

Green Accounting and Earnings Management in Indonesia Manufacturing Companies

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Abstract

Green accounting and earnings management are two concepts in accounting that have different focuses but can be interrelated in corporate practice. This study was conducted to determine the effect of green accounting implementation on earnings management before and during the COVID-19 pandemic. The research population consists of manufacturing companies listed on the Indonesia Stock Exchange in 2019–2021. The research sample consisted of 159 companies selected through a purposive sampling technique. Data analysis was carried out through regression analysis methods, paired sample t-tests, and the McNemar test. The results showed that there were differences in earnings management practices in the period before and during the COVID-19 pandemic. Meanwhile, green accounting practices before and during the COVID-19 pandemic showed no difference and had no significant effect on earnings management in that period. Significant profitability during the pandemic seems to be more dominant in influencing earnings management than green accounting practices.

Keywords: Green Accounting, Earnings Management, COVID-19 Pandemic.

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Introduction

The current environmental problems, including global warming, pollution, climate change, the depletion of natural resources, and the extinction of biodiversity, are clear examples of poor environmental management. Kulp & Strauss (2019) predicted that Jakarta and seven countries in Asia will sink by 2050. Even researchers from LIPI, LAPAN, and NASA have stated that not only Jakarta, but also other cities such as Demak, Semarang, and Pekalongan, have the potential to sink by 2030 (Yanwardhana, 2021). The phenomenon of global warming is the cause of experts, scientists, and academics predicting that DKI Jakarta and 112 cities in northern Java will sink by 2030.

The environmental damage and disturbances suffered by the community are the result of the company's failure to fulfil its social responsibility to the environment and the community in proximity to the company's location. The risks faced by companies in poor environmental management result in decreased stakeholder confidence and can pose a serious threat to the sustainability of the company's operations.

The failure to address environmental management issues demonstrates that company management is limited to the generation of profits. This concept is known as the single bottom line. Modern industry is aware that environmental and social issues are also important considerations for companies in addition to efforts to achieve profits (Wangi & Lestari, 2020). Furthermore, corporate responsibility must be based on a triple bottom line, namely profit, people, and planet (Michael et al., 2019; Rosyidah, 2017). Profit, people, and planet represent the concept of comprehensive company management, which demonstrates that companies cannot survive, operate, or make profits without the assistance of various parties, including society and the environment (Ratna & Hasanah, 2019). Consequently, the concept of green accounting emerged as a potential solution to the impasse between companies that engage in environmentally impactful activities and the public who are affected by them (Sulistiawati & Dirgantari, 2016). Green accounting, also known as environmental accounting, is a branch of accounting that focuses on incorporating environmental benefits and costs into decision-making processes and measuring the impact of environmental protection. It also involves including environmental costs in the company's financial statements (Maama & Appiah, 2019).

Green accounting plays a significant role in companies, particularly in the current climate where climate instability is causing public concern about environmental issues such as climate change, deforestation, air and water pollution. Green accounting enables companies to address these concerns and demonstrate their commitment to environmental sustainability (Rahman & Islam, 2023), (Azizah, 2022). Furthermore, numerous countries have enacted environmental regulations that require companies to measure, report and reduce their environmental impacts. The application of green accounting helps companies to avoid legal sanctions that may be imposed if the company does not comply with applicable legal regulations (Riyadh et al., 2020). Furthermore, green accounting is useful in helping companies identify and manage environmental risks that can be detrimental to company operations. By understanding environmental impacts, companies can take the necessary preventive or mitigating actions (Zameer et al., 2022). Another advantage of green accounting is that it demonstrates to consumers, investors, and business partners that a company is committed to sustainable business practices and has transparency in environmental reporting. This can provide a competitive advantage (Choiriah & Lysandra, 2022; Liu et al., 2020). Despite the numerous advantages that green accounting offers to companies, there are still limitations to its application. This is evidenced by the fact that there are still few companies that include environmental costs in their financial statements (Azizah, 2022; Rounaghi, 2019). This condition motivates researchers to examine the level of green accounting implementation in companies in Indonesia.

The global spread of the novel coronavirus (COVID-19) has had a profound impact on numerous businesses across the globe, including those in Indonesia. A significant decline in consumer spending has been observed in Indonesia, as a result of the pandemic (Azizah, 2021; Azizah et al., 2023; Azizah et al., 2022). The most severely affected companies are those in industries that rely on consumer spending, such as hospitality, tourism and entertainment

(Azizah et al., 2023). The pandemic disrupted global supply chains with factory closures and restrictions on the movement of goods (Azizah et al., 2022). The large number of companies experiencing difficulties obtaining raw materials can disrupt production and lead to a decrease in revenue. The imposition of restrictions and closures by governments in an attempt to control the spread of the virus has forced many companies to halt their operations. This has had a significant impact on the retail sector, restaurants and other businesses that rely on direct sales to customers. In order to adhere to health and safety guidelines, companies are obliged to incur additional costs, including the procurement of masks, sanitisers, additional training and personal protective equipment, which can increase the company's operating costs. A significant number of companies have been compelled to adopt remote working or reduce the number of employees in physical locations. This can have a detrimental impact on productivity, necessitating the investment of additional technology and infrastructure. This has resulted in a decline in performance for many companies during the pandemic, which will undoubtedly impede the implementation of green accounting due to the associated cost expenditures. This study will further examine whether there are differences in the implementation of green accounting before the pandemic and during the COVID-19 pandemic.

The concept of maximising corporate profits has been a long-standing practice since ancient times, with the current approach continuing to this day (Azizah, 2017; Azizah et al., 2024). In pursuit of these short-term goals, companies focus their operations on pursuing maximum profits, which can result in the uncontrolled exploitation of natural resources and social communities. This, in turn, can disrupt human life and the environment (Azizah & Nurjaman, 2023). Research by Cahyo et al. (2022), Azizah, Murni, et al. (2022), Azizah et al. (2024), Majid et al. (2020) indicates that companies engage in a range of business activities with the objective of generating profits.

It is imperative that earnings management practices that ignore environmental aspects be evaluated in order to maintain the trust and reputation of the company in a sustainable manner (Hapsari et al., 2021). A number of studies have identified various forms of earnings management practices in Indonesia. These include accrual earnings management trends and trade-offs (Azizah, 2017), tax planning (Romantis et al., 2020), Islamic Social Reporting and Corporate Governance on accrual earnings management (Prasetyo et al., 2021), and accrual management in pharmaceutical companies (Azizah et al., 2022). Green accounting is not explicitly designed for the purpose of earnings management, but it can influence stakeholders' perceptions of the company's performance and prospects (Dewi & Muslim, 2022). Furthermore, corporate social responsibility (CSR) as a socially and environmentally responsible corporate practice in carrying out business operations can also improve earnings management (Dewi & Wardani, 2022; Kim et al., 2012). The results of research conducted by (Martínez-Ferrero et al., 2015; Muttakin et al., 2015) demonstrate that CSR has a positive effect on earnings management. The existence of empirical evidence that CSR carried out by companies is a means to improve earnings management encourages researchers to conduct research related to green accounting and its relationship with accrual earnings management practices. The topic of green accounting is a hot and growing issue because of its relevance to corporate sustainability and transparency (Dewi & Wardani, 2022). This study will also further examine whether there are differences in the implementation of green accounting before the pandemic and during the COVID-19 pandemic.

Research Method

The research was conducted at manufacturing companies listed on the Indonesia Stock Exchange in 2019 and 2021. The research population is comprised of manufacturing companies listed on the Indonesia Stock Exchange. This population was selected because the industry group is still operational during the COVID-19 pandemic, despite facing challenges and changes in the way they work. The Indonesian manufacturing sector, including the chemical, pharmaceutical, and traditional medicine industry sectors, has demonstrated resilience in the face of the ongoing challenges posed by the COVID-19 pandemic. The research sample selection utilises the purposive sampling technique to obtain samples that can represent the specified criteria (Faizah, 2020). The criteria set in the sample selection are as follows:

- a. Manufacturing companies are listed consecutively on the Indonesia Stock Exchange in 2019 and 2021.
- b. The company publishes annual financial statements.
- c. The company has complete data required in this study.

The selection of manufacturing companies in the 2019 research year was made prior to the occurrence of the COVID-19 pandemic, whereas the selection of 2021 was made during the ongoing pandemic. In contrast, the 2020 research year was not selected due to the Indonesian economy experiencing a contraction of 2.07% in 2020 compared to the previous year. This indicates that the Indonesian economy in 2020 experienced a decline in economic activity due to the impact of the COVID-19 pandemic (Badan Pusat Statistik, 2022).

The research employs a documentation study methodology, whereby all available secondary data and pertinent information are collected. The data set comprises earnings management accruals, which are measured using discretionary accruals as a proxy for earnings management, in accordance with the earnings management model Kothari et al., (2005).

The dummy method, as outlined by Chasbiandani et al., (2019), can be employed to quantify green accounting variables. This involves assigning a score of 1 to a company if it reports any of the following green accounting components in its annual report: environmental costs, product recycling costs, and environmental development and research costs. Conversely, a score of 0 is assigned if the company does not report any of these components.

This study proposes four hypotheses to examine green accounting practices and accrual earnings management of manufacturing companies in Indonesia before and during the COVID-19 pandemic. The first hypothesis (H1) is that there are differences in green accounting before the COVID-19 pandemic and during the COVID-19 pandemic in manufacturing companies in Indonesia. The second hypothesis (H2) postulates that there are differences in accrual earnings management before the COVID-19 pandemic and during the COVID-19 pandemic in manufacturing companies in Indonesia. The third hypothesis (H3) suggests that green accounting affects accrual earnings management before the COVID-19 pandemic. The fourth hypothesis (H4) proposes that green accounting affects accrual earnings management during the COVID-19 pandemic.

The testing of hypotheses H3 and H4 employs simple linear regression analysis, whereas hypothesis H1 is evaluated using the McNemar test on categorical data and hypothesis H2 using the paired sample t-test.

Result and Discussion

Descriptive Statistics

Descriptive statistics of earnings management for before the pandemic (B-Pandemic), namely 2019 during the 2021 pandemic (A-pandemic) can be seen in table 1 below:

Table 1. Descriptive Statistics of Earnings Management

| Description | N | Min | Max | Mean | Std.Dev. |
|-------------|-----|--------|------|------|----------|
| B-Pandemic | 159 | -.315 | .925 | .082 | .148 |
| A-Pandemic | 159 | -1.773 | .969 | .025 | .214 |

The descriptive statistics of earnings management in 2019 prior to the onset of the Covid-19 pandemic indicate a minimum value of -0.3136, a maximum value of 0.9250, an average value of 0.821 and a standard deviation of 0.1481. Earnings management in 2021 during the Covid-19 pandemic exhibited a minimum value of -1.7731, a maximum of 0.9693, an average value of 0.257, and a standard deviation of 0.2139. The average value of the companies sampled in this study indicates that they exhibited a higher degree of earnings management in the period preceding the onset of the COVID-19 pandemic compared to the period during the pandemic.

Figure 1 illustrates that, prior to the onset of the global pandemic, 24 manufacturing companies listed on the Indonesia Stock Exchange (ISE) had disclosed green accounting practices. This represents 15.4% of the total number of companies studied. In 2021, the proportion of companies disclosing green accounting practices increased slightly, with 28 companies (17.9% of the total) now reporting on their environmental impact. A number of factors can facilitate the adoption of green accounting by companies. These include increasing environmental awareness (Arum, 2019), stakeholder demands (Ariani & Zulhawati, 2023), and the efficient use of resources (Wahyuni et al., 2019). Research by Dhar et al. (2021) in Bangladesh demonstrated that the implementation of green accounting in companies with high levels of pollution can enhance their sustainability.

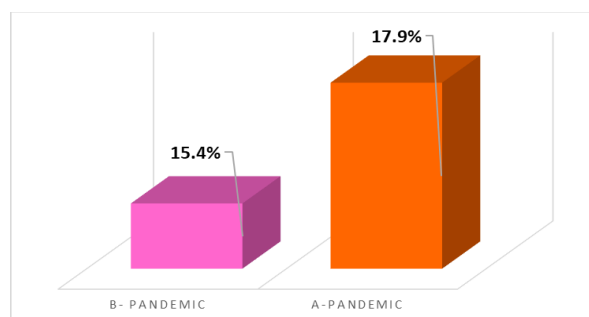


Figure 1. Percentage of the Number of Companies That Disclose Green Accounting

Normality Test

The results of the normality test influence the selection of statistical methods suitable for further analysis. The normality test results in Table 2 of this study were carried out with the Kolmogorov-Smirnov test, which indicated a significant level of earnings management at 0.000,

which is smaller than 0.05. This indicates that the data does not fulfil the normality criteria.

Table 2. Normality Test Result

| Description | Kolmogorov-Smirnov ^a | | Shapiro-Wilk | |
|-------------|---------------------------------|-------|--------------|------|
| | Statistic | Sig. | Statistic | Sig. |
| B-Pandemic | .176 | -.315 | .783 | .000 |
| A-Pandemic | .205 | -1.77 | .628 | .000 |

According to experts, when a study has more than 30 observations, it is often assumed that the data is normally distributed (Sintia et al., 2022). This is based on some empirical experience in statistics. When the number of observations exceeds 30, the distribution of the sampling error term in the statistical model tends to approach a normal distribution. Therefore, a normality test may not be necessary if the data has more than 30 observations. This assumption simplifies statistical analyses because normal distribution is one of the basic assumptions in many analytical techniques.

Hypothesis Test

Data analysis of earnings management variables uses the Paired test because the number of observations is more than 30 and the data is on a ratio scale so that it meets the normality requirements. Meanwhile, the green accounting variable uses Mc Nemar because the data is nominal or categorical. Hypothesis test results can be seen in table 3 below:

Table 3. Hypothesis Test Results on H1 and H2

| Variables | Asymp. Sig. (2-tailed) | Hypothesis |
|--------------------|------------------------|-------------|
| Green Accounting | 0.503 | H1 rejected |
| Earning Management | .000 | H2 accepted |

The results of testing H1 green accounting variables indicate a significant value of 0.503 greater than 0.05, thereby rejecting H1. This implies that there is no discernible difference in green accounting practices between the pre- and post-COVID-19 periods. The results of testing H2 earnings management variable demonstrate a significant value of 0.000 smaller than 0.05, thereby accepting H2. This indicates that there are discrepancies in earnings management practices prior to the onset of the COVID-19 pandemic and during the pandemic in 2021.

Table 4. Hypothesis Test Results on H3 and H4

| | t | Sig. | Hypothesis |
|------|------|------|-------------|
| B-GA | .117 | .907 | H3 rejected |
| A-GA | .084 | .290 | H4accepted |

Table 4 presents the results of the H3 hypothesis test on the effect of green accounting on earnings management prior to the onset of the COVID-19 pandemic. The observed value of 0.907 exceeds the critical value of 0.05, indicating that the null hypothesis (H3) is rejected. This implies that there is no discernible impact of green accounting on earnings management prior to the pandemic. The results of the H4 hypothesis test on the effect of green accounting on earnings management during the COVID-19 pandemic indicate a significant value of 0.290

greater than 0.05, thereby rejecting H4. This implies that there is no discernible effect of green accounting on earnings management during the COVID-19 pandemic.

The results of the H1 hypothesis test indicate that there are no significant differences in green accounting practices before and during the COVID-19 pandemic. The results of the analysis with descriptive statistics also indicate that only a few companies disclose green accounting practices both before and during the pandemic. This suggests that the pandemic has not had a significant effect on the implementation of green accounting. Some of the main reasons companies have not implemented green accounting are because it requires significant initial investment in systems, training and software, which is considered a cost burden by companies. Furthermore, the absence of regulatory pressure and regulations that mandate the implementation of green accounting also dissuades some companies from pursuing it.

The results of the H2 hypothesis test indicate that earnings management practices before and during the pandemic were distinct. This finding aligns with the conclusions of Widyawati & Ningtyas (2022), which suggest that there were notable differences in a company's financial performance before and during the COVID-19 pandemic, particularly in terms of profitability. The profitability of companies during the pandemic period declined significantly in comparison to pre-pandemic levels. The decline in profitability during the COVID-19 pandemic was not limited to Indonesia; it occurred in numerous countries, including Vietnam (Nguyen, 2022), India (Alsamhi et al., 2022), in European Countries (Lassoued & Khanchel, 2021). A reduction in profitability prompts numerous companies to engage in earnings management (Purnama & Nurdiniah, 2019). However, this study shows that the increase in earnings management did not occur amid the COVID-19 pandemic that lasted until 2021. During the pandemic, companies face significant revenue declines and great economic uncertainty. This puts more financial pressure on them and allows shareholders and investors to understand and accept financial statements that reflect inadequate performance. Despite this, companies still strive to maintain a positive image so they sometimes carry out earnings management on a mild scale by making less aggressive adjustments to the financial statements. If managers try to present company performance that does not match reality during the COVID-19 pandemic, it can attract attention and potential suspicion from the public, analysts, auditors, investors and shareholders. This aggressive practice may risk threatening the company's managerial position (Azizah, 2021).

The global pandemic that began in 2020 and continued until 2021 has placed companies in a position of significant economic challenge. The decline in revenues and the uncertainty surrounding the economic outlook have placed significant financial pressures on companies. This is understood by shareholders and investors, and therefore financial reports that reflect inadequate performance are acceptable. However, in an effort to maintain a positive image, managers may engage in earnings management on a mild scale by making less aggressive adjustments to financial statements. Should managers attempt to present company performance that does not align with reality during the COVID-19 pandemic, it is possible that this may attract attention and potential suspicion from the public, analysts, auditors, investors and shareholders. This aggressive practice may risk threatening the company's managerial position (Azizah, 2021).

The results of the hypothesis H3 and hypothesis H4 tests, which yielded rejected results, indicate that green accounting has not been the primary factor influencing companies to engage in earnings management, both before and during the pandemic. Previous research findings

indicate that the most significant variable influencing companies to engage in earnings management is a decline in company profits (Kalbuana et al., 2021). The number of companies implementing green accounting before and during the COVID-19 pandemic is limited, thus preventing it from playing a role in earnings management.

The findings of this study indicate that few companies have implemented green accounting, particularly to enhance earnings management both before and during the COVID-19 pandemic.

Several studies have reported several forms of corporate commitment to increase transparency about the impact and activities carried out in relation to earnings management. Research by Gerged et al. (2023) shows a negative relationship between the implementation of corporate environmental disclosure (CED) and earnings management. The application of CED makes financial reports more conservative and accurate, so companies tend not to manipulate earnings. Lakhali & Dedaj (2020) also reported that R&D disclosure is negatively related to earnings management. This is because R&D disclosure reduces managerial opportunistic behavior to improve earnings management and align the interests of managers with the interests of shareholders. Meanwhile, research by Pakawaru et al. (2021) and (Garfatta, 2021) reported that the implementation of corporate social disclosure (CSD) is positively related to earnings management. The implementation of CSD in both reports can increase earnings management because it is used to divert stakeholders' attention from earnings management actions.

Conclusion

The variable measuring earnings management indicates that there were differences in earnings management practices before and during the COVID-19 pandemic. Corporate profits or profitability during the pandemic, which decreased in Indonesia, did not prompt company management to engage in aggressive earnings management.

The variable measuring green accounting indicates that there were no differences in green accounting practices before and during the pandemic. The number of companies engaged in green accounting remains limited, both before and during the COVID-19 pandemic. Consequently, they have been unable to exert a significant influence. Furthermore, the findings of this study indicate that there is no effect of green accounting on earnings management before the COVID-19 pandemic and no effect of green accounting on earnings management during the COVID-19 pandemic. The number of companies that have implemented green accounting before and during the COVID-19 pandemic is limited, which has prevented them from playing a role in earnings management.

Future research is expected to examine the impact of the COVID-19 pandemic on this topic. In addition, the government currently requires disclosure of environmental, social and governance information through POJK regulation no. 16/SEOJK.04/2021. This condition forces companies to incur costs to preserve the environment. It is predicted that the application of green accounting will increase. For this reason, this theme is still worthy of further study.

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