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Can Corporate Social Responsibility Decrease the Negative Influence of Financial Distress on Accounting Quality?

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Abstract: This study aimed to test how corporate social responsibility (CSR) can affect the impact of corporate financial distress on earnings management. Based on the existing literature, distressed firms tend to hide their financial crises through earnings manipulation. However, as CSR can positively affect companies in terms of performance, risk reduction, and market response, the better a firm's CSR is the less managers will attempt earnings management even if they experience temporary distress. Consistent with the literature, test results using Korean-listed companies show that distress increased earnings management, and we confirmed that CSR weakened the positive effect of distress on earnings management. After testing each of the CSR subcategories, significant results were found mainly on environmental performance, reflecting the globally increasing interest in environmental issues. This study contributes to the literature on distress and earnings management, which rarely considers CSR as a moderating factor.

Keywords: CSR; ESG; financial distress; financial constraint; accounting quality; accrual earnings management

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1. Introduction

A group of researchers has investigated the relationship between financial distress and reporting quality arriving at a consensus that distressed firms rely more on income-increasing earnings manipulation [1–9]. Classical studies and follow-ups on debt covenant violation also generally conclude that companies in financial crisis perform upward earnings manipulations (e.g., [10–12]), although a consensus has not been fully reached (e.g., [13–15]).

However, not all managers faced with financial difficulties behave opportunistically. For example, managers tend not to perform earnings management under a strong monitoring and governance structure [16–19]. The consensus on corporate social responsibility (CSR) is that it is another mechanism that reduces earnings management [20–28]. The stakeholder theory, which explains CSR and asserts that managers should be in line with stakeholders' needs, is an extension of the agency theory that they should be aligned with the shareholders' interests. Therefore, ideal CSR activities are related to long-term managerial vision and decreased information asymmetry, resulting in less earnings manipulation and higher performance [21,25,29–32].

This study investigated whether good CSR involvement suppresses opportunistic managerial motivations that stem from financial hardship. Specifically, we tested the moderating effect of CSR on the relationship between financial distress and earnings management. We expected that, while financial distress increases the risk of management's opportunistic choices as previous studies have reported, such an effect will be reduced by CSR performance.

The test results after studying Korean public companies during the period of 2009–2017 supported our assumption. First, consistent with previous studies, our OLS test results

showed that firms' financial distress increases earnings management. We also confirmed that CSR, proxied by the ESG scores, is negatively related to earnings management, which is also in line with the literature. Second, to test our main hypothesis, we found that the ESG score reduces the increasing effect of distress on earnings management. This is because good CSR performers will less likely need to deceive the market because of, first, the positive effects of CSR on the current market response or on their future operating performance. Second, managers of companies that are active in CSR may have little room for discretionary actions due to low agency costs and high monitoring levels.

Since the ESG scores used as a proxy of CSR performance are sums of environmental, social, and governance scores, we tested each score separately. The test results revealed that the moderating effect of CSR is mainly related to environmental activities. The effect weakens when we use the social score, and no results remain in the governance score model. Our test result that CSR is most potent in activities related to the environment is consistent with the recent global ESG-related discourse, which is triggering a massive change in the behavior of companies and investors, mainly around environmental issues.

This study contributes to the literature in that few studies have considered CSR's role in the relationship between distress and earnings manipulation. Based on the existing literature, the Korean capital-market characteristics generally show consistent features globally; therefore, we believe that our study can inspire related studies using data from each country.

2. Literature Review and Hypothesis

2.1. The Negative Influences of Financial Distress on Accounting Quality

Altman et al. [33] explained corporate financial distress within the context of the following four keywords: business failure on invested capital, technical or chronic insolvency, technical or legal default, and technical or legal bankruptcy. The business state they describe includes not only temporary failures to recover investments and short-lived difficulties in repayment but also more fatal stages that ultimately lead to bankruptcy. In contrast, the term financial constraint applies to relatively moderate cases. Lamont et al. [34] described financial constraints as the "inability to fund" or the market friction that hinders external financing. As an example of financial distress, Whited and Wu [35] presented a company approaching bankruptcy due to its inability to pay financial obligations, and, as a case of financial constraints, they presented a start-up with difficulty in acquiring additional funding for growth. However, in this study, we did not distinguish between the two because we believe that financial difficulties in funding and repayment lie close to the riskier side on a single continuum of financial soundness.

Studies have shown that in times of economic downturn, distressed firms lose market shares [36] and stock returns [34,37]. As financial difficulties are related to the possibility of failure of reimbursement, the degree of a company's financial inability is essential from the investors' perspective. Since the 1960s, investors and researchers have endeavored to understand the financial condition and early detection of corporate bankruptcy; therefore, it remains one of the main topics in corporate finance [38]. Researchers have proposed various models, including univariate determinant models (e.g., [39]), multivariate determinant models (e.g., [40]), and logit models (e.g., [41]); some artificial intelligence models recently became popular [42].

Even in the present when standards for disclosures have been strengthened, such as increasing interest in CSR-related disclosures and regulatory demands in developing countries (e.g., [43]), firms approaching a certain level of financial difficulties may change their reporting behavior to mitigate negative responses from investors. Traditionally, studies have focused on debt covenant violation cases. For example, DeFond and Jiambalvo [10] discovered an income-increasing earnings management before the violations occurred. They reported that this increase in abnormal accruals was evident in the violation year, after excluding high write-off cases such as management changes or going-concern opinions. Sweeney's [11] study of accounting change also confirmed income-increasing earnings

management behaviors of businesses that closed due to debt covenant violations. According to Jaggi and Lee [12], this manipulation of earnings happens when distress is rather temporal. A similar finding of income-increasing earnings management behavior was reported in Beneish et al.'s [3] study on defaulted companies.

Using composite distress measures, such as those used by Altman [40], Ohlson [41], Kaplan and Zingales [44], Whited and Wu [35], and Hadlock and Pierce [45], recent studies have tested the "constrained" or "distressed" firms' behaviors. For example, in the study by Farrell et al. [5], financially constrained firms repurchased fewer stocks and relied on accrual earnings management rather than real earnings management, implying that constrained firms run out of cash. Non-US studies discovered data on accrual earnings manipulation [8,9], while others reported distressed firms' reliance on real earnings management [6,8].

Several studies have focused on the earnings management of distressed firms under certain limited conditions. According to Linck et al. [4], financially constrained companies tend to manipulate earnings when they have investment opportunities. In this case, managers use earnings management to enable companies that have investment opportunities but are struggling with external financing to successfully borrow money and achieve investment efficiency. Kurt [7] focused on the constrained firms' seasoned equity offerings and discovered income-increasing earnings management. In addition to earnings management, distressed firms' managers tend to issue more optimistic forecasts [46] and have less conservative reporting [2].

2.2. The Positive Influences of Corporate Social Responsibility on Accounting Quality

The most widely used CSR definition originated from the European Communities [47]. According to the Commission of the European Communities [48], CSR is "a concept whereby companies integrate social and environmental concerns in their business operations and their interaction with stakeholders voluntarily." In 2011, European Union simplified it as "the responsibility of enterprises regarding their impacts on society [49]." This definition is reminiscent of the classical approach to CSR, which placed more emphasis on obligations.

Even with mixed empirical results, the consensus generally supports the idea that CSR has some positive effects on companies. The most widely studied effect is that on corporate performance [50–54]. The logic behind it is based on the stakeholder theory [55]. A company that satisfies stakeholders lowers agency costs and improves reputation, resulting in favorable responses from the customers and capital market. Conversely, if stakeholders' implicit expectations are not met, market concerns and risk premiums rise, leading to a loss of the firm's investment opportunities [29,53,54,56–58]. If companies actively respond to social and environmental risks without externalizing them, future costs, due to frictions with regulatory agencies and litigations, will be suppressed [58,59]. Capital costs decrease when more investors are interested, which allows risk diversification [60,61]. Accumulation of reputation works as an intangible asset, performing as insurance in a crisis [62].

A number of studies have reported that CSR diminishes earnings management [20–28]. Relatively few studies view CSR as a means to manipulate earnings [30,63–65]. Studies on CSR in Asian and Korean markets also generally report a decrease in earnings management [22,66–69]. The logics that can justify the dominant empirical results are that socially responsible managers tend to act more responsibly due to ethical or institutional reasons [21,30] because CSR decreases information asymmetry and increases monitoring, leaving no room for manipulation [25,31,32], and because CSR eliminates the need for earning management due to performance improvement [21], lowering earnings management levels in CSR firms.

2.3. Hypothesis

Studies have shown that companies in financial difficulties are motivated to make earnings management. The opportunistic management hypothesis posits that opportunistic

managers take advantage of information asymmetry through earnings management to meet the market expectations and earn personal bonuses [70–76]. The signaling hypothesis states that differently motivated managers, who try to resolve information asymmetry by conveying the true corporate prospects hidden in the current financial statements, will also manipulate earnings [77–79]. Empirical studies on financial distress have shown that management may perform earnings management to avoid losing future investment opportunities due to impending financial constraints [4,7], to avoid penalties for breaching debt covenants [10,11], or to mislead the market while trying to exit a company's financial crisis that could lead it to bankruptcy [1–3,5]. In summary, when a company is in financial trouble, its managers will have a more solid motivation to manipulate its reported earnings than when it is in a financially healthy environment.

Studies on CSR have suggested that a company's consistent CSR performance can play a simultaneous role in reducing the possibility of financial distress and the need for earnings management. This is because good CSR has some positive effects, such as cost reduction, better operating performance, reputation enhancement, and risk minimization [80]. Because CSR requires active stakeholder engagement, a good CSR performance is related to a lower agency problem and, therefore, less possibility of short-termism or opportunistic managerial behaviors [25,31,32,81,82]. Better CSR communication can reduce information asymmetry [83], and a lower information asymmetry decreases the likelihood of financial distress [84]. Because CSR improves relations with stakeholders and, as a result, enhances the long-term sustainability of firms, and reduces the likelihood of incurring socially irresponsible behaviors and related costs, the expected risk of financial distress is decreased, resulting in higher credit ratings [85]. Test results from several studies generally confirm that a negative relationship exists between CSR and earnings management [20–28]. They also confirm that a negative relationship exists between CSR and financial distress [83,86–88].

In summary, the risk of financial distress can motivate managers to manipulate earnings. However, CSR can decrease the needs or chances of opportunistic managerial choices. Therefore, we conjecture that for a good CSR performer, the impact of financial distress on earnings management will be weakened. As such, this study's hypothesis is presented as follows:

Hypothesis: CSR activities reduce the impact of financial distress on earnings management.

3. Research Design

3.1. Data

This study used 3940 firm-years listed on the Korean stock market between 2009 and 2017, excluding financial companies. The original firm-years totaled 20,144 but reduced to 3940 after excluding all the missing values of the dependent, independent, and control variables. We winsorized the main variables by 1% to control for the likelihood that extreme values distort the test results. The selected proxies of CSR in this study were the ESG index of the Korea Corporate Governance Service and that of the Sustinvest Co., Ltd. Although these two measures provide CSR assessments for the most significant number of companies in Korea compared to other CSR indices, these two ESG variables are among the main reasons for the sampling reduction. These two ESG indices limited our sample to 6129 and 4180, before considering other variables. Regarding the control variables, since our financial data were limited to companies audited by registered accounting firms, companies that had contracted independent auditors, other than audit firms, were excluded, resulting in missing values. The third reason for the data loss is that the financial distress variables were measured depending on several variables, which may have had missing values among them.

3.2. Model and Variables

Since this study investigated the role of CSR in the relationship between financial hardship and earnings management, we constructed the test model as follows.

$$EM = \beta_1 + \beta_2\ CSR + \beta_3\ distress + \beta_4\ distress \times CSR + \beta_5\ size + \beta_6\ lev + \beta_7\ roa + \beta_8\ loss + \beta_9\ growth + \beta_{10}\ age + \beta_{11}\ funding + \beta_{12}\ ceofirst + \beta_{13}\ ceoten + \beta_{14}\ ceoage + \beta_{15}\ maj + \beta_{16}\ for + \epsilon \quad (1)$$

See the Appendix A for the definition of variables in the above model. We used the modified Jones Model proposed by Dechow et al. [89] to measure earnings management (*EM*). Earnings management is derived from the following equation.

$$TA_t/A_{t\text{-}1} = \alpha_0\ (1/A_{t\text{-}1}) + \alpha_1\ ((\Delta REV_t - \Delta REC_t)/A_{t\text{-}1}) + \alpha_2\ (PPE/A_{t\text{-}1}) + \varepsilon_t \quad (2)$$

Total accruals (*TA*) are derived from the statement of cash flows based on Hribar and Collins [90], who argued that total accruals extracted from the statement of financial position would be contaminated by non-operating activities. *TA* is calculated by subtracting operating cash flows from net income. *A* is the total assets for the last period, and ΔREV and ΔREC represent changes in revenues and receivables, respectively. *PPE* means gross property, plant, and equipment. This model assumes that the non-discretionary accruals measured by *TA* are attributed to the economic environment, that is, current and non-current accruals measured by cash sales and *PPE*, respectively, and the unexplained part (the residual) is the discretionary accrual, which is our earnings management variable.

For the first proxy for distress, we employed the Z-score originally by Altman [40]. As the Z-score is one of the earliest models used to predict bankruptcy, it is among the most popular and frequently used measures. The score is based on the equation below:

$$Z\text{-}score = 1.2\ X_1 + 1.4\ X_2 + 3.3\ X_3 + 0.6\ X_4 + 1.0\ X_5 \quad (3)$$

Each of X_1 to X_5 represents working capital, retained earnings, earnings before interest rates, market capitalization, and sales, all deflated by total assets. In this model, the higher the number, the more financially healthy companies are. To measure financial difficulties, we multiplied the score by -1.

Altman [91] presented a bankruptcy model for Korean companies, based on a sample of Korean default data. Since this model is based on a Korean sample, it might be a better choice for predicting financial distress in Korean companies. Therefore, we selected the K-score as our second proxy of distress. The model is structured as follows:

$$K\text{-}score = -17.862 + 1.472\ X_1 + 3.041\ X_2 + 14.839\ X_3 + 1.516\ X_4 \quad (4)$$

X_1, X_2, X_3, and X_4 denote the log of total assets, sales deflated by total assets, retained earnings deflated by total assets, and market value of equity deflated by total liability, respectively.

The last variable we used to proxy *distress* is the interest compensation ratio obtained by dividing operating income (or operating cash flows) by interest expense, which indicates a company's ability to pay its interest expenses. Korean banks and related government authorities have classified companies with an interest compensation ratio less than 1 for three consecutive years as marginal companies. Therefore, a dummy variable was introduced to represent companies with a ratio of less than 1 for three consecutive years as companies with financial distress.

We selected ESG scores of the following institutions as the *CSR* variable: first, the Korea Corporate Governance Service (KCGS) conducts ESG assessments on hundreds of listed Korean companies every year, and their ESG score is used in several SRI indexes for the Korea Stock Exchange (KRX) [92]. Second, we used the ESG scores of Sustinvest, an independent ESG consulting firm. Every year, Sustinvest evaluates the ESG score of a

number of Korean-listed companies, similar to that of KCGS, and provides information to customers such as pension funds and other investment institutions [93].

We included control variables that may influence the company's non-discretionary and discretionary accruals. Since discretionary accruals may correlate with the level of financial performance of a firm, such as company size, profitability, external funding, and growth potential, we controlled related financial variables. We included company size (*size*), return on asset (*roa*), net loss dummy (*loss*), and the sales growth rate (*growth*) in our model. We also controlled for leverage (*lev*) and a dummy that gives 1 when the increase in stock or bonds is more than 10% (*funding*). We considered CEO characteristics, such as a new CEO dummy (*ceofirst*), CEO's tenure (*ceoten*), and age (*ceoage*) because they may have different incentives or capabilities of earnings management depending on the timing of their service in a firm [94,95]. Finally, we controlled the ownership rates of the majority shareholders (*maj*) and foreign investors (mostly institutional investors) (*for*), as major shareholders can affect a firm's accrual behavior.

4. Results

4.1. Descriptive Statistics and Correlation Matrix

Table 1 shows the descriptive statistics of the variables employed in this study. The 1% winsorization influenced all variables' minimum and maximum values, and the mean and median of *EM* were positive but close to zero. Both *distress* variables based on Altman [40,91] showed negative mean and median values, and among them, the *K-score* value was immensely more negative. In addition to the version of operating profit (operating profit/interest expense, for *icr_oi* dummy), we also employed a variable using operating cash flow (operating cash flow/interest expense, for *icr_ocf* dummy) to measure the interest coverage ratio. For this study's sample, 12.4% and 10.1% of cases based on *icr_oi* and *icr_ocf* were classified as distressed cases, respectively. For the two ESG variables, the KCGS natural log version (*esg*) shows the mean and median of the mid-five points, and the Sustinvest's natural log version (*esg_s*) had a value in the range of 17 to 18 points.

Table 1. Descriptive statistics [1].

Variables	Means	Median	Minimum	Maximum	Standard Deviation
EM	0.003	0.003	−0.372	0.400	0.088
Z-score	−1.525	−1.621	−3.733	2.312	1.060
K-score	−14.028	−15.091	−24.351	14.580	6.527
icr_oi	0.124	0.000	0.000	1.000	0.329
icr_ocf	0.101	0.000	0.000	1.000	0.302
esg	5.467	5.521	4.382	6.434	0.440
esg_s	17.740	18.225	7.692	21.794	2.554
size	19.211	18.955	16.328	23.499	1.297
lev	0.440	0.446	0.042	1.063	0.202
roa	0.011	0.027	−1.008	0.336	0.106
loss	0.282	0.000	0.000	1.000	0.450
growth	0.085	0.044	−0.804	4.236	0.333
age	3.115	3.091	0.693	4.263	0.666
funding	0.250	0.000	0.000	1.000	0.433
ceofirst	0.186	0.000	0.000	1.000	0.389
ceoten	1.625	1.609	0.693	2.833	0.661
ceoage	4.096	4.111	3.664	4.443	0.139
maj	3.620	3.696	1.936	4.387	0.456
for	0.783	0.800	−8.099	4.096	1.848

[1] See Appendix A for variable definitions.

For other control variables, the average of the sample companies in this study was slightly smaller (*size* was less than 20) and somewhat less profitable (*roa* was 1.1%; *loss* was 28.2%) compared to the average sample of the Korean-listed companies, although the

difference was minimal. Companies showed a leverage (*lev*) of approximately 44%, and a quarter of them increased the size of external financing by more than 10% compared to the previous year (*funding*). Companies with new CEOs were approximately 18.6% (*ceofirst*). CEO's tenure (*ceoten*) and age (*ceogae*) are logarithmic variables; the means of the unreported raw data were 5.27 years and 60.66 years, respectively. *Age* is also a logarithm of the number of years from incorporation, and the unreported raw data show that the average company age was approximately 27 years. The two governance variables were also a logarithmic version of the raw ratio multiplied by 100 (*maj, for*), and the original variables were approximately 40% and 7.4%, indicating that, on average, the sample companies in this study have high ownership concentration and attract attention mainly from domestic investors.

Table 2 presents the Pearson correlation matrix. Due to space limitations, only the relationship between the main variables of interest is presented. In Table 2, EM shows a negative correlation with the distress variables (*z_score*, *k_score*, *icr_oi*) at the 1% significance level, contrary to the prediction. EM has a negative relationship with the CSR variables (*esg*, *esg_s*), although it was statistically insignificant. Strong positive correlations exist among the four distress variables. Additionally, a significant negative relationship was found among the CSR and distress variables, which was consistent with the prediction. However, correlation tests do not control the influence of other variables; therefore, a conclusion is presented after the regression analyses using control variables.

Table 2. Correlation matrix.

Variable	*EM*	*Z-score*	*K-score*	*icr_oi*	*icr_ocf*	*esg*	*esg_s*
EM	1						
Z-score	−0.3018	1					
	<0.0001						
K-score	−0.2082	0.8324	1				
	<0.0001	<0.0001					
icr_oi	−0.1536	0.5139	0.5390	1			
	<0.0001	<0.0001	<0.0001				
icr_ocf	0.0141	0.4338	0.4789	0.4859	1		
	0.3767	<0.0001	<0.0001	<0.0001			
esg	−0.0119	−0.0894	−0.3043	−0.1107	−0.1042	1	
	0.6536	0.0002	<0.0001	<0.0001	<0.0001		
esg_s	−0.0451	−0.0180	−0.2246	−0.1039	−0.0347	0.4907	1
	0.1152	0.5297	<0.0001	0.0003	0.225	<0.0001	

4.2. The OLS Test Results

In Table 3, the OLS regression results between distress (*CSR*) and *EM* are presented. Control variables were omitted from the table due to space limitations. For all four versions of distress models in columns 1–4 of Table 3, a significant positive effect was found at the 1% significance level for the dependent variable *EM*. Subsequently, in the fifth and sixth columns, only one of the two versions of the *CSR* variables had a significant negative effect on *EM* at the 10% significance level. Table 3 shows that our data provide consistent results with the literature by confirming the well-proven relationship between distress and earnings manipulation; however, it only partially confirms the more-proven relationship between *CSR* and earnings management.

Table 3. Regression analysis on the effect of CSR and distress on EM [1].

Variables Dependent	Model1 *EM*	Model2 *EM*	Model3 *EM*	Model4 *EM*	Model5 *EM*	Model6 *EM*
Independent						
Z-score	0.007 *** (3.655)					
K-score		0.002 *** (5.759)				
icr_oi			0.017 *** (3.800)			
icr_ocf				0.057 *** (12.576)		
esg					−0.010 * (−1.674)	
esg_s						−0.001 (−1.561)
Constant	0.100 (1.554)	0.017 (0.258)	0.077 (1.192)	0.059 (0.930)	0.140 ** (2.026)	0.105 (1.346)
Control var.	controlled	controlled	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled	controlled	controlled
Observations	3940	3939	3940	3940	1683	1222
Adj. R-squared	0.260	0.264	0.260	0.286	0.231	0.241
F	25.28	25.74	25.30	28.75	10.55	8.460

[1] Test models are as follows: $EM = \beta_1 + \beta_2$ *distress (CSR)* $+ \beta_n$ *control variables* $+ \varepsilon$. See Appendix A for variable definitions. *, **, *** Denote significance at $p < 0.01$, < 0.05, and < 0.01, respectively.

Table 4 shows the test results of the moderating effect of *CSR* in the *distress-EM* relationship, which is the research hypothesis of this study. In Table 4, we employed the ESG score of KCGS as the *CSR* variable. Control variables were omitted from the table due to space limitations. When *Z-score* was used as the proxy of *distress* in column 1, the moderating effect was not clear. However, when we tested K-score in the second column, the coefficients of *esg*, *K-score*, and *K-score* * *esg* were all statistically significant, and all signs were in the expected direction. In columns 3 and 4, although the significance of *esg* disappeared, the direction and significance of the coefficients of *distress* and the interaction variables were as expected. Test results in Table 4 confirmed our hypothesis that CSR can alleviate the negative effect of distress associated with financial reporting.

Table 4. Regression analysis on the moderating effect of CSR in the distress–EM relationship (1) [1].

Variables Dependent	Model1 *EM*	Model2 *EM*	Model3 *EM*	Model4 *EM*
Independent				
esg	−0.011 (−1.328)	−0.030 *** (−2.583)	−0.007 (−1.119)	−0.006 (−0.926)
Z-score	0.020 (0.923)			
*Z-score * esg*	−0.002 (−0.600)			
K-score		0.010 *** (2.985)		
*K-score * esg*		−0.002 ** (−2.357)		
icr_oi			0.215 *** (3.362)	
*icr_oi * esg*			−0.036 *** (−3.003)	

Table 4. *Cont.*

Variables Dependent	Model1 *EM*	Model2 *EM*	Model3 *EM*	Model4 *EM*
icr_ocf				0.209 ***
				(3.252)
*icr_ocf * esg*				−0.028 **
				(−2.344)
Constant	0.171 **	0.197 **	0.094	0.055
	(2.299)	(2.227)	(1.351)	(0.797)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	1683	1683	1683	1683
Adj. R-squared	0.233	0.240	0.241	0.271
F	10.29	10.66	10.71	12.36

[1] Test models are as follows: $EM = \beta_1 + \beta_2\ esg + \beta_3\ distress + \beta_4\ distress{*}esg + \beta_n\ control\ variables + \varepsilon$. See Appendix A for variable definitions. *, **, *** Denote significance at $p < 0.01$, < 0.05, and < 0.01, respectively.

Table 5 provides the test results for the CSR variable, using Sustinvest's ESG score instead of the KCGS score. Control variables were omitted due to space limitations. Columns 1 and 2, whereby the z- and K-scores were tested as *distress*, show more robust results than in Table 4, while, in columns 3 and 4, the interest coverage ratio models did not have the expected outcomes. Considering Tables 4 and 5 together, even with variations in the results depending on the selected proxies, the general tendency suggests that the positive effect of *distress* on *EM* was reduced by *CSR*, which confirms our hypothesis.

Table 5. Regression analysis on the moderating effect of CSR in the distress–EM relationship (2) [1].

Variables Dependent	Model1 *EM*	Model2 *EM*	Model3 *EM*	Model4 *EM*
Independent				
esg_s	−0.006 ***	−0.008 ***	−0.001	−0.002 *
	(−3.092)	(−3.092)	(−1.349)	(−1.687)
Z-score	0.046 ***			
	(3.095)			
*Z-score * esg_s*	−0.002 ***			
	(−2.752)			
K-score		0.008 ***		
		(3.108)		
*K-score * esg_s*		−0.000 ***		
		(−2.718)		
icr_oi			0.082	
			(1.565)	
*icr_oi * esg_s*			−0.004	
			(−1.195)	
icr_ocf				0.149 **
				(2.406)
*icr_ocf * esg_s*				−0.005
				(−1.440)
Constant	0.180 **	0.197 **	0.087	0.043
	(2.216)	(2.125)	(1.111)	(0.546)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	1222	1222	1222	1222
Adj. R-squared	0.247	0.247	0.244	0.269
F	8.405	8.411	8.302	9.331

[1] Test models are as follows: $EM = \beta_1 + \beta_2\ esg\_s + \beta_3\ distress + \beta_4\ distress{*}esg\_s + \beta_n\ control\ variables + \varepsilon$. The difference from Table 4 is that Sustinvest's ESG score was used as the CSR variable. See Appendix A for variable definitions. *, **, *** Denote significance at $p < 0.01$, < 0.05, and < 0.01, respectively.

4.3. Additional Test: Endogeneity

The unknown but commonly grounded characteristics of a company, such as managerial decisions, may change company-related variables altogether such that a superficial relationship can appear between each variable, even without a causal relationship [96,97]. For example, a large market-dominant can do everything well: performance, governance, accounting policies, and even CSR. When better CSR performances are found in such companies, better accounting policies can be accidentally discovered, and researchers interpret the grouping of these discoveries as a systematic correlation between CSR and accounting quality. Therefore, many CSR studies control endogeneity before presenting their conclusions (e.g., [85,86,98,99]). In this study, we checked the CSR-related endogeneity using the two-stage least squares estimation method (2SLS). Following John et al. [100], as an instrumental variable, we employed the industry median of the endogenous variable.

Table 6 shows test results of the endogeneity-controlled version of our main test model. Consistent with the test results in Table 4, the intersections generally show negative values with 1% or 5% statistical significance, supporting the hypothesis of this study. Table 6 confirms that the mitigating effect of *CSR* on the relationship between *distress* and *EM* is robust, after considering its endogeneity. Control variables are not shown due to space limitations.

Table 6. Regression analysis on the moderating effect of CSR in the distress–EM relationship after endogeneity control [1].

Variables **Dependent**	**Model1** ***EM***	**Model2** ***EM***	**Model3** ***EM***	**Model4** ***EM***
Independent				
esg1	−0.026 (−1.458)	−0.050 ** (−2.443)	−0.021 (−1.267)	−0.018 (−1.095)
Z-score	0.018 (0.695)			
*Z-score * esg1*	−0.002 (−0.407)			
K-score		0.012 *** (2.734)		
*K-score * esg1*		−0.002 ** (−2.224)		
icr_oi			0.228 *** (3.080)	
*icr_oi * esg1*			−0.038 *** (−2.762)	
icr_ocf				0.206 *** (2.822)
*icr_ocf * esg1*				−0.027 ** (−2.016)
Constant	0.213 ** (2.411)	0.273 ** (2.514)	0.131 (1.614)	0.089 (1.104)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	1683	1683	1683	1683
Adj. R-squared	0.233	0.240	0.240	0.270
F	10.29	10.67	10.67	12.33

[1] This table shows the test result of using the fitted value instead of the original CSR variable (*esg*) in the moderating effect model of CSR. Test models are as follows: $EM = \beta_1 + \beta_2\ esg1 + \beta_3\ distress + \beta_4\ distress{*}esg1 + \beta_n\ control\ variables + \varepsilon$. See Appendix A for variable definitions. *, **, *** Denote significance at $p < 0.01$, < 0.05, and < 0.01, respectively.

In Table 7, we performed another endogeneity-controlled test, this time for the Sustinvest's esg score (*esg_s*). Unlike in Table 5, in column 3 of Table 7 the interaction showed a statistical significance. Considering Tables 5 and 7 together and after considering an alternative CSR scores, we concluded that *CSR*'s moderating effect on the relationship

between *distress* and *EM* is verified. Control variables in all models are not shown due to space limitations.

Table 7. Regression analysis on the moderating effect of CSR in the distress–EM relationship after endogeneity control [1].

Variables Dependent	Model1 *EM*	Model2 *EM*	Model3 *EM*	Model4 *EM*
Independent				
esg_s1	−0.012 *** (−2.992)	−0.015 *** (−3.310)	−0.007 * (−1.873)	−0.007 * (−1.892)
Z-score	0.055 *** (2.786)			
*Z-score * esg_s1*	−0.003 ** (−2.493)			
K-score		0.010 *** (2.982)		
*K-score * esg_s1*		−0.001 *** (−2.666)		
icr_oi			0.146 ** (2.288)	
*icr_oi * esg_s1*			−0.007 ** (−1.992)	
icr_ocf				0.148 ** (2.203)
*icr_ocf * esg_s1*				−0.005 (−1.326)
Constant	0.180 ** (2.194)	0.223 ** (2.257)	0.072 (0.908)	0.039 (0.503)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	1222	1222	1222	1222
Adj. R-squared	0.247	0.248	0.247	0.270
F	8.429	8.453	8.415	9.344

[1] This table shows the test result of using the fitted value instead of the original CSR variable (*esg_s*) in the moderating effect model of CSR. Test models are as follows: $EM = \beta_1 + \beta_2\ esg\_s1 + \beta_3\ distress + \beta_4\ distress{*}esg\_s1 + \beta_n\ control\ variables + \varepsilon$. See Appendix A for variable definitions. *, **, *** Denote significance at $p < 0.01$, < 0.05, and < 0.01, respectively.

4.4. Additional Test: Separate Analysis of the Environment, Society, and Governance in the ESG Scores

The ESG score of KCGS evaluates the three aspects of E, S, and G separately; each represents environmental-, social-, and governance-related performance. Tables 8 and 9 separately show the moderating effect of each subcategory of the KCGS's score. Control variables in all models are not shown due to space limitations. In Panel A of Table 8, whereby only the environmental score was tested, significant moderating effects were found at the 5% or 10% significance level, except column 1. Subsequently, in Panel B of Table 8, whereby the social score was used, no significant result was obtained, except in column 2. Moreover, in Panel C, whereby only the governance score was tested, no moderating effects were observable. The endogeneity-controlled test results in Table 9 provided consistent results. Based on the test results of Tables 8 and 9, we concluded that *CSR*'s mitigating effect on the *distress–EM* relationship appears in companies that are primarily active in environmental concerns rather than social or governance performers. Control variables in all models are not shown due to space limitations.

Table 8. Regression analysis on the moderating effect of the environmental, social, or governance score in the distress–EM relationship [1].

Panel A: Environmental Score Only	**Model1** ***EM***	**Model2** ***EM***	**Model3** ***EM***	**Model4** ***EM***
environment	−0.009 **	−0.019 ***	−0.004 *	−0.005 **
	(−2.122)	(−3.220)	(−1.781)	(−2.165)
Z-score	0.012 **			
	(2.226)			
*Z-score*environment*	−0.002			
	(−1.165)			
K-score		0.003 ***		
		(3.444)		
*K-score*environment*		−0.001 **		
		(−2.578)		
icr_oi			0.054 ***	
			(3.339)	
*icr_oi *environment*			−0.014 **	
			(−2.192)	
icr_ocf				0.092 ***
				(5.264)
*icr_ocf *environment*				−0.012 *
				(−1.826)
Constant	0.125	0.093	0.078	0.037
	(1.586)	(1.146)	(0.995)	(0.481)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	1231	1231	1231	1231
Adj. R-squared	0.243	0.247	0.247	0.273
F	8.306	8.468	8.477	9.566
Panel B: Social score only	**Model1** ***EM***	**Model2** ***EM***	**Model3** ***EM***	**Model4** ***EM***
social	−0.002 *	−0.004 **	−0.001	−0.001
	(−1.893)	(−2.030)	(−1.338)	(−1.410)
Z-score	0.017 **			
	(2.276)			
*Z-score*social*	−0.001			
	(−1.434)			
K-score		0.004 ***		
		(3.178)		
*K-score*social*		−0.000 *		
		(−1.728)		
icr_oi			0.017	
			(0.728)	
*icr_oi *social*			−0.000	
			(−0.019)	
icr_ocf				0.058 **
				(2.156)
*icr_ocf *social*				−0.000
				(−0.063)
Constant	0.110 *	0.053	0.076	0.059
	(1.702)	(0.785)	(1.176)	(0.941)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	3907	3906	3907	3907
Adj. R-squared	0.261	0.265	0.261	0.287
F	24.39	24.83	24.42	27.65

Table 8. *Cont.*

Panel C: Governance score only	**Model1** ***EM***	**Model2** ***>EM***	**Model3** ***EM***	**Model4** ***EM***
governance	0.018 (0.642)	0.045 (1.062)	0.013 (0.827)	0.011 (0.725)
Z-score	0.003 (0.063)			
*Z-score*governance*	0.001 (0.087)			
K-score		−0.005 (−0.578)		
*K-score*governance*		0.002 (0.748)		
icr_oi			−0.114 (−0.610)	
*icr_oi *governance*			0.035 (0.744)	
icr_ocf				−0.220 (−1.040)
*icr_ocf *governance*				0.073 (1.346)
Constant	0.074 (0.570)	−0.094 (−0.525)	0.065 (0.670)	0.038 (0.396)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	1231	1231	1231	1231
Adj. R-squared	0.240	0.241	0.242	0.270
F	8.201	8.222	8.283	9.408

[1] This table is the result of employing environment, social, or governance instead of esg as the CSR variable. Test models are as follows: $EM = \beta_1 + \beta_2$ *environment (social, governance)* $+ \beta_3$ *distress* $+ \beta_4$ distress*environment (social, governance) $+ \beta_n$ control variables $+ \varepsilon$. See Appendix A for variable definitions. *, **, *** Denote significance at $p < 0.01$, < 0.05, and < 0.01, respectively.

Table 9. Regression analysis on the moderating effect of the environmental, social, or governance score in the distress–EM relationship after endogeneity control [1].

Panel A: Environmental Score Only	**Model1** ***EM***	**Model2** ***EM***	**Model3** ***EM***	**Model4** ***EM***
environment	−0.007 (−1.344)	−0.013 ** (−2.296)	−0.004 (−0.731)	−0.003 (−0.615)
Z-score	0.011 *** (3.192)			
*Z-score*environment*	−0.001 (−0.913)			
K-score		0.003 *** (6.406)		
*K-score*environment*		−0.001 *** (−3.026)		
icr_oi			0.040 *** (4.219)	
*icr_oi *environment*			−0.009 ** (−2.105)	
icr_ocf				0.075 *** (8.117)
*icr_ocf *environment*				−0.008 ** (−2.027)
Constant	0.095* (1.863)	0.039 (0.732)	0.065 (1.270)	0.043 (0.863)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	3174	3174	3174	3174
Adj. R-squared	0.279	0.285	0.281	0.308
F	23.70	24.46	23.98	27.11

Table 9. *Cont.*

Panel B: Social Score Only	**Model1** ***EM***	**Model2** ***EM***	**Model3** ***EM***	**Model4** ***EM***
social	−0.004	−0.008	−0.004	−0.003
	(−0.718)	(−1.409)	(−0.784)	(−0.641)
Z-score	−0.000			
	(−0.029)			
*Z-score*social*	0.001			
	(0.488)			
K-score		0.004		
		(1.613)		
*K-score*social*		−0.000		
		(−0.910)		
icr_oi			0.075	
			(1.422)	
*icr_oi *social*			−0.005	
			(−1.099)	
icr_ocf				0.094*
				(1.719)
*icr_ocf *social*				−0.003
				(−0.683)
Constant	0.103	0.067	0.076	0.061
	(1.510)	(0.861)	(1.140)	(0.943)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	3940	3939	3940	3940
Adj. R-squared	0.260	0.264	0.260	0.286
F	24.44	24.90	24.48	27.78
Panel C: Governance Score Only	**Model1** ***EM***	**Model2** ***EM***	**Model3** ***EM***	**Model4** ***EM***
governance	0.006	0.009	−0.037	−0.049
	(0.172)	(0.219)	(−1.212)	(−1.611)
Z-score	−0.102 *			
	(−1.891)			
*Z-score*governance*	0.028 **			
	(2.054)			
K-score		−0.011		
		(−1.206)		
*K-score*governance*		0.003		
		(1.458)		
icr_oi			−0.102	
			(−0.583)	
*icr_oi *governance*			0.032	
			(0.714)	
icr_ocf				−0.478 **
				(−2.488)
*icr_ocf *governance*				0.138 ***
				(2.797)
Constant	0.073	−0.034	0.214 *	0.234 *
	(0.534)	(−0.208)	(1.731)	(1.932)
Control var.	controlled	controlled	controlled	controlled
ind & year	controlled	controlled	controlled	controlled
Observations	3174	3174	3174	3174
Adj. R-squared	0.279	0.284	0.280	0.308
F	23.79	24.28	23.87	27.21

[1] Test models employ the fitted value instead of the original CSR variable (environment, social, governance) in the moderating effect model of CSR. Test models are as follows: $EM = \beta_1 + \beta_2$ *environment (social, governance)* $+ \beta_3$ *distress* $+ \beta_4$ *distress*environment (social, governance)* $+ \beta_n$ *control variables* $+ \varepsilon$. See Appendix A for variable definitions. *, **, *** Denote significance at $p < 0.01$, < 0.05, and < 0.01, respectively.

5. Conclusions

As companies' financial health has long been a priority concern for investors, studies have shown appropriate interests regarding this issue, from the friction on external financing to the risk of bankruptcy. Some studies have investigated the accounting reporting aspects of companies at financial risk and have found an increasing tendency of earnings management for troubled companies. Studies have also confirmed that the manipulation of reported earnings is reduced in firms that perform well in CSR activities. However,

few studies have focused on how distress affects corporate financial reporting behavior when CSR is considered. This study attempted to contribute to the literature by observing this point.

Our test results first confirmed that this study's sample was consistent with those used in the existing literature: the increasing effect of distress and the mitigating effect of CSR on earnings management. Next, test results support our hypothesis that CSR reduces the increasing effect of financial distress on earnings management. Furthermore, our test results showed that environmental activities among CSR are the leading cause of this effect.

The risk reduction effect of CSR suggested in previous studies may be related to the reduction in future compliance costs of socially irresponsible behaviors or any failure to comply with regulations. For example, suppose companies fail to cope with the increasing regulations on internal combustion engines. In that case, they will have to bear the regulatory costs or, at the extreme, they will be forced out of the market. Thus, in the current global environment where ESG is dramatically changing companies' and investors' behavior, the immediate and critical factor in companies' sustainability is still the environment. If a company has responded appropriately to climate change, it will reduce the risk of expenditure on regulatory costs or future competitiveness loss. Therefore, proper environmental activities will decrease market concerns and may mitigate the impact of difficulties in financing and repayment.

In this study, we tested, from the accounting aspect, how CSR activities affect corporate actions related to immediate financial risks. Currently, there are globally growing interests and actions in CSR, especially in terms of ESG and the environment. Over the last decades, businesses' concerns about long-term sustainability have been growing, and market uncertainty and risk will continue to exist after the Lehman crisis or the COVID-19 pandemic. We hope that follow-up studies on this subject in different markets will enable market participants to have confidence in the importance of CSR in overcoming a company's business risks and protecting the quality of accounting disclosure.

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Appendix A. Variables Definitions

Dependent variable *EM*: earnings management variable by Dechow et al. [89]'s model;
Independent variables *Z-score*: distress variable by Altman [40]; *K-score*: distress variable by Altman [91]; *icr_oi*: distress dummy variable that gives 1 when the interest compensation ratio calculated as operating income/interest expense is less than 1 for 3 consecutive years; *icr_ocf*: distress dummy variable that gives 1 when the interest compensation ratio calculated as operating cash flow/interest expense is less than 1 for 3 consecutive years; *esg*: CSR variable, a natural log version of KCGS's ESG score; *esg_s*: CSR variable, a natural log version of Sustinvest's ESG score; *environment*: CSR variable, a natural log version of KCGS's Environment score; *social*: CSR variable, a natural log version of KCGS's Social score; *governance*: CSR variable, a natural log version of KCGS's Governance score;
Control variables *size*: natural log of total asset; *lev*: total liability/total asset; *roa*: return on asset; *loss*: a dummy that gives 1 when net loss occurs, and 0 when not; *growth*: percentage growth on sales; *age*: years from company establishment; *funding*: a dummy that gives 1 when the total amount of bonds and stocks issued increases by 10% or more compared to

the previous year; *ceofirst*: a dummy that gives 1 in the first year of CEO; *ceoten*: natural log of the number of years the CEO has held the current position; *ceoage*: natural log of CEO's age; *maj*: natural log of the largest shareholder's ownership percentage x 100; *for*: natural log of foreign investors' ownership percentage x 100;
Endogeneity-controlled variables *esg1*: endogeneity-controlled version of esg; *esg_s1*: endogeneity-controlled version of esg_s; *environment1*: endogeneity-controlled version of environment; *social1*: endogeneity-controlled version of social; *governance1*: endogeneity-controlled version of governance.

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