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Financially Distressed Firms: Environmental, Social, and Governance Reporting in Indonesia

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Abstract: This study examines the relationship between financial distress and environmental, social, and governance (ESG) disclosure. We hypothesize that financially distressed firms are tempted to enhance ESG disclosure as it provides higher performance in terms of financial and market perspectives. ESG disclosure needs substantial resources, which financially distressed firms may not be able to provide. In Indonesian settings, we find that financially distressed firms have lower ESG disclosure quality than non-distressed firms. Our results are robust due to lagged variable, Heckman's two stages, and coarsened exact matching regression showing consistent results. Furthermore, our results are consistent with three years of rolling windows of financial distress and all sections of ESG reporting, except the general information section. This study extends the scope of prior studies by focusing on firms' eagerness to provide higher quality ESG disclosure, particularly distressed firms.

Keywords: financial distress; ESG disclosure; CSR disclosure; sustainability reporting; risk preference

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1. Introduction

Mounting studies examine the impact of ESG (environmental, social, and governance) reporting on firms, specifically on firm performance [1–6]. One of recent study examined 2200 unique primary studies that examined the relationship between ESG reporting quality and various proxies of firm performance such as operational-based performance (ROA, ROE, ROS) and market-based performance (shares market value, firms' capitalization, and Tobin's Q) [7]. In all these studies, ESG reporting is depicted from notable actions of firms because the majority of the publications found a positive relationship. Furthermore, this study also found more than 2100 other empiric studies—particularly company-focused empiric studies—which suggest a positive ESG relationship [7].

Some studies find a negative relationship between ESG reporting and firm performance [8–10]. Primarily, their argument is based on the fact that ESG-oriented firms that need to show their ESG commitment commonly sacrifice their financial resources, and at the same time are not desired by all the stakeholders [11]. These findings show that the benefits of ESG reporting (or investments) may not be felt in all circumstances [12]. There may be conditions whereby firms do not experience the benefits of ESG reporting. The management of several firms may question this inconsistency of results. Thus, questions such as whether ESG reporting works out in firms' current conditions or whether ESG reporting is a solution for firms, are commonly raised by management.

Unlike most prior studies that focus on the impact of ESG reporting [13], this study focuses on different perspectives, for instance, whether a firm desires to provide qualified ESG reporting. Some studies begin to question the ESG issue's worthiness [14,15], that it may be extended by focusing on the firm's perspectives. Surely, there is a crystal clear research gap where there are limited studies that document how firms react toward ESG reporting benefits. In typical cases, management would be intrigued by the benefits of ESG reporting offered. They would be competing to provide the highest quality ESG reporting to attain its maximum benefits. ESG reporting is closely related to image, brand, and the reputation of a firm [16], and those sustainability values are more cherished than others values by millennials [17,18]. Ideally, these advantages should be more stimulating for firms that desperately want to enhance their financial performance. For instance, financially distressed firms that are prone to ceasing their operations and bankruptcy will look to restore their financial conditions more than non-financial distressed firms. These rationales are consistent with impression management theory which utilizes discretionary disclosure as much as possible to achieve the firm's objective [19,20].

On the other hand, financially distressed firms may not provide high quality ESG reporting. This behavior is not because they do not want to, rather, they do not have sufficient capital in the form of finance and expertise. It is common for financially distressed firms to have limited access to strategies, thus forcing them to implement a low-cost strategy. Based on conservation of resources (COR) theory, management of financially distressed firms are irrational, and their fear of losing resources dampens their urge to attain higher performance [21,22]. This psychological trait deters firms from providing a high quality of ESG reporting. Based on these arguments, this research posits that the level of desire to provide qualified ESG reporting differs between financially distressed to non-financial distressed firms.

This study uses data of Indonesian non-financial listed firms from 2010 to 2018, which amount to 459 firm-year observations. Limited observations are due to the fact that it is not mandatory for listed firms to publish their sustainability report. Indonesia has been selected due to its unique institutional settings. First, although it is voluntary to publish sustainability reports, Indonesian listed firms show a positive trend from year to year [23]. In addition, the positive trend also applies to the quality of ESG reporting [24]. This trend indicates that management consideration of ESG reporting is appreciated. Second, in 2017, the government published a new statute requiring every listed firm to publish their sustainability report in 2021 and delayed this to 2022 due to the COVID-19 pandemic [25]. Compared to others, Indonesia is one of few countries in the Asia Pacific where the government has a firm commitment to ESG reporting that has translated into regulation [26]. Third, and lastly, as highlighted in [27], limitation to one country allows better control over local variables, which cannot be convincingly controlled if we deal with different countries due to cultural differences. This classification is consistent as our initial analysis, which shows that 30.1% of our sample consists of financially distressed firms.

Our findings highlight that financially distressed firms are reluctant to provide qualified ESG reporting. This result is robust as our coarsened exact matching (CEM) regression and Heckman two-stage regression show consistent results. Moreover, we find a consistent relationship between a three-years rolling window and each component of ESG reporting. These results conclude that in Indonesian financially distressed firms, ESG reporting is perceived as a cost instead of their solution to financial difficulty.

Our study is essential due to its contributions. First, this study is one of only a few studies that focus on precedent ESG reporting. Contributions of thousands of studies showing the benefits of ESG reporting would not be fully utilized if there are limited studies examining firms' eagerness to provide qualified ESG reporting. This study has the potential to assist the linkage completion of comprehensive ESG reporting studies' contributions. Secondly, this study utilizes a psychology theory named COR theory. This result is believed as empirical evidence that business and psychology disciplines are unseparated.

Our third contribution comes from the time frame of our financial distress. Our study confirms that financial distress still remains a major factor in firms' absence of qualified ESG reporting over three years of rolling windows. This result highlights that the psychological impact of financially distressed firms lasts longer and is not easily recovered from. The fourth contribution is that this study employs robust data across ESG reporting standards series considering each component of ESG reporting. Prior studies commonly use a single ESG reporting standard series and a cumulative component of ESG reporting.

Aside from theoretical contributions, this study provides several practical contributions. For the government, this may posit that if the government wants to enhance the corporate ESG reporting quality, minimizing the number of financially distressed firms should also be a consideration. Lastly, although this study does not look at small-medium enterprises (SMEs), most SMEs are also experiencing financial distress and are prone to being out of business, especially during their early stages [28]. This study indirectly points to reasons why SMEs are reluctant involved in ESG activities, including its reporting.

The rest of this article is systematized as follows. The second section focuses on the hypothesis development of the relationship between financially distressed firms and ESG reporting. The third section describes the methodology used in this study. The fourth section is composed of the main result, robustness, and additional analysis. The last section outlines conclusion, limitation, and suggestions for future research.

2. Literature Review

2.1. ESG Reporting as Solution for Financial Distressed Firms

Financially, distressed firms will implement various strategies to recover from their financial conditions. Their "solutions" that have been documented by prior studies include capital restructuring [29,30], replacing cash dividend with share repurchases [31,32], increase monitoring function and decreasing CEO compensation [33]. Some firms prefer to swap cash-based compensation into equity-based compensation for management [34]. Such corporate actions are mainly conducted to increase the cash holding amount as it becomes urgent for financially distressed firms to hold substantial cash [35]. Other strategies that may be questioned from business ethic perspectives are also considered to cover the "true" financial conditions—for instance, earnings management [36] and tax avoidance [37].

Among all alternatives, managing corporate reporting is also considered a critical approach for financially distressed firms [38]. Corporate reporting is crucial for management to convey their operational results during a specific period [39]. One of the reporting types that has empirically proven to increase firm value is ESG reporting [40,41]. In addition, recent study finds that more than 2000 studies document a positive relationship between ESG reporting and firm performance [7]. Another study documents that firms with audited ESG reporting in Malaysia and Indonesia tend to have higher firm value than non-audited ESG reporting [42]. Another relevant study examines one of the sub-topics of ESG reporting, the carbon disclosure, and finds that higher quality of carbon disclosure leads to better firm performance [43]. These studies conclude that ESG reporting will assist the management in identifying and exploiting its competitive advantage, thus enhancing its performance.

Other ESG reporting studies examine the context of the financially distressed firm. For instance, [44] uses Indonesia as one of the countries where some of its giant state-owned enterprises are experiencing financial difficulties. They find that ESG reporting is one approach that effectively prevents financial distress in Indonesian listed firms. Another similar study examines the relationship between ESG reporting and financial distress possibility [45]. Using 651 publicly listed Australian firm-years' data covering the 2007–2013 period, they find ESG activities are negatively correlated with financial distress.

In addition, they also find that the relationship is more pronounced in mature life cycle stages. Another recent study focuses on how ESG reporting helps financially distressed firms experience accelerated recovery from distress and are less likely to file for bankruptcy [13]. Their study became empirical evidence of ESG reporting benefits, especially in the context of financially distressed firms.

The positive relationship between financially distressed firms and ESG reporting is also in line with impression management theory. As a part of society, financially distressed firms come into the limelight for their stakeholders. Aware of this situation, management is motivated to maximize returns and minimize expected punishments, ensure their public image is consistent with their social role, and countering their damaged image due to their financial condition [20]. These motivations drove financially distressed firms' management to conduct a series of impression management strategies, of which one is discretionary disclosure [19], including ESG reporting. Although it may not be appropriate as ESG reporting is used as a "window dressing" method [46], impression management leads financially distressed firms to provide qualified ESG reporting.

We believe escalating previously defined results can motivate the management of financially distressed firms to convey better ESG reporting to its stakeholders. A possibility of buffered business risk accruing social capital through ESG reporting [13] is surely tempting for financially distressed firms. Based on these arguments, we posit:

H1: *Financially distressed firms have a better quality of ESG reporting compared to non-financial distressed firms.*

2.2. ESG Reporting as Predicament for Financial Distressed Firms

Although [7] may end the debate of ESG reporting's benefits justifying that ESG reporting is a "solution" for every business condition and needs may be an overclaim. Looking closer at study [45], the benefits of ESG reporting on minimizing financial distress risk only apply in the matured firm and are not documented in the firm's early stages. Referring back to ESG reporting as a part of sustainable strategic management, it requires management to shift their paradigm from neoclassical economic to open-system assumptions underlying ecological economics [47,48]. This mindset change, without doubt, requires a substantial investment in terms of cost and expertise for its full implementation. These additional costs and expertise may not be covered by certain firms, particularly for financially distressed firms. Thus, in financially distressed firms' context, it is not merely that management does not experience ESG reporting benefit, rather they did not have that alternative to implement. Moreover, there is study that argues that the low financial distress risk of ESG-oriented firms may not be derived from its ESG reporting, instead it is coming from an extensive amount of resources that they control [43].

The refusal of ESG reporting in financially distressed firms also can be defined from COR theory. This psychology-originated theory states that human beings' primary motivation is to build, protect, and foster their resource pools to protect the self and the social bonds that support the self [49]. Its first principle points out that resource loss is disproportionately more salient than resource gain [22], which can justify that not all firms are interested in maximizing the ESG reporting as it will sacrifice their resources. Notably, if the resources used to employ ESG reporting are in single or in a few momentums and insubstantial amount, the refusal of firms will be increased based on this theory, despite its promising benefits in the future.

In addition, COR theory highlights that the belief imbalance between resources loss and resources gain is more pronounced if the individual already lacks resources [49]. Financially distressed firms reflect that condition as they mostly have limited access to resources. Furthermore, both management and stakeholders are believed to enter a defensive mode to preserve the firm's resources, often defensive, aggressive, and irrational [22]. Combined with shareholders theory, which assumes that management will

put their best effort to satisfy the shareholders' wants, it would be less likely for a financially distressed firm to provide a qualified ESG reporting.

The last argument for ESG lies in the shareholders' expense view. Based on this perspective, ESG helps other stakeholders at the expense of shareholders while ESG activities will harm the shareholders' wealth [9]. One of the economic experts states that "the only social responsibility of corporations is to make money" [50] and argues that ESG is just another representation of agency conflict [51]. These rationales are then supported by some studies finding that ESG activities (including ESG reporting) have a detrimental effects on corporations [8–11,52]. Indirectly, it will diminish the financial distressed firms' desire to provide qualified ESG reporting. This is also supported by critiques on ESG reporting [53], which highlight that the International Integrated Reporting Council's effort on encouraging ESG disclosure failed due to the reason that the additional reporting alongside the main financial statement could create confusion and could have very little impact on the financial reporting of companies. In this regard, some researchers suggest that current practices should consider a mutual recording of both financial and environmental aspects using two charts of accounts and multiple records [54]. Nevertheless, ESG also placed an additional burden on the firms in need to gather information on the impacts of a firm's activities on society and environment [53]. In cases when the impact of ESG reporting does not rebound on the firms, it would instead lead to a negative effect on future profitability [53].

Based on the arguments described before, we posit that, to some extent, although offered with benefits, financially distressed firms may not focus on increasing the quality of their ESG reporting. Our second hypothesis has been stated as follows:

H2: *Financially distressed firms have a lower quality of ESG reporting compared to non-financial distressed firms.*

3. Research Methods

3.1. Data and Sample

This study uses Indonesian non-financial listed firms from 2010 to 2018, which publish sustainability reports (SR). Our ESG reporting variable measurement is SR. 2010 has been selected as starting year due to only six listed firms that publish SR in 2009 [23]. On the other hand, 2018 has been selected before the COVID-19 pandemic, and adding it to the observation period may make the results less generalizable. Aside from SR, we are also utilizing the Osiris database for financial variables and annual reports for governance variables. From 7451 firm-year observations of Indonesian listed firms from 2010 to 2018, only 738 observations (9.9%) publish SR. We also exclude financial firms (SIC 6) to avoid bias in our results as the financial industry is highly regulated, including in SR-related regulation. Lastly, we drop samples that did not have data that we required in order to construct our variables, and thus, we have 459 firm-year observations as our final sample. Our sample selection criteria process is provided in Table 1.

Table 1. Sample Selection Criteria.

Description	Observation Amount	Unique Firm Amount
Indonesian listed firms from 2010–2018	7451	837
Less: firms that not publish SR	(6713)	(758)
Less: financial firms (SIC 6)	(222)	(22)
Less: missing data	(57)	(4)
Final observations	459	53

3.2. Variables Operationalization

This study employs nine variables that comprise of one dependent, one interested, and seven control variables. Our dependent variable is ESG reporting (ESG), measured on the Global Reporting Initiatives (GRI) sustainability report guidelines. GRI has been used because this measurement is commonly used in research using ESG, sustainability or CSR reporting. As GRI guidelines have been changed four times during our observation period i.e., from GRI G3, GRI G3.1, GRI G4 and lastly GRI Standard, therefore, SR of our observations may apply differently across GRI guidelines. The ESG reporting variable is measured by the total items disclosed by the firms deflated by total items provided by each GRI guideline. Precisely, GRI G3 consists of 123 items, GRI G3.1 126 items, and GRI G4 150 items. Distinct from other guideline series, GRI standards have two options that are core and comprehensive options. The total items for core options varied for each firm as they are permitted to choose the most relevant items for their current condition. The comprehensive option has 147 items. Following the methodology set out in [55], we also assume the firm will use the GRI guideline applied during the observation year if the firm does not state the series of GRI guidelines used.

The interested variable of this study is financially distressed firms (DISTRESS). DISTRESS is measured by a widely accepted financial distress study, the Altman Z-score [56]. Although some scholars argue that the Altman Z-score may not apply in certain countries, the financial distress studies in Indonesia are dominated by the use of the Altman Z-score model [57]. Furthermore, [58] found that the Altman Z-score model is the most sensitive model in the Indonesian context, compared to the Z'-score, discriminant analysis, logistic regression, and artificial neural network (ANN). The Altman Z-score model is as follows:

$$ZSCORE_t = 3.3 \times A + 0.99 \times B + 0.6 \times C + 1.2 \times D + 1.4 \times E \quad (1)$$

The following equation symbol is defined below:

A is earnings before interest and tax divided by total assets;

B is net sales divided by total assets;

C is firm market value divided by total liabilities;

D is working capital divided by total asset,

E is retained earnings divided by the total assets.

DISTRESS will be "1" if ZSCORE is less than 1.8 and "0" if otherwise.

Our control variables consist of profitability (ROA), leverage (LEV), firm size (FSIZE), firm age (LNAGE), board size (BSIZE), independent commissioner (INDCOM), and public accounting firm size (BIG4). These control variables will be defined in Appendix A and have been used based on prior studies [55,59].

3.3. Empirical Model

This study employs OLS regression using the cluster approach [60] to minimize heteroscedasticity issues. We also use three types of fixed effects: year, industry, and series of GRI guidelines. Our empirical model to test the hypothesis is as follows:

$$ESG_{i,t} = \alpha + \beta_1 DISTRESS_{i,t} + \beta_{2-8} CONTROLS_{i,t} + \beta_{9-11} FIXED_EFFECTS + \epsilon \quad (2)$$

4. Results and Discussions

4.1. Initial Analysis

Our sample distribution is provided in Table 2. The sample distribution is based on industry code using SIC. It shows that the highest (lowest) proportion of financially distressed firms is the services (wholesale & retail trade) industry. These numbers are only shown for listed firms that publish SR that may not be applicable for all Indonesian listed firms' contexts. A fascinating insight that can be concluded from this table is that the desire

of Indonesian listed firms to publish SR is relatively high, although they may have limited access to resources as 30.94% of our sample considered financially distressed firms.

Table 2. Sample Distribution based on Industry Code.

Industry (SIC) ¹	Distress Observations		Non-Distress Observations		Total
	Amount	Percentage	Amount	Percentage	
Agriculture, Forestry and Fishing (0)	16	38.10%	26	61.90%	42
Mining & Construction (1)	54	36.24%	95	63.76%	149
Manufacturing (2)	8	8.79%	83	91.21%	91
Manufacturing (3)	18	29.51%	43	70.49%	61
Transport, Communication, Electric, Gas, & Sanitary Services (4)	35	42.17%	48	57.83%	83
Wholesale & Retail Trade (5)	0	0.00%	17	100.00%	17
Services (7)	11	68.75%	5	31.25%	16
Total	142	30.94%	317	69.06%	459

¹ This table reports the sample distribution based on each industry using SIC single code of 459 firm-year observations. This table provides each industry's observation both in number and percentage.

Our descriptive statistics for this study sample have been provided in Table 3. Uniquely, some observations scored ESG by 1, which means that the firm discloses all the items recommended by GRI on their SR. Furthermore, we document a higher average value of ESG reporting than other countries, such as Australia [45] and the international cooperation dataset [61]. This could be an exciting point that SR of Indonesian listed firms regarding items' amount disclosed.

Table 3. Statistic Descriptive.

Variable ¹	Mean	Median	Minimum	Maximum
ESG	0.414	0.340	0.127	1.000
DISTRESS	0.309	0.000	0.000	1.000
ROA	6.752	4.700	-24.050	42.380
LEV	0.539	0.546	0.145	1.424
FSIZE	30.359	30.398	26.291	33.095
LNAGE	3.509	3.611	1.946	4.625
BSIZE	11.667	12.000	5.000	20.000
INDBOC	2.026	2.000	0.000	5.000
BIG4	0.767	1.000	0.000	1.000

¹ This table reports the descriptive statistics of 459 firm-year observations that used in this study. Descriptive statistics indicator including mean, median, minimum, and maximum value. This analysis using data after winsorizing at 1 and 99 percent.

4.2. Univariate Tests

In total, we conducted two univariate tests, which are a two-sample independent t-tests and Pearson correlation. The two-sample independent t-test is provided in Table 4. It can be seen that there are significant differences in the mean of ESG, ROA, LEV, FSIZE, INDBOC, and BIG4 between distressed and non-distressed firms. This result could be a justification that distressed, and non-distressed firms have different characteristics.

Table 4. Two-Sample Independent t-test.

Variable ¹	Mean of Distressed Firms	Mean of Non-Distressed Firms	Coef.	t-Value
ESG	0.353	0.428	-0.075 ***	-3.426
ROA	-0.340	9.655	-9.995 ***	-10.753
LEV	0.688	0.480	0.208 ***	10.918
FSIZE	30.586	30.153	0.432 ***	3.620
LNAGE	3.503	3.497	0.005	0.108
BSIZE	11.320	11.770	-0.451	-1.553
INDBOC	2.122	1.958	0.165 *	1.734
BIG4	0.638	0.806	-0.169 ***	-4.010

¹ This table reports a two-sample independent t-test using 459 firm-year observations. DISTRESS variable is used as a treatment variable to divide the sample into two sub-sample. This analysis using winsorized data at 1 and 99 percent levels. * $p < 0.1$, *** $p < 0.01$.

Our subsequent univariate analysis is the Pearson correlation provided in Table 5. This analysis demonstrates that most of our control variables statistically correlate with our dependent variable, ESG, except LNAGE. On the other hand, variables that documented significance in two-sample independent t-tests also significantly correlate with DISTRESS in Pearson correlation. Both of our univariate analyses confirm that financially distressed firms have lower ESG reporting quality (two-sample independent t-test, coef. = -0.075, $t = -3.426$; Pearson, coef. = -0.150, $p = 0.001$).

Table 5. Pearson Correlation.

Variable ¹	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ESG (1)	1.000								
DISTRESS (2)	-0.150 *** (0.001)	1.000							
ROA (3)	0.203 *** (0.000)	-0.434 *** (0.000)	1.000						
LEV (4)	-0.193 *** (0.000)	0.438 *** (0.000)	-0.399 *** (0.000)	1.000					
FSIZE (5)	0.226 *** (0.000)	0.159 *** (0.000)	-0.067 (0.136)	0.042 (0.351)	1.000				
LNAGE (6)	0.033 (0.454)	0.005 (0.914)	0.035 (0.432)	0.140 *** (0.002)	0.075 * (0.093)	1.000			
BSIZE (7)	0.256 *** (0.000)	-0.071 (0.121)	0.204 *** (0.000)	-0.189 *** (0.000)	0.580 *** (0.000)	0.163 *** (0.000)	1.000		
INDBOC (8)	0.103 ** (0.024)	0.079 * (0.084)	-0.065 (0.158)	-0.100 ** (0.029)	0.332 *** (0.000)	0.075 (0.101)	0.522 *** (0.000)	1.000	
BIG4 (9)	0.217 *** (0.000)	-0.182 *** (0.000)	0.360 *** (0.000)	-0.453 *** (0.000)	0.247 *** (0.000)	-0.246 *** (0.000)	0.308 *** (0.000)	0.106 ** (0.023)	1.000

¹ This table reports the Pearson Correlation analysis result on 459 firm-year observations that were used in this study. The analysis is using winsorized data at 1 and 99 percent. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.3. Baseline Regression

Our baseline regression that serves as the main analysis of this study is provided in Table 6. It shows DISTRESS has a negative and statistically significant relationship with ESG, both without (coef. = -0.073, $t = -2.57$) and with the guideline fixed-effect model (coef. = 0.067, $t = -2.42$). We also document an increase in the explanatory power between the three models. In other terms, both DISTRESS and the guideline fixed effect are essential in determining ESG reporting. This result confirms our hypothesis that financially

distressed firms have lower ESG reporting quality than non-financially distressed firms. We believed this ESG reporting refusal is driven by fear of resource loss over the potential of resources gain [22], which is in line with COR theory [49], particularly in the setting of financially distressed firms. Furthermore, limited access to resources make financially distressed firms to provide a high quality of ESG reporting [38], especially when their shareholders viewed ESG reporting as an additional burden [50,51] and provided only more confusion [53].

Table 6. OLS Regression.

Variable ¹	ESG ²	ESG ³	ESG ⁴
DISTRESS		−0.073 ** (−2.57)	−0.067 ** (−2.42)
ROA	0.003 * (1.91)	0.002 (1.30)	0.002 (1.39)
LEV	−0.095 * (−1.86)	−0.034 (−0.61)	−0.049 (−0.88)
FSIZE	0.020 * (1.75)	0.022 * (1.94)	0.025 ** (2.24)
LNAGE	0.041 (1.63)	0.039 (1.57)	0.044 * (1.75)
BSIZE	0.012 ** (2.07)	0.012 ** (2.06)	0.011 * (1.91)
INDBOC	−0.017 (−1.24)	−0.015 (−1.07)	−0.014 (−1.07)
BIG4	0.044 (1.64)	0.050 * (1.88)	0.042 (1.54)
CONSTANT	−0.325 (−1.06)	−0.379 (−1.23)	−0.457 (−1.51)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Guideline FE	No	No	Yes
F	9.541	8.526	7.956
Adjusted R ²	0.256	0.268	0.281
N	459	459	459

¹ This table reports the main regression analysis of 459 firm-year observations. This analysis using winsorized data at 1 and 99 percent levels. t statistics in parentheses. * $p < 0.1$, ** $p < 0.05$; ² This column only includes control variables with both year and industry fixed effect in the regression model.; ³ This column includes interested and control variables with both year and industry fixed effect in the regression model.; ⁴ This column includes interested and control variables with year, industry, and GRI standard fixed effect in the regression model.

4.4. Robustness Analysis

As mentioned by [62], studies that examine the relationship between ESG reporting and firm performance are prone to endogeneity issues. Following their argument, we employ three robustness analyses that compromise lagged variables: Heckman's two-stage regression and coarsened exact matching (CEM) regression. Each of these analyses will be discussed as follows:

4.4.1. Lagged Variables

ESG reporting studies are dominated by ones who focus on its impact, not the factor that determines the ESG reporting quality. For instance, firm performance [7,40,41] and risk of financial distress [11,44,45]. Thus, it will raise the causality issue that questions the “true” interested and dependent variables [38,63]. To minimize this issue, we employ two additional variables originally from our interested and dependent variables. We re-run our OLS regression on our second equation while replacing DISTRESS with its lagged version. In addition, we also re-run our second equation with a lag of ESG as our additional control variable. This approach is believed to solve a potential problem of simultaneity and reverse causality [63]. Our first additional analysis is provided in Table 7.

Our analysis shows that the lagged financially distressed firm (LAG_DIS) has a negative and significant relationship with ESG reporting (coef. = -0.060 , $t = -2.18$). This result confirms that both current and lagged financial distressed firms are potent factors of diminished current ESG reporting quality and assist in addressing the causality problem between DISTRESS and ESG. Our second lagged variables analysis shows that DISTRESS has a negative and statistically significant relationship (coef. = -0.037 , $t = -1.89$) after adding LAG_ESG as an additional control variable. This analysis settles that, despite the existence of ESG reporting quality trends, current financial distress conditions are still a powerful determinant for current ESG reporting quality.

Table 7. Lagged Variables Regression Analysis.

Variable ¹	ESG ²	ESG ³
DISTRESS		-0.037^* (-1.89)
LAG_DIS	-0.060^{**} (-2.18)	
LAG_ESG		0.603^{***} (11.92)
CONSTANT	-0.716^{**} (-2.22)	-0.390^* (-1.93)
Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Standard FE	Yes	Yes
F	7.422	31.792
Adjusted R2	0.289	0.615
N	419	419

¹ This table reports the additional analysis on lagged variables. Due to this addition of lagged variables, the observations amount is reduced to 419 firm-year observations. This analysis was done after winsorizing data at 1 and 99 percent. t statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; ² This column employs the lag of DISTRESS (LAG_DIS) as an interested variable, replacing DISTRESS.; ³ This column employs DISTRESS as interested variable and lag of ESG (LAG_ESG) as an additional control variable.

4.4.2. Heckman Two-Stage Regression

One of the unique elements of Heckman’s two-stage regression is utilizing an instrumental variable. An instrumental variable is a variable that has a relationship with the dependent variable, only through an interested variable. Employment of an instrumental variable is also believed to counter the endogeneity issue, specifically for omitted variables [59,64]. Following prior studies [13,63], we employ two instrumental variables, the average value of distressed firms based on their industry year (AVE_DIS) and the lag of ESG reporting (LAG_ESG). Based on [38] study results, aside from firm-level fundamentals and corporate governance, macroeconomic variables are also

determinants of financial distress. To capture this macroeconomics effect, we used the proportion of financially distressed firms in each industry year. Hypothetically, if macroeconomic variables are the main drivers of financial distress in Indonesia, the firm's competitors in the same industry and year will have similar financial condition problems. Our second instrumental variable is based on similar logic related to simultaneity and reverse causality [63]. We argue that the addition of instrumental variables will not weaken the relationship between financially distressed firms with ESG reporting.

Our empirical model for Heckman two-stage regression is as follows:

$$\text{DISTRESS}_{i,t} = \alpha + \beta_1 \text{AVE_DIS}_{i,t} + \beta_2 \text{LAG_ESG}_{i,t} + \beta_3 \text{CONTROLS}_{i,t} + \beta_{10-12} \text{FIXED_EFFECTS} + \varepsilon \quad (3)$$

$$\text{ESG}_{i,t} = \alpha + \beta_1 \text{DISTRESS}_{i,t} + \beta_2 \text{MILLS}_{i,t} + \beta_3 \text{CONTROLS}_{i,t} + \beta_{10-12} \text{FIXED_EFFECTS} + \varepsilon \quad (4)$$

The third equation is used as first-stage probit regression, while the fourth equation is the second-stage regression. MILLS in the fourth equation stands for inverse mills ratio, resulting from probit regression between interested and instrumental variables in the third equation. Ideal Heckman's two-stage regression will have three results: instrumental variables have a statistically significant relationship with interested variables, interested and dependent variables have a statistically significant relationship, and MILLS does not have a significant relationship. Our results from Heckman's two-stage regression is provided in Table 8.

Table 8. Heckman Two-Stages Regression.

Panel A: First-Stage Probit Regression			
Variable	DISTRESS ¹	DISTRESS ²	DISTRESS ³
AVE_DIS	4.377 *** (4.56)		5.045 *** (5.00)
LAG_ESG		-0.465 (-1.07)	-0.523 (-1.16)
CONSTANT	-5.823 * (-1.72)	-2.666 (-0.82)	-4.564 (-1.29)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Standard FE	Yes	Yes	Yes
Pseudo R2	0.456	0.418	0.474
N	442	404	404
Panel B: Second-stage Heckman regression			
Variable	ESG ¹	ESG ²	ESG ³
DISTRESS	-0.066 ** (-2.30)	-0.077 *** (-2.81)	-0.058 ** (-1.97)
MILLS	0.010 (0.38)	0.135 *** (3.38)	0.058 ** (2.41)
CONSTANT	-0.469 (-1.35)	-1.078 *** (-2.91)	-0.809 ** (-2.24)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Standard FE	Yes	Yes	Yes
F	7.700	7.519	6.849
Adjusted R2	0.274	0.318	0.299
N	442	404	404

¹ This column reports two-stage Heckman regression using 442 firm-year observations using AVE_DIS as instrumental variable. This analysis using winsorized data at 1 and 99 percent. t statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; ² This column reports two-stage Heckman regression using 404 firm-year observations using LAG_ESG as instrumental variable. This analysis using winsorized data at 1 and 99 percent. t statistics in parentheses. *** $p < 0.01$; ³ This column reports two-stage Heckman regression using 442 firm-year observations using AVE_DIS and LAG_ESG as instrumental variables. This analysis using winsorized data at 1 and 99 percent. t statistics in parentheses. ** $p < 0.05$, *** $p < 0.01$.

In panel A, we document a positive and significant relationship between AVE_DIS and DISTRESS, both in the first (coef. = 4.377, $t = 4.56$) and second column (coef. = 5.045, $t = 5.00$). On the other hand, our second instrumental variable shows insignificant results, either in the single model (coef. = -0.465, $t = -1.07$) or combined with the AVE_DIS model (coef. = -0.523, $t = -1.16$). This result confirms that macroeconomics conditions reflected by the amount of financially distressed peers are powerful determinants for the firm's financial distress. In addition, based on this study's sample, we do not document the significant relationship between LAG_ESG toward DISTRESS, which may shed light on the causality of the current debate between ESG reporting quality and financial distress risk.

Our second stage of regression is provided in panel B, shown in Table 8. Regardless of instrumental variables used, we document a negative and significant relationship between DISTRESS and ESG. Thus, it can be concluded that our primary analysis result is robust, particularly in the context of the omitted variables of AVE_DIS and LAG_ESG. Unfortunately, our MILLS variables show a significant relationship with ESG, both in the second (coef. = 0.135, $t = 3.38$) and third model (coef. = 0.058, $t = 2.41$). From this result, we can conclude that our results are not completely free from the endogeneity bias issue.

4.4.3 Coarsened Exact Matching Regression

Last robustness tests are based on the matching sample approach. Commonly, there are two methodologies to apply the matching sample approach, the first one is propensity score matching (PSM), and the second one is coarsened exact matching (CEM). In the spirit of [64–66], we employ CEM instead of PSM, as it addresses the limitations of PSM (e.g., CEM directly matches on the multivariate distributions of the covariates instead of matching on a single scalar). Our CEM analysis considering ROA, LEV, FSIZE, LNAGE, BSIZE, and INDBOC as variables for matching criteria based on three strata.

Our CEM analysis result is provided in Table 9. After the matching sample process, we only use 354 firm-year observations. The regression shows robust results with our baseline regression analysis (coef. = -0.053, $t = -1.83$). This value confirms that both in unmatched and matched samples, we find that financially distressed firms refuse to provide qualified ESG reporting.

Table 9. Coarsened Exact Matching Regression Result.

Variables ¹	ESG
DISTRESS	-0.053 *
	(-1.83)
CONSTANT	-0.545 *
	(-1.69)
Controls	Yes
Year FE	Yes
Industry FE	Yes
Standard FE	Yes
F	6.198
Adjusted R ²	0.195
N	353

¹ This table reports Coarsened Exact Matching (CEM) regression using 353 firm-year observations. The observations amount is reduced to matching observation between treatment and control group based on all control variable using three level strata. This analysis using winsorized data at 1 and 99 percent. t statistics in parentheses. * $p < 0.1$.

4.5. Additional Analysis

To further enhance our analysis and contribution, we are experimenting with several scenarios related to the relationship between financially distressed firms and their ESG reporting quality. There are two additional analyses that we have employed. The first one is about considering a longer time frame of financial distress, and the second focuses on ESG reporting components. Our additional analyses will be discussed in the next following sub-sections.

4.5.1. Rolling-Window of Financial Distress Analysis

Financial distress is not a simple issue that is quickly addressed in only several months. In most cases, to be utterly free in financial distress conditions, more than one year is required. [67] documents that only 1% of SMEs recovered from financial distress in one year since being classified as financially distressed firms. Based on the seriousness of the financial distress recovery issue, we employ rolling-window analysis to consider a longer time frame of financial distress instead of only one year. There are three types of distress rolling-window variables we consider which are RW1_DIS (t and $t-1$), RW2_DIS (t , $t-1$, and $t-2$), and RW3_DIS (t , $t-1$, $t-2$, and $t-3$). Those variables are measured similarly, the average value of DISTRESS value in each respective year-group.

Our first additional analysis result is provided in Table 10. All our distress rolling-window variables show a negative and significant relationship with ESG (RW1_DIS, coef. = -0.100 , $t = -2.70$; RW2_DIS, coef. = -0.123 , $t = -3.12$; and RW3_DIS, coef. = -0.126 , $t = -3.72$). This result provides interesting insights. First, considering that a timeframe longer than one year is essential in financial distress study, our results show consistent results between single-year analysis in baseline regression and rolling-window analysis. Moreover, the t -values are more pronounced if an additional lagged year is added into a rolling window variable. This trend confirms our second insight that a longer period of financial distress leads to lower ESG reporting quality.

Table 10. Rolling-Window Regression Analysis.

Variable ¹	ESG ²	ESG ³	ESG ⁴
RW1_DIS	-0.100^{***} (-2.70)		
RW2_DIS		-0.123^{***} (-3.12)	
RW3_DIS			-0.126^{***} (-3.72)
CONSTANT	-0.721^{**} (-2.23)	-0.489 (-1.35)	-0.578^* (-1.77)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Standard FE	Yes	Yes	Yes
F	7.265	.	.
Adjusted R2	0.297	0.279	0.287
N	419	375	326

¹ This table reports regression analysis using a rolling window of DISTRESS between t and $t-3$. This analysis using winsorized data at 1 and 99 percent. t statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; ² This column uses RW1_DIS as an independent variable, which measured the average value of DISTRESS at t and $t-1$. This analysis using only 419 firm-year observations, and as a result, we only consider 2011–2018 period due to data limitation of DISTRESS $_{t-1}$; ³ This column uses RW2_DIS as an independent variable, which measured the average value of DISTRESS at t , $t-1$, and $t-2$. This analysis using only 375 firm-year observations, and as a result, we only consider 2012–2018 period due to data limitation of DISTRESS $_{t-2}$; ⁴ This column uses

RW3_DIS as an independent variable, which measured the average value of DISTRESS at t , $t-1$, $t-2$, and $t-3$. This analysis using only 326 firm-year observations, and as a result, we only consider 2011–2018 period due to data limitation of DISTRESS $t-3$.

4.5.2. ESG Reporting Sections Analysis

In addition to a longer time frame, we are also interested in testing the relationship between financially distressed firms and each section of the ESG reporting's quality. In total, ESG reporting can be divided into four sections based on GRI guidelines. This includes general (GEN), economic (ECO), environmental (ENV), and social information (SAL). Furthermore, GRI G3, G3.1 and G4 guidelines have four sub-sections for social information, which comprises of labor practices and decent work (LAB), human rights (HR), society (STY), and product responsibility (PRO). By dividing our dependent variables into eight, we want to examine financially distressed firms' behavior on specific categories of ESG reporting.

Our ESG reporting components analysis is provided in Table 11. Our second analysis shows that financially distressed firms refuse to disclose qualified ESG information in all sections, except the general information section (coef. = -1.715 , $t = -1.27$). Based on this result, we can derive two conclusions. First, the general information section is dominated by the firm's profile data disclosed in the annual report. Therefore, most of the firms need to copy the content from annual report towards their sustainability report. This practice leads to an insignificant relationship documented in Table 10. Second. Regardless of the sections, disclosing the content-specific ESG information needs a substantial number of resources and expertise that financially distressed firms may not be able to provide. On the other hand, this result confirms that in the financially distressed firms' perspective, there is no specific ESG reporting section that is more prioritized than other sections.

Table 11. ESG Reporting Sections Regression Result.

Variable ¹	GEN ²	ECO ³	ENV ⁴	SAL ⁵	LAB ⁶	HR ⁷	STY ⁸	PRO ⁹
DISTRESS	-1.715 (-1.27)	-0.829 *** (-2.65)	-2.708 ** (-2.41)	-4.068 *** (-2.87)	-1.384 ** (-2.53)	-0.954 * (-1.91)	-1.217 *** (-3.31)	-1.387 *** (-3.50)
_cons	-10.079 (-0.75)	-8.330 ** (-2.48)	-7.953 (-0.66)	-31.545 ** (-2.00)	-13.690 ** (-2.40)	-7.212 (-1.37)	-9.551 ** (-2.25)	-11.264 ** (-2.48)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Std FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F	9.642	4.819	7.527	5.776	6.348	4.354	5.529	5.980
Adjusted R ²	0.196	0.166	0.245	0.222	0.259	0.170	0.233	0.193
N	459	459	459	459	392	392	392	392

¹ This table reports the regression analysis of each component of ESG disclosure. This analysis using winsorized data at 1 and 99 percent. t statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; ² This column uses general ESG disclosure information (GEN) as a dependent variable on 459 firm-year observations.; ³ This column uses ESG disclosure economic information (ECO) as a dependent variable on 459 firm-year observations.; ⁴ This column uses ESG disclosure environmental information (ENV) as a dependent variable on 459 firm-year observations.; ⁵ This column using ESG disclosure social information (SAL) as a dependent variable on 459 firm-year observations.; ⁶ This column using ESG disclosure labor information (LAB) as a dependent variable on 392 firm-year observations. Reduced observation amount due to this disclosure component is not used anymore in the latest GRI standards.; ⁷ This column using ESG disclosure human rights information (HR) as a dependent variable on 392 firm-year observations. Reduced observation amount due to this disclosure component is not used anymore in the latest GRI standards.; ⁸ This column using society information of ESG disclosure (STY) as a dependent variable on 392 firm-year observations. Reduced observation amount due to this disclosure component is not used anymore in the latest GRI standards.; ⁹ This column uses ESG disclosure product safety information (PRO) as a dependent variable on 392 firm-year observations. Reduced observation amount due to this disclosure component is not used anymore in the latest GRI standards.

5. Conclusions

The worldwide ESG issue urgently needs attention and participation from all parties, including firms. Firms are racing with each other to foster their ESG commitment and provide their reporting on sustainability issues. A massive growth of literature documents the beneficiaries of ESG reporting for the firms [1] as they join in a global alliance to make a better future for everyone. Regrettably, studies that focus on firms' desire to publish qualified ESG reporting are still scarce. Being aware of this research gap, this study investigates the desire of financially distressed firms in the context of ESG reporting.

Using the unique setting of Indonesia, this research finds that financially distressed firms are reluctant to disclose ESG reporting with high quality. This refusal may come from a combination of insufficient resources [36,37], fear of losing more resources [12], and fulfilling shareholders' expectations [40]. The results that have been proved are robust using several robustness tests, including lagged variable, Heckman's two-stage regression, and coarsened exact matching regression. Furthermore, this research documents that the financial distress period is an essential factor in determining the diminishing trend of ESG reporting. Lastly, the low quality of financially distressed firms' ESG reporting is consistent in all sections, except the general information section.

Much like to other studies, this study also has several limitations. First, this research only considers the ESG reporting based on information provided in the firm's sustainability report. Applying this criterion results in a limitation on observed data as publishing sustainability reporting is not yet mandatory in Indonesia. Another consequence is that our study may not fully capture ESG information provided on other sources (e.g., firm website, annual report, GMS), which adds another limitation with regards to the quality of ESG in this study. The second limitation that future studies may address is the sole focus on ESG reporting, not their activities. Other studies argue that ESG activities can be proxied by donation budgets, employee welfare, and research and development expense [5]. Unfortunately, these data are rarely published for public access by Indonesian-listed firms. Future studies can consider these alternatives to enrich the analysis of financially distressed firms' desire to engage in ESG activities. Still another limitation of this study is the use of Altman's Z-score for measuring financial distress. Surely, more contemporary financial distress models can be used for intra-industry and sectoral comparison. Last but not least, future ESG reporting studies should consider the audit opinion of the ESG report as it would be crucial to maintain the true intention of ESG reporting and thus its quality, not just as greenwashing strategy [68]. Hopefully by adding ESG audit opinion, and increase the sample timespan, future studies can increase its explanatory power.

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Appendix A

Table A1. Variable Operationalization.

Variable Name	Definition	Source
Dependent variable		
ESG reporting (ESG)	Measured based on items disclosed on its respective GRI guideline	Sustainability report
Interested Variable		
Financial distress (DISTRESS)	Altman Z-Score model (Altman, 1968)	Osiris
Control Variable		
Profitability (ROA)	Net income divided by total assets	Osiris
Leverage (LEV)	Total liabilities divided by total assets	Osiris
Firm size (FSIZE)	Natural logarithm of total assets	Osiris
Firm age (LNAGE)	Natural logarithm of difference between firm's IPO year and current year observation	Osiris
Board size (BSIZE)	Total member of firm's board	Annual report
Independent commissioner (INDCOM)	Total people seated as firm's independent commissioner	Annual report
Public accounting firm size (BIG4)	Dummy variable, valued "1" if the firm audited by either of Ernst and Young, PricewaterhouseCoopers, KPMG, or Deloitte and "0" if audited by other audit firms.	Annual report

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