VIF) are fairly small (e.g., <10), implying that our analysis is not subject to multicollinearity. VIF values are not tabulated for brevity.

In most regressions, a significant coefficient only tells us that there is a relation between X and Y and does not tell the nature of the relation (e.g., X causes Y or Y causes X). Following Granger (1969), we perform the Granger causality test to investigate whether sales order backlog has an impact on CSR performance or CSR performance causes order backlog. According to Granger (1969), if Y can be better predicted from the past of X and Y together than the past of Y alone, then we conclude that X (Granger) causes Y. A simple Granger causality equation is listed below:

$$X_t = \alpha_0 + \sum_{i=1}^p \alpha_i X_{t-i} + \sum_{j=1}^p \beta_j Y_{t-j} + \varepsilon_t$$

A null hypothesis (i.e., H₀: β₁ = β₂ = β₃ = ... = β_p = 0) is developed in the Granger causality test. Next, an F-test is performed on the null hypothesis. If H₀ is rejected, then X (Granger) causes Y. In this study, we establish 4 null hypotheses in the Granger causality test, namely Order backlog does not influence responsible CSR (Null H1), Order backlog does not influence irresponsible CSR (Null H2), Responsible CSR does not influence order backlog (Null H3), and Irresponsible CSR does not influence order backlog (Null H4). Panel B of Table 4 shows that only the F-stat. of testing Null H2 is significant, which leads to rejecting Null H2. That is, order backlog (Granger) causes irresponsible CSR performance. This evidence greatly strengthens the validity of the theoretical reasoning of our study.

⁵ 0.110 × 0.655 ÷ 1.183

Table 5. Sales order backlog and corporate social responsibility. Alternative measures of corporate social responsibility.

Parameter	Dependent variable = RESCSR_H			Dependent variable = IRRESCSR_H		
	Column 1			Column 2		
	Estimate	Chi-square	Pr > ChiSq	Estimate	Chi-square	Pr > ChiSq
Intercept	-5.002***	271.02	<0.0001	-6.663***	295.07	<0.0001
OBKLG	0.071	2.51	0.113	0.110**	4.69	0.030
SIZE	0.708***	845.34	<0.0001	0.320***	172.26	<0.0001
LEV	-0.957***	34.94	<0.0001	-0.026	0.02	0.890
MTB	0.001	0.01	0.927	0.003	0.10	0.747
ROA	-0.049	0.02	0.898	-0.402	0.99	0.321
OCF	0.232	0.30	0.583	-2.197***	22.71	<0.0001
FIRMAGE	-0.037	0.66	0.418	0.292***	31.78	<0.0001
ASSETAGE	-0.836***	16.93	<0.0001	-0.042	0.03	0.854
ADV	-1.206	1.15	0.284	-0.731	0.33	0.563
TOBINQ	0.175***	36.96	<0.0001	0.094***	7.87	0.005
SALEGROWTH	-0.552***	17.60	<0.0001	-0.180	1.69	0.194
CGOV_NET	-0.053	1.73	0.188	-0.044	1.12	0.291
LOSS	0.143	2.69	0.101	0.253***	6.94	0.008
SGA	1.799***	83.13	<0.0001	-0.330	2.11	0.147
Year	Yes			Yes		
Industry	Yes			Yes		
Observations	9142			9142		
Adj. R ²	0.2663			0.3266		

This table reports the results of regressing firm-level corporate social responsibility performance (RESCSR_H & IRRESCSR_H) on sales order backlog (OBKLG) and control variables over the period of 1992–2016 based on the following equation:

$$CSR = \beta_0 + \beta_1 \times OBKLG + \beta_x \times \text{Control Variables} + \text{Year \& Industry Dummies} + \epsilon$$

We employ logistic regression. Continuous control variables are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1% (two-tailed) confidence levels, respectively. Refer to Appendix B for variable definitions.

5. Additional tests

5.1. Alternative measures of CSR

To mitigate any influence of outliers in our sample, we re-estimate Eq. (3) using two indicator variables (namely RESCSR_H and IRRESCSR_H). RESCSR_H equals one if the value of responsible CSR performance is greater than the median and zero otherwise. Similarly, IRRESCSR_H equals one if the value of irresponsible CSR performance

is greater than the median and zero otherwise. We use logistic regression in this test. As shown in Table 5, the coefficient on OBKLG is 0.071 (0.110) with a p-value of 0.113 (0.030) where the dependent variable is RESCSR_H (IRRESCSR_H), indicating a significant positive relation between OBKLG and IRRESCSR_H. In other words, Table 5 shows that firms with high order backlog demonstrate high irresponsible CSR performance. Thus, consistent with the resource availability view of CSR, our primary findings are still supported using these two alternative measures.

Table 6. Sales order backlog and corporate social responsibility. Alternative sample periods.

Parameter	1992–2001						2002–2016					
	Dep. var. = RESCSR			Dep. var. = IRRESCSR			Dep. var. = RESCSR			Dep. var. = IRRESCSR		
	Column 1			Column 2			Column 3			Column 4		
	Estimate	t value	Pr > t	Estimate	t value	Pr > t	Estimate	t value	Pr > t	Estimate	t value	Pr > t
Intercept	0.181	0.22	0.824	-0.678	-1.10	0.270	-5.658***	-21.69	<0.0001	-2.003***	-11.18	<0.0001
OBKLG	0.070	0.63	0.528	0.312**	2.54	0.011	0.010	0.29	0.770	0.087***	3.34	0.001
SIZE	0.405***	6.89	<0.0001	0.360***	7.66	<0.0001	0.936***	40.75	<0.0001	0.245***	18.51	<0.0001
LEV	-1.582***	-2.65	0.008	-0.639	-1.65	0.100	-1.257***	-10.82	<0.0001	-0.048	-0.60	0.547
MTB	0.015	0.92	0.356	0.004	0.29	0.774	0.005	0.375	0.003	1.05	0.296	
ROA	-2.949*	-1.86	0.064	-1.974*	-1.85	0.065	-0.193	-0.75	0.453	-0.323	-1.62	0.106
OCF	0.766	0.69	0.489	0.417	0.52	0.600	0.431	1.51	0.131	-1.247***	-5.94	<0.0001
FIRMAGE	-0.687***	-4.55	<0.0001	0.042	0.46	0.647	0.101***	3.05	0.002	0.168***	6.85	<0.0001
ASSETAGE	2.877***	4.51	<0.0001	-0.663	-1.48	0.139	-1.453***	-9.65	<0.0001	0.223**	2.15	0.032
ADV	-2.738	-1.50	0.135	-4.784***	-3.44	0.001	0.485	0.53	0.599	-1.076*	-1.78	0.075
TOBINQ	0.083	1.59	0.113	0.007	0.15	0.877	0.176***	8.60	<0.0001	0.064***	5.00	<0.0001
SALEGROWTH	-0.570*	-1.70	0.090	-0.454*	-1.88	0.060	-0.523***	-6.25	<0.0001	0.015	0.23	0.815
CGOV_NET	-0.001	-0.01	0.990	-0.089	-1.02	0.306	0.241***	5.57	<0.0001	-0.196***	-7.33	<0.0001
LOSS	0.222	1.08	0.282	0.157	0.95	0.340	0.121**	1.98	0.048	0.040	0.93	0.352
SGA	3.317***	6.38	<0.0001	-0.190	-0.50	0.617	1.288***	8.58	<0.0001	-0.022	-0.21	0.833
YEAR	Yes			Yes			Yes			Yes		
INDUSTRY	Yes			Yes			Yes			Yes		
Observations	935			935			8207			8207		
Adjusted R ²	0.3636			0.5031			0.3819			0.3241		

This table reports the results of regressing firm-level corporate social responsibility performance (RES_CSR & IRRES_CSR) on sales order backlog (OBKLG) and control variables for two alternative periods (1992–2001 and 2002–2016) based on the following equation:

$$CSR = \beta_0 + \beta_1 \times OBKLG + \beta_x \times \text{Control Variables} + \text{Year \& Industry Dummies} + \epsilon$$

We employ standard errors OLS regression. Continuous control variables are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1% (two-tailed) confidence levels, respectively. Refer to Appendix B for variable definitions.

Table 7.
Sales order backlog and corporate social responsibility. B2B industries.

Parameter	B2B industries						Non-B2B industries					
	Dep. var. = RESCSR			Dep. var. = IRRESCSR			Dep. var. = RESCSR			Dep. var. = IRRESCSR		
	Column 1			Column 2			Column 3			Column 4		
	Estimate	t value	Pr > t	Estimate	t Value	Pr > t	Estimate	t value	Pr > t	Estimate	t value	Pr > t
Intercept	-5.642***	-16.39	<0.0001	-2.089***	-9.76	<0.0001	-5.121***	-16.23	<0.0001	-2.298***	-10.57	<0.0001
OBKLG	0.011	0.23	0.820	0.191***	5.27	<0.0001	0.021	0.50	0.616	0.010***	2.70	0.007
SIZE	0.927***	27.76	<0.0001	0.222***	11.04	<0.0001	0.815***	27.44	<0.0001	0.301***	16.79	<0.0001
LEV	-1.631***	-8.35	<0.0001	-0.469***	-3.98	<0.0001	-0.929***	-6.66	<0.0001	0.026	0.25	0.799
MTB	0.013	1.26	0.207	-0.002	-0.23	0.816	0.000	-0.02	0.981	0.002	0.60	0.546
ROA	0.512	1.48	0.139	-0.109	-0.47	0.639	-0.311	-0.76	0.446	-0.893**	-2.56	0.011
OCF	1.114**	2.51	0.012	-1.361***	-4.67	<0.0001	0.484	1.26	0.207	-0.743***	-2.61	0.009
FIRMAGE	-0.013	-0.26	0.796	0.160***	5.14	<0.0001	0.108**	2.56	0.010	0.162***	4.64	<0.0001
ASSETAGE	-1.236***	-5.40	<0.0001	0.018	0.13	0.897	-0.699***	-3.69	0.000	0.123	0.86	0.391
ADV	-8.097***	-3.31	0.001	0.700	0.43	0.664	0.126	0.14	0.888	-1.643***	-2.77	0.006
TOBINQ	0.086***	3.01	0.003	-0.009	-0.49	0.626	0.167***	6.09	<0.0001	0.102***	5.41	<0.0001
SALEGROWTH	-0.459***	-4.00	<0.0001	0.037	0.48	0.628	-0.690***	-5.43	<0.0001	-0.129	-1.18	0.239
CGOV_NET	0.166**	2.56	0.011	-0.084**	-2.52	0.012	0.322***	5.83	<0.0001	-0.242***	-6.78	<0.0001
LOSS	0.228***	2.65	0.008	0.096*	1.71	0.088	0.045	0.52	0.601	0.007	0.11	0.912
SGA	2.862***	12.18	<0.0001	0.023	0.15	0.879	1.286***	6.81	<0.0001	-0.134	-1.06	0.288
YEAR	Yes			Yes			Yes			Yes		
INDUSTRY	Yes			Yes			Yes			Yes		
Observations	4109			4109			5033			5033		
Adjusted R ²	0.3621			0.3473			0.3526			0.3349		

This table reports the results of regressing firm-level corporate social responsibility performance (RES_CSR & IRRES_CSR) on sales order backlog (OBKLG) and control variables for two subsamples (B2B industries and Non-B2B industries) based on the following equation:
 $CSR = \beta_0 + \beta_1 \times OBKLG + \beta_x \times \text{Control Variables} + \text{Year \& Industry Dummies} + \varepsilon$
 We employ standard errors OLS regression. Continuous control variables are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1% (two-tailed) confidence levels, respectively. Refer to Appendix B for variable definitions.

5.2. Alternative sample periods

To mitigate concerns about the influence of macroeconomic factors on the relation between sales order backlog and CSR performance over time, we re-estimate Eq. (3) using two different sample periods (1992–2001 and 2002–2016) and report results in Table 6. We use 2001 as the cutoff year because the MSCI's ESG database started to increase the number of firms in 2001. Table 6 reports that the coefficient on OBKLG is 0.070 (0.312) with a p-value of 0.528 (0.011) where the dependent variable is RES_CSR (IRRES_CSR) during the period of 1991–2001. Similarly, we find that the coefficient on OBKLG is 0.010 (0.087) with a p-value of 0.770 (0.001) where the dependent variable is RES_CSR (IRRES_CSR) during the period of 2002–2016. Taken together, our primary results (i.e., a significant positive relation between order backlog and irresponsible CSR performance) still hold in different sample periods.

5.3. B2B industries

Some of the most represented industries such as Business Services belong to the Business-to-business (B2B) segment. We combine the top 5 most represented B2B industries, namely Industrial and Commercial Equipment (SIC = 35), Electronic Equipment (SIC = 36), Transportation Equipment (SIC = 37), Measuring Instrument (SIC = 38) and Business Services (SIC = 73), and re-estimate Eq. (3) for this B2B group (Observations = 4109). As shown in Column 1 and 2 of Table 7, the coefficient on OBKLG is insignificant where the dependent variable is RESCSR, and the coefficient on OBKLG is 0.191 with a p-value of <0.0001 where the dependent variable is IRRESCSR. This evidence shows that our primary findings still hold for firms in the B2B segment. We also re-estimate Eq. (3) for firms in the non-B2B industries and still obtain consistent results.

5.4. Changes analysis

Our primary findings are based on a levels analysis, which estimates the relation between the level of order backlog and the level of CSR performance. To mitigate concerns about omitted correlated variables and provide additional support to our primary results, we

employ a changes analysis that regresses the changes in CSR performance (i.e., ΔRES_CSR and $\Delta IRRES_CSR$) on the changes in order backlog (i.e., $\Delta OBKLG$) and in control variables. For example, $\Delta OBKLG$ is defined as the difference between OBKLG in year t and OBKLG in year t-1. Baik and Ahn (2007) argue that factors such as product cycles often influence the level of order backlog. For example, firms with longer (shorter) product cycles often have higher

Table 8.
Sales order backlog and corporate social responsibility. Changes analysis.

Parameter	Dep. var. = $\Delta RESCSR$			Dep. var. = $\Delta IRRESCSR$		
	Column 1			Column 2		
	Estimate	t value	Pr > t	Estimate	t value	Pr > t
Intercept	-0.017	-0.22	0.825	-0.132**	-2.44	0.015
$\Delta OBKLG$	0.023	0.20	0.842	0.030*	1.96	0.050
$\Delta SIZE$	0.257***	2.67	0.008	0.116	1.26	0.209
ΔLEV	-0.004	-0.86	0.389	0.203	1.10	0.270
ΔMTB	0.032	0.15	0.882	0.003	0.68	0.496
ΔROA	-0.099	-0.56	0.578	-0.167	-0.88	0.379
ΔOCF	0.237	1.14	0.255	-0.225	-1.20	0.230
$\Delta FIRMAGE$	0.093	0.22	0.830	0.253	0.75	0.455
$\Delta ASSETAGE$	0.313	0.95	0.344	-0.381	-1.42	0.155
ΔADV	-1.106	-0.54	0.590	0.269	0.13	0.896
$\Delta TOBINQ$	-0.206***	-3.18	0.002	0.077	1.37	0.170
$\Delta SALEGROWTH$	0.120***	3.51	0.001	-0.055**	-2.13	0.033
$\Delta CGOV_NET$	0.000	-0.01	0.990	-0.018	-0.60	0.551
$\Delta LOSS$	0.241	0.74	0.462	-0.295	-0.97	0.332
ΔSGA	0.000	0.00	0.997	-0.009	-0.29	0.769
YEAR	Yes			Yes		
INDUSTRY	Yes			Yes		
Observations	6920			6920		
Adjusted R ²	0.0633			0.1763		

This table reports the results of regressing changes in corporate social responsibility performance ($\Delta RESCSR$ & $\Delta IRRESCSR$) on the change in sales order backlog ($\Delta OBKLG$) and changes in control variables over the period of 1992–2016 based on the following equation:
 $\Delta CSR = \beta_0 + \beta_1 \times \Delta OBKLG + \beta_x \times \Delta \text{Control Variables} + \text{Year \& Industry Dummies} + \varepsilon$
 We employ standard errors OLS regression. Continuous control variables are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1% (two-tailed) confidence levels, respectively. Refer to Appendix B for variable definitions.

Table 9. Sales order backlog and corporate social responsibility. Two-stage OLS regression analysis (2SLS).

Parameter	Dep. var. = OBKLG_Instrumented			Dep. var. = RES_CSR			Dep. var. = IRRES_CSR		
	Column 1			Column 2			Column 3		
	Stage 1			Stage 2			Stage 2		
	Estimate	t value	Pr > t	Estimate	t value	Pr > t	Estimate	t value	Pr > t
Intercept	0.127**	2.07	0.039	-5.163***	-23.75	<0.0001	-1.956***	-13.30	<0.0001
OBKLG_Mean	1.130***	42.86	<0.0001						
OBKLG_Instrumented				0.003	0.08	0.939	0.110***	4.87	<0.0001
SIZE	0.012***	2.61	0.009	0.862***	53.90	<0.0001	0.268***	24.73	<0.0001
LEV	-0.176***	-5.09	<0.0001	-1.178***	-9.75	<0.0001	-0.086	-1.05	0.292
MTB	0.003**	2.27	0.024	0.004	0.82	0.414	0.003	0.71	0.475
ROA	0.237***	2.84	0.005	0.148	0.51	0.611	-0.427**	-2.16	0.031
OCF	-0.423***	-4.72	<0.0001	0.509	1.62	0.104	-1.086***	-5.11	<0.0001
FIRMAGE	-0.008	-0.77	0.441	0.046	1.33	0.183	0.156***	6.71	<0.0001
ASSETAGE	-0.024	-0.57	0.571	-0.959***	-6.41	<0.0001	0.019	0.19	0.851
ADV	-0.528**	-2.27	0.023	-0.719	-0.88	0.378	-1.243**	-2.25	0.024
TOBINQ	-0.014**	-2.33	0.020	0.151***	7.38	<0.0001	0.044***	3.13	0.002
SALEGROWTH	0.133***	4.91	<0.0001	-0.597***	-6.31	<0.0001	-0.030	-0.46	0.642
CGOV_NET	0.006	0.75	0.454	0.260***	8.95	<0.0001	-0.177***	-9.01	<0.0001
LOSS	-0.032*	-1.71	0.087	0.155**	2.36	0.018	0.072	1.62	0.105
SGA	-0.185***	-4.41	<0.0001	1.743***	11.89	<0.0001	-0.068	-0.69	0.493
YEAR	Yes			Yes			Yes		
INDUSTRY	Yes			Yes			Yes		
Observations	9142			9142			9142		
Adjusted R ²	0.4740			0.3416			0.3178		

This table reports the results of two-stage OLS regression analysis (2SLS). Continuous control variables are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1% (two-tailed) confidence levels, respectively. Refer to Appendix B for variable definitions.

(lower) order backlog. Thus, Baik and Ahn (2007) suggest that a changes analysis is necessary in studies on order backlog.

Table 8 presents the results of the changes analysis and shows that the coefficient on ΔOBKLG is 0.030 with a p-value of 0.050 where the dependent variable is ΔIRRES_CSR, suggesting that ΔOBKLG is significantly and positively related to ΔIRRES_CSR. This evidence implies that an increase in order backlog can lead to an increase in irresponsible CSR performance. In other words, a change in irresponsible CSR performance can be attributed to a change in order backlog. Thus, results of the changes analysis provide additional support to our primary findings.

5.5. Two-stage OLS regression analysis (2SLS)

Our study may be subject to reverse causality because it is possible that firms with more irresponsible CSR activities demonstrate a higher level of sales order backlog. In addition, maintaining a certain level of CSR performance or order backlog is a firm's choice, suggesting that endogeneity may be a concern in our study. To mitigate the above concerns, we perform a two-stage OLS regression analysis (2SLS). Specifically, we estimate an instrumented OBKLG variable (OBKLG_Instrumented) using the mean value of OBKLG for firms in

Table 10. Sales order backlog and corporate social responsibility. Using lagged order backlog.

Parameter	RES_CSR		IRRES_CSR		RES_CSR		IRRES_CSR		RES_CSR		IRRES_CSR	
	Column 1		Column 2		Column 3		Column 4		Column 5		Column 6	
	Estimate	t Value										
Intercept	-5.480***	-19.90	-2.082***	-10.94	-5.752***	-19.25	-2.209***	-10.66	-5.988***	-18.46	-2.302***	-10.32
L ₁ OBKLG1	0.115	0.27	0.065**	1.97								
L ₂ OBKLG2					0.027	0.46	0.014**	2.43				
L ₃ OBKLG3									0.061	1.01	0.049*	1.71
OBKLG	0.111	0.99	0.186***	2.82	0.010	0.15	0.123*	1.89	0.077	1.00	0.163**	2.30
SIZE	0.908***	38.92	0.271***	18.76	0.956***	38.27	0.274***	17.59	0.996***	37.15	0.276***	16.52
LEV	-1.226***	-9.94	-0.061	-0.71	-1.290***	-9.47	-0.019	-0.20	-1.328***	-8.80	0.017	0.17
MTB	0.007	1.18	0.003	0.90	0.007	1.21	0.004	1.00	0.008	1.19	0.004	1.03
ROA	0.165	0.60	-0.418**	-1.96	0.121	0.38	-0.457*	-1.91	0.180	0.52	-0.380	-1.43
OCF	0.681**	2.12	-1.049***	-4.66	0.730**	2.05	-1.141***	-4.61	0.672*	1.69	-1.230***	-4.51
FIRMAGE	0.053	1.42	0.185***	6.88	0.042	0.98	0.221***	7.30	0.032	0.67	0.248***	7.38
ASSETAGE	-1.152***	-7.11	0.080	0.72	-1.332***	-7.37	0.124	1.01	-1.464***	-7.30	0.180	1.34
ADV	-0.512	-0.57	-1.602***	-2.74	-0.761	-0.76	-2.028***	-3.16	-0.516	-0.46	-2.381***	-3.30
TOBINQ	0.148***	7.26	0.039***	2.80	0.148***	6.62	0.036**	2.28	0.145***	5.94	0.036**	2.08
SALEGROWTH	-0.651***	-6.70	-0.105	-1.49	-0.788***	-6.95	-0.075	-0.94	-0.856***	-6.70	-0.102	-1.16
CGOV_NET	0.280***	6.31	-0.181***	-6.63	0.305***	6.35	-0.197***	-6.71	0.335***	6.24	-0.233***	-7.12
LOSS	0.195***	2.98	0.071	1.55	0.167**	2.32	0.034	0.67	0.156**	1.97	0.039	0.71
SGA	1.817***	11.10	-0.042	-0.39	1.888***	10.38	0.017	0.14	1.959***	9.88	0.090	0.68
YEAR	Yes											
INDUSTRY	Yes											
Observations	8041		8041		7073		7073		6201		6201	
Adjusted R ²	0.3614		0.3349		0.3739		0.3457		0.3834		0.3560	

This table reports the results of regressing firm-level corporate social responsibility performance (RES_CSR & IRRES_CSR) on lagged values of sales order backlog (OBKLG) and control variables over the period of 1992–2016 based on the following equation: $CSR = \beta_0 + \beta_1 \times LagOBKLG + \beta_2 \times Control\ Variables + Year\ \&\ Industry\ Dummies + \varepsilon$ Continuous control variables are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1% (two-tailed) confidence levels, respectively. Refer to Appendix B for variable definitions.

Table 11.
Sales order backlog and corporate social responsibility. Individual CSR components.

Panel A: CSR strengths										
Parameter	COM_STR		DIV_STR		ENV_STR		EMP_STR		PRO_STR	
	Column 1		Column 2		Column 3		Column 4		Column 5	
	Estimate	t value								
Intercept	-0.605***	-9.83	-1.536***	-12.18	-1.548***	-17.39	-1.175***	-10.95	-0.316***	-8.12
OBKLG	0.015	0.89	-0.019	-1.34	0.015	1.14	-0.008	-0.51	-0.008	-1.25
SIZE	0.107***	22.12	0.258***	24.63	0.256***	31.14	0.218***	23.81	0.047***	13.53
LEV	-0.134***	-5.84	-0.372***	-7.16	-0.259***	-6.12	-0.374***	-7.38	-0.050**	-2.50
MTB	0.000	0.38	0.002	0.86	0.002	0.76	0.001	0.49	0.000	-0.34
ROA	0.039	0.84	-0.030	-0.21	0.122	1.40	-0.085	-0.78	0.037	0.77
OCF	0.029	0.47	-0.014	-0.10	-0.040	-0.42	0.619***	4.98	-0.097*	-1.72
FIRMAGE	0.009	1.30	0.020	1.24	0.025**	2.08	0.004	0.31	-0.017***	-2.68
ASSETAGE	-0.040	-1.32	-0.292***	-4.46	-0.354***	-6.70	-0.346***	-4.91	0.033	1.28
ADV	0.887***	3.22	1.508***	3.43	-0.328	-1.16	-2.359***	-7.44	-0.769***	-5.74
TOBINQ	0.016***	3.46	0.016*	1.81	0.032***	4.42	0.063***	7.25	0.030***	5.94
SALEGROWTH	-0.095***	-5.68	-0.175**	-4.52	-0.191***	-5.84	-0.151***	-4.37	-0.024	-1.60
CGOV_NET	0.055***	5.83	-0.004	-0.20	0.151***	10.39	0.061***	4.40	0.000	-0.03
LOSS	0.022*	1.85	0.052*	1.76	0.009	0.46	0.038	1.45	0.024**	2.13
SGA	0.267***	7.66	0.535***	7.64	0.408***	8.28	0.412***	6.69	0.118***	4.60
YEAR	Yes									
INDUSTRY	Yes									
Observations	9142		9142		9142		9142		9142	
Adjusted R ²	0.2329		0.2648		0.2877		0.2085		0.1022	

Panel B: CSR concerns										
Parameter	COM_CON		DIV_CON		ENV_CON		EMP_CON		PRO_CON	
	Column 1		Column 2		Column 3		Column 4		Column 5	
	Estimate	t Value								
Intercept	-0.190***	-6.89	0.785***	10.78	-0.555***	-8.46	-1.207***	-14.44	-0.982***	-14.29
OBKLG	0.018***	3.90	-0.004	-0.40	0.028***	2.62	0.035***	3.10	0.046***	4.98
SIZE	0.031***	13.27	-0.090***	-16.64	0.092***	17.52	0.130***	20.70	0.125***	22.25
LEV	-0.052***	-4.77	-0.015	-0.37	0.003	0.12	-0.032	-0.79	-0.003	-0.09
MTB	0.002**	2.67	0.000	-0.25	0.001	0.55	-0.002	-1.31	0.003*	1.89
ROA	-0.037	-1.04	0.037	0.38	-0.093*	-1.68	-0.251**	-2.29	-0.107*	-1.65
OCF	0.000	-0.01	-0.354***	-3.49	-0.294***	-4.45	-0.213**	-2.02	-0.270***	-3.77
FIRMAGE	0.012***	3.30	-0.010	-0.88	0.056***	7.29	0.067***	5.61	0.044***	5.01
ASSETAGE	-0.057***	-3.37	0.343***	6.78	-0.113***	-3.33	-0.057	-1.15	-0.022	-0.58
ADV	-0.283***	-4.39	-1.096***	-4.25	-0.712***	-4.15	-0.033	-0.12	0.473**	2.19
TOBINQ	0.003**	1.97	0.003	0.48	0.006	1.58	0.027***	4.25	0.008**	1.97
SALEGROWTH	0.006	0.49	0.098***	3.15	-0.068***	-3.07	-0.039	-1.18	-0.044*	-1.78
CGOV_NET	-0.025***	-5.17	-0.040***	-3.87	-0.055***	-5.99	0.000	-0.03	-0.079***	-7.73
LOSS	0.011	1.61	-0.020	-0.92	0.001	0.05	0.052**	2.30	0.021	1.33
SGA	-0.024*	-1.73	-0.150***	-2.85	-0.080**	-2.58	0.202***	3.93	0.055	1.49
YEAR	Yes									
INDUSTRY	Yes									
Observations	9142		9142		9142		9142		9142	
Adjusted R ²	0.1268		0.2936		0.2896		0.2606		0.2551	

Panel A reports the results of regressing individual CSR components' strengths on sales order backlog (OBKLG) and control variables over the period of 1992–2016 based on the following equation: CSR components = β₀ + β₁ × OBKLG + β_x × Control Variables + Year & Industry Dummies + ε. Panel B reports the results of regressing individual CSR components' concerns on sales order backlog (OBKLG) and control variables over the period of 1992–2016 based on the following equation: CSR components = β₀ + β₁ × OBKLG + β_x × Control Variables + Year & Industry Dummies + ε. We employ standard errors OLS regression. Continuous control variables are winsorized at the 1% and 99% percentiles each year before entering the regression analysis. *, **, and *** denote significance at the 10, 5 and 1% (two-tailed) confidence levels, respectively. Refer to Appendix B for variable definitions.

the same industry (i.e., based on the first two digits of the SIC code) in the first stage. We then re-estimate Eq. (3) using the instrumented variable (OBKLG_Instrumented) as the primary independent variable of interest in the second stage. The two equations are listed below.

$$\begin{aligned}
 \text{OBKLG_Instrumented}_{i,t} = & \beta_0 + \beta_1 \text{OBKLG_Mean}_{i,t} + \beta_2 \text{SIZE}_{i,t} \\
 & + \beta_3 \text{LEV}_{i,t} + \beta_4 \text{MTB}_{i,t} + \beta_5 \text{ROA}_{i,t} \\
 & + \beta_6 \text{OCF}_{i,t} + \beta_7 \text{FIRMAGE}_{i,t} \\
 & + \beta_8 \text{ASSETAGE}_{i,t} + \beta_9 \text{ADV}_{i,t} \\
 & + \beta_{10} \text{TOBINQ}_{i,t} + \beta_{11} \text{SALEGROWTH}_{i,t} \\
 & + \beta_{12} \text{CGOV_NET}_{i,t} + \beta_{13} \text{LOSS}_{i,t} \\
 & + \beta_{14} \text{SGA}_{i,t} + \text{Industry Indicators} \\
 & + \text{Year Indicators} + \varepsilon_{i,t} \quad (4)
 \end{aligned}$$

$$\begin{aligned}
 \text{CSR_Performance}_{i,t} = & \beta_0 + \beta_1 \text{OBKLG_Instrumented}_{i,t} + \beta_2 \text{SIZE}_{i,t} \\
 & + \beta_3 \text{LEV}_{i,t} + \beta_4 \text{MTB}_{i,t} + \beta_5 \text{ROA}_{i,t} + \beta_6 \text{OCF}_{i,t} \\
 & + \beta_7 \text{FIRMAGE}_{i,t} + \beta_8 \text{ASSETAGE}_{i,t} + \beta_9 \text{ADV}_{i,t} \\
 & + \beta_{10} \text{TOBINQ}_{i,t} + \beta_{11} \text{SALEGROWTH}_{i,t} \\
 & + \beta_{12} \text{CGOV_NET}_{i,t} + \beta_{13} \text{LOSS}_{i,t} + \beta_{14} \text{SGA}_{i,t} \\
 & + \text{Industry Indicators} + \text{Year Indicators} + \varepsilon_{i,t} \quad (5)
 \end{aligned}$$

Table 9 reports the results of the 2SLS. Column 1 shows the results of Stage 1. Column 2 and Column 3 present the results of Stage 2 where the dependent variable is RES_CSR and IRRES_CSR, respectively. As shown in Column 2, the coefficient on OBKLG_Instrumented is 0.003 with a p-value of 0.939, which shows that the relation between order backlog and responsible CSR performance is not significant. As shown in Column

3, the coefficient on OBKLG_Instrumented is 0.110 with a p-value of <0.0001, suggesting that order backlog and irresponsible CSR performance are significantly and positively related. Taken together, results of the 2SLS still show a significant positive relation between OBKLG and IRRES_CSR, consistent with our primary results.

5.6. Using lagged values of order backlog

To further mitigate concerns about reverse causality, we re-estimate Eq. (3) after including lagged values of OBKLG, namely LAGOBKLG1, LAGOBKLG2 and LAGOBKLG3. Specifically, LAGOBKLG1, LAGOBKLG2 and LAGOBKLG3 refer to OBKLG in year t-1, year t-2, and year t-3, respectively. Table 10 shows that the coefficients on these three lagged values are insignificant where the dependent variable is RES_CSR. In contrast, the coefficients on these three lagged values are all significant and positive where the dependent variable is IRRES_CSR, suggesting that order backlog in prior years is still positively related to irresponsible CSR performance. Collectively, this evidence strengthens the validity of our hypothesis (H4) and mitigates concerns about endogeneity issues in our study.

5.7. Individual CSR components

In our main analysis, the RES_CSR and IRRES_CSR are aggregated measures, which consist of five individual CSR components (i.e., community, diversity, environment, employee relations, and product). For completeness, we re-estimate Eq. (3) using each individual CSR component. Panel A of Table 11 reports results of regressing strengths of each component on OBKLG and control variables. As shown in Panel A, the coefficients on OBKLG are all insignificant. Correspondingly, Panel B of Table 11 reports results of regressing concerns of each component on OBKLG and control variables. As shown in Panel B, community concerns (COM_CON), environment concerns (ENV_CON), employee relations concerns (EMP_CON) and product concerns (PRO_CON) are significantly and positively related to OBKLG, which suggests that firms with high order backlog tend to increase their irresponsible CSR performance in areas of community, environment, employee relations, and product. Overall, results of Table 11 are consistent with our primary findings.

6. Conclusion

In this study, we investigate the impact of sales order backlog on a firm's CSR performance. Consistent with the stakeholder view (the resource availability view) of CSR, we posit a positive (negative) impact on CSR performance. Using a large panel sample from 1992 to 2016, we find a significant positive relation between order backlog and irresponsible CSR performance (i.e., CSR concerns), suggesting that firms with a high level of order backlog demonstrate lower CSR performance. This evidence is consistent with the notion of the resource availability view that the level of CSR performance is largely determined by the availability of economic resources. Our primary results are robust to alternative CSR measures, alternative sample time periods, different industries, changes analysis, two-stage OLS regression analysis, and using lagged values of order backlog. In addition, we find that order backlog is negatively related to individual CSR components including community, environment, employee and product concerns.

Although a vast body of the prior literature has examined the association between CSR and financial performance and the impact of CSR on many firm-level variables, the empirical evidence on the determinants of CSR performance is still limited. By documenting that sales order backlog can influence a firm's irresponsible CSR performance, our study should lead to a more comprehensive understanding of factors

that influence CSR performance. Our findings also have practical implications. For example, our results may discourage 'green' investors from investing in firms with a high level of order backlog.

Our study is subject to a few limitations. First, firms rated by the MSCI's ESG database are large public U.S. firms. Whether our findings hold for small or private companies remains unknown. Second, the CSR variables are approximate measures. More-precise CSR data may yield different results. Third, the level of sales order backlog is often influenced by macroeconomic conditions such as economic cycles and industry-specific shocks. This study does not examine the role of macroeconomic conditions in the relation between order backlog and CSR performance. The above issues can be further investigated in future research.

Appendix A. Corporate social responsibility components (Source: www.msci.com)

CSR components	CSR strengths items (positive items)	CSR concerns items (negative items)
Community relations	Charitable giving Innovative giving Support for housing Support for education Non-U.S. charitable giving Volunteer programs Other strengths	Investment controversies Negative economic impact Tax disputes Other concerns
Diversity	CEO Promotion Board of directors Work-life benefits Women and minority contracting Employment of the disabled Gay and lesbian policies Other strengths	Controversies Non-representation Other concerns
Employee relations	Union relations No-layoff policy Cash profit sharing Employee involvement Retirement benefits Health and safety Other strengths	Union relations Health and safety concern workforce reductions Retirement benefits concern Other concerns
Environment	Beneficial products Pollution prevention Recycling Clean energy Property, plant and equipment Management systems Other strengths	Hazardous waste Regulatory problems Ozone depleting chemicals Substantial emissions Agricultural chemicals Climate change Other concerns
Product	Quality Research and development innovation Benefits to economically disadvantaged Other strengths	Product safety Marketing/contracting concern Antitrust Other concerns
Corporate governance	Limited compensation Ownership strength Transparency strength Political accountability strength Public policy strength Other strengths	High compensation Ownership concern Accounting concern Transparency concern Political accountability concern Public policy concern Other concerns
Human rights	Positive record in S. Africa Indigenous peoples relations Labor rights strength Other strengths	S. Africa Northern Ireland Mexico Burma concern Labor right concern Indigenous peoples relations concern Other concerns

*The above information was obtained from the MSCI's website. This information is no longer available on the website.

Appendix B. Variable definitions

Variable	Definition
RES_CSR	= total CSR strengths of community, diversity, environment, employee relations, and product;
IRRES_CSR	= total CSR concerns of community, diversity, environment, employee relations, and product;
OBKLG	= sales order backlog (OB) scaled by the average total assets (AT);
SIZE	= natural log of total assets (AT);
LEV	= long-term liabilities (DLTT) divided by total assets (AT);
MTB	= market value of outstanding common shares [Outstanding common shares (CSHO) × price at fiscal year-end (PRCC_F)] divided by total book value of outstanding common shares (CEQ);
ROA	= income before extraordinary items (IB) scaled by total assets (AT);
OCF	= cash flows from operating activities (OANCF) scaled by total assets (AT);
FIRMAGE	= natural log of the number of years since a firm was included in the Compustat database;
ASSETAGE	= the ratio of net property, plant and equipment (PPENT) to gross property, plant and equipment (PPEGT);
ADV	= advertising expenses (XAD) scaled by total assets (AT);
TOBINQ	= Tobin's Q, [total assets (AT) + (Outstanding common shares (CSHO) × price at fiscal year-end (PRCC_F)) - total book value of outstanding common shares (CEQ)] / total assets (AT);
SALEGROWTH	= sales in year t - sales in year (t-1) / sales in year (t-1);
CGOV_NET	= (limited compensation + ownership strength + transparency strength + accountability strength + public policy strength + other strengths) - (high compensation + ownership concern + transparency concern + accountability concern + public policy concern + other concerns);
LOSS	= one if a firm reports a loss otherwise zero;
SGA	= total selling, general and administrative expense (XSGA) scaled by total assets (AT);
RESCSR_H	= one if the value of responsible CSR performance is greater than median and zero otherwise;
IRRESCSR_H	= one if the value of irresponsible CSR performance is greater than median and zero otherwise;
ΔRES_CSR	= RES_CSR in year t - RES_CSR in year t-1;
ΔIRRES_CSR	= IRRES_CSR in year t - IRRES_CSR in year t-1;
ΔOBKLG	= OBKLG in year t - OBKLG in year t-1;
ΔSIZE	= SIZE in year t - SIZE in year t-1;
ΔLEV	= LEV in year t - LEV in year t-1;
ΔMTB	= MTB in year t - MTB in year t-1;
ΔROA	= ROA in year t - ROA in year t-1;
ΔOCF	= OCF in year t - OCF in year t-1;
ΔFIRMAGE	= FIRMAGE in year t - FIRMAGE in year t-1;
ΔASSETAGE	= ASSETAGE in year t - ASSETAGE in year t-1;
ΔADV	= ADV in year t - ADV in year t-1;
ΔTOBINQ	= TOBINQ in year t - TOBINQ in year t-1;
ΔSALEGROWTH	= SALEGROWTH in year t - SALEGROWTH in year t-1;
ΔCGOV	= CGOV in year t - CGOV in year t-1;
ΔLOSS	= LOSS in year t - LOSS in year t-1;
COM_STR	= total strengths of the community component;
DIV_STR	= total strengths of the diversity component;
ENV_STR	= total strengths of the environment component;
EMP_STR	= total strengths of the employee relations component;
PRO_STR	= total strengths of the product component;
COM_CON	= total concerns of the community component;
DIV_CON	= total concerns of the diversity component;
ENV_CON	= total concerns of the environment component;
EMP_CON	= total concerns of the employee relations component;
PRO_CON	= total concerns of the product component.

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