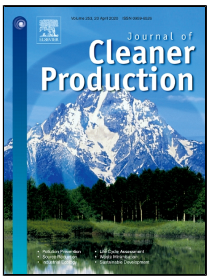

Does corporate integrity culture matter to corporate social responsibility? Evidence from China

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Does corporate integrity culture matter to corporate social responsibility? Evidence from China

Abstract: The purpose of this paper is to examine whether firms' embrace of an integrity culture will affect the performance of corporate social responsibility (CSR). Employing manually collected data on corporate culture and 5,149 firm-year observations in China from 2008 to 2016, our empirical study finds that corporate integrity culture has a strong positive effect on CSR performance, suggesting that an integrity-oriented corporate culture helps companies to bear CSR on their own initiative. We further find CEO duality leadership strengthens and analyst coverage attenuates the above relationship. This article is the first to explore the effect of corporate integrity culture on CSR behavior and validates the role of corporate culture as a crucial informal institution in guiding companies to uphold CSR. The empirical results also confirm the role of corporate culture in enhancing the social value of corporations. Our paper is helpful to broaden our understanding of the factors influencing CSR and provides a possible solution to the problem of CSR fulfillment.

Keywords: corporate culture, integrity, corporate social responsibility (CSR), China

1. Introduction

Modern global business determines corporations to become more aware than in the past of the importance of socially responsible business. Since enterprises are the basic economic units and play a central role in economic growth and social development, it is very meaningful and necessary for companies to be more socially responsible through the behaviors of giving back to society in different ways such as charitable donations, safety production, employment promotion, employee rights protections, product quality, environmental protection, resource conservation, etc. However, these responsible activities cannot be accomplished without the supports of honesty and integrity awareness embedded in the minds of firms' management and employees, as well as ethical corporate cultures.

As an important dimension of corporate culture, the significance of integrity to enterprises is self-evident. Prior studies show that integrity is vital to the survival and development of enterprises (e.g., Koehn, 2005; Erhard and Jensen, 2017; Jiang et al., 2019). For instance, a corporate culture of integrity can help companies attract investment (Denison and Mishra, 1995), reduce transaction costs (Gosling and Huang, 2009), enhance operating efficiency (Hsu, 2007), and thus improve corporate profitability and performance (Reichheld and Teal, 1996; Simons, 2002; Erhard and Jensen, 2017). Therefore, many enterprises regard "integrity" as an important part of their core values and inculcate it into corporate daily production and management activities through repeated publicity and advocacy, thus developing their own corporate culture. Murphy (1998) holds that "integrity", which is frequently mentioned in corporate values, plays a role of signal transmission to the outside world, conveying relevant information about corporate behavior modes and corporate ethics. However, in practice, do companies with a culture of integrity really act with integrity? After all, it is easy for any company to rhetorically claim that it has a culture of integrity with the objective of managing their public image and gaining the advertising effects of culture (Jiang et al, 2019; Guiso, et al., 2015). Firms may pay lip service on integrity culture, and may not necessarily implement it into actual action. Hence, upholding integrity as a corporate value does not mean the substantive behavior of integrity. This is an important academic issue that needs to be empirically tested. So far, there is no empirical study to resolve this issue. Since the company's integrity business practices are beneficial to its customers, suppliers, employees and other stakeholders, its social responsibility behavior can largely reflect whether the

corporate integrity culture is effectively implemented. Therefore, firms' CSR performance provides an ideal dimension for us to study the association between corporate integrity culture and corporate behavior. Toward that end, our paper attempts to investigate whether corporate integrity culture affects firms' CSR behavior from a functional perspective of organizational culture and then to enrich empirical studies concerning the impact of corporate culture on corporate behavior.

Corporate culture is a set of norms and values that are widely shared and strongly held throughout an organization (O'Reilly and Chatman, 1996). These norms and values constitute the ways in which people within a company interact with each other and with stakeholders outside the company (Schein, 1985). As the glue of society and norms, corporate culture can bind organizational members together and shape their attitudes and behaviors, thus affecting various corporate behaviors, such as engaging in CSR initiatives (Kucharska and Kowalczyk, 2019). Existing research states that the ethical commitments of firms play a significant part in motivating enterprises to fulfill CSR and realize their value creation (Wood, 1995). CSR, as an important activity in the management of relationships between a corporation and its inside and outside stakeholders (including employees, shareholders, creditors, suppliers, customers, governments, communities, etc.), is bound to be affected by the characteristics of corporate culture (Brickson, 2007). Among a variety of corporate values, integrity is the foremost and frequently mentioned element of firm culture (Guiso, et al., 2015). The corporate culture of integrity provides the stakeholders with stable and positive expectations for a firm's CSR engagement. For companies, integrity places more emphasis on the implementation of CSR under the public's legitimate interests. Without the support of integrity, firms are likely to unscrupulously obtain more profits and ignore societal expectations for their social responsibility and their own commitment to social responsibility. Conversely, managers in companies with integrity culture often instill the values of integrity into their companies and internalize it into corporate instincts so as to exert the role of integrity culture in guiding and constraining corporate behavior. Based on the above considerations, this article empirically investigates whether companies with integrity culture perform better in CSR than do their counterparts.

To carry out this study, we employ data from Chinese listed companies. China is the largest emerging and transitional economy and is still in the transition from a planned economy to a market economy. Currently, China's formal systems like laws

and regulations are incomplete, and law enforcement mechanisms are not strict. In recent years, Chinese enterprises have frequently been involved in food safety, product quality, environmental pollution, and other accidents, such as tainted milk powder incidents, fake vaccine incidents, Zijin mining pollution incidents, and so on, which are all manifestations of ignoring their social responsibilities. This series of events that lack basic CSR fully imply that the effect of relying solely on formal systems to promote CSR is quite limited. Especially in developing countries like China, the promulgation and implementation of formal institutions cannot keep up with the needs of social and economic development, and the existing laws and regulations have low illegal costs, which makes formal institutions often encounter problems of "no law to resort to" and "lax law enforcement" when regulating the behavior of enterprises (Ang et al., 2015; Allen et al., 2005). Thus, formal institutions cannot be a potent binding for a company to fulfill its social responsibility. In addition, the fulfillment of CSR driven by external forces often makes firms become passive responders, and CSR may even be regarded as a burden rather than internalized into corporate self-restraint. The transition from "heteronomy" to "self-discipline" and from "external compulsion" to "voluntary commitment" should be an ideal state for corporations to fulfill their social responsibilities. Formal institutions place more emphasis on external supervision and constraint, while informal institutions (mainly embodied in culture) emphasize internal self-discipline and consciousness (Scott, 2008). Given the difficulties formal institutions have in curbing irresponsible CSR behavior, we should turn our attention to informal systems like corporate culture to make enterprises assume social responsibility on their own initiative. In countries and regions where formal institutions are weak, informal institutions often play a more distinct part in affecting the various behaviors of market participants (Williamson, 2000; North, 2008; Ang et al., 2015). Hence, academics call for more attention to the impact of informal institutions such as culture and social norms on corporate behavior in transition economies (Grief, 1994; North, 2005). Based on the considerations above, China offers a good context for us to explore the influence of corporate culture, an informal institution representing corporate values, on corporate behavior.

This paper attempts to empirically study the effect of integrity-oriented corporate culture on CSR by adopting 5,149 firm-year observations of Chinese public corporations between 2008 and 2016 as a sample. Empirical results show that

companies with integrity culture tend to have superior CSR performance compared with other ones, suggesting that corporate integrity culture can positively affect CSR. This finding indicates that a corporate culture of integrity shapes the attitudes of organization members towards social responsibility, thereby motivating CSR behavior. In other words, a corporate culture of integrity encourages companies to act in more responsible ways. This result holds after conducting a battery of robustness tests. On this basis, this study further examines the moderating effects of CEO duality and analyst coverage on the association between corporate integrity culture and CSR, respectively. The results reveal that in companies with the CEO duality structure or less analyst coverage, integrity-oriented corporate culture plays a greater part in promoting CSR engagement.

Our paper makes the following contributions. First, our research enriches the literature on the impact of corporate culture on corporate behaviors. The existing studies concerning corporate culture mainly focus on its effect on firm performance (e.g., Denison, 1990； Gordon and DiTo‐maso, 1992； Burt et al., 1994; Denison and Mishra, 1995; Reichheld and Teal, 1996; Sørensen, 2002; Erhard and Jensen, 2017), but little attention is paid to the relationship between corporate culture and corporate behavior. Thence, research on corporate culture in explaining firms' decision-making and behavior is a new and developing domain. This article empirically examines the impact of corporate integrity culture on CSR behavior from a new perspective, thus providing valuable empirical evidence for the research on corporate culture and corporate behavior. Second, this paper also provides a new direction for related research on the contributing factors of CSR. Extant literature has explored the influencing factors of CSR from multiple aspects, such as legal systems (e.g., Ioannou and Serafeim, 2012; Williams and Aguilera, 2008), national-level cultural systems (Matten and Moon, 2008; García-Sánchez et al., 2016), media coverage (Reverte, 2009), analyst following (Adhikari, 2016), corporate trade union system (Sacconi, 2006), independent director system, and director characteristics (Katmon et al., 2017; García-Sánchez and Martínez-Ferrero, 2017; Seto-Pamies, 2015; McGuinness et al., 2017; Pucheta-Martínez and López-Zamora, 2018). However, most previous studies have emphasized the influence of social or corporate formal institutions as well as social cultural systems on CSR, while no research that we are aware of explores the impact that corporate culture can have on CSR behavior. Our paper studies CSR from the perspective of corporate culture, an important informal institution rooted within

the organization, thereby enriching the literature in the field of CSR. Third, the theoretical contribution of this article is to point out the limitation of institutional theory that lacks internal perspectives. Existing studies have ignored the internal institutional drivers of firms' social responsibility behavior. Our study sheds light on how internal institutional mechanisms such as corporate culture of integrity affect firms' CSR practices and hence may make contributions to neo-institutional theory. Based on this, we call on researchers to attach more importance on the intra-organizational institutional factors of CSR. Fourth, our paper further investigates under what circumstances the role of integrity-oriented corporate culture in motivating CSR is stronger or weaker by examining the moderating effects of CEO duality and analyst coverage on the relationship between corporate integrity culture and CSR. Finally, the research conclusion of this paper has important policy implications. That is, to improve the level of firms' CSR, regulators in emerging markets should not only pay attention to the construction of formal institutions but also attach more importance to the cultivation of informal institutions including corporate culture.

The remainder of this article is arranged as follows. The next section elaborates the theoretical foundation of this article. The third section represents literature and research hypothesis. The fourth section describes the data, empirical model, and variables. The regression results, empirical analysis, and robustness tests are presented in Section 5. Section 6 makes additional analysis. Lastly, we conclude this paper and point out the implications in Section 7.

2. Theoretical Foundation

Neo-institutional theory lays the theoretical foundation for this article. Neo-institutional theory holds that institutional environment can affect corporate behaviors, and its impact is even greater than market forces. North (1990) contends that institutions consist of formal institutions, informal institutions and their implementation mechanisms. He also believes that formal institutions only account for a small part of the overall constraints on people's behavioral choices, while most of the space for people's behavioral choices depends on informal institutional constraints (North, 1990). Formal institutions refer to a series of policies, laws and regulations, which need to be implemented by the coercive force of state organs and authoritative departments. Informal institutions mainly include cultural traditions, values, ideologies, customs, ethics, and religious beliefs that are shared in a group.

Informal institutions do not rely on enforcement by regulatory agencies, but rather on people's conscious and voluntary compliance, and on moral binding forces. Institutional theory focuses on how institutions promote and constrain individual or organizational behaviour (Campbell, 2007). Meanwhile, institutional theory provides valuable insights into the process of defining and explaining the institutionalization of organizational environments and its impact on the adoption of homogeneous behaviors by organizations (Yin, 2017). A major contribution of neo-institutionalism is to integrate the separation between organizations and cultures, and to understand culture as a common value and attitude held by organizations (DiMaggio and Powell, 1991). Culture provides a frame of reference for behaviour and guides the behavior of organizational members (O'Reilly and Chatman, 1996).

A growing body of literature has revealed the mechanisms and processes by which formal and informal institutions exert impacts on CSR practices (e.g., Campbell, 2007; Matten and Moon, 2008). However, previous literature mainly focuses on the influence of formal institutions on CSR, while much less on the role of informal institutions (Su, 2019). A recent review article on CSR states that informal institutions play a critical role in affecting CSR actions, particularly in developing countries (Jamali et al., 2017). As far as China's institutional background is concerned, due to the influence of Confucian traditional culture for a long time, China has always been a country emphasizing informal institutions and also an emerging market country with inadequate legal system formulation and implementation. In this case, informal institutions may occupy a more important position and play a more prominent role in influencing corporate behavior (Chen et al., 2013; Du et al, 2016). In the research on the cultural drivers of CSR, scholars mainly focus on the effect of social cultural environment outside the company, but rarely on the intra-organizational cultural contexts (Waldman and Siegel, 2008). This research limitation is being criticized because it oversimplifies the assumption about the homogeneity of corporate behavior (Crilly et al., 2012). In fact, under the same external environment, inter-organizational behavior will show great discrepancies, such as CSR behavior (Athanasopoulou and Selsky, 2015; Yin, 2017). This difference may come from internal institutional dynamics of companies, which affect both the commitments and actions for companies' CSR practices. Existing literature has also found that in emerging economies such as China, institutional mechanisms within firms seem to better explain and predict CSR performance (Yin, 2017). Accordingly, in response to the

call for paying more attention to the role of internal institutional forces in shaping CSR behavior (Yin, 2017; Crilly et al., 2012; Angus-Leppan et al., 2010), we apply institutional theory to explore the effect of corporate integrity culture in regard to CSR.

3. Literature and Hypothesis Development

As an informal institution, culture has a wide and profound influence on people's minds, behaviors, and various economic activities. Corporate culture serves as a prevalent social control system that operates in an organization, which is an important supplement to the function of formal control systems, such as corporate governance mechanisms, standard operating procedures, performance appraisal, and attendance systems (O'Reilly and Chatman, 1996; Jiang et al., 2019). This social control system operating within organizations tends to play a more fundamental, more extensive, and more powerful role in modern enterprises than do conventional formal control systems (Kreps, 1990). Corporate culture as a social control system within corporations is based on shared values and norms, which set expectations with regard to appropriate attitudes and behaviors for corporate members and hence provide values and codes of conduct for members to follow (O'Reilly, 1989). Corporate culture, as the convergence of values and codes of conduct generally accepted by people in an enterprise, is usually embodied in the core business philosophy, corporate values, and corporate spirit. It is often embedded in the minds and actions of members at all levels of firms and has the function of guiding and constraining the behaviors of individuals in organizations (O'Reilly and Chatman, 1996).

Although corporate culture has many aspects, one of the most frequently mentioned and most important is the culture of integrity (Kreps, 1990; Guiso et al., 2015). As an informal system outside formal institutions such as legal and economic institutions, the culture of integrity exerts a subtle influence on the behaviors of firm managers and employees by virtue of trust, social norms, high moral standards, and other elements contained in integrity culture (Putman, 1993; Schein, 1985). Hence, a corporate culture of integrity can guide the attitudes and behaviors of corporate members. A large number of studies show that a strong corporate culture can guide organizational members to make decisions and conduct business activities in accordance with the requirements of corporate culture (Kotter and Heskitt, 1992; Hodgson, 1996; Farh et al., 2007). Thus, integrity values in corporate culture can intrinsically affect and guide the behaviors of managers and then be internalized into

their value system. Specifically, executives in firms that value integrity generally comply with the principles of honesty and trustworthiness in production and operation activities, such as adhering to compliance and integrity management, ensuring the quality of products and information disclosure, caring for their employees and the larger community, and ultimately maintaining and improving the well-being of the whole community. These practices enable the company to maintain a healthy and harmonious relationship with various stakeholders, which reflects the outcome of firms' CSR fulfillment. Prior research has found that in companies with integrity-oriented cultures, managers typically have a long-term vision and keep harmonious coexistence with stakeholders (Koehn, 2005). Moreover, firms that practice a culture of integrity often have high ethical standards for their own behavior, and they will consider it as a sign of their high moral standards to take responsibility for others or society, which spurs them to think more about the interests of stakeholders in the business process. As a result, they will consciously resist those behaviors that do not meet their ethical standards, such as ignoring employee safety, selling fake and inferior products, disclosing false information, and polluting the environment. As Guiso et al. (2015) points out, an integrity-oriented corporate culture contributes to alleviate moral hazard problems inside and outside firms. Hence, firms are more likely to behave in socially responsible ways if there is a strong corporate integrity culture in place to ensure such behavior.

The culture of integrity can also produce a constraint function, which is mainly manifest in the formation of a mutual supervision atmosphere within the company under a shared value system, thus creating an invisible constraint on corporate behavior (O'Reilly and Chatman, 1996; O'Reilly, 1989). According to social norm theory, each social group has its espoused values and accepted behavioral norms which all members follow. If we share a common set of values and norms with the people we work with, we are under their control whenever we are in their presence (Guiso et al., 2015). Individuals who violate these common values and norms will be excluded or even removed from the group (Elster, 1989). As a kind of internal values and norms, corporate integrity culture lays the foundation and points out the direction for social control within an organization. An integrity-oriented corporate culture sends the signal that a company is willing to respect the interests of others and undertake its social responsibilities (Jiang et al., 2019). Therefore, once corporate managers make irresponsible decisions and behave in ways that violate integrity, they will be

ostracized and sanctioned by other members. Additionally, integrity-oriented companies are more likely to be concerned and monitored by the public, peers, and other partners (Guiso et al., 2015). These external stakeholders also set high expectations about appropriate behaviors for integrity-oriented firms. It is difficult for an organization to act against the expectations of society; otherwise, it will be boycotted by stakeholder groups and condemned by public opinion (Chen and Wan, 2019), and thus lose its established reputation for integrity. Consequently, to satisfy the expectations of internal and external stakeholders, the company will act in accordance with the norms of integrity, which in turn promote its CSR fulfillment. Based on the above discussion, we expect that compared with companies without integrity culture, companies with integrity culture are more likely to engage in CSR. This leads to the hypothesis of this paper:

H1: Ceteris paribus, companies with a culture of integrity tend to perform better in CSR.

4. Research Design

4.1 Sample selection and data sources

Our initial sample consists of all Chinese A-share listed companies, covering the period 2008–2016. Drawing from existing research practices, the initial sample is screened and processed as follows: (1) removing financial and insurance firms due to different regulatory environments; (2) excluding the observations with missing CSR variable and other control variables. After the above sample screening procedures, we obtain the final sample size of 5,149. We have winsorized all continuous variables at 1% and 99% levels to alleviate the influence of extreme values. The data of corporate culture is collected manually through four channels: official corporate websites, corporate annual reports, corporate internal control self-evaluation reports, and CSR reports. The CSR data comes from the RKS (Rankins CSR Ratings) database that is the independent CSR rating agency. Other data is obtained from the CSMAR database that scholars use extensively to study issues related to Chinese listed companies.

4.2 Measurement of corporate integrity culture

Identifying and measuring corporate culture and integrity is not easy work. To solve this problem, we adopt a textual analysis method to more comprehensively capture the values of integrity in corporate culture. Textual analysis has been considered to be more effective to identify cultural elements at the organizational

level (Balvers et al., 2016; Dhanani and Connolly, 2015; Scheiber, 2015). Relying on the textual analysis method, this paper starts with the main channels of corporate culture communication, collects information relevant to corporate culture by hand, and finally identifies those enterprises with integrity culture orientation. The specific steps are as follows:

First, we identify the extended vocabulary related to "integrity". According to the existing literature (Guiso et al., 2015; Gosling and Huang, 2009; Jiang et al., 2019), integrity is described as the quality of being honest and having strong moral principles and is also regarded as moral uprightness. We collect words and phrases related to "integrity". For example, when we retrieve any of the words and phrases "integrity, honesty, trustworthiness, sincerity, ethics, credibility, consistency in word and action, keeping your word" from listed companies' public documents, we consider that the companies have integrity-oriented cultures.

Next, we determine the search scope of "integrity". Corporate culture is often disseminated through a company's official website, corporate annual reports, corporate internal control self-evaluation reports, and CSR reports. Therefore, we start from these four channels to retrieve relevant information regarding corporate culture. Then we use the keyword search method to determine whether a company has a culture of integrity. As long as we can obtain cultural information about integrity from any channel, we think that the company has an integrity culture. We treat *Integrity* as the dummy variable of corporate integrity culture. If a company has an integrity-oriented corporate culture during the year, then *Integrity* takes 1; otherwise, it takes 0. Note that our measure of *Integrity* captures corporate intention of a "culture of integrity" but not the *de facto* exercise of culture within the company. We intend to detect the actual implementation of corporate integrity culture through the lens of CSR performance.

4.3 Measurement of CSR

Following previous literature (Marquis and Qian, 2014; Lau et al., 2016; McGuinness et al., 2017; Huang et al., 2017; Pan et al., 2018), this paper uses the rating results of social responsibility reports for listed companies released by the RKS database, which is an independent and professional CSR rating agency, to measure firms' CSR performance. The rating results reflect the fulfillment and disclosure of CSR. The whole rating system evaluates CSR performance on the basis of the four dimension indexes macrocosm, content, technology, and industry, then assigns

different weights to the scores of the four dimension indexes to calculate the total CSR score. This CSR score comprehensively reflects how a company performs in CSR in a certain year. The higher the value, the better the CSR performance.

4.4 Models

We employ the multivariate regression model (1) to test hypothesis H1 and estimate the effect of corporate integrity culture on CSR performance. We mainly focus on the sign of β_1 in model (1). If the sign of β_1 is positive, the regression result will support hypothesis H1.

$$CSR = \beta_0 + \beta_1 Integrity + \beta_2 Size + \beta_3 ROA + \beta_4 MB + \beta_5 Lev + \beta_6 Age + \beta_7 Coverage + \beta_8 Indep + \beta_9 Duality + \beta_{10} SOE + \beta_{11} Inst + Industry + Year + \varepsilon \quad (1)$$

In the above model (1), the dependent variable *CSR* represents a company's overall CSR performance level, and the main explanatory variable *Integrity* represents the dummy variable of whether a company has integrity culture or not. Following the existing literature (Harjoto et al., 2015; Yasser et al., 2017; Su, 2019; Chen and Wan, 2019; García-Sánchez et al., 2019), our model also contains essential control variables that can potentially affect CSR. Specifically, these control variables include firm size (*Size*), corporate financial performance (*ROA*), firm growth (*MB*, measured as market-to-book ratio), corporate financial leverage (*Lev*), firm age (*Age*), analyst coverage (*Coverage*), the proportion of independent directors on the board of directors (*Indep*), duality of chairman and CEO (*Duality*), corporate ownership types (*SOE*), and institutional ownership (*Inst*). Meanwhile, the regression model also includes industry and annual control variables. The detailed definition and measurement methods of variables are shown in Table 1.

5. Empirical Results and Analysis

5.1. Descriptive Statistics

Panel A of Table 2 presents the descriptive statistics of the variables for the whole sample. As presented in Panel A, the mean and median values of *CSR* are 3.618 and 3.588, respectively, whereas 5% and 95% levels of *CSR* are 3.139 and 4.205, respectively, which means that CSR performance among the sampled firms is generally not good enough and that there is much heterogeneity in the CSR performance among our sampled firms, leaving a lot of room for CSR amelioration. For the independent variable *Integrity*, its mean is 0.326, indicating that only 32.6%

of the sampled companies have a culture of integrity. Moreover, the mean value and standard deviation of *Coverage* is 2.111 and 1.066, respectively, which means there is a great variation in the number of analysts following the sampled companies. The mean value of *Duality* is 0.148, which shows that in approximately 15% of the sampled companies, the CEOs also serve as the chairmen.

Further, we partition the sample according to whether the firm has a culture of integrity so as to preliminarily observe the differences on means of variables between integrity companies and non-integrity companies. The results of univariate tests on means are shown in Panel B of Table 2. As shown in Panel B, there are statistical differences in CSR scores between integrity and non-integrity companies, initially confirming that compared with companies without integrity culture, companies with integrity culture perform relatively better in CSR. Moreover, there are significant differences in many firm characteristics between the two subsamples, such as *Size, MB, Lev*,and *Coverage*, which suggests that controlling for these variables in our model is essential.

5.2. Correlation Analysis

Table 3 reports the Pearson correlation coefficients among the variables. The result in Table 3 shows that the correlation coefficient between *Integrity* and *CSR* is significantly positive at the 1% level, which provides preliminary evidence that corporate integrity culture is positively related to a firm's CSR performance, consistent with hypothesis H1. All the correlation coefficients among independent variables are below 0.581, indicating that multicollinearity doesn't constitute a concern for us in the regression model since Gujarati (2009) holds that a model may not have severe multicollinearity concerns if correlation coefficients between independent variables are not greater than 0.8. Above are the results of univariate correlation analysis, and further rigorous empirical evidence will be presented in the multivariate regression analysis below.

5.3 Multivariate Regression Results

Table 4 demonstrates the multivariate regression results of the effect of corporate integrity culture on CSR. In Column (1), without controlling for corporate governance variables, we observe there is a significantly positive coefficient on the *Integrity* variable (0.021, t = 2.925). This positive relation is in line with our expectation for H1, which implies that integrity-oriented firm culture leads to superior corporate

social performance. Given that the existing literature has found the impact of corporate governance factors on CSR, we select several representative corporate governance variables as control variables, including analyst coverage (*Coverage*), the proportion of independent directors on the board of directors (*Indep*), CEO duality (*Duality*), corporate ownership types (*SOE*), and institutional ownership (*Inst*). Column (2) of Table 4 reports the regression result after controlling for corporate governance variables. Likewise, there is still a significantly positive coefficient on the *Integrity* variable (0.019, t = 2.588), and this positive relation of corporate integrity culture to CSR strongly reveals that companies with a culture of integrity do indeed perform better in terms of social responsibility than other ones. Hence, an integrity-focused culture plays a vital role in promoting CSR engagement. Our results suggest that corporate integrity culture can guide corporations to attend to business ethics such as honest operation, fair trade, and consideration of the needs and interests of various stakeholders, thus promoting the proactive fulfilment of CSR. Therefore, hypothesis H1 is empirically supported.

Additionally, the regression results of the control variables in model (1) are basically in accord with our expectations. The larger the company, the better the CSR performance, consistent with the findings of McGuinness et al. (2017) and Yang et al. (2017). The higher the market-to-book ratio (*MB*), the faster the company grows and pays more attention to its social responsibility, which is in line with Liao et al. (2018). The regression coefficient on *Lev* is significantly negative, meaning that financially weak companies tend to be less concerned about their social responsibilities, which is in keeping with McGuinness et al.'s (2017) finding. The regression coefficient on *Coverage* is significantly positive, which indicates that companies with more analyst coverage perform better in CSR. The regression coefficient on *SOE* is positive and significant, suggesting that state-owned companies fulfill CSR better than non-state-owned ones, and this finding coincides with that stated by Su (2019). The effects of other control variables are statistically insignificant.

5.4 Robustness tests

5.4.1 Law enforcement and social trust

Furthermore, we control for the effects of law enforcement and social trust levels within regions, both of which may affect the CSR behaviors of local companies. First, it has been found that the law enforcement level of a region can have a noteworthy impact on local firms' CSR performance (Matten and Moon, 2008; Du et al., 2016).

Besides, the enforcement of laws varies greatly among Chinese provinces (Wang et al., 2008; Du et al., 2016). Drawing on existing research (e.g., Du et al., 2016), we also employ Fan et al.'s (2011) legal environment index to measure the level of regional law enforcement. Column (1) of Table 5 shows the regression results after controlling for law enforcement, and the positive association between explanatory variable *Integrity* and CSR remains significant. Second, previous literature has found that the social trust level of a region can affect local firms' CSR engagement (Chen and Wan, 2019), and hence, this article also controls for the impact of social trust levels. Referring to the survey data of Zhang and Ke (2002) on the social trust levels of Chinese provinces, we add the social trust variable to model (1), and the regression results are shown in column (2), from which we can see that our conclusion on the relation between corporate integrity culture and CSR is still valid. Column (3) shows the regression results after controlling for both law enforcement and social trust levels, and the results suggest the promoting effect of integrity culture on CSR behavior is still salient. Overall, the law enforcement and social trust levels of firms' locales do not affect our contention about the impact of corporate culture on CSR.

5.4.2 Alternative CSR measurement

We use CSR_KLD as our alternative CSR measurement. CSR_KLD is obtained from the Chinese Corporate Social Responsibilities Database (CCSR). CCSR aims to provide scientific researchers with CSR data of Chinese listed companies. The design of this database is mainly based on the pattern of KLD STATS, and has been fine-tuned by integrating the specific contents involved in CSR in China. The database uses 58 subdivisions to measure CSR from the perspectives of "strengths" and "concerns" in six areas including: "philanthropy", "volunteer activity and social controversy", "corporate governance", "diversity", "employee relations", "environment" and "products". Most subdivisions of CCSR are dummy variables, which intuitively express the characteristics of different dimensions of CSR. For example, Kong et al. (2019) use the "environment" index to evaluate the environment protection performance of companies listed in China and examine the association between business strategy and environmental protection.

The regression result of using alternative CSR measurement is reported in Table 6. The coefficient of *Integrity* is 0.040 (t=4.351), and is significantly positively associated with CSR_KLD, which is the same as our result in Table 4.

5.5 Endogeneity

5.5.1 2SLS with instrumental variables

The relationship between integrity culture and CSR may be interfered by the potential endogenous problem. Our paper may omit the variables that might determine integrity culture and CSR simultaneously, and may also face reverse causality between integrity culture and CSR. Furthermore, our focal explanation variable integrity culture may be endogenous. Hence, to alleviate the potential endogeneity concern, following Jiang et al. (2019), we employ the industry–year average value of integrity culture (denoted *Integrity_Industry*) and the province-year average value of integrity culture (denoted *Integrity_Province*) as instrumental variables of corporate integrity culture, and run a 2SLS regression. Firms running in industries where the majorities own a culture of integrity are more likely to develop an integrity culture as they may consider that integrity culture is essential to establish competitiveness in business. In the same way, firms located in regions where most of their neighbors have an integrity culture are more likely to form a culture of integrity as they may regard integrity as the local social norm, and non-compliance may damage their reputation. Both of the instrumental variables are probably related to developing an integrity culture, but the integrity culture of a focal firm can hardly affect the industry–year average value of integrity culture and the province–year average value of integrity culture (Jiang et al., 2019).

The 2SLS regression results are presented in Table 7. As shown in the first column of Table 7, the first stage regression result shows that both instrumental variables *Integrity_Industry* and *Integrity_Province* are significantly associated with corporate integrity culture, accompanying with significant coefficients for *Integrity_Industry* (0.928, P<0.01) and *Integrity_Province* (0.972, P<0.01) respectively. The second column of Table 7 presents the second stage regression result, and the instrumented *Integrity* has a positive and significant relationship with CSR performance at the 1% statistical level (t=3.195), and the relation between integrity culture and CSR remains, which confirms our hypothesis.

5.5.2 Self-selection bias

The relationship between integrity culture and CSR may be interfered by the endogenous problem caused by self-selection bias. Namely, it may not be a random result for a firm adopting an integrity culture or not, and hence, firms that adopt an integrity culture may be endogenous. We use the Heckman two-stage regression

model to alleviate this self-selection concern.

We first use a probit model to estimate the probability of firms that adopt an integrity culture. The probit model includes the instrumental variables *Integrity_Industry*, *Integrity_Province*, *and* variables controlled in model (1). Using the resulting fitted values from the first stage regression, we calculate the inverse Mills ratio λ and then bring the inverse Mills ratio λ into the main regression model (1). As represented in the second column of Table 8, the coefficient of inverse Mills ratio λ is significant ($p<0.01$). Consistent with our hypothesis, the coefficient on *Integrity* is 0.028, and it is significant at the 1% statistical level (t=2.823), which suggests that the positive impact of a company's culture of integrity on its CSR actions continues to stay intact after addressing the self-selection bias.

5.5.3 PSM methodology

Rosenbaum and Rubin (1983) propose that the propensity score matching (PSM) methodology could also be utilized to alleviate the selection bias. In addition, it is possible that our linear model may pick up nonlinear effects if the model does not adequately account for the differences in firm characteristics between two groups of firms. To relieve the potential endogeneity concern arising from this problem and sample selection bias, we use a PSM approach to construct a matched sample. To conduct PSM approach, we use a probit model to estimate the probability of firms that adopt an integrity culture, and the probit model includes the prior instrument variables and other variables controlled in model (1). By using the propensity score estimated by the probit model, we match each observation with an integrity culture to an observation without an integrity culture. We regress our previous model (1) using the matched sample, and the result presented in Table 9 shows the coefficient of Integrity is still significant at the 1% statistical level (t=2.994), which suggests that a firm with a culture of integrity behave more morally and thus achieve better CSR performance.

6. Additional Analyses

6.1. The moderating effect of CEO duality

To make corporate culture effectively perform its guiding and constraining functions within a firm, it is first necessary for the firm to have a strong and authoritative leader to constantly inculcate the values and norms of corporate culture to organizational members and internalize them into the instinct of the firm so that these values and norms can affect the decision-making and behavior of corporate

members (Steen, 2010). Therefore, when the chief executive officer (CEO) of a company is also the board chairman (i.e., CEO duality), it means that there is a clear-cut leadership structure and a clear line of authority in this company (Anderson and Anthony, 1986). Existing literature states that CEO duality can decrease the conflicts of business philosophy and values between CEOs and non-CEO chairpersons and shorten the time from the proposal of corporate strategy and policies to their implementation, thereby improving decision-making and execution efficiency (Finkelstein and D'Aveni, 1994; Donaldson and Davis, 1991). Therefore, in a company with CEO duality, the corporate leader who occupies the two key positions of board chairman and CEO has great power and authority to advance the corporate culture he advocates, especially for a culture of integrity. The chairman of the board who wears two hats often has a longer-term vision and also personally participates in business management activities, which makes him more aware of the potential value of integrity. As a result, he will attach great importance to the cultivation of integrity culture and constantly internalize this culture into the firm and thus form the inherent trait of the company so as to give full play to its guidance and constraint functions on corporate behavior (Verhezen, 2008). Based on the above analysis, it is expected that an integrity-oriented firm culture will play a more salient role in promoting the fulfillment of CSR for companies with unified leadership structures (i.e., CEO duality structures) than for companies with separated leadership structures. Therefore, we propose that the effect of corporate integrity culture on CSR behavior is more pronounced for companies with CEO duality leadership.

In order to verify the above expectation, we first conduct grouped regression by sub-grouping the full sample into a CEO duality subsample and a Non-duality subsample. The first two columns in Table 10 present subgroup regression results. For the combined leadership structure (i.e., CEO duality) subsample, the correlation between corporate integrity culture and CSR remains significantly positive, whereas such an association becomes insignificant for the Non-duality subsample. Moreover, to further validate the moderating effect of CEO duality on the relationship between corporate integrity culture and CSR, this article inducts the interaction item between *Integrity* and *Duality* (*Integrity*×*Duality*) into model (1) and formulates model (2).

$$CSR = \beta_0 + \beta_1 Integrity + \beta_2 Integrity \times Duality + \beta_3 Size + \beta_4 ROA + \beta_5 MB + \beta_6 Lev + \beta_7 Age + \beta_8 Coverage + \beta_9 Indep + \beta_{10} Duality + \beta_{11} SOE + \beta_{12} Inst + Industry + Year + \varepsilon \quad (2)$$

The regression results are listed in Column (3) of Table 10. The estimated

coefficient on the interaction item (*Integrity*×*Duality*) is positive at the 1% significance level, indicating that CEO duality leadership structure reinforces the role of corporate integrity culture in improving CSR, and thus such a strong effect is exhibited in companies with CEO duality. By and large, these results provide potent evidence that the relationship between corporate integrity culture and CSR is more pronounced in companies with CEO duality leadership. This evidence also suggests firm leaders' attention and strong propelling are the prerequisite for corporate culture to play its substantive effect within the corporation. Only when the corporate culture is truly internalized into the personal values and qualities of firm members can it have an impact on corporate behavior.

6.2. The moderating effect of analyst coverage

CSR is also affected by external monitoring mechanisms. As a critical external supervisory force, securities analysts have been widely recognized for their governance role in listed companies. In this section, we examine the moderating effect of analyst coverage on the relationship between corporate integrity culture and CSR performance. More analysts' coverage and following for listed companies tend to exert greater social pressure on managers. To some extent, such pressure will inhibit managers from managing earnings and manipulating information disclosures and urge managers to improve information transparency so as to provide more timely and reliable information to concerned stakeholders (Irani and Oesch, 2013; Yu, 2008). Conversely, previous literature also finds that a decrease in analysts' coverage for companies aggravates agency problems, of which an increase in earnings management behavior is the main manifestation (Chen et al., 2015). Consequently, analyst coverage can act as an effective external governance mechanism to constrain managers' irresponsible, opportunistic behaviors and thus promote firms followed by analysts to better fulfill their social responsibilities, which is supported by Jo and Harjoto (2014).

Moreover, we contend that analysts' coverage is conducive to the accumulation of a company's reputation capital by disseminating information with regard to CSR activities, which will, in turn, encourage the firm to carry out more activities that are beneficial to society to gain more reputation effects. The information intermediary role of securities analysts makes the company's social responsibility activities easier for external stakeholders to know (Dhaliwal et al., 2012; Zhang et al., 2015). By collecting and analyzing a company's financial information or non-financial

information including CSR-related information, analysts release analysis reports on the company and convey their views and judgments on the company's development to the market, which enables stakeholder groups to have in-depth knowledge of the firm's operating conditions and social responsibility performance (Dhaliwal, et al., 2012). When stakeholders perceive the company's superior performance of social responsibility, it will be given a good evaluation, and its reputation capital can be built (Brammer and Millington, 2005). And reputation is a vital factor for the success of firms (Fombrun and Shanley, 1990; Fombrun, 1996). Hence, under the incentive of reputation effects, the company will increase its efforts in social responsibility actions to secure more reputation capital. Overall, the analysts' role as information mediums promotes the companies followed by analysts to engage more in socially responsible activities.

Taken together, more analyst coverage has a positive impact on firms' CSR performance, which may make the promotion effect of internal integrity culture on CSR less salient. In other words, analyst coverage attenuates the positive influence of corporate integrity culture on CSR. Accordingly, we posit that the positive relation between corporate integrity culture and CSR performance is less pronounced in companies with greater analyst coverage. To confirm this expectation, we first divide the entire sample into two groups according to the number of analysts following the company. Specifically, when the number of analysts following a given firm exceeds the median number of analysts following each company within the industry in each year, this company falls into the High Coverage group; otherwise, it falls into the Low Coverage group. Columns (1) and (2) of Table 11 show the results of the grouped regression respectively. From these results, we can see that the significantly positive association between integrity culture and CSR exists only in the Low Coverage subsample, while this relation becomes less significant in the High Coverage subsample, which confirms the substitutive role of external analyst coverage and internal integrity-oriented culture in improving the company's CSR behavior. In order to further verify the moderating role of analyst coverage, we also introduce an interaction item (*Integrity*×*HCoverage*) in model (3). *HCoverage* is a dummy variable that is equal to 1 if the number of analysts following a given company is greater than or equal to the median number of analysts following all companies within the industry in each year and 0 otherwise. In column (3), there is a negative and significant coefficient on *Integrity*×*HCoverage* at the 5% level, providing further support for the

moderating effect of analyst coverage on the positive relationship between corporate integrity culture and CSR.

$$CSR = \beta_0 + \beta_1 Integrity + \beta_2\ Integrity \times HCoverage + \beta_3 Size + \beta_4 ROA + \beta_5 MB + \beta_6 Lev + \beta_7 Age + \beta_8 Coverage + \beta_9 Indep + \beta_{10} Duality + \beta_{11}\ SOE + \beta_{12} Inst + Industry + Year + \varepsilon \quad (3)$$

7. Conclusion and Implications

The CSR literature has long been exploring both inside and outside factors affecting companies' CSR performance. Notwithstanding, there is a lot we still need to know about the determinants of CSR. For instance, while there is a large body of literature concerning formal institutions and CSR, such as focusing on the impact of internal corporate governance mechanisms and external regulatory systems of laws and regulations (e.g., Fuente et al., 2017; García-Sánchez and Martínez-Ferrero, 2017; Pucheta-Martínez and López-Zamora, 2018; Campbell, 2007; Ioannou and Serafeim, 2012; Ali and Frynas, 2018), the influence of informal institutions such as corporate culture on CSR remains to be explored. As an important informal institution within an enterprise, whether corporate culture can affect corporate social behaviors is an issue that needs empirical test. To fill this research gap, we choose the perspective of corporate integrity culture, the core of many dimensions of corporate culture, to examine the impact of firm culture on CSR behavior.

We study corporate integrity culture because it affects how companies interact with their stakeholders. Existing literature suggests that corporate culture can guide and constrain corporate behavior (O'Reilly and Chatman, 1996). Therefore, we argue that an integrity-oriented corporate culture can lead firm management to engage in responsible social behaviors that safeguard the interests of various stakeholders and, on the other hand, can constrain management from behaving in irresponsible ways against the interests of stakeholders. Based on institutional theory and the functional view of organizational culture, we explore whether the cultural values of integrity espoused by firms can play a part in motivating them to actively fulfill CSR. Using data from Chinese public companies, we find that companies having integrity culture tend to exhibit better CSR compared with other ones, which indicates that companies with a culture of integrity are indeed more honest and socially responsible. This is because integrity-oriented corporate culture can positively guide and shape the attitudes and behaviors of corporate members towards their social responsibilities and thus lead firms to undertake more social responsibilities, which is in line with our

theoretical expectations. The result remains robust after using two-stage least square with instrumental variables approach, Heckman two-stage selection model, and propensity score matching (PSM) methodology to assuage the potential endogeneity concern. Our finding indicates that ethical corporate culture is the fundamental internal driving force of CSR behavior, and reveals the influence of internal informal institution on corporate social behavior, thereby adding new evidence to the institutional perspective research of CSR. Moreover, this paper lends empirical support to the functional view of corporate culture proposed by O'Reilly and Chatman (1996).

Furthermore, we also address the moderating effects of corporate leadership structure (i.e., CEO duality) and external analyst coverage on the positive association between firm integrity culture and CSR behavior. Empirical results show that while CEO duality leadership strengthens the above relationship, analyst coverage attenuates the relationship. This paper reveals that corporate cultural values consistent with stakeholders' expectations have a prominent effect on a firm's CSR behavior. This also confirms the role of corporate culture in enhancing the social value of corporations beyond its role in improving corporate performance. Hence, we should be fully aware that corporate integrity culture not only has an inherent value for corporate economic performance, but also enhances the external social value of corporations. Admittedly speaking, a decoupling phenomenon, that is, the company's symbolic slogan of integrity culture rather than substantive implementation, is sometimes observed. In other words, for some companies, the corporate culture of integrity tends to be formalistic, and even they act against it. However, once such behavior is exposed, such companies will be severely punished. With the improvement of the punishment mechanism, it is believed that this type of false integrity will become decreasing.

Our research has important implications for firms, regulators, and market participants. For the firm itself, managers should realize that developing a culture of integrity is not only of great significance for the firm's survival and development, but also can urge it to better assume responsibilities for all stakeholders so as to achieve a win-win outcome. This study provides insights into how managers can leverage informal institutions to cope with the challenges of meeting profit needs while maintaining their social responsibilities. For regulators, our results imply that integrity-oriented cultures motivate firms to place more emphasis on their social

responsibilities. Accordingly, in promoting enterprises to fulfill their social responsibilities, regulatory authorities should not only consummate laws and regulations to play the role of formal systems in supervising CSR fulfillment but also encourage firms to strengthen the construction of integrity culture so that firms can take the initiative to shoulder social responsibility. For market participants, our results help customers and suppliers identify good partners because companies with a culture of integrity are more inclined to look to and consider the needs and interests of stakeholders. Similarly, corporate culture is also an important reference for investors and creditors to make informed investment or lending decisions.

TABLE 1

Variable definitions

Variable Names	Variable Definitions
Integrity	A binary variable. If a firm has integrity-oriented corporate culture, then we assign 1 to *Integrity* and 0 otherwise.
CSR	*CSR* is the natural logarithm of the CSR rating score derived from RKS database.
Size	*Size* is calculated as the natural logarithm of the firm's total assets.
MB	*MB* stands for market-to-book value, measured by the ratio of a company's market value divided by its book value, and the greater the value of MB means the higher the growth of the company.
Lev	*Lev* is measured by a company's total liabilities divided by its total assets.
ROA	*ROA* is measured by a company's net profit divided by its total assets.
Age	*Age* represents the number of years since a company was founded.
Coverage	*Coverage* is calculated as the natural logarithm of one plus the number of security analysts who follow the company.
SOE	It is a dummy variable that is equal to 1 if a firm's ultimate owner is the government or its agencies, and 0 otherwise.
Duality	*Duality* denotes firm CEO duality, which is equal to 1 if the CEO also serves as the company's chairman, and 0 otherwise.
Indep	*Indep* denotes the proportion of the number of independent directors on the board of directors.
Inst	*Inst* stands for the proportion of the shares holding of institutional investors.

TABLE 2

Descriptive statistics

Panel A: Descriptive statistics of all samples

Variables	Mean	SD	P5	P25	Median	P75	P95
CSR	3.618	0.312	3.139	3.406	3.588	3.815	4.205
Integrity	0.326	0.469	0.000	0.000	0.000	1.000	1.000
Size	23.013	1.714	20.768	21.811	22.765	23.879	26.253
ROA	0.047	0.053	-0.017	0.015	0.037	0.071	0.142
MB	3.086	2.286	0.887	1.559	2.427	3.765	7.811
Lev	0.515	0.210	0.148	0.362	0.527	0.671	0.844
Age	2.739	0.354	2.079	2.565	2.773	2.996	3.258
Coverage	2.111	1.066	0.000	1.386	2.303	2.944	3.555
Indep	0.373	0.055	0.333	0.333	0.357	0.400	0.500
Duality	0.148	0.355	0.000	0.000	0.000	0.000	1.000
SOE	0.636	0.481	0.000	0.000	1.000	1.000	1.000
Inst	0.086	0.125	0.000	0.018	0.047	0.093	0.362

Panel B: Descriptive statistics differences of subsamples

	Integrity subsample			Non-Integrity subsample			Diff.	
	N	Mean	SD	N	Mean	SD	Mean	T-value
CSR	1676	3.659	0.302	3473	3.599	0.315	0.060	6.573***
Size	1676	23.273	1.765	3473	22.888	1.675	0.385	7.464***
ROA	1676	0.047	0.054	3473	0.047	0.053	0.000	-0.023
MB	1676	2.870	2.108	3473	3.191	2.360	-0.321	-4.913***
Lev	1676	0.536	0.208	3473	0.506	0.210	0.030	4.866***
Age	1676	2.744	0.363	3473	2.736	0.350	0.007	0.662
Coverage	1676	2.243	1.019	3473	2.047	1.082	0.196	6.35***
Indep	1676	0.374	0.057	3473	0.372	0.054	0.002	1.346
Duality	1676	0.149	0.356	3473	0.148	0.355	0.001	0.054
SOE	1676	0.645	0.479	3473	0.632	0.482	0.013	0.886
Inst	1676	0.086	0.125	3473	0.085	0.125	0.000	0.077

*Notes: ***, **, * represents the level of significance at 1%, 5%, and 10%, respectively.*

TABLE 3
Pearson correlation matrix

Variables	*CSR*	*Integrity*	*Size*	*ROA*	*MB*	*Lev*	*Age*	*Coverage*	*Indep*	*Duality*	*SOE*	*Inst*
CSR	1											
Integrity	0.09***	1										
Size	0.53***	0.105***	1									
ROA	-0.052***	0	-0.186***	1								
MB	-0.154***	-0.066***	-0.424***	0.263***	1							
Lev	0.199***	0.068***	0.581***	-0.453***	-0.207***	1						
Age	0.126***	0.009	0.071***	-0.085***	-0.017	0.101***	1					
Coverage	0.236***	0.086***	0.383***	0.392***	0.005	0.032**	-0.139***	1				
Indep	0.031**	0.019	0.066***	-0.01	0.033**	0.016	-0.127***	0.02	1			
Duality	-0.047***	0.001	-0.14***	0.099***	0.133***	-0.127***	0.009	0.02	0.09***	1		
SOE	0.114***	0.012	0.258***	-0.18***	-0.201***	0.192***	-0.05***	-0.047***	-0.023	-0.258***	1	
Inst	0.07***	0.001	0.108***	0.077***	0.006	0.057***	0.008	0.172***	-0.052***	0.006	0.08***	1

*Notes: ***, **, * represents the level of significance at 1%, 5%, and 10%, respectively.*

TABLE 4

Regression results of corporate integrity culture and CSR

Variables	(1)	(2)
Integrity	0.021***	0.019***
	(2.925)	(2.588)
Size	0.102***	0.092***
	(31.313)	(24.682)
ROA	0.049	-0.119
	(0.615)	(-1.387)
MB	0.008***	0.007***
	(3.915)	(3.387)
Lev	-0.114***	-0.107***
	(-4.574)	(-4.262)
Age	-0.009	-0.008
	(-0.773)	(-0.746)
Coverage		0.025***
		(5.646)
Indep		-0.081
		(-1.271)
Duality		-0.010
		(-1.032)
SOE		0.019**
		(2.305)
Inst		0.020
		(0.709)
Constant	1.016***	1.211***
	(12.493)	(13.776)
Year	Control	Control
Industry	Control	Control
Observations	5149	5149
ADJ-R^2	41.7%	42.1%
F-value	63.408***	59.485***

*Note: T-values are reported in parentheses, and *, **, *** denote significance level at 10%, 5%, and 1%.*

TABLE 5

Controlling for the effects of law enforcement and social trust

Variables	***Law*** **(1)**	***Social trust*** **(2)**	***Both*** **(3)**
Integrity	0.020***	0.019***	0.018**
	(2.704)	(2.605)	(2.539)
Size	0.089***	0.085***	0.084***
	(23.408)	(22.137)	(22.078)
ROA	-0.134	-0.128	-0.122
	(-1.577)	(-1.510)	(-1.433)
MB	0.006***	0.006***	0.006***
	(3.124)	(2.912)	(2.920)
Lev	-0.092***	-0.079***	-0.079***
	(-3.664)	(-3.124)	(-3.123)
Age	-0.008	-0.014	-0.015
	(-0.738)	(-1.227)	(-1.376)
Coverage	0.026***	0.025***	0.024***
	(5.847)	(5.642)	(5.506)
Indep	-0.063	-0.066	-0.072
	(-0.987)	(-1.041)	(-1.136)
Duality	-0.014	-0.015	-0.014
	(-1.373)	(-1.504)	(-1.446)
SOE	0.020**	0.020**	0.019**
	(2.423)	(2.407)	(2.367)
Inst	0.013	0.003	0.002
	(0.445)	(0.090)	(0.055)
Law	0.005***		-0.003*
	(5.170)		(-1.855)
Social Trust		0.026***	0.034***
		(7.912)	(6.256)
Constant	1.263***	1.287***	1.279***
	(14.308)	(14.632)	(14.537)
Year	Control	Control	Control
Industry	Control	Control	Control
Observations	5149	5149	5149
ADJ- R^2	42.39%	42.79%	42.82%
F-value	59.278***	60.243***	59.411***

*Note: T-values are reported in parentheses, and *, **, *** denote significance level at 10%, 5%, and 1%.*

TABLE 6

Alternative CSR measurement

Variables	***CSR_KLD***
Integrity	**0.040*** (4.351)**
Size	0.089*** (18.764)
ROA	0.059 (0.540)
MB	-0.003 (-1.330)
Lev	-0.088*** (-2.750)
Age	-0.014 (-0.999)
Coverage	0.021*** (3.696)
Indep	-0.240*** (-2.955)
Duality	-0.001 (-0.098)
SOE	-0.017 (-1.597)
Inst	0.056 (1.563)
Constant	0.563*** (5.030)
Year	Control
Industry	Control
Observations	5091
ADJ- R^2	22.57%
F-value	24.552***

Note: T-values are reported in parentheses, and *, **, *** denote significance level at 10%, 5%, and 1%.

TABLE 7

2SLS regression results

Variables	**First stage**	**Second stage**
Integrity		0.125***
		(3.195)
Integrity_Industry	0.928***	
	(5.901)	
Integrity_Province	0.972***	
	(16.296)	
Size	-0.002	0.089***
	(-0.337)	(17.742)
ROA	0.279	0.041
	(1.640)	(0.352)
MB	-0.009**	-0.001
	(-2.184)	(-0.303)
Lev	0.163***	-0.096***
	(3.266)	(-2.801)
Age	0.042*	-0.015
	(1.891)	(-0.949)
Coverage	0.041***	0.018***
	(4.651)	(2.853)
Indep	0.179	-0.283***
	(1.403)	(-3.229)
Duality	-0.005	0.003
	(-0.276)	(0.193)
SOE	0.012	-0.008
	(0.715)	(-0.696)
Inst	-0.122**	0.072*
	(-2.219)	(1.899)
Constant	-0.604***	0.506***
	(-3.000)	(4.192)
Year	Control	Control
Industry	Control	Control
Observations	4619	4619
ADJ-R^2	10.058%	21.785%
First-stage F statistics	11.32***	

Note: T-values are reported in parentheses, and *, **, *** denote significance level at 10%, 5%, and 1%.

TABLE8

Regression results of the Heckman two-stage model

Variables	**First stage**	**Second stage**
Integrity		0.028***
		(2.823)
Size	-0.009	0.089***
	(-0.413)	(17.908)
ROA	0.906*	0.038
	(1.732)	(0.327)
MB	-0.031**	-0.001
	(-2.485)	(-0.261)
Lev	0.497***	-0.095***
	(3.284)	(-2.815)
Age	0.121*	-0.014
	(1.831)	(-0.954)
Coverage	0.126***	0.018***
	(4.741)	(2.884)
Indep	0.625	-0.286***
	(1.636)	(-3.290)
Duality	0.011	0.002
	(0.183)	(0.135)
SOE	0.045	-0.008
	(0.921)	(-0.726)
Inst	-0.313*	0.070*
	(-1.866)	(1.875)
Integrity_Industry	2.962***	
	(6.149)	
Integrity_Province	3.052***	
	(16.045)	
Lambda		-0.044**
		(-2.491)
Constant	-3.529***	0.598***
	(-5.770)	(4.878)
Year	Control	Control
Industry	Control	Control
Observations	4619	4619
Pseudo-R^2/ ADJ-R^2	15.73%	22.24%

*Note: T-values (Z-values) are reported in parentheses, and *, **, *** denote significance level at 10%, 5%, and 1%.*

TABLE 9

PSM methodology

Variables	***PSM***
Integrity	**0.032***** **(2.994)**
Size	0.103*** (17.986)
ROA	0.137 (0.970)
MB	0.001 (0.354)
Lev	-0.172*** (-4.213)
Age	-0.016 (-0.856)
Coverage	0.012* (1.648)
Indep	-0.463*** (-4.451)
Duality	0.013 (0.779)
SOE	-0.006 (-0.454)
Inst	0.022 (0.517)
Constant	0.307** (2.159)
Year	Control
Industry	Control
Observations	3101
ADJ- R^2	24.14%
F-value	18.007***

*Note: T-values are reported in parentheses, and *, **, *** denote significance level at 10%, 5%, and 1%.*

TABLE 10
The moderating effect of CEO duality

Variables	**Duality**	**Non-duality**	**Full Sample**
	(1)	**(2)**	**(3)**
Integrity	**0.055*** **	**0.008**	0.010
	(2.964)	**(0.996)**	(1.310)
Integrity*×*Duality			**0.057*** **
			(2.824)
Size	0.049***	0.096***	0.092***
	(4.216)	(24.106)	(24.771)
ROA	0.154	-0.169*	-0.124
	(0.808)	(-1.768)	(-1.455)
MB	-0.005	0.009***	0.007***
	(-1.095)	(4.040)	(3.486)
Lev	-0.05	-0.112***	-0.109***
	(-0.779)	(-4.106)	(-4.365)
Age	0.002	-0.006	-0.009
	(0.062)	(-0.514)	(-0.783)
Coverage	0.019*	0.026***	0.025***
	(1.711)	(5.404)	(5.598)
Indep	0.095	-0.091	-0.088
	(0.661)	(-1.268)	(-1.381)
Duality			-0.029**
			(-2.424)
SOE	-0.001	0.023**	0.019**
	(-0.029)	(2.573)	(2.346)
Inst	0.060	0.006	0.017
	(0.827)	(0.186)	(0.591)
Constant	2.175***	1.074***	1.207***
	(9.051)	(11.142)	(13.735)
Year	Control	Control	Control
Industry	Control	Control	Control
Observations	763	4386	5149
ADJ-R^2	30.87%	44.04%	42.18%
F-value	6.769***	56.671***	58.773***

*Note: T-values are reported in parentheses, and *, **, *** denote significance level at 10%, 5%, and 1%.*

TABLE 11
The moderating effect of analyst coverage

Variables	High Coverage	Low Coverage	Full Sample
	(1)	(2)	(3)
Integrity	**0.002**	**0.040*** **	**0.037*** **
	(0.162)	**(3.863)**	**(3.394)**
Integrity×HCoverage			**-0.031** **
			(-2.131)
HCoverage			0.033***
			(3.623)
Size	0.102***	0.074***	0.098***
	(18.663)	(13.382)	(27.411)
ROA	-0.371***	0.210*	-0.013
	(-2.761)	(1.784)	(-0.150)
MB	0.010***	0.005*	0.007***
	(3.035)	(1.793)	(3.741)
Lev	-0.152***	-0.058*	-0.115***
	(-3.732)	(-1.821)	(-4.607)
Age	-0.009	-0.007	-0.010
	(-0.569)	(-0.426)	(-0.898)
Coverage	0.028**	0.041***	
	(2.340)	(5.833)	
Indep	-0.159*	0.005	-0.081
	(-1.720)	(0.056)	(-1.271)
Duality	0.012	-0.030**	-0.009
	(0.852)	(-2.151)	(-0.865)
SOE	0.003	0.029**	0.015*
	(0.235)	(2.505)	(1.832)
Inst	-0.034	0.096**	0.028
	(-0.792)	(2.567)	(0.978)
Constant	1.021***	1.539***	1.122***
	(7.892)	(11.677)	(12.824)
Year	Control	Control	Control
Industry	Control	Control	Control
Observations	2663	2486	5149
ADJ-R^2	44.88%	38.13%	41.88%
F-value	34.866***	26.523***	58.061***

*Note: T-values are reported in parentheses, and *, **, *** denote significance level at 10%, 5%, and 1%.*

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Declaration of interests

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Highlights

1. A corporate culture of integrity has a positive effect on corporate social responsibility.

2. CEO duality leadership strengthens the relation between corporate integrity culture and corporate social responsibility.

3. Analyst coverage attenuates the relationship between corporate integrity culture and corporate social responsibility.