The effect of environmental management disclosure and green innovation on the Indonesian food and beverages industry’s sales growth

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Abstract. The food and beverage industry is the largest contributor to waste in Indonesia. It is because the product packaging waste has not been handled properly. This industry will continue to grow following population growth and the level of people's purchasing power every year, so there is a risk that it will generate more post-production waste. This study examines the disclosure of environmental management practices, and green innovations carried out by food and beverage companies in Indonesia. This study also wants to see the effect of information disclosure and environmental innovation implementation on product sales growth. Based on the purposive sampling technique, this study employed 54 food and beverage industry companies listed on the Indonesian stock exchange from 2017-2019. This study used descriptive statistical analysis and panel data regression. The research results showed that green innovation had a significant positive effect on sales growth, while environmental management disclosure has a significant negative effect. The company has also actively supported government programs in green innovation, among them using new technologies that can reduce waste and production materials that can be recycled.

1. Introduction

One of the causes of environmental damage on the earth is waste management that is not handled thoughtfully. The food and beverage industry is an industry category that is closely related to environmental damage that occurs. This industry produces much waste during the production process to post-production, namely product packaging. A total of 855 billion sachets are sold globally, 50% of which comes from Southeast Asia [1]. The food and beverage industry is the industry closest to the community. It continues to follow population growth and the level of people's purchasing power every year. As the food and beverage industry grows, it is feared that the volume of packaging waste will also increase.

Commitment to protect the environment has recently become a strategy for companies to attract the sympathy of stakeholders [2]. Stakeholders who play an essential role in the company's performance are customers. Consumers are a group that often puts pressure on the disclosure of company information. Customer demand that companies engage in sustainability practice is one of the pressures companies often get [3]. Companies responsible for environmental sustainability do cost savings and risk mitigation. They have the advantage of gaining trust from customers and potentially increasing sales [4–6]. Therefore, consumers like companies that consistently report on the company's activities, both
business, social, and environmental activities. When the companies can meet the demands of consumers, they will gain greater trust in their brands and loyalty from consumers. In other words, consumers will reward the companies by giving buying behaviour to increase sales and potentially increase profits [7].

Currently, many companies communicate environmental activities on business activities in annual reports or separately in sustainability reporting. Companies disclose environmental management as a form of information disclosure to stakeholders. Information disclosure related to the environment serves to build and increase the company's legitimacy [8]. In addition, the pressure given by stakeholders on the companies to immediately address environmental problems makes the companies innovate in the production process [9]. Green innovation is a strategy for companies to gain a competitive advantage in the future and will also be an essential requirement to gain the trust of stakeholders [10].

This study aims to see customer reaction, which are proxied by sales growth, to the companies that do environmental management disclosure and green innovation. Many studies on the effect of environmental management disclosure and green innovation have been done, but the results are still being debated among researchers. The quality of environmental disclosure has a significant positive effect on financial performance [11]. Environmental disclosure also has a positive effect on firm value [12]. In addition, some previous research results state that companies that conduct green innovation have a positive and significant effect on firm value and market performance [4,9]. Green innovation has become an essential tool in business. By conducting green innovation, it is proven to increase sales and stock market growth [13,14].

It is in contrast to the results of several other studies. Environmental disclosure harms financial performance [8]. Environmental disclosure does not even have any relation with profitability [5]. Companies that have been accredited to the environment do not have a positive effect on the development of sales [15]. In addition, companies that focus too much on green innovation harm accounting and stock market performance compared to other innovations [16]. Companies that carry out the green innovation process need significant funds for research and development costs in creating green innovation [9,10]. Therefore, companies that conduct green innovation are seen as too risky by investors and can significantly reduce capital.

This research is fundamental because more and more waste is produced due to company activities from production to post-production, especially in the Indonesian food and beverage industry. In addition, this research is expected to increase literacy related to consumer reactions, which can be seen from sales growth in companies that apply information disclosure and innovation in the environment. This research is a content analysis that adopts measurement indicators from the previous research. The measurement of the environmental management disclosure variable adopts the indicator on Radhouane et al. [2] and green innovation from the research of Agustia et al. [9] by scoring the disclosures in the annual reports. A score of 0 if not disclosed, a score of 1 for general and non-specific disclosures, a score of 2 for specific disclosures but without quantitative data, and a score of 3 for specific disclosures with quantitative data. The scoring is an update from the previous research, which only performs content analysis by giving one if disclosed and 0 for others.

The legitimacy theory comes from the concept of organizational legitimacy, which is a condition that assesses companies with social values. When the values displayed by the company are not the same as the social value system, the company will be threatened [15]. Legitimacy theory relies heavily on the social contract between the company and the community in which it operates. To support the legitimacy theory, the company must consistently demonstrate that the company has upheld social values in carrying out its activities. One of the ways to show this is by disclosing information or operational activities related to the environment in reports issued by the company. That way, the company's legitimacy will continue to increase.

Environmental management disclosure is used to increase the legitimacy of the company by using environmental reporting as a signal that the company has good environmental performance [18]. When companies can meet the environmental needs of customers, companies can take advantage of opportunities to expand their market and potentially increase cash flows in the future [6,15]. The more
transparent the company is in disclosing the environmental management, the higher the company's sales growth.

H1: Environmental management disclosure has a positive effect on sales growth.

Implementing green innovation to companies gives several benefits, one of which is to attract consumer interest [14]. Management that prioritizes environmental activities creates a more competitive market advantage because it provides products or services that are more eco-friendly than those offered by competitors [19]. When companies can meet demands from consumers to reduce environmental damage with green innovation, consumers will reward the companies by giving “buying behaviour” so that the company will get increased sales and potentially increased profits [6]. The more companies conduct green innovations, the higher the sales growth that will be obtained.

H2: Green innovation has a positive effect on sales growth.

2. Methodology

This study was a content analysis of corporate financial statements and annual reports in the food and beverage industry listed on the Indonesia Stock Exchange (IDX) during 2017-2019. By using the purposive sampling technique, this study obtained 54 companies as the research sample. The data analysis used descriptive statistics and panel data regression. The regression equation model proposed by this study is as follows:

\[ SG_{it} = \alpha + \beta_1 EMD_{it} + \beta_2 GI_{it} + \epsilon_{it} \]  

With:

- \( SG \) = Sales Growth 
- \( \alpha \) = Constant 
- \( \beta_1, \beta_2 \) = Regression coefficient 
- \( EMD \) = Environmental Management Disclosure 
- \( GI \) = Green Innovation 
- \( \epsilon \) = Error standard

The calculation of the sales growth variable (SG) in this study was done by the previous research [15], the percentage of the difference between sales and sales_1 divided by sales_1.

The measurement of the environmental management disclosure variable in this study was by analysing the content in the annual reports using the indicators used in the Radhouane et al. research [2]. The indicator would be given a score of 0 if it was not disclosed, a score of 1 for general and non-specific disclosures, a score of 2 for specific disclosures but without quantitative data, and a score of 3 for specific disclosures with quantitative data. The content indicators are as follows:

| Component                  | Description                                                                                                                                 |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental Policy      | Companies consider environmental issues and/or evaluate the environment. To training and give information on environmental protection for employees. The budget is devoted to environmental protection and mitigation of environmental risks. Financial provisions for environmental risks. |
| Pollution and Waste       | Prevention, improvement, and/or reduction of air/water/soil emissions. Waste prevention, recycling, and reduction. Noise and other types of pollution. |
| Management                |                                                                                                                                              |
| Component                  | Description                                                                                                                                 |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainability of resources use | Water consumption and natural resource supply considerations. Consumption of raw materials and measures taken for efficiency of raw materials used. Consumption of raw materials and measures taken for efficiency of raw materials used. Land Use |
| Climate Change             | Greenhouse gas emissions                                                                                                                   |
| Biodiversity Protection    | Actions to save and develop biological diversity                                                                                           |

Source: Radhouane et al. [2]

The assessment of the green innovation variable used the indicators in the research of Agustia et al. [9], namely: (1) Production process used new technology to reduce energy, water, and waste; (2) Products used eco-friendly materials; (3) Using eco-friendly product packaging; (4) Components or materials used in the production process could be recycled. Giving a score to the indicator is the same as the variable of environmental management disclosure.

3. Results and discussion

3.1 Descriptive statistical analysis

Table 2. Descriptive statistical test results.

|     | Minimum    | Maximum    | Mean       | Std. Deviation |
|-----|------------|------------|------------|---------------|
| SG  | -0.702004  | 1.038143   | 0.074834   | 0.233577      |
| EMD | 0.000000   | 25.00000   | 10.55556   | 7.327041      |
| GI  | 0.000000   | 8.00000    | 3.796296   | 2.623404      |

The results of the descriptive statistics are shown in table 2. The mean of sales growth (SG) in the research sample during the year of observation increases by 0.0748 or 7.48%. It indicates that Indonesia's food and beverage industry is proven to increase following the level of people's purchasing power every year. Table 2 shows a minimum score of 0 and a maximum score of 25 on the variable of environmental management disclosure (EMD). It indicates that the research sample has a varied score of environmental management disclosures. Some companies have made environmental management disclosures in annual reports, but some have not. The average environmental disclosure in the sample companies obtains a score of 10.556, which means that the sample companies have done much environmental management and inform the public. In Indonesia, environmental disclosure is still voluntary, so that there are still companies that do not disclose information regarding environmental activities. Table 2 shows the green innovation mean score of 3.796. It indicates that the green innovation carried out by the sample companies is still low. Several food and beverage industries in Indonesia have started to use new technologies that can reduce production waste. In addition, many of these companies have used production materials that can be recycled. However, there are still few sample companies that use eco-friendly product packaging.

3.2 Panel data regression

The first step before testing the hypothesis is to find the appropriate panel data regression model in the research model. The first model suitability test is the Chow test which functions to see which common or fixed effect is most appropriate to the research model. The result of the Chow test is shown in table 3. The probability value of the cross-section chi-square is 0.9038 > 0.05. The result indicates that the common effect is more appropriate than the fixed effect. The next model suitability test is the Lagrange multiplier test to examine the common effect or random effect, which is more suitable. The result of the
Lagrange multiplier test in table 3 shows the Breusch-Pagan probability value of 0.0215 < 0.05. In other words, the random effect is the most suitable model for the study. After obtaining the most suitable model, then hypothesis testing can be carried out. The results of the hypothesis with panel data regression of the random effect model can be seen in table 3.

**Table 3. Panel data regression test results.**

| Variables  | Expectation | Coefficient | Probability | Hypothesis Result |
|------------|-------------|-------------|-------------|-------------------|
| EMD        | +           | -0.018861   | 0.0135      | Rejected          |
| GI         | +           | 0.046537    | 0.0281      | Accepted          |
| Chow Test: |             |             | 0.9038      | Common Effect     |
| Cross-section Chi-square |        |             |             | Model             |
| Lagrange Multiplier Test: | Breusch-Pagan |        | 0.0215      | Random Effect     |
| Model      |             |             |             | Model             |

Table 3 shows the statistical testing of the effect of the environmental management disclosure (EMD) variable on the sales growth variable (SG). The statistical results obtain a regression coefficient of 0.018861 and a probability value of 0.0135, which is smaller than the significance value of 0.05. In other words, environmental management disclosure has a significant negative effect on sales growth.

The first hypothesis, which states that environmental management disclosure positively affects sales growth, is rejected. The result is in line with the results of previous research, which states that environmental disclosure harms financial performance and has no relation with profitability [5,8]. Companies that have been accredited to the environment and do not positively affect the development of sales [15]. The result of this study does not support the results of the previous research, which states that environmental disclosure has a positive effect on sales growth and company performance [2,11]. The companies that disclose environmental management do not affect sales growth. The environmental management disclosure conducted by the companies contains steps taken during the production process to reduce environmental damage. It does not have a direct impact on consumers, so it does not affect sales growth. Investors or potential investors need more information disclosed by the companies, including environmental management disclosure.

The green innovation variable (GI) effect on sales growth (SG) in table 3 obtains a coefficient of 0.046537 with a probability value of 0.0281, which is smaller than a significance value of 0.05. It means that green innovation has a significant positive effect on sales growth.

Green innovation is proven to have a positive and significant effect on sales growth. The more companies conduct green innovation, the higher the sales growth that will be obtained. This study supports the results of the previous studies, which state that when the companies can meet the demands of consumers to reduce damage to nature, it will increase sales and potentially increase profits [7]. The implementation of green innovation provides a more competitive market advantage, thus attracting consumers [14,19]. Consumers are more interested in actual actions taken by companies that directly impact consumers, namely through green innovation. When the companies can innovate their products more eco-friendly, customers will be more loyal so that they can increase sales growth.

4. Conclusion
The study results indicate that there have been many companies in the food and beverage industry in Indonesia that have disclosed environmental management in their annual reports. The companies in the food and beverage industry in Indonesia have been active in green innovation. They use new technologies to reduce waste and using recyclable production materials. Although, green innovation in using eco-friendly product packaging is still low by sample companies.

The study results show that environmental management disclosure does not affect sales growth, but green innovation can increase sales growth. Consumers are more interested in the company's actual
actions that directly impact green innovation than company reports in managing the environment. It is due to green innovation in products has a more direct impact on the consumers, so resulting in increased sales growth.

The role of the community and the government is needed to support the company's real action to disclose environmental management and conduct green innovation. The government has issued a law to reduce waste by companies, but there are no strict rules for companies to implement the law. Thus, the environmental management disclosure and green innovation are still carried out voluntarily by the companies in Indonesia's food and beverage industry.

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