“Does female representation on corporate boards boost the strengthening of internal control in socially responsible firms?”

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DOES FEMALE REPRESENTATION ON CORPORATE BOARDS BOOST THE STRENGTHENING OF INTERNAL CONTROL IN SOCIALLY RESPONSIBLE FIRMS?

Abstract

This study examines the relationship between corporate social responsibility and the effectiveness of internal control, while simultaneously examining board gender diversity to check whether female directors contribute to corporate transparency or not. The sample of the study comprises 15,231 firm-year observations of companies listed on the Shanghai and Shenzhen stock exchanges from 2013 to 2018. The raw data for variable calculation come from authoritative and reputable sources, such as China Stock Market and Accounting Research (CSMAR), DIB Internal Control database, and RKS CSR score. The empirical study shows that socially high-performing firms possess a more effective internal control mechanism. However, the paper failed to find a positive association of gender diversity on the board with internal control effectiveness, and failed to attest reinforcing effect of female directors on internal control in socially responsible firms. This study suggests that in China's institutional environment, female directors are unlikely to contribute to increased corporate transparency. This study is useful for both regulators and company management to establish a master plan and tactics for board composition to improve corporate transparency, taking into account the effect of the investigated phenomena within the jurisdiction under study.

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INTRODUCTION

Corporations, being a complex structure of interests and impacts, are embedded in networks of stakeholder relationships (Louche & Baeten, 2006). Indeed, modern corporations that concentrate on stakeholder needs rather than solely shareholder interests are involved in more corporate social responsibility (CSR) and environmental, social, and governance (ESG) activities, something companies were not aware of just a few decades ago (Karpoff, 2021; Pasko, Marenych et al., 2021). Considering how more and more the stakeholder model is spreading in the corporate world, as opposed to the shareholder model (Dwekat et al., 2022), new activities of companies give rise to new relationships of those new activities to the traditional ones, and those associations can be synergistic, neutral or antagonistic, and this requires additional research that could shed light on these links (Aliani et al., 2022; Pasko, Chen et al., 2021; Zaman et al., 2021). Moreover, not only the new element itself should be studied, but also how its perceived quality will contribute to its relationship with the traditional elements of a firm's management (Dwekat et al., 2022). Indeed, it is the identification of

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synergistic or antagonistic relationships between various elements of management and governance of a firm that can contribute to increasing the efficiency of this activity (Nord et al., 2022; Zaman et al., 2021).

Extant studies were occupied with the question of why specific entities are more efficient in their CSR activities than others (Heinberg et al., 2021; Khlif et al., 2020; Pasko et al., 2022; Pasko, Zhang, Bezverkhyi, et al., 2021; Sokil et al., 2020). And corporate transparency features atop as an answer to the above questions, since it is believed that corporate transparency serves as "a boundary condition of the effects of CSR activities on the consumer-brand relationship" (Heinberg et al., 2021, p. 45). Moreover, the very corporate transparency is going to shape "the prospects of corporate social responsibility in the decade of action (2020–2030)" (Sepasi et al., 2021, p. 138).

Given that internal control is often regarded as a representative for the substantiality of transparency and accountability (Chang et al., 2020) and that the board of directors plays a crucial role in enhancing corporate transparency by extending the disclosure level of CSR information (Gallego-Álvarez & Pucheta-Martínez, 2020; Pasko, Zhang, Tuzhyk, et al., 2021), while especially board gender diversity is heralded as a crucial element in board arrangement in that respect (Chebbi & Ammer, 2022; Nicolò et al., 2022), this paper proceeds from the assumption that the relationships between these three elements (CSR, IC and board gender diversity), which could be regarded as one of the main drivers of corporate transparency, can reveal new insight valuable for practitioners, regulators and academics alike, since those relationships are best explored not in a vacuum, but in daily interaction. The role of CSR in strengthening the capacity of internal control manifests itself in the quality aspects that shareholders esteem the most (Boulhaga et al., 2022; Wang et al., 2021). The quality is achieved in many ways due to the internal control management, which, if well-tuned, lessens the likelihood of fraud and other instances of corporate misconduct (Harjoto, 2017; Rodgers et al., 2015). Moreover, it is assumed that CSR is also "a dominant issue in organizations, especially its relationship to fraud" (Rodgers et al., 2015, p. 871). Therefore, the research on the link between CSR and IC is merited, given their potentially synergetic effect. So, the relationship between CSR and internal control, which, despite its weight, remains understudied, at the same time is promising in terms of its impact on corporate governance and a firm as a whole.

In view of the fact that corporate transparency is a consequence of the public communication of information specific to a company by managers, the board of directors and its composition are expected to influence the improvement of the quality of such information (Chebbi & Ammer, 2022). In particular, board gender diversity directly stands out as a key element in the construction of the board of directors, since the presence of women in the highest governance body leads to a better quality of board discussions and deliberations and board's debate on challenging and delicate matters (Adams & Ferreira, 2009; Farooq et al., 2022; Sattar et al., 2022), brings unique perspectives to boards (Adams et al., 2015; Farooq et al., 2022; Tunyi et al., 2023; Yarram & Adapa, 2022), engenders social dynamics and enhances board's monitoring and supervisory function, greater surveillance on managers (Audretsch et al., 2022; Han & Peng, 2022); moreover, female directors are perceived by stakeholders as a step toward gender fairness within a firm's CSR agenda (Farrell & Hersch, 2005). Thus, the advantages of female representation on the corporate board conjoined with the firms' already solid socially responsible stance would lead to enhanced internal control efficacy. The demand for the study is also emphasized by the country-specific properties of corporate governance, which are better studied in the context of jurisdictions.

1. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

1.1. CSR and internal control

The extant literature acknowledges that the risk-reduction effect of CSR (Lu et al., 2021) or insurance-like effect (Chang et al., 2020) largely coincide with what the internal control system aims for and how it functions. This may indicate that these systems complement each other and, therefore, when applied simultaneously, may lead to a synergistic effect. Pasko, Zhang, Tkal, et al. (2021, p. 501) assert that CSR advocates closer engagement of stakeholders and expedites the transformation of management's mentality and way of thinking, thus assisting a more efficient use of resources. Lu et al. (2022) argue that CSR has not only an external value, which is manifested in increasing the company's reputation among investors, but also an internal value, which, although less researched, nevertheless exists and is embodied in an influence on risk management.

Moreover, CSR and IC are also linked by the concept of "risk". Anticipated expenses indicate the costs of risk that a company incurs owning to the risk present out there. Basically, there are five elements of the cost of risk: 1) expected cost of losses, 2) cost of loss control, 3) cost of loss financing, 4) cost of internal risk reduction, and 5) cost of residual uncertainty (Lu et al., 2021; Malafry & Brinca, 2022). It is argued that those costs of risk could be curtailed by CSR due to the latter contribution to enhanced risk management; therefore, the prospective advantage of CSR as a risk lessening instrument is a function of firm risk level (Lu et al., 2021, p. 16). Thus, as Lu et al. (2021, p. 16). assert "CSR can mimic or "act like" loss control and therefore reduce expected losses (by reducing the impact of negative events), the cost of loss financing (by reducing the probability of financial distress) and the cost of residual uncertainty (by enabling better terms of trade with stakeholders)". Therefore, orientation in one direction, towards a similar action should hypothetically lead to a synergistic effect of the interaction between CSR and IC.

Chang et al. (2020, p. 6162) emphasize that the role of CSR in improving internal control potency is installed in the quality issue that shareholders cherish. Accordingly, internal control is configured and applied to tackle detected business risks that could jeopardize the accomplishment of any of these goals. Similarly, Mayberry (2020, p. 1182). asserts that compensation motivation can stimulate managers not to track CSR strategies, since "CSR reduces firms' risk and provides insurance-like benefits".

Furthermore, CSR and IC are also linked by the concept of "strategic decisions". It is believed that in CSR, IS performs a function that is very closely related to "the appropriateness of strategic decisions and the effectiveness of fulfilment" (Wang et al., 2021, p. 4). Moreover, Wang et al. (2021, p. 13) contend that "with the improvement of internal control effectiveness, enterprises will more actively promote the fulfilment of social responsibility", accordingly, improving the effectiveness of internal control is interrelated, if not guarantee the appropriateness of the decisions made regarding CSR and the resources involved in this activity.

Franco et al. (2020, p. 1) emphasize that CSR is an activity that clearly and unequivocally leads to costs, however, it can also to translated into benefits for the company "when it generates solid relationships between firms and their stakeholders". Moreover, Yongming & Yini (2017, p. 455) emphasize that companies should embed their CSR into the IC mechanism in order to also include elements of the stakeholders' vision and thus avoid the phenomenon known as "insider control". Thus, CSR itself must be properly configured and focused on influencing and interacting with stakeholders, but not on a ticking-the-box mentality.

Moreover, the literature also emphasizes the impact of IC on CSR and reporting on it, because, as Chouaibi and Boulhaga (2020) indicate, a low level of forward-looking information disclosure prevents corporate stakeholders from accurately predicting the future performance of the company.

As of today, the direction of CSR's impact on IC is obscure as basically this research field branch is still in its infancy. Harjoto (2017), sampling 152 criminal corporate fraud cases in the U.S. from the US Department of Justice (DOJ) between 2000 and 2010, finds that firms with higher CSR have a lower likelihood and lower severity of cor-

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porate fraud. Yongming and Yini (2017, p. 449), on a sample of Shenzhen's A-share market-listed manufacturing companies from 2010 to 2014, concluded that "internal control contributes to corporate performance improvement but inclines to be swayed by CSR". The authors show that "corporate to shareholders, the government's responsibility significantly play a positive role in internal control … [while] corporate to creditors' responsibility has a negative effect on the internal control" (Yongming & Yini, 2017, p. 449).

1.2. Board gender diversity and internal control

At the moment, there is much disputation in the literature regarding the impact of board gender diversity on internal control and CSR. The only consensus is that corporate governance should be studied in each separate jurisdiction, and this is confirmed by the example of an element such as women directors, because in China their influence is not as noticeable as in Western countries, due to the presence of what is called institutional complementarities (Pasko, 2022) and distinct cultural environment. Adams and Ferreira (2009, p. 291) contend "gender-diverse boards allocate more effort to monitoring" due to female directors who have a substantial impact on board inputs and company outcomes. It is believed that female directors bring a fresher and independent perspective, thereby invigorating and enhancing board monitoring and its internal control mechanisms (Farooq et al., 2022; Sri Utaminingsih et al., 2022), increasing the stakeholder management of the board (Peng et al., 2022) and ultimately it should also yield positive associations between our research items. Moreover, female directors have a stronger incentive for better risk management and, therefore, are associated with risk reduction (Sattar et al., 2022, p. 1), while gender board diversity results in lower volatility and better performance (Bernile et al., 2018, p. 588). Audretsch et al. (2022) continue the topic of risk, control and corruption finding that women-led firms are distinct from those led by men and that female CEO mitigate the effects of corruption.

Effective internal control is a key to guaranteeing that a company carries out all its operations following standards and legislation, such as CSR and the proportion of women on the board of directors, so it implies that, other things being equal, there is a positive association between these components (Chebbi & Ammer, 2022; Min, 2022; Sattar et al., 2022; Sri Utaminingsih et al., 2022).

Empirical findings are mostly on par with a positive association. Pucheta-Martínez and Bel-Oms (2019, p. 301), with a sample of all nonfinancial firms listed on the Madrid Stock Exchange during 2004–2011, produce evidence that "female board directorship affects the demand of internal control mechanisms such as board subcommittees, suggesting that firms should take it into account as a business strategy". Mahmood et al. (2018), on a sample from of top 100 companies listed on the Pakistan Stock Exchange (PSE) during 2012-2015 concluded that "a large board size consisting of a female director and a CSR committee (CSRC) is better able to check and control management decisions regarding sustainability issues (be they economic, environment, or social) and resulted in better sustainability disclosure". Oradi and E-Vahdati (2021), operating with a sample of companies from the Tehran Stock Exchange over the period 2013 to 2018 find that entities with female representation on board are less likely to experience internal control weaknesses. Similarly, Chen et al. (2016), operating with an international sample of 4267 year-company observations filtered through Compustat, Audit Analytics, and Board Ex, find that women on boards lessen internal control weaknesses, regardless of their membership in the audit committee.

Therefore, the virtue and benefits of female representation on the corporate board conjoined with a firms' already solid socially responsible stance would lead to enhanced internal control efficacy, and thereby dissuades senior managers from behaving opportunistically to the detriment of the firm's stakeholders. This emphasizes the need to examine the subject of the exigency from the part of corporate governance and its interconnections in each separate jurisdiction (Grigoraș-Ichim et al., 2018; Oradi & E-Vahdati, 2021), since it represents a unique set and networks of various levels of regulation, traditions, economic and management paradigm prevailing in the jurisdiction, as well as cultural differences of a country, which can transform the same initial specifications into different outputs (Peng et al., 2022).

Concurrently, bearing in mind the thesis that corporate governance is a country-specific activity, in China and other non-western countries the representation of women on the board of directors does not always work unambiguously. For example, Sri Utaminingsih et al. (2022), based on an empirical study from Indonesia, find that internal control is not able to moderate the relationship between board gender diversity and tax aggressiveness. Ding et al. (2022, p. 1), operating with a sample of Chinese A-share listed manufacturing companies from 2015 to 2020, find that "female directors have only symbolic effect on environmental disclosure on sustainability performance". In part, those findings prompted Min to suggest that organizational impression management is a probable strategic impetus behind the nomination of female directors (Min, 2022).

However, Khan et al. (2022), while investigating the effect of independent directors on carbon information disclosure (CID) in China from 2011 to 2017, study female independent directors and confirm that they enhance the CID. Khidmat et al. (2022, p. 563), investigating female representations on Chinese listed firm's boards on corporate social responsibility activities, find that "firms with the gender-diverse board are socially responsible".

The purpose of this study is to investigate the relationship between CSR and the effectiveness of IC and concurrently analyze female representation on the board, as well as to check whether female directors contribute to corporate transparency or not.

Therefore, based on the analysis of the literature presented above and the established evidence contained therein, the following relevant hypotheses have been put forward:

H1. Firms with high social responsibility scores will have stronger internal control mechanisms.

H2. The presence of female directors will strengthen the internal control mechanism.

H3. The presence of female directors in companies with high social responsibility will strengthen internal control.

2. METHOD AND RESEARCH DESIGN

2.1. Research model

To study the impact of female directors and corporate social responsibility on internal control, this paper uses the following formula to conduct multiple regression analysis:

$$\begin{aligned} IC_{i,t} &= \beta_0 + \beta_1 CSR_{i,t} + \beta_2 GenDiv_{i,t} + \\ &+\beta_3 CSRxGenDiv_{i,t} + \beta_4 ROA_{i,t} + \\ &+\beta_5 EPS_{i,t} + \beta_6 COA_{i,t} + \beta_7 Big4_{i,t} + \\ &+\beta_8 Loss_{i,t} + \beta_9 Leverage_{i,t} + \beta_{10} MB_{i,t} + \\ &+\beta_{11} CR_{i,t} + \beta_{12} AuditFee_{i,t} + \\ &+\beta_{13} ListYears_{i,t} + \beta_{14} i.Year_{i,t} + u_{i,t}, \end{aligned} \tag{1}$$

where *i* and *t* represent a company and year, respectively; IC is the dependent variable; CSR, GenDiv are the independent variables; and CSRxGenDiv is the interactions item. Other variables are control variables, among which *i*. Year is a year dummy variable. *u* is the random error.

According to the above formula, this paper uses the following four models to verify the hypotheses of the study.

Model (1): contains only control variables.

Model (2): contains CSR + control variables.

Model (3): CSR + GenDiv + control variables.

Model (4): CSR + GenDiv + CSRxGenDiv + control variables.

2.2. Selecting and measuring variables

This paper focuses on the impact of female directors on the effectiveness of internal control in companies with a sense of social responsibility, and, thus, selects the following variables.

2.2.1. *Dependent variable*

As a representative for internal control efficacy, this paper utilizes the DIBo internal control

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index generated by DIB internal control and risk management database (DIB) to measure the effectiveness of internal control, abbreviated as IC. The Dibo internal control index is designed based on the degree of realization of the five major goals of corporate internal control, namely 1) compliance; 2) reporting; 3) asset security; 4) operation, and 5) strategy, and can boast recognition by the academia, practice and regulatory authorities alike since its release in 2011 (Li, 2020). The higher the internal control index of the enterprise, the better the internal control quality of the enterprise. The original value range of Dibo internal control index is 0-1000. Aiming to reduce the magnitude difference between variables, this paper takes a natural logarithm for it.

2.2.2. Independent variable

Corporate social responsibility. This paper uses RKS ESG Ratings (RKS) as a measure of corporate social responsibility, abbreviated as CSR. The RKS evaluation system uses four zero-level indicators: Macrocosm (M), Content (C), Technique (T), and Industry (I) (Pasko, Zhang, Bezverkhyi, et al., 2021). In this indicator system, the weight of M value is 30%, the weight of C value is 45%, the weight of T value is 15%, and the weight of I value is 10%. The resulting evaluation of this indicator has five grades. In this paper, the lowest grade (E grade) is assigned a value of 1, and the value increases by 1 for each grade.

Female Director. This paper uses whether there are female directors as a measure indicator, abbreviated as GenDiv. This indicator is 1 if there are female directors on the board, and 0 otherwise.

The interaction between corporate social responsibility and female directors. To examine the impact of female directors on the relationship between CSR and IC, this paper introduces the cross-product between CSR and female directors, abbreviated as CSRxGenDiv.

2.2.3. Control variable

This paper introduces financial indicators, audit indicators, and year indicators as control variables to exclude the impact of differences in these indicators. Financial indicators include Return on assets (ROA), Earnings per share (EPS), Cash from operations on assets (COA), Losses (LOSS), Leverage (Leverage), Market to book (MB), and Cash to total assets (CR). Audit indicators include Audit Company (Big4), Audit Fee (AuditFee). The year index includes the difference between the year the data belongs to and the year the company was listed (ListYears) and the year the data belongs to (Year). The specific calculation method is shown in Table 1.

Table 1. Description of variables used in the study

Variable Name	Mnemonics	role	Measurement	Unit
Internal Control effectiveness	IC	Dependent	The natural logarithm of Dibo internal control index	Number
Corporate social responsibility	CSR	Independent	CSR rankings produced by Rankins (RKS) Inc	Number
Board Gender diversity	GenDiv	Independent	If at least one woman is included in board, this variable is equal to 1, and 0 otherwise	Dummy variable
Return on assets	ROA	Control	Net income / Total assets	Ratio
Earnings per share	EPS	Control	Earnings per share	Number
Cash from operations on assets	COA	Control	Cash from operations/Total assets	Ratio
Audit Company	Big4	Control	A variable that takes a value of 1 if the firm is audited by Big Four accounting firms, and 0 otherwise	Dummy variable
Losses	LOSS	Control	Takes 1if net income is negative, and 0 otherwise	Dummy variable
Leverage	Leverage	Control	Total debt / total assets	Ratio
Market to book	MB	Control	Market Capitalization / Net Book Value	Ratio
Cash to total assets	CR	Control	Cash to total assets	Ratio
Audit Fee	AuditFee	Control	The natural logarithm of the auditing charges per annum in thousands	Number
List Years	ListYears	Control	Number of years since the company went public	Number

2.3. Sample selection and data processing

This paper explores sample forms of companies that are, firstly, listed on the Shanghai and Shenzhen stock exchanges from 2013 to 2018, secondly, are releasing social responsibility reports during researched time period, and thirdly, are included in the RKS ESG Ratings database form. Moreover, the time period of the sample is restricted due to the fact that the paper relies on the Dibo internal control index, which, although reliable, representative and trusted, is only recently in existence (making it impossible to expand further the lower time threshold of the study) and does not produce data as swiftly as, for example, CSMAR.

The erstwhile sample is encompassed 15,571 observations, but after conventional exclusion of financial companies' data and those of companies marked as "ST" by the stock exchanges, the final sample is reduced to 15,231 firm-year observations. Table 2 demonstrates the sample screening process of the study.

In closing the method section, in this paper, the data for the research variables are taken from authoritative Chinese databases: China Stock Market and Accounting Research (CSMAR) (financial, corporate governance, and audit indicators), DIB Internal Control database (internal control data), and the RKS ESG Ratings (CSR details). The statistical software Stata 17.0 was used for data processing.

3. RESULTS

Table 3 represents the industry distribution of the study's sample. The sample is distributed in 17 industries, and the industry distribution of the sample is basically consistent with the industry distribution of Chinese listed companies (provided the financial industry is excluded). The number of manufacturing sample is 9,691, accounting for 63.63%, ranking first, while the number of the information technology industry firms reaches 980, accounting for 6.43% of the sample (ranking second), and finally, there are 856 companies repre-

Table 2. Sample selection process

Steps	Explanation	Observations
1	A-share listed company on China's Shanghai and Shenzhen stock exchanges	15,571
2	Less: the financial industry companies	(330)
3	Less: ST * Companies	(10)
4	Final sample	15,231

Note: * ST applied to a firm suffering losses for 2 successive years or its net assets are lower than the par value of the stock, while "ST" means "special treatment" used to alert investors to a high investment risks.

Table 3. Sectoral distribution of the study sample

Industry	Frequency	Percent	Cumulative
Agriculture, forestry, animal husbandry and fishery	235	1.54	1.54
Mining industry	398	2.61	4.16
Manufacturing	9691	63.63	67.78
Electricity, heat, gas and water production and supply	533	3.50	71.28
Construction industry	423	2.78	74.06
Wholesale and retail	856	5.62	79.68
Transportation, storage and postal industry	474	3.11	82.79
Accommodation and Catering Industry	58	0.38	83.17
Information transmission, software and information technology service industry	980	6.43	89.61
Real estate	755	4.96	94.56
Leasing and business services	178	1.17	95.73
Scientific research and technical service industry	106	0.70	96.43
Water conservancy, environment and public facilities management industry	164	1.08	97.51
Education	8	0.05	97.56
Health and social work	34	0.22	97.78
Culture, sports and entertainment industry	209	1.37	99.15
Comprehensive	129	0.85	100.00
Total	15231	100.00	

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senting wholesale and retail industry (5.62% of the sample, ranking third). Therefore, manufacturing is the mainstay of China's listed companies.

Table 4 shows the annual distribution of samples. According to the Table 4 the number of sample is increasing year by year, while the growth rate is getting faster and faster.

Table 4. Annual distribution of the sample

Year	Frequency	Percent	Cumulative
2013	2347	15.41	15.41
2014	2359	15.49	30.90
2015	2431	15.96	46.86
2016	2548	16.73	63.59
2017	2663	17.48	81.07
2018	2883	18.93	100.00
Total	15231	100.00	

Descriptive statistics of variables is presented in Table 5. The full score of IC original data is 1,000 points, which corresponds to the IC value in this table of 10. The average value of IC in Table 5 is 6.467, and the median is 6.493, so the internal control scores of most enterprises are not particularly high. The highest value of CSR is 5 points, the mean is 2.114, and the median is 2, indicating that the CSR scores are generally modestly low. The average value of GenDiv is 0.957, and the median is 1, indicating that a large proportion of Chinese listed companies do have the female representation in their corporate board.

Table 5. Descriptive statistics

Variable Name	Obs	Min	Max	Mean	Median	SD
IC	14675	4.830	6.812	6.467	6.493	0.155
CSR	15213	1.000	5.000	2.114	2.000	0.576
GenDiv	15231	0.000	1.000	0.957	1.000	0.204
CSRxGenDiv	15213	0.000	2.133	0.386	0.353	0.248
ROA	15230	–1.872	0.669	0.034	0.034	0.079
EPS	15231	–7.486	30.114	0.318	0.242	0.750
COA	15231	–1.938	0.876	0.040	0.040	0.080
Big4	15231	0.000	1.000	0.054	0.000	0.227
LOSS	15231	0.000	1.000	0.112	0.000	0.315
Leverage	15231	0.008	4.026	0.437	0.426	0.217
MB	14680	0.001	6.546	0.592	0.583	0.258
CR	15231	–0.017	0.993	0.151	0.118	0.120
AuditFee	15178	4.605	12.495	6.919	6.802	0.710
ListYears	15047	4.000	31.000	16.419	15.000	7.002

Table 6 represents the correlation test results of the variables. IC is positively correlated with CSR (coefficient 0.163, $p<0.01$), and instead negatively correlated with GenDiv (coefficient -0.024, $p<0.01$), and negatively correlated with CSRxGenDiv (coefficient 0.055, $p<0.01$).

Before resorting to regression analysis, in order to determine whether fixed or random effects model should be used, this paper performs the Hausman Test to felicitate in judgement on that. The result obtained (the Chi-square test value is 272.088, $p<0.01$) indicates that the regression analysis should use fixed effects.

Table 7 demonstrates the results of multiple regression analysis, where Model (1) contains solely control variables.

Model (2) includes CSR variables as well. The results of model (2) show that CSR is significantly positively correlated with IC (coefficient 0.009, $p < 0.01$). This shows that the listed companies that fulfil their CSR better have higher internal control quality.

Model (3) includes variables of CSR and female directors. The results of model (3) demonstrate that the relationship between CSR and IC is relatively unchanged (coefficient 0.007, $p<0.01$), and GenDiv is significantly negatively correlated with IC (coefficient -0.02, $p<0.01$). This indicates that companies with female directors have lower internal control quality.

Model (4) includes the variables of CSR, female directors, and the product of the above two items. The results of model (4) attest that the relationship between CSR, GenDiv and IC remained unchanged in the presence of cross-product item, and there is no significant correlation between CSRxGenDiv and IC (coefficient 0.009, $p>0.1$). The coefficient of the interaction though is positive, indicating that the presence of female directors in the board weakens the positive relationship between CSR and IC.

Therefore, the results presented above give us a reason to draw the finishing line of this study, by confirming or rejecting the proposed hypotheses. Based on the analysis, one research hypothesis of the study is confirmed, the other two are rejected (Table 8).

Table 6. Pearson correlation test

	IC	CSR	GenDiv	CSRxGenDiv	ROA	EPS	COAs	Big4	LOSS	Leverage	MB	CR	Audit Fee	List Years
IC	1													
CSR	0.163***	1												
GenDiv	–0.024***	–0.020**	1											
CSRxGenDiv	0.055***	0.318***	0.332***	1										
ROA	0.284***	0.252***	0.002	0.138***	1									
EPS	0.255***	0.221***	–0.007	0.086***	0.624***	1								
COA	0.099***	0.099***	–0.023***	0.024***	0.318***	0.229***	1							
big4	0.099***	0.126***	–0.040***	–0.042***	0.041***	0.139***	0.080***	1						
LOSS	–0.264***	–0.286***	–0.010	–0.129***	–0.598***	–0.435***	–0.179***	–0.047***	1					
Leverage	–0.042***	–0.007	–0.029***	–0.119***	–0.355***	–0.128***	–0.150***	0.103***	0.203***	1				
MB	0.039***	0.070***	–0.059***	–0.120***	–0.105***	0.024***	–0.044***	0.164***	–0.030***	0.369***	1			
CR	0.055***	0.033***	0.032***	0.093***	0.211***	0.154***	0.140***	–0.035***	–0.119***	–0.355***	–0.243***	1		
AuditFee	0.090***	0.142***	–0.045***	–0.082***	–0.029***	0.133***	0.052***	0.457***	–0.018**	0.372***	0.434***	–0.155***	1	
ListYears	–0.062***	0.082***	–0.016*	–0.059***	–0.112***	–0.005	–0.033***	0.082***	0.091***	0.339***	0.147***	–0.094***	0.245***	1

Notes: *, **, and *** indicate significance at 0.1, 0.05 and 0.01, respectively.

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Table 7. Regression results

	(1)	(2)	(3)	(4)
	Model 1	Model 2	Model 3	Model 4
CSR		0.009***	0.009***	0.007***
		(3.79)	(3.76)	(2.83)
GenDiv			–0.020***	–0.022***
			(–2.90)	(–3.16)
CSRxGenDiv				0.009
				(1.28)
ROA	0.323***	0.318***	0.318***	0.317***
	(10.86)	(10.67)	(10.67)	(10.65)
EPS	0.025***	0.025***	0.025***	0.025***
	(9.46)	(9.41)	(9.40)	(9.41)
COA	–0.004	–0.004	–0.005	–0.005
	(–0.24)	(–0.25)	(–0.30)	(–0.29)
Big4	0.028***	0.027***	0.027***	0.027***
	(3.36)	(3.33)	(3.30)	(3.33)
LOSS	–0.040***	–0.037***	–0.037***	–0.037***
	(–7.86)	(–7.15)	(–7.19)	(–7.19)
Leverage	0.010	0.011	0.011	0.011
	(1.10)	(1.20)	(1.19)	(1.21)
MB	0.043***	0.041***	0.041***	0.041***
	(5.82)	(5.65)	(5.55)	(5.63)
CR	0.005	0.006	0.006	0.006
	(0.41)	(0.45)	(0.48)	(0.45)
AuditFee	0.010***	0.009***	0.009***	0.009***
	(3.41)	(2.99)	(2.96)	(3.02)
ListYears	–0.003***	–0.003***	–0.003***	–0.003***
	(–9.56)	(–9.70)	(–9.67)	(–9.62)
_cons	6.412***	6.399***	6.419***	6.420***
	(341.35)	(336.00)	(317.64)	(317.66)
Year FE	YES	YES	YES	YES
N	13986	13984	13984	13984

Notes: *, **, and *** indicate significance at 0.1, 0.05 and 0.01, respectively.

Table 8. Summary of study results

Hypothesis formulation	Confirmation/ rejection of hypotheses
Hypothesis 1. Firms with high social responsibility scores will have stronger internal control mechanisms.	Confirmed
Hypothesis 2. The presence of female directors will strengthen the internal control mechanism.	Rejected
Hypothesis 3. The presence of female directors in companies with high social responsibility will strengthen internal control.	Rejected

4. DISCUSSION

CSR is aimed at disclosing information that may not be required by law, that is, it is a conscious step of a company on the way to higher corporate transparency. Female representation often serves as a yardstick for greater openness, expansion of horizons, new connections, and greater openness – characteristics that female directors bring with them to the board of directors. Internal control provided it is effective, contributes to improved quality of information that the corporation provides to its stakeholders. In today's corporate world, these three elements are considered to be one of the drivers of corporate transparency, or at least the elements that break down corporate secrecy. Corporate transparency is a yardstick and the result of firms' public disclosure of information (García-Sánchez, 2020; Zhong, 2022).

This work aims to look into the effect of CSR and female directors on IC effectiveness and whether female representation on corporate boards in socially high-performing firms boosts the effectiveness of their IC. Thus, this paper examines the relationship between CSR and the effectiveness of IC, and concomitantly addresses board gender diversity to check whether female directors boost corporate transparency or not. This work has the triple objective of evidencing the role CSR, IC and female directors play in enhancing corporate transparency in Chinese institutional settings.

Consistent with the paper's theoretical predictions, the results obtained show that firms with high social responsibility scores indeed have stronger internal control mechanisms. However, the paper's findings contrary to expectations fail to attest a positive association between female directors and internal control effectiveness. Moreover, in the studied sample of Chinese listed companies, even the presence of female directors in companies with high social responsibility does not produce a positive effect on IC. Thus, the results of this study confirm the significant role of CSR, but do not confirm the role of female representation on the board of directors for internal control, even in CSR-active and high-performing companies.

This study results concerning the influence of female directors are at odds with previous literature on non-Chinese and international settings (Chang et al., 2020; Chen et al., 2016; Oradi & E-Vahdati, 2021; Pucheta-Martínez & Bel-Oms, 2019), however, are on par with preceding studies focused on Chinese institutional environment (Pasko, Zhang, Tuzhyk et al., 2021). These results once again corroborate the ambiguous and special role of women directors, often different from that observed in studies of the Western institutional environment.

This paper provides some insight into the peculiarities of ensuring corporate transparency in the Chinese institutional environment, providing managerial and regulatory implications in underscoring the indefinite and indeterminate role of corporate governance, especially with female representation on the board of directors.

CONCLUSION

This paper investigates the relationship between corporate social responsibility and the effectiveness of internal control, and concurrently considers female representation on the board to check whether female directors boost corporate transparency or not. For this, the paper uses a sample of 115,231 firm-year observations of companies listed on the Shanghai and Shenzhen stock exchanges for the period ranging from 2013 to 2018, while the raw data for variables calculation come from authoritative and reputable sources: China Stock Market and Accounting Research (CSMAR), DIB Internal Control database, and RKS corporate social responsibility score.

The results of this study findings imply that, consistent with the majority of the extant literature, corporate social responsibility strategies might be effective in affecting firms' internal control effectiveness even without female members in decision-making. Based on the assumption proven in many previous studies that female representation on the board of directors can be beneficial to the firm in many aspects, and feeling the lack of evidence for this in the Chinese institutional environment, especially in terms of corporate transparency, this study uses internal control as a proxy of a concrete and embodied element of tangible transparency and accountability, and examines the influence of women on board on it.

The results obtained show that socially high-performing companies have more effective internal control mechanisms. However, the results of the study, contrary to expectations, do not attest a positive association between female directors and internal control effectiveness. Furthermore, in an investigated sample of Chinese listed companies, even female representation on the board of socially high-performing firms does not generate a positive effect on internal control, thus not further reinforcing the positive effect produced by corporate social responsibility engagement.

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The paper provides empirical data to encourage listed companies' accent on active fulfilment of corporate social responsibility, thereby enhancing their internal control efficiency and corporate transparency, and provides a call for future research to look closer into the effect of female directors in Chinese institutional settings while urging a cautious approach to female representation as an instrument of corporate governance intended to rise corporate transparency in the meantime.

AUTHOR CONTRIBUTIONS

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