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Earnings Management and Sustainability Reporting Disclosure: Some Insights from Indonesia

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Abstract: Earnings manipulation is often associated with deceiving public information that is displayed in sustainability reports. Therefore, the current study aims to explore the nexus between earnings management and sustainability reporting practices in the context of Indonesia. This study employs 408 firm-year observations from listed companies in Indonesia during the 2010–2021 period to test the hypothesis using fixed effect regression analyses with standard error estimates. By examining their sustainability reports and financial statements over a specific period, the authors assess the extent to which earnings management influences sustainability reporting practices. This implies that companies engaging in earnings management practices are more likely to exhibit higher-quality sustainability reporting practices. The results contribute valuable and significant empirical insights into the interplay between earnings management and sustainability reporting specifically within the Indonesian context. Furthermore, this study goes beyond examining the relationship itself and delves into potential factors that may influence this relationship.

Keywords: earnings management; sustainability reporting; governance; Indonesia

JEL Classification: M14; G34; L25

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1. Introduction

In early 2023, a prominent electronic newspaper captured attention with the headline "Wirecard scandal: Germany's Enron and the shadow over corporate governance." This high-profile case serves as a striking example of extensive earnings management practices, not limited to developing countries but prevalent even in developed nations. In response, a campaign was launched to identify and expose companies suspected of engaging in earnings manipulation (Nguyen 2022; Gavana et al. 2022; Martínez-Ferrero et al. 2016). The campaign aimed to discourage such behavior, urging companies to prioritize ethical practices that uphold integrity and transparency (Arun et al. 2015; Kuo et al. 2021; Beneish 2001).

However, the effectiveness of these campaigns in promoting corporate commitment to reputation and legitimacy for stakeholders remains uncertain (Gavana et al. 2017; Scholtens and Kang 2013; Shafer 2015; Chih et al. 2008; Kuo et al. 2021). This paper delves into the role of the media in advocating for integrity and transparency within companies. It examines contrasting evidence that suggests an increasing prevalence of management deceit to conceal manipulative practices (Almahrog et al. 2018; Gaio et al. 2022; Cohen and Zarowin 2010; Ehsan et al. 2022; Kim et al. 2019). Consequently, the level of buzz generated by a campaign does not necessarily correlate with a company's actual integrity (Abbadi et al. 2016; Sikka 2009; Rezaee and Tuo 2019).

On the other hand, certain areas of research propose that management engagement in deceptive practices, specifically earnings management, has the potential to enhance a company's workforce investment capabilities (Eissa et al. 2023). Some studies suggest that earnings management can mitigate adverse selection problems, leading to lower capital costs (Gassen and Fulbier 2016), and reduce investment costs, although labor investment may suffer from underinvestment (Mcinnis 2010). This raises the question of whether earnings management truly improves a company's ability to fulfill its social responsibilities. Instead of conflicting with the interests of shareholders and stakeholders, earnings management is said to provide benefits to internal stakeholders within the company (Ehsan et al. 2020; Parvin et al. 2020; Almahrog et al. 2018; Rezaee and Tuo 2019). Consequently, a significant tension exists regarding earning management practices in corporations and their connection to the disclosure of social responsibilities (Palacios-Manzano et al. 2021; Yip et al. 2019; Hong and Andersen 2011).

Conversely, Scholtens and Kang (2013) revealed that earnings management practices have a negative effect on CSR disclosure when interacting with investor protection. Recent studies have indicated that the relationship between earnings management and CSR is inconsistent, displaying both negative and occasionally positive associations (Ehsan et al. 2022; Ehsan et al. 2018; Sofian et al. 2022; Grougiou et al. 2014). One possible explanation for this inconsistency is the multidimensional and challenging nature of the effect of earnings management practices on CSR disclosure, making it difficult to identify and define (Ehsan et al. 2022; Mahrani and Soewarno 2018; Liu and Lee 2019). In response to the research gap identified by Moratis and van Egmond (2018) and Ehsan et al. (2022), this study aims to examine the relationship between earnings management practices and sustainability reporting disclosure in companies, recognizing that the relationship can be either positive or negative (Rezaee et al. 2020; Luoma and Goodstein 1999).

The existing literature indicates that there may be a relationship between earnings management practices and corporate social responsibility (CSR) disclosure (Ehsan et al. 2022; Ehsan et al. 2018; Sofian et al. 2022; Palacios-Manzano et al. 2021; Yip et al. 2019; Hong and Andersen 2011). Yip et al. (2019) found an indirect negative association between earnings management practices and CSR disclosure, highlighting that the political environment had the most significant impact on both variables, overshadowing ethical considerations. Conversely, Gavana et al. (2017) discovered the positive impact of earnings management practices on CSR disclosure when family ownership was considered a moderator. However, previous studies have not provided a direct explanation for how earnings management practices directly affect CSR disclosure. Furthermore, Grougiou et al. (2014) did not find a significant relationship between earnings management and CSR disclosure.

Given the inconsistency in prior research regarding the influence of earnings management on CSR disclosure, this study becomes an intriguing and valuable topic for further investigation in the context of the current study. Recent studies by Liu et al. (2017) and Ehsan et al. (2022) argue that the influence of earnings management on CSR disclosure is unlikely to be significant. They highlight the challenges in establishing a direct relationship between these variables and stress the need for further exploration to address endogeneity issues if such a relationship exists (Ben-Amar et al. 2017; Christensen et al. 2022).

This study presents a novel approach compared to previous research by recognizing the multidimensional nature of earnings management and its implications for reputation, ethical behavior, and organizational culture. It specifically aims to address endogeneity issues that often arise when studying management practices and sustainability reporting disclosures, which have diverse effects. Recognizing that sustainability reporting encompasses more than just corporate social responsibility disclosure, this study takes a broader perspective beyond the conventional scope of corporate sustainability efforts (Moratis and van Egmond 2018).

This study provides a unique perspective compared to previous research, primarily due to its research setting. Firstly, the study focuses on a developing country, specifically

Indonesia, which has faced reputation challenges associated with financial statement fraud in recent years (Gunawan 2016; Rezaee et al. 2020; Suhardianto and Harymawan 2011). This context adds a distinct dimension to the investigation. Secondly, corporate social responsibility activities have experienced fluctuating trends, particularly in the wake of the COVID-19 pandemic, as companies strive to strike a balance between their internal strategies and their involvement in social responsibility issues (Miethlich et al. 2023; He and Harris 2020; Durana et al. 2022). The dynamic nature of CSR practices in the current context further enhances the relevance and timeliness of this study (Kolk 2003; Heinrich and Heinrich 2016).

The current study focuses on a sample of Indonesian public companies, covering the period from 2010 to 2021 and comprising a total of 408 firm-year observations. Indonesia was chosen as the setting for this study for several reasons. First, the context of earnings management in Indonesia has been rarely examined comprehensively, particularly in terms of its potential endogeneity. Second, Indonesia is a developing country where regulations regarding sustainability reporting disclosure are still limited and voluntary in nature. This study brings a fresh perspective to the analysis of the relationship between earnings management and sustainability reporting. Through regression analysis, we have found compelling evidence of a positive association between earnings management practices and sustainability reporting (SR) disclosure. Specifically, our results demonstrate that activities involving the manipulation of financial statements are linked to higher levels of SR disclosure. These findings are particularly significant as they have been tested rigorously for endogeneity and alternative specifications. To address concerns regarding endogeneity, the authors have conducted several robustness checks, which further support the validity of our results.

This study contributes to both theoretical and practical aspects of the literature. From a theoretical standpoint, the authors introduce a novel empirical approach to investigate the influence of earnings management practices on sustainability reporting (SR) disclosure. By doing so, the current study contribute to resolving the existing debates and discrepancies found in previous studies (Gavana et al. 2017; Scholtens and Kang 2013; Shafer 2015; Chih et al. 2008; Kuo et al. 2021; Hooghiemstra 2000) and provide a more comprehensive understanding of the relationship between earnings management and SR disclosure. This study also offers several practical recommendations for policymakers, executive managers, and stakeholders based on our findings (Habib et al. 2022). These recommendations aim to enhance SR reporting, promote transparent financial practices, and consider the implications of earnings management on stakeholder welfare. Firstly, our research has policy implications for standard setters and regulators. It suggests the need for the continuous improvement of guidelines and frameworks to assist companies in providing comprehensive and reliable SR reporting. Policymakers should consider incorporating measures that address the potential influence of earnings management practices on SR disclosure.

This article will be organized as follows. Section 2 discusses the literature review and hypothesis development. Section 3 presents the data and research methods. Section 4 displays the empirical findings and discussion. Section 5 concludes the article.

2. Literature Review and Hypothesis Development

Research on the tendency of companies to disclose social responsibility often draws on legitimacy theory (de Villiers and van Staden 2006; Deegan 2002; Dowling and Pfeffer 1975). Legitimacy theory posits that companies must conform to societal norms and expectations. To gain legitimacy, companies employ various strategies (Dowling and Pfeffer 1975; Mobus 2005). These strategies can involve altering goals, methods, and outputs or shaping perceptions regarding these aspects of the company (Watts et al. 1978; Williamson 1993). One aspect related to the disclosure of social responsibility is the political cost hypothesis, which suggests that large companies are more likely to employ accounting choices that lower reported profits or engage in other forms of disclosure to mitigate political costs (Jamali and Karam 2016).

Considerable research supports the political cost hypothesis, which suggests that firms strategically manage their earnings to mitigate potential political backlash or litigation. Several studies have contributed to this body of research, providing compelling evidence in support of this hypothesis. For instance, a study conducted by Cahan (1992) found that US firms actively reduced their discretionary accruals when they faced investigations related to antitrust violations (Boll et al. 2022). This indicates that firms are aware of the political ramifications of such violations and take measures to lower their discretionary accruals as a response (Moratis and van Egmond 2018; Choi and Pae 2011). Another study by Hall (1993) focused on the oil and gas industry, revealing that firms in this sector intentionally decreased their reported earnings to evade political costs and litigation. This finding further reinforces the idea that firms engage in earnings management as a strategic response to potential political challenges (Cahyono et al. 2023).

The present study aims to investigate the correlation between earnings management and sustainability reporting disclosure, while also exploring how this relationship is influenced by political cost considerations and companies' ethical inclinations. While prior research by Francis et al. (2008) and Kliestik et al. (2022) revealed a significant positive association between voluntary disclosure and earnings quality, suggesting an ethical stance (as companies with higher earnings quality tend to disclose more) (Luoma and Goodstein 1999), they did not delve into whether this relationship is context-specific (Dechow et al. 1998; Mulyadi and Anwar 2015; Yang and Tang 2022).

Numerous studies have provided evidence of the significant influence of media on corporate social responsibility (CSR) responses, particularly in relation to sustainability reporting (e.g., Bansal 2005). When a company receives extensive media coverage, its visibility increases, attracting heightened public attention and scrutiny (Rosenbaum and Rubin 2006). The potential threat of negative media publicity has two distinct implications for managerial practices (Bansal 2005, p. 203). Firstly, such publicity exerts coercive pressure on companies to commit to sustainable development, as engaging in practices deemed unacceptable by the media may tarnish their reputation (e.g., Starbucks' involvement with African coffee suppliers) (Prior et al. 2008; Sosnowski 2022). Secondly, it can stimulate stakeholders to advocate for changes in business practices, such as lobbying for action on climate change (Guay et al. 2004; He and Harris 2020; Cahyono 2023).

In this context, managers operating within the capital market, contractual, or regulatory frameworks may be motivated to engage in earnings management practices to secure their positions and prolong their tenure within the company, even if they lack the necessary competence or qualifications (Prior et al. 2008; Palacios-Manzano et al. 2021). One potential approach for safeguarding their job security and preserving personal profits is to cultivate relationships with corporate stakeholders and environmental activists through various activities collectively known as corporate social responsibility (CSR) (Beji et al. 2021). CSR encompasses a range of initiatives, including integrating social considerations into products and manufacturing processes, implementing progressive human resource practices (Bird and Davis-Nozemack 2018; Sánchez-Ballesta and Yagüe 2022), attaining higher rankings in environmental sustainability through recycling and pollution reduction efforts, and advancing the organization's broader societal goals (McWilliams et al. 2006; Martínez-Ferrero et al. 2016; Kovacova et al. 2022).

Through the implementation of CSR activities, managers pursue various objectives, including seeking favorable media coverage (Gaio et al. 2022; Cohen and Zarowin 2010; Ehsan et al. 2022), attaining public legitimacy (Hong and Andersen 2011; Carey et al. 2017), influencing regulatory frameworks in their favor (Zahra et al. 2005; Grougiou et al., 2014), and reducing scrutiny from investors and employees (Sofian et al. 2022; Palacios-Manzano et al. 2021; Yip et al. 2019). Furthermore, engaging in such activities can help mitigate the risk of product boycotts and preempt lobbying against the company. Essentially, managers believe that by satisfying stakeholder interests and projecting an image of social and environmental concern and awareness (Hong and Andersen 2011; Carey et al. 2017; Xia et al. 2018), they can decrease the likelihood of stakeholders investigating their profit management practices. Consequently, they prefer concentrating control within the hands of a single stakeholder group (e.g., shareholders) rather than distributing it among multiple stakeholders (Chakroun and Amar 2021; McWilliams et al. 2006; Liu and Sun 2022). Based on these premises, the study formulate the following non-directional hypothesis for examination:

Hypothesis 1. *All else being equal, earnings management has an impact on sustainability reporting.*

3. Research Method

3.1. Data, Population, and Sample

In order to test our hypothesis on the relationship between earnings management and sustainability reporting disclosure, the study utilized information from a CSR reporting guideline database based on GRI standards to construct our measure of CSR. The GRI disclosure guidelines have undergone several amendments in recent years. Initially, the GRI guidelines only covered standards 3.0 and 3.1. However, in the following three years, the development of GRI standards included more multidimensional aspects with the release of the G4.0 reporting standard (Ratri et al. 2021). In early 2017, the CSR disclosure guideline underwent the latest update until 2021, with the release of the latest CSR disclosure standard, GS. By adhering to the CSR reporting standards based on the GRI guidelines, the accuracy level of the measure used in this study is high. Additionally, the research sample was collected from the OSIRIS database and the annual reports of each company (Agustia et al. 2022).

The sample consists of non-financial companies that are publicly listed on the Indonesia Stock Exchange from the year 2010 to 2018. To measure CSR disclosure, the authors used a measure of the total disclosure of CSR items compared to the total disclosure of CSR items based on the GRI guidelines. This measure follows Ratri et al. (2021) and has the strength to assess the extent to which companies disclose their CSR issues. The highest disclosure score is valued at 1, indicating that the company still discloses its CSR issues in accordance with the CSR reporting standards required by GRI. On the other hand, the lowest score is 0, which means that the company tends not to disclose CSR items in accordance with the GRI standards or discloses CSR items but does not follow the CSR reporting required by GRI. Thus, our measure becomes more unique and strengthens the research results (Gras-gil et al. 2016).

The total sample size of our study consisted of 408 firm-year observations as shown in Table 1. However, it is important to acknowledge the limitations of this sample size for several reasons. Firstly, during the period from 2010 to 2014, the publication of sustainability reports by public companies in Indonesia was not widespread (Kim et al. 2012), as the disclosure of sustainability reports was still considered voluntary according to regulations at that time. However, starting from early 2015, the level of sustainability reporting in Indonesia began to increase, and it became more prevalent in the mid-2017s when the Financial Services Authority (OJK) implemented Regulation No. 51/2017. Consequently, there was a significant shift in the disclosure of sustainability reports in Indonesia (Orlitzky et al. 2003). Please note that the improved response takes into account the provided information and focuses on enhancing clarity and coherence.

3.2. Variable Operationalisation

The independent variable was earnings management as measured by using the absolute value of discretionary accruals from the Larcker, Kothari, and Modified Jones models (Larcker and Richardson 2004; Kothari et al. 2005; Dechow et al. 2015). The modified Jones model estimates total accruals based on the inverse of total assets, changes in revenue adjusted for changes in accounts receivable, and net plant and equipment. The Kothari model incorporates performance adjustment by including return on assets as another factor in the accrual model.

Table 1. Sample distribution based on industry classifications and year.

Panel A: Sample Distribution based on Industry Classifications		
Industry Classification	**N**	**Percent**
(SIC 0) Agriculture, forestry and fisheries	73	11.49
(SIC 1) Mining	164	25.83
(SIC 2) Construction industries	123	19.37
(SIC 3) Manufacturing	92	14.49
(SIC 4) Wholesale and retail trade	109	17.16
(SIC 5) Service industries	54	8.51
(SIC 7) Health, legal, educational services, and consulting	54	8.51
Total	635	100.00
Panel B: Sample Distribution based on Year		
Year	**N**	**Percent**
2010	51	8.06
2011	54	8.80
2012	55	9.04
2013	54	8.80
2014	48	7.33
2015	55	9.04
2016	44	6.36
2017	56	9.29
2018	60	10.26
2019	52	8.31
2020	54	8.81
2021	42	5.87
Total	635	100.00

Source: Created by authors (2023).

Dependent variable is CSR reporting, measured based on the Global Reporting Initiative's (GRI) sustainability reporting guidelines. The authors chose to use GRI because it is widely utilized in research that focuses on CSR reporting, sustainability, or CSR. It is important to note that the GRI guidelines underwent four revisions during the observation period, namely GRI G3, GRI G3.1, GRI G4, and the latest GRI standards. Consequently, the observations may vary across the different GRI guidelines. Following the established methodology, in addition, the authors assume that companies use the GRI guidelines implemented during that specific observation year if they do not specify the particular series of GRI guidelines used.

Furthermore, several control variables were input into the current study, including firm size (FSIZE); return on assets (ROA); leverage (LEV); board size (BSIZE); independent board of commissioners (INDBOC); the presence of a Big Four auditor (BIG4); the ratio of property, plant, and equipment (PPE) to total assets; the ratio of research and development (R&D) expenses to total sales (RND); and the natural logarithm of company age (LNAGE). To address the potential impact of different years, industries, and GRI guidelines adopted by each company, this study incorporated GRI fixed effects, year fixed effects, and industry fixed effects.

3.3. Empirical Model

This study employs an ordinary least squares (OLS) regression model with fixed effects for GRI, year, and industry. The empirical model examines the association between three measurements of earnings management (LARCKER, KOTHARI, and MODJONES) and sustainability reporting, along with the inclusion of control variables. The hypothesis posits that the power motivation of management predicts a positive coefficient for earnings management. The empirical model as follows:

$$\text{Sustainability Reporting}_{i,t} = \beta_0 + \beta_1\ \text{AEM\_DEC}_{i,t} + \beta_2\ \text{AEM\_MCN}_{i,t} + \beta_3\ \text{FSIZE}_{i,t} + \beta_4\ \text{ROA}_{i,t} + \beta_5\ \text{LEV}_{i,t} + \beta_6\ \text{BSIZE}_{i,t} + \beta_7\ \text{INDBOC}_{i,t} + \beta_8\ \text{BIG4}_{i,t} + \beta_9\ \text{PPE}_{i,t} + \beta_{10}\ \text{RND}_{i,t} + \beta_{11}\ \text{AEM\_DC}_{i,t} + \beta_{12}\ \text{LNAGE}_{i,t} + \beta_{13}\ \text{GRI Fixed Effect}_{i,t} + \beta_{14}\ \text{Industry Fixed Effect}_{i,t} + \beta_{15}\ \text{Year Fixed Effect}_{i,t} + \varepsilon \quad (1)$$

The independent variables in the current study are earnings management, proxied by AEM_DEC and AEM_MCN, while the dependent variable is sustainability reporting.

3.4. Research Steps and Methodological

Our study employs a quantitative approach using STATA 17, which includes both univariate and multivariate testing. The quantitative testing we conducted follows Salkind's (2013) explanation that quantitative studies greatly support statistical data analysis. The advantages of this testing approach are as follows. (1) Objectivity: Quantitative testing produces objective data by focusing on measurement and numerical analysis. This enables researchers to distance themselves from subjective interpretations and personal opinions that may influence research outcomes. (2) Validity: Quantitative testing often involves the use of reliable measurement instruments. By employing valid instruments, researchers can ensure that the obtained data accurately measure the variables under investigation, thus enhancing the credibility of research findings. (3) Replicability: Quantitative testing methods can be replicated using different samples to test the same hypotheses. This allows other researchers to replicate the study and verify the obtained results, thereby retesting the reliability and validity of the findings. (4) Generalizability: Through the use of representative sampling methods, quantitative research findings can be generalized to a broader population. This enables researchers to make more general claims about the relationships between the variables under study. (5) In-depth analysis: Quantitative testing enables researchers to analyze data using various sophisticated statistical techniques. This can unveil complex relationships between the variables under investigation and provide a deeper understanding of the phenomena being studied.

4. Empirical Result and Discussion

4.1. Statistics Descriptive and Univariate Analyses

Table 2 presents the descriptive statistics of the research variables. On average (median), companies have a sustainability reporting disclosure rate of 40.7% (34%). The range of disclosure extends from a minimum of 0.093 to a maximum of 1.000, indicating comprehensive reporting. Out of our 408 firm-year observations, 6.5% exhibit earnings management practices. In firms practicing earnings management, the average firm size is 30,359; return on assets is 6.409; leverage is 54.6%; research and development expenditure is 0.2% of total assets; property, plant, and equipment constitute 42.7%; the board size is 11,587 with an average of 2022 independent directors; and 75.8% of the total sample is audited by the Big Four.

Table 2. Statistics descriptive.

	Mean	Median	Minimum	Maximum
SR	0.407	0.340	0.093	1.000
AEM_DEC	0.067	0.052	0.001	1.303
AEM_MCN	0.065	0.050	0.000	1.299
FSIZE	30.359	30.410	25.535	33.474
ROA	6.409	4.680	−56.730	52.660
LEV	0.546	0.548	0.133	1.923
RND	0.002	0.000	0.000	0.110
PPE	0.427	0.421	0.009	0.851
BSIZE	11.587	12.000	4.000	23.000
INDBOC	2.022	2.000	0.000	6.000
BIG4	0.758	1.000	0.000	1.000

Note: This table reports the descriptive statistics on 408 firm-year observations. All continuous variables are winsorized at the 1% and 99% levels. Source: Created by authors (2023).

Table 3 displays the correlation between variables. AEM_DEC and AEM_MCN show no correlation with sustainability reporting. The lack of significant correlation can be explained by the presence of other factors related to sustainability reporting that need to be controlled for in our analysis to measure the relationship between earnings management practices and sustainability reporting. To address this in the multivariate analysis. The two earnings management variables do not exhibit correlation with each other. Additionally, the correlation between earnings management and the control variables used in our model is generally low and does not raise multicollinearity concerns.

Table 3. Pearson's correlation.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
[1] SR	1.000										
[2] AEM_DEC	−0.022	1.000									
	(0.653)										
[3] AEM_MCN	−0.018	0.984 ***	1.000								
	(0.718)	(0.000)									
[4] FSIZE	0.227 ***	−0.032	−0.043	1.000							
	(0.000)	(0.522)	(0.383)								
[5] ROA	0.169 ***	−0.075	−0.092 *	−0.073	1.000						
	(0.001)	(0.131)	(0.063)	(0.138)							
[6] LEV	−0.186 ***	0.290 ***	0.299 ***	0.023	−0.416 ***	1.000					
	(0.000)	(0.000)	(0.000)	(0.637)	(0.000)						
[7] RND	−0.004	−0.047	−0.047	−0.024	0.417 ***	−0.015	1.000				
	(0.934)	(0.342)	(0.349)	(0.627)	(0.000)	(0.762)					
[8] PPE	0.099 **	−0.111 **	−0.142 ***	0.134 ***	0.060	−0.202 ***	0.021	1.000			
	(0.046)	(0.025)	(0.004)	(0.007)	(0.229)	(0.000)	(0.666)				
[9] BSIZE	0.280 ***	−0.129 ***	−0.141 ***	0.614 ***	0.228 ***	−0.227 ***	0.119 **	0.203 ***	1.000		
	(0.000)	(0.009)	(0.004)	(0.000)	(0.000)	(0.000)	(0.016)	(0.000)			
[10] INDBOC	0.107 **	−0.111 **	−0.116 **	0.353 ***	0.029	−0.167 ***	−0.245 ***	0.183 ***	0.545 ***	1.000	
	(0.031)	(0.025)	(0.019)	(0.000)	(0.563)	(0.001)	(0.000)	(0.000)	(0.000)		
[11] BIG4	0.212 ***	−0.211 ***	−0.228 ***	0.268 ***	0.333 ***	−0.403 ***	0.100 **	0.372 ***	0.326 ***	0.138 ***	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.043)	(0.000)	(0.000)	(0.005)	

Note: This table reports Pearson's correlation analysis on 408 firm-year observations. All continuous variables are winsorized at the 1% and 99% levels. Significance levels indicate at * $p < 10\%$, ** $p < 5\%$, *** $p < 1\%$ in parentheses. Source: Created by authors (2023).

4.2. Main Result

Table 4 specifically presents the empirical test results regarding the relationship between earnings management practices and sustainability reporting (Hypothesis 1). Our empirical findings demonstrate that the relationship between earnings management and sustainability reporting is positive and significant (Coef. = 0.152, t = 2.02) for the AEM_DEC proxy, as well as for the AEM_MCN proxy (Coef. = 0.172, t = 2.34). Therefore, Hypothesis H1 is supported. This study systematically examined how these two relationships occur. Column 1 represents the test without our main variables of interest, only including all control variables. Columns 2 and 3 represent tests between our main variables of interest and the dependent variable, divided into two different proxies, namely AEM_DEC (Column 1) and AEM_MCN (Column 2). These findings are consistent with previous studies conducted in the field.

As an indicator of economic significance, our findings indicate that on average, if companies engage in earnings management practices, it leads to an increase of 1.5 to 1.7 basis points in the level of sustainability reporting, according to both of our earnings management measures. Conversely, if companies, on average, do not engage in earnings management practices, it results in a decrease of 1.5 to 1.7 basis points in their level of sustainability reporting.

In our analysis, the control was input as several financial and corporate board characteristics, including firm size (FIRMSIZE), return on assets (ROA), leverage, board size (BOARDSIZE), independent board of commissioner (INDBOC), BIG4, PPE, RND, and LNAGE. The inclusion of these control variables allows us to provide more comprehensive empirical results on the overall impact of earnings management practices on sustainability reporting. Regarding the control variables used in the research model, the authors found that firm size; return on assets; board size; the level of property, plant, and equipment; as well as the age of the company, have a positive and significant influence on sustainability reporting. Additionally, the presence of an independent board of commissioners has a positive and significant impact on sustainability reporting. The inclusion of industry fixed effects and year fixed effects is statistically significant, indicating significant variations in earnings management across industries and time periods.

Table 4. Baseline regression.

	(1)	(2)	(3)
	SR	**SR**	**SR**
AEM_DEC		0.152 **	
		(2.02)	
AEM_MCN			0.172 **
			(2.34)
FSIZE	0.018 *	0.018 *	0.018 *
	(1.82)	(1.75)	(1.78)
ROA	0.002 **	0.002 **	0.002 **
	(2.12)	(2.03)	(2.04)
LEV	−0.062	−0.080 *	−0.082 *
	(−1.32)	(−1.70)	(−1.75)
BSIZE	0.012 ***	0.013 ***	0.013 ***
	(2.60)	(2.70)	(2.71)
INDBOC	−0.026 **	−0.025 **	−0.025 **
	(−2.09)	(−2.01)	(−2.00)
BIG4	0.033	0.036	0.036
	(1.32)	(1.44)	(1.45)
PPE	0.090 *	0.090 *	0.093 *
	(1.74)	(1.75)	(1.81)
RND	−0.935	−0.799	−0.808
	(−1.06)	(−0.91)	(−0.92)
LNAGE	0.058 **	0.056 **	0.056 **
	(2.16)	(2.10)	(2.10)
_cons	−0.357	−0.341	−0.350
	(−1.28)	(−1.23)	(−1.28)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
GRI FE	Yes	Yes	Yes
F	8.993	8.702	8.785
r2_a	0.295	0.297	0.298
N	635	635	635

Note: This table reports the main regression analysis on 408 firm-year observations. Column 1 includes control variables with both GRI, year, and industry fixed effect in the regression model and Columns 2 and 3 include relevant (AEM_DEC and AEM_MCN) and control variables with both GRI, year, and industry fixed effects in the regression model. All continuous variables are winsorized at 1% and 99% levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Source: created by authors (2023).

4.3. Robustness and Endogeneity Test

In the context of earnings management, companies may be inclined to engage in earnings management if they face pressure to meet profit targets or achieve certain financial gains. However, companies that are more likely to engage in earnings management may also possess certain characteristics, such as larger firm size or higher levels of risk. If these variables also influence the dependent variables in the analysis, such as financial performance or stock prices, self-selection bias may occur. To address this issue, the authors employ three possible problem-solving frameworks for our self-selection bias issue, including Heckman's (1979) two-stage least squares method, propensity score matching, and lagged dependent variables.

4.4. Heckman's (1979) Two-Stage Least Square Method

In the first stage, the authors estimate Equation (1), a probit regression to explain the determinants of AEM_DEC and AEM_MCN. The authors include AVE_DEC and AVE_MCN as instrumental variables. The characteristics of the average industry engaged in earnings management practices may have an indirect influence on sustainability reporting. The rationale is that the characteristics of the average industry engaged in earnings management practices can affect a firm's decision to engage in earnings management or not. This is because a firm's tendency to engage in earnings management practices can be influenced by stakeholder pressures, such as shareholders in industries predominantly involved in such practices. Therefore, it is important to consider how the characteristics of industries engaged in earnings management practices can either encourage or discourage firms from engaging in earnings management. The estimated parameters from the probit regression are used to calculate the inverse Mills ratio (MILLS), which is then included as an additional explanatory variable in the second-stage OLS regression model. The first-stage probit regression is estimated as follows:

$$\begin{aligned} AEM\_DC_{i,t} = {} & \beta_0 + \beta_1\ AVE\_AEM\_DC_{i,t} + \beta_2\ FSIZE_{i,t} + \beta_3\ ROA_{i,t} + \beta_4\ LEV_{i,t} + \beta_5\ BSIZE_{i,t} \\ & + \beta_6\ INDBOC_{i,t} + \beta_7\ BIG4_{i,t} + \beta_8\ PPE_{i,t} + \beta_9\ RND_{i,t} + \beta_{10}\ AEM\_DC_{i,t} + \beta_{11}\ LNAGE_{i,t} \\ & + \theta_{1-n}\ \text{GRI Fixed Effect}_{i,t} + \delta_{1-n}\ \text{Industry Fixed Effect}_{i,t} + \acute{\eta}_{1-n}\ \text{Year Fixed Effect}_{i,t} + \varepsilon \end{aligned} \tag{2}$$

$$\begin{aligned} AEM\_MCN_{i,t} = {} & \beta_0 + \beta_1\ AVE\_AEM\_MCN_{i,t} + \beta_2\ FSIZE_{i,t} + \beta_3\ ROA_{i,t} + \beta_4\ LEV_{i,t} + \beta_5\ BSIZE_{i,t} \\ & + \beta_6\ INDBOC_{i,t} + \beta_7\ BIG4_{i,t} + \beta_8\ PPE_{i,t} + \beta_9\ RND_{i,t} + \beta_{10}\ AEM\_DC_{i,t} + \beta_{11}\ LNAGE_{i,t} \\ & + \theta_{1-n}\ \text{GRI Fixed Effect}_{i,t} + \delta_{1-n}\ \text{Industry Fixed Effect}_{i,t} + \acute{\eta}_{1-n}\ \text{Year Fixed Effect}_{i,t} + \varepsilon \end{aligned} \tag{3}$$

where AVE_AEM_DC and AVE_AEM_MCN are dummy variables that take a value of 1 if AEM_DC and AEM_MCN are greater than the industry's above-median average for earnings management, and 0 otherwise, and all variables are as defined previously.

Table 5 reports the results of the two-stage Heckman regression. The authors include all control variables and also employ fixed effects for GRI, year, and industry. Based on the results presented in Column (1 stage) of Table 4, both the AVE_AEM_DC and AVE_AEM_MCN proxies are positively and significantly associated with AEM_DC and AEM_MCN, as hypothesized. These findings indicate that, on average, industries engaged in earnings management practices tend to consider manipulative practices in response to stakeholder demands prevalent in those industries.

Panel B presents the results of the second-stage Heckman regression. The findings reveal that the coefficients for both proxies, AEM_DC and AEM_MCN, indicate a positive and significant relationship with sustainability reporting (SR). Based on these results, the author can confirm a positive and significant association between earnings management and sustainability reporting, even after addressing endogeneity issues.

Table 5. Heckman's (1979) two-stage least squares method.

	1st Stage		**2nd Stage**	
	DUM_DEC	**DUM_MCN**	**SR**	**SR**
AVE_DEC	6.778 ***			
	(2.64)			
AVE_MCN		4.888 *		
		(1.91)		
LAG_CSR	0.437	0.427		
	(1.25)	(1.21)		
AEM_DEC			0.136 *	
			(1.69)	
AEM_MCN				0.142 *
				(1.76)

Table 5. *Cont.*

	1st Stage		2nd Stage	
	DUM_DEC	**DUM_MCN**	**SR**	**SR**
MILLS			−0.034	−0.018
			(−0.50)	(−0.19)
FSIZE	−0.104	−0.209 ***	0.018	0.018
	(−1.35)	(−2.73)	(1.58)	(1.18)
ROA	−0.011	−0.009	0.002 *	0.003 *
	(−1.35)	(−1.13)	(1.92)	(1.89)
LEV	0.271	0.309	−0.084 *	−0.077
	(0.74)	(0.84)	(−1.73)	(−1.45)
PPE	−0.719 *	−1.371 ***	0.092	0.109
	(−1.85)	(−3.50)	(1.50)	(1.16)
RND	−14.733 **	−5.029	−1.738	−0.612
	(−2.07)	(−0.70)	(−1.50)	(−0.61)
BSIZE	0.062	0.051	0.014 **	0.013 **
	(1.55)	(1.34)	(2.30)	(2.17)
INDBOC	−0.011	0.093	−0.036 ***	−0.023 *
	(−0.11)	(1.01)	(−2.91)	(−1.81)
BIG4	0.116	0.098	0.049 *	0.035
	(0.52)	(0.43)	(1.82)	(1.17)
LNAGE	0.209	0.139	0.078 **	0.058 *
	(1.16)	(0.76)	(2.58)	(1.86)
_cons	1.668	5.498 **	−0.370	−0.371
	(0.75)	(2.44)	(−1.24)	(−1.00)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
GRI FE	Yes	Yes	Yes	Yes
r2_p	0.138	0.135		
r2_a			0.305	0.296
N	635	635	635	635

Note: This table reports Heckman's self-selection bias analysis using Heckman's (1979) two-stage regression method with 408 firm-year observations using AVE_DEC and AVE_MCN as instrument variables. All continuous variables are winsorized at the 1% and 99% levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Source: Created by authors (2023).

4.5. Propensity Score Matching (PSM)

The authors employed propensity score matching (PSM) to address potential issues arising from observable differences in firm characteristics between companies with earnings management above the median and those below the median. In the main analysis, sample matching was performed using a "one-to-many" matching approach, which may potentially lower the quality of some matches. To mitigate this concern, the authors matched firms with earnings management practices above the median with a set of control firms with earnings management practices below the median to evaluate treatment effects.

The authors utilized the propensity score matching technique to control for firm-level characteristics, as developed by Rosenbaum and Rubin (2006). This procedure reduced the sample to 546 firm-year observations, consisting of 95 company-year observations with earnings management above the median and 95 company-year observations from the control group. The results, as reported in Table 6, exhibited qualitatively similar findings to those reported earlier. The authors found evidence that earnings management practices have a positive and significant impact on sustainability reporting, supporting our main findings.

Table 6. Propensity score matching.

	(1) SR	(2) SR
AEM_DEC	0.203 **	
	(2.12)	
AEM_MCN		0.170
		(1.62)
FSIZE	0.027 *	0.032 *
	(1.67)	(1.94)
ROA	0.002	0.007 **
	(1.14)	(2.36)
LEV	−0.095	−0.177 *
	(−1.09)	(−1.93)
BSIZE	0.015 *	0.015 **
	(1.96)	(2.08)
INDBOC	−0.021	−0.043 **
	(−0.87)	(−2.05)
BIG4	−0.008	0.017
	(−0.18)	(0.43)
PPE	0.160 **	0.046
	(2.10)	(0.57)
RND	−0.269	−1.222
	(−0.13)	(−0.88)
LNAGE	0.021	0.043
	(0.56)	(1.09)
_cons	−0.100	−0.549
	(−0.24)	(−1.18)
Year FE	Yes	Yes
Industry FE	Yes	Yes
GRI FE	Yes	Yes
F	19.290	6.669
r2_a	0.426	0.352
N	546	546

Note: This table reports propensity score matching regression with 546 firm-year observations. All continuous variables are winsorized at the 1% and 99% levels. * $p < 0.1$, ** $p < 0.05$. Source: created by authors (2023).

4.6. Lagged Dependent Analyses

In our final analysis, the authors employed a lagged dependent variable approach to investigate the influence of earnings management on sustainability reporting. Specifically, the authors explored whether actual earnings management practices positively affect the quality of sustainability disclosure or if a company's prior experience in issuing positive sustainability reports has the potential to influence current sustainability reporting. To address this, the authors created a lagged dependent variable, Lagged SR, and estimated whether the time lag in sustainability reporting at t − 1 could impact the current sustainability reporting. Consequently, the authors estimated the previous period's SR value using Lagged SR (SR in the previous time period) as an independent variable. The interpretation of the coefficient of Lagged SR on the current SR can be summarized as follows:

$$SR_t = \beta_0 + \beta_1\, SR\,(t-1)_{i,t} + X_{i,t} + \varepsilon \tag{4}$$

Table 7 presents the results of our lagged dependent regression analysis. Based on these findings, the authors confirm that sustainability reporting in the previous period (SR_(t − 1)) has a significant positive impact on current sustainability reporting (SR_t). This indicates the presence of a long-term effect or lagged effect in sustainability reporting. Therefore, the authors provide significant evidence that earnings management practices have a positive and significant influence on sustainability reporting, and these findings are consistent with our main findings.

Table 7. Lag-dependent regression.

	(1) SR	(2) SR
LAG_SR	0.536 ***	0.535 ***
	(9.51)	(9.49)
AEM_DEC	0.188 **	
	(2.52)	
AEM_MCN		0.195 **
		(2.58)
FSIZE	0.012 *	0.013 *
	(1.72)	(1.77)
ROA	0.001	0.001
	(0.90)	(0.92)
LEV	−0.031	−0.031
	(−0.87)	(−0.88)
BSIZE	0.000	0.000
	(0.04)	(0.04)
INDBOC	−0.002	−0.002
	(−0.24)	(−0.22)
BIG4	0.028	0.028
	(1.43)	(1.44)
PPE	0.038	0.042
	(0.93)	(1.01)
RND	0.467	0.444
	(0.62)	(0.58)
LNAGE	0.025	0.025
	(1.15)	(1.14)
_cons	−0.062	−0.072
	(−0.29)	(-0.34)
Year FE	Yes	Yes
Industry FE	Yes	Yes
GRI FE	Yes	Yes
F	23.344	23.377
r2_a	0.572	0.572
N	635	635

Note: This table reports lag dependent regression with 635 firm-year observations. All continuous variables are winsorized at the 1% and 99% levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Source: Created by authors (2023).

4.7. Discussion

This study examines the relationship between earnings management practices and sustainability reporting in the context of a developing country, namely Indonesia. The current study acknowledge that earnings management practices are closely associated with allegations of manipulation that have negative implications for firm performance. Several prior studies align with the key points raised in this crucial section of the study, stating that earnings management practices are highly related to financial statement manipulation and the business performance of companies (Gavana et al. 2022; Martínez-Ferrero et al. 2016; Adeneye et al. 2023). However, most existing studies fail to recognize that companies engaging in earnings management practices have two crucial objectives. First, earnings management practices are regarded as management's effort to gain the trust of stakeholders, particularly shareholders, in order to align their interests with the company's objective of providing welfare for those stakeholders. When a company strives to fulfill shareholders' desires by delivering welfare to them, it seeks to generate strong performance that captures shareholders' attention and fulfills their interests. Second, earnings management practices are viewed as management's attempt to obfuscate crucial information that is vital to stakeholders through the recognized means of enhancing the equality of available information, although this may not be the case (Li et al. 2023).

The obscuring of important information is attempted by management through the disclosure of other important information, as if the information that should be disclosed has been disclosed when it has not. Therefore, these efforts are sometimes referred to as image management. This study highlights image management through the disclosure of sustainability reports that give the impression of higher disclosure when companies engage in earnings management practices. In reality, companies engaging in earnings management should produce lower levels of disclosure, as management has obscured information and acted unlawfully. This study relies on the positive accounting theory developed by Zimerman as the analytical framework. The positive accounting theory argues that accounting practices and disclosure in companies are influenced by the interests and motivations of the parties involved, including managers, shareholders, analysts, and regulators. Previous research has shown that earnings management practices, which involve manipulating financial statements to influence the company's performance, can have a positive impact on disclosure in companies. In this context, this study aims to reinforce these findings and analyze the relationship between earnings management practices and disclosure in companies. The method used in this study involves analyzing financial data and disclosure information from a number of listed companies. The collected data are then analyzed using appropriate statistical techniques to test the relationship between earnings management practices and the level of disclosure.

In the context of developing countries such as Indonesia, studies on corporate governance indicating the influence of earnings management practices on sustainability reporting disclosure are relatively scarce in several aspects. Firstly, the focus on corporate governance and accounting practices in developing countries may predominantly revolve around compliance aspects and more general regulations, such as adherence to applicable financial accounting standards and government regulations related to financial reporting. In this context, sustainability reporting disclosure may not yet be a top priority or a strictly regulated requirement by the governing authorities (Miethlich et al. 2023; He and Harris 2020; Durana et al. 2022). Secondly, the awareness of the importance of sustainability reporting and non-financial information disclosure may still be low among companies in developing countries. Some companies may not fully realize the benefits and added value that can be gained through sustainability reporting disclosure, whether in terms of enhancing transparency and accountability or meeting stakeholder expectations. Furthermore, companies in developing countries may face challenges in collecting and organizing consistent and reliable sustainability reporting information. Resource limitations, both in terms of expertise and infrastructure, can hinder the effective implementation of sound sustainability reporting disclosure practices.

Compared to previous studies, this study provides a justified novelty by establishing a positive relationship between earnings management practices and sustainability reporting disclosure in companies (Velte 2019). It is emphasized that existing studies have shown minimal attempts to address the issue of endogeneity, which is a concern that has been largely overlooked. However, in this study, the authors have effectively addressed the endogeneity problem that has received substantial attention in previous research but remained unresolved (Gavana et al. 2017; Scholtens and Kang 2013; Shafer 2015; Chih et al. 2008; Kuo et al. 2021). Endogeneity refers to the reciprocal causation between variables under investigation, making it difficult to determine whether earnings management practices truly have a positive impact on sustainability reporting disclosure or whether there are other factors influencing both variables. In this study, the researchers proactively tackled the issue of endogeneity, thereby strengthening the validity of the findings that indicate a positive relationship between earnings management practices and sustainability reporting disclosure. By actively addressing the endogeneity problem, this study contributes to the advancement of knowledge in this field (Almahrog et al. 2018; Gaio et al. 2022). This allows for a more robust understanding of how earnings management practices can influence sustainability reporting practices in companies. However, it is important to exercise caution when interpreting the research findings and consider the specific context and limitations of the methodology employed. Despite effectively addressing the endogeneity concern in this study, it is crucial to acknowledge that endogeneity remains a complex challenge in academic research. Continued efforts are necessary to develop improved methods and approaches for addressing this issue.

This study addresses the issue of endogeneity by employing the control variable method to isolate the influence of earnings management practices on sustainability reporting disclosure while controlling for other factors that may affect both variables (Parvin et al. 2020). Additionally, the use of instrumental variables or natural regression techniques can also help address endogeneity by introducing instrumental variables that exogenously affect earnings management practices but do not have a direct relationship with sustainability reporting disclosure. By effectively addressing the issue of endogeneity, this research can provide stronger evidence regarding the relationship between earnings management practices and corporate sustainability reporting disclosure. These findings contribute significantly to our understanding of how earnings management practices can influence sustainability reporting practices in companies (Ehsan et al. 2020; Almahrog et al. 2018). However, it is important to note that this study does not completely disregard the issue of endogeneity but rather makes better efforts to address it compared to previous studies. Endogeneity issues are often complex challenges in academic research, and continuous efforts are needed to develop better methods and approaches to overcome this problem. In this regard, this study represents an important advancement in this research field by effectively addressing the issue of endogeneity.

Therefore, the current study provide stronger and more advanced empirical evidence by elaborating in detail on the information regarding the impact of earnings management practices on the disclosure of sustainability reports in companies. Additionally, compared to previous studies, the authors prioritize addressing the blurred issue of endogeneity that existed in several previous studies. Thus, the present study contributes novelty and implications for future research by elucidating knowledge related to corporate governance through empirical evidence on the link between earnings management practices and the disclosure of sustainability reports.

5. Conclusions

This study presents a novel perspective by highlighting the significant relationship between perceived earnings management practices and management's attitude towards sustainability reporting. Specifically, this study demonstrates that manipulative practices aimed at attracting investors, creditors, and meeting stakeholders' demands for enhanced welfare should be considered within the corporate objectives. The research contributes empirical and practical evidence that fills the gap left by previous studies, which failed to provide a comprehensive explanation for this phenomenon. To investigate this relationship, the study utilizes a sample of public companies in Indonesia spanning the period from 2010 to 2021. Through the main analysis, this study aimed to shed light on the justifications put forth by companies regarding manipulative practices that positively impact sustainability reporting. Prior studies primarily focused on theoretical explanations for the influence of earnings management on sustainability reporting within the current scope of research.

However, these studies lack concrete evidence regarding whether companies actually engage in earnings management practices to enhance sustainability reporting disclosures. In contrast, the current study provides an explanation that companies do, in fact, employ earnings management practices with regard to their manipulative activities. However, it is important to note that manipulative behavior does not always translate into a strong sustainability performance as reflected in sustainability reporting. Notably, the current study finds that companies with a track record of strong sustainability reporting in recent years have implications for their subsequent sustainability reporting endeavors.

Additionally, it is important to address the issue of selection bias that often arises in quantitative research when examining the influence of earnings management practices on sustainability reporting. The existing literature in this area has not thoroughly tackled this concern. To enhance the reliability of empirical evidence and build upon previous studies, this research provides a more comprehensive analysis of endogeneity. Firstly, the authors employ Heckman's two-stage least squares method, incorporating instrumental variables that are potential sources of endogeneity affecting the relationship between earnings management and sustainability reporting. This approach enabled the authors of this study to examine the impact of selection bias on this relationship. Secondly, the authors utilize propensity score matching (PSM) to assess the likelihood of similarity within the study sample.

This study makes several significant contributions to the existing literature, offering valuable research implications. Firstly, unlike many prior studies examining the relationship between earnings management and sustainability reporting, the current research synthesizes various strands of previous literature to provide a comprehensive explanation for the underlying reasons behind earnings management practices in relation to sustainability reporting. By doing so, the present study bridges the gap in the literature by presenting empirical evidence that sheds light on the debated relationship between earnings management and sustainability reporting, specifically within corporate settings.

In future studies, the causal relationship between earnings management practices and the disclosure of sustainability reports can be considered from the perspective of internal control. This is because the current study does not comprehensively address the influence of internal controls implemented by corporate management and internal control committees on earnings management practices. Therefore, future studies should take this aspect into account.

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