Environmental reporting, ownership structure and corporate characteristics of Indonesian listed companies

S R Ika1,3, R Rahayu1, M Y Elrifi1 and A K Widagdo2

1 Department of Accounting, Janabadra University Yogyakarta, Jl Tentara Rakyat Mataram 55-57 Yogyakarta, 55231, Indonesia
2 Faculty of Economics and Business, Sebelas Maret University, Jl Ir Sutami 36 A Solo, 57771, Indonesia
3 Corresponding author: ika@janabadra.ac.id

Abstract. Environmental reporting is a means to communicate the environmental performance information by an organization to its stakeholders. Information on environmental performance among others comprises the impact of the organization's operation on climate change, the environment, performance in managing those impacts, and contribution to ecological and sustainable development. This study aims to examine the association between environmental reporting, ownership structure, and corporate characteristics, namely financial performance, board gender, and company size. Ownership structure was measured by managerial ownership, while financial performance was measured by liquidity, solvability, and profitability ratios. The study uses one hundred and twenty-eight manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2017 as a sample. Results of multivariate regression analysis indicate that managerial ownership and profitability have a positive association with environmental reporting. These results suggest that the higher the shares owned by the management, and the more profitable the company, the higher the incentives of the company to disclose environmental information in the company's annual report. The study provides additional insight into the capital market authority agency regarding factors that may influence listed companies to report their environmental awareness under the Global Reporting Initiative (GRI) G4 environmental framework.

1. Introduction

There has been a growing understanding and concern among business society about environmental issues in the last three decades. In this circumstance, firms have been seen as a significant source of emissions, and consequently, faced with growing pressure to cut down the impact on the natural environment of their operations [1]. Moreover, companies around the world have increasingly begun to recognize the significant risk of climate change, both the straight physical effects on their enterprises and the policies on climate change that alter spending habits [2]. Therefore, the stakeholders demand the reporting of environmental responsibility in the company’s annual report. The reporting includes the effect on climate change, the environment, the success of the organization's activities in handling these effects, and the contribution to ecological and sustainable growth.

The present study aims to examine the association between environmental reporting, ownership structure, and corporate characteristics, namely financial performance, board gender, and company size. Since the disclosure is voluntary, empirical research urges to seek what factors influence the level of such disclosure. Previous studies have investigated factors that may influence the level of environmental disclosure in Indonesia [3]–[6]. [3] for example, examined the impact of a female director on
environmental reporting in the mining industry. The study found that board women do not influence environmental reporting. Meanwhile, Junita and Yulianto [4] examined the relationship between managerial ownership, firm size, profitability, and environmental disclosure in high profile companies in Indonesia. The study found that managerial ownership and profitability does not affect environmental disclosure.

The present study attempts to examine the impact of managerial ownership, size, financial performance, and board gender on environmental disclosure in the manufacturing industry. The industry chosen in the sample is different than in previous studies. The organization of this paper is as follows. The second section provides a literature review and develops five research hypotheses. The next section explains the research methods. Then it is followed by results and discussion. The paper ends with conclusions and future research directions.

2. Literature review and hypotheses

2.1. Regulation on environmental reporting

Several regulations in Indonesia regulate the disclosure of social and environmental responsibility by companies. First, Law Number 40 the Year 2007 about Limited Liability Companies. Second, Government Regulation Number 47 the Year 2012 as further provisions concerning Law Number 40 of 2007. Third, the Financial Services Authority concerning the Annual Report of Issuers or Public Companies, namely POJK Number 29/POJK.04/2016, BAPEPAM and LK Number X.k.6/2012, and fourth, PSAK Number 1 (revision 2009). However, these regulations do not mention specifically in detail what items in the environment need to be revealed in the annual report. Fortunately, there is the Global Reporting Initiative (GRI) G4 that provides a framework for a company to report an environmental issue in its reporting. Therefore, compliance with the GRI is voluntary. The GRI is an independent international standards organization that assists firms to recognize and write their effects on topics like climate change, human rights, and corruption [7].

2.2. Hypotheses development

2.2.1. Managerial ownership.

Managerial ownership is the percentage of shares owned by management in a company [4], [8], [9]. Managerial ownership of a business can clarify managers' role not only as managers in the organization, but also as the company's owner. [10] In their research address the theory of agencies used as a separation of management functions and ownership functions prone to disputes between agencies. One strategy to minimize organization agency conflicts is the dual role of managers as managers and owners of the businesses. Managers who are part of the company’s stakeholders in making their decisions will often be in line with shareholders 'wishes so that decisions can be made following shareholders' needs. This makes the management in strategic planning and execution activities to make decisions. Managers do this action to enhance the values that exist within the organization. Business managers may seek to reveal environmental details to enhance the company's reputation, but the organization must sacrifice certain costs for environmental reporting activities. Past studies have documented an association between managerial ownership and the level of voluntary disclosure [8], [9], [11]. Therefore, the hypothesis is stated as follows.

H1: Managerial ownership is positively associated with the level of environmental disclosure.

2.2.2. Size of the company.

In the annual report, there are some reasons to assume a favourable relationship between a company's size and the level of environmental reporting [12]. Firstly, information collection and distribution is an expensive affair. Smaller businesses do not have the resources required to collect and disseminate a tremendous amount of knowledge to the public. Secondly, such information is usually gathered in large organizations for internal exposure and then utilized in the strategic assessment. They know previously and be able to submit critical information to the external party quickly as well. Third, large corporations
are typically subject to more public scrutiny and regulatory regulation. They are also required to report more information on the environment than smaller companies. [4] found a positive relationship between the size of the company and environmental disclosure. Hence, the hypothesis is stated as follows.

H2: The size of the company is positively associated with the level of environmental disclosure.

2.2.3 Profitability
The present study described profitability as the ratio of net income to the total asset. The ratio shows the net profit margin on the asset. The higher the ratio, the greater the organization’s performance would be. The organization would have additional capacity to absorb increasing costs while the profitability is high. Thus, the company's position will become stable and solid to counter market competition. If the earnings margin of a company is greater than that of its market, the public would have greater trust in the business. The organization would rather than reveal more detail to properly educate the public about the social/environmental initiatives it has conducted. If the profit margin is low, then it cannot be anticipated that the company will invest more in social commitments and will also refuse to report it. Consequently, it is predicted that a company with higher profitability would report comprehensive details on environmental practices than low profitability firms [12]–[14]. Therefore, the hypothesis is stated as follows.

H3: Profitability is positively associated with the level of environmental disclosure

2.2.4 Debt to equity ratio
Many recognized investors especially foreign institutional investors, need to report about a company's environmental performance. A company that borrows from these donors must present a certificate of due diligence revealing the environmental effects of its operations, major environmental risks, and measures to safeguard the environment. Therefore, it is expected that companies with a high debt-equity ratio would report environmental details than companies with lower debt-equity ratios. The ratio is a reflection of an organization's ability to raise additional funds. It gives some indication of the insurance that lenders get if the company becomes insolvent [12]. Therefore, the hypothesis is stated as follows.

H4: Debt to equity ratio is positively associated with the level of environmental disclosure.

2.2.5 Liquidity
Liquidity is defined as the current asset to the current liability. The ratio indicates the ability of the current asset of a company to cover the current liability. The higher the ratio, the higher will be the liquidity of the firm. If the liquidity is high, the firm will have enough cash or quickly enough convert to cash asset to do environment-related activities; thereby, there are environmental activity also to be reported in the annual report. If the liquidity is low, it is less likely that the company would spend extra on social obligations related to the environment and will also hesitate to disclose it. Thus, the present study posits the following hypotheses.

H5: Liquidity is positively associated with the level of environmental reporting.

2.2.6 Board gender
The existence of female directors on the board has been documented to have a beneficial impact on the decision-making process and success of companies because female directors are attentive, active, and interested [15][16][17][18]. Rao et al. [17] and Rupley et al. [19] found that women on board are positively associated with the level of environmental disclosure. This study follows these findings states the following hypotheses.

H6: Female director on the board is positively associated with the level of environmental disclosure.

3. Research method

3.1 Sample and data collection
The sample used in this study was all manufacturing companies listed on the Indonesia Stock Exchange (IDX) at the end of 2017. There were 144 companies on the list based on the IDX Fact Book 2018. Data were obtained from the annual report which was collected from the IDX website and companies’ corporate website. However, 16 annual reports were unavailable. Therefore, the final sample was 128
companies. There are some reasons why this study chooses the manufacturing industry. First, the number of companies listed in the industry is the largest number of industry sectors as compared to other industries. Besides, the production process in manufacturing companies may make it harmful to the environment. The year 2017 was chosen because that was the most recent data at the start of this research.

3.2. Environmental disclosure analysis
This study assesses the level of environmental disclosure using an unweighted environmental disclosure index (EDI). The use of the unweighted index follows previous studies in environmental disclosure [1][20][21]. The index was developed from the GRI G4 framework in the field of the environment. It consists of 34 items of a checklist. Hence, this study does not analyze the quality of the disclosed information; instead; it examines the existence of statements related to the environmental items included in the index [1]. If the information was included in the annual report, it receives a score of one; and zero otherwise. The maximum possible score of the index is 34. Then the disclosure index is stated in %age.

The checklist in the index covers twelve categories of environmental disclosure theme, namely: materials, energy, water, biodiversity, emissions, effluent and waste, product and service, compliance, transportation, other carbon emissions, the performance of supplier on the environment, and problem-solving mechanism on environment issues.

3.3. Independent variables
There are four independent variables used in this study. Managerial ownership (MOWN) was measured by the number of shares owned by managers divided by total shares. Financial performance was measured by several financial ratios, namely liquidity (CR); current assets divided by current liability, profitability (ROA); net income to total asset, and solvability (DER); debt to equity ratio. Meanwhile, company size (SIZE) was measured by the natural logarithm of total assets. Board gender or board women (BW) was measured by the existence of a female director on the board. If there is a female director, the company was given a score of one, and zero otherwise.

3.4. Analysis Technique
This study used multivariate regression analysis to test the influence of ownership structure, financial performance, company size, and board gender on environmental disclosure. The regression model is as follows. The classical assumption test was also conducted to ensure the result of the regression test is not bias.

\[ ED = \alpha + \beta_1 \text{MOWN} + \beta_2 \text{SIZE} + \beta_3 \text{CR} + \beta_4 \text{ROA} + \beta_5 \text{DER} + \beta_6 \text{BW} + e \]  

(1)

4. Result and discussion
4.1. Descriptive statistic
The descriptive statistic presents a description of the data used in the study. The results are presented in Table 1.

|       | Minimum | Maximum | Mean  | Standard Deviation |
|-------|---------|---------|-------|--------------------|
| ED    | 0.03    | 0.38    | 0.113 | 0.077              |
| MOWN  | 0.00    | 0.873   | 0.052 | 0.150              |
| SIZE  | 13.97   | 31.58   | 19.89 | 4.382              |
| CR    | 0.00    | 171.65  | 4.142 | 17.521             |
| DER   | -2.06   | 191.55  | 3.968 | 19.801             |
As shown in Table 1, the average value of environmental disclosure in the sample company is 11.3 % with the minimum score is 3 %, and the maximum score is 38 %. The result suggests that the level of environmental disclosure in manufacturing companies in Indonesia is relatively low. The finding is consistent with the result of previous studies which documented that the environmental disclosure of Indonesian companies is limited [3]–[6].

Managerial ownership is ranging from zero to 87 %, with the average value of sample companies is 15 %. The mean value of liquidity, profitability, and debt value is 4.14, 3.97, and 0.50, respectively. While company size is in the range from 13.97 to 31.58, and 19.89 on average. The number of sample companies which have female director is 49 out of 128, representing about 38 % of the entire sample. The number, however, is higher than [3] study which reported that the number of female directors in mining companies is only about 8.84 %. The results indicate that board gender diversity in the manufacturing industry is higher than those in the mining industry.

4.2. Multivariate regression result
To test the impact of managerial ownership, firm financial performance, board gender, and company size on environmental disclosure, we run multivariate regression analysis. The result of the regression is presented in Table 2.

Table 2. Multivariate regression result.

|            | B     | t     | Sig   | Tolerance | VIF  |
|------------|-------|-------|-------|-----------|------|
| Constant   | 0.109 | 3.559 | 0.001 |           |      |
| MOWN       | 0.172 | 4.015 | 0.000*** | 0.985 | 1.015 |
| SIZE       | 0.000 | -0.260| 0.795 | 0.975     | 1.026|
| CR         | 0.0001| 0.148 | 0.882 | 0.496     | 2.015|
| DER        | 0.000 | -0.773| 0.441 | 0.495     | 2.019|
| ROA        | 0.003 | 2.606 | 0.010*** | 0.984 | 1.016|
| BW         | 0.004 | 0.326 | 0.745 | 0.975     | 1.026|
| F Value    |       |       |       | 4.118     |      |
| F sig      |       |       |       | 0.001***  |      |
| Adjusted R²|       |       |       | 0.128     |      |
| Kolmogrov Smirnov Sig |       |       |       | 0.595     |      |

*** denotes significant at 1%; ** denotes significant at 5%.

Table 2 shows that managerial ownership and profitability as represented by ROA is significantly influenced environmental reporting made by the manufacturing industry. The results are significant at the 1 % level. On the other hand, the existence of a woman on the board, liquidity, solvability, and company size does not have any relationship with environmental disclosure as the sig value of those variables are above 0.05. The discussion of the regression results is elaborated in section 4.3.

4.3. Discussion of the regression result
As presented in Table 2, managerial ownership is positively associated with environmental disclosure, significant at a 1 % level. The results suggest that the higher the number of shares held by managers, the more environmental activities disclosed in the company annual report. The results are inconsistent with [4] and [6], which found that managerial ownership does not affect environmental disclosure. The results
are also inconsistent with [9], [8] and [11], which suggested that managerial ownership has a negative relationship with corporate social responsibility disclosure. The plausible explanation related to this inconsistent finding is the differences in the sample with previous studies.

Table 2 suggests that company size and company financial performance in terms of liquidity and solvability do not affect environmental disclosure. Meanwhile, profitability has a positive association with the extent of environmental disclosure in the company annual report. The results indicate that the more profitable the company, the higher the level of environmental activities disclosed in the company annual report. It is consistent with [22]. This finding, however, contradicts [1], [4] study which found that profitability does not influence the extent of environmental disclosure.

Table 2 also suggests that the existence of a female director on the board has no relationship with the level of environmental disclosure. Such finding is consistent with [3], which documented that women on board do not impact on environmental reporting. The plausible reason why board women are not significant is the low number of companies in the sample whose female directors on the board. The result may indicate that male-dominated the board structure in the Indonesian manufacturing industry. Besides, board women were likely to have very little chance of influencing the decision-making process, including the decision to report the environment [3]. The results, however, are not in line with [17] who found a positive association between the board’s proportion of female directors and the extent of environmental reporting.

The adjusted R^2 value in the table is 0.128, indicating that the independent variables in the model can explain about 12.8 % of the variation of factors influencing environmental disclosure. The rest 87.2 % are the factors that were not examined in the study.

5. Conclusion and limitation
The present study aims to examine the determinants of environmental disclosure in the company annual report. Results of multivariate regression analysis indicate that managerial ownership and profitability positively affect environmental disclosure. The results imply that the higher the shares owned by managers, the higher the level of environmental reporting. Similarly, the more profitable the company, the higher the level of environmental disclosure appears in the company annual report.

There are some limitations in the study that should be considered in interpreting the results. First, the value of adjusted R^2 is relatively low. The low number of adjusted R^2 (12.8 %) suggests that some variables have not been included in the regression model. Next research may add the examined variable, for example, the involvement of the audit committee, foreign ownership. Second, the results may not be generalized to other industries since this present study only examines the manufacturing companies.

References
[1] Monteiro S M da S and Aibar-Guzmán B 2010 Determinants of environmental disclosure in the annual reports of large companies operating in Portugal Corp. Soc. Responsib. Environ. Manag. 17 185–204
[2] Luo L, Tang Q and Lan Y 2013 Comparison of propensity for carbon disclosure between developing and developed countries: A resource constraint perspective Account. Res. J. 26 6–34
[3] Trireksani T and Djajadikerta H G 2016 Corporate governance and environmental disclosure in the Indonesian mining industry Australas. Accounting, Bus. Financ. J. 10 A3
[4] Junita N L and Yulianto A 2018 The determinants affecting environmental disclosure in the high profile companies in Indonesia Account. Anal. J. 7 114–50
[5] Hadiningtyias S W and Mahmud A 2007 Determinant of environmental disclosure on companies listed in Indonesia Stock Exchange (IDX) Account. Anal. J. 6 380–93
[6] Nurhayati R, Brown A and Tower G 2006 Understanding the level of natural environment disclosures by Indonesian listed companies J. Asia Pacific Cent. Environ. Account. 12 4–11
[7] Tarquinio L, Raucci D, Verna I and Benedetti R 2015 GRI performance indicators and corporate variables: Evidence from Italian listed companies’ corporate social responsibility reports Prog.
Ind. Ecol. 9 234–55

[8] Nurleni, Bandang A and Amiruddin A 2017 The effect of managerial and institutional ownership on corporate social responsibility disclosure Int. J. Law Manag. 60 979–87

[9] Eng L L and Mak Y T 2003 Corporate governance and voluntary disclosure J. Account. Public Policy 22 325–45

[10] Jensen M C and Meckling W H 1976 Theory of the firm: Managerial behavior, agency costs and ownership structure J. Financ. Econ. 3 305–60

[11] Khan A, Muttakin M B and Siddiqui J 2013 Corporate governance and corporate social responsibility disclosures: Evidence from an emerging economy J. Bus. Ethics 114 207–223

[12] Pahuja S 2009 Relationship between environmental disclosures and corporate characteristics: A study of large manufacturing companies in India Soc. Responsib. J. 5 227–44

[13] Said R, Zainuddin Y, Haron H, Zainuddin Y Hj and Haron H 2009 The relationship between corporate social responsibility disclosure and corporate governance characteristics in Malaysian public listed companies Soc. Responsib. J. 5 212–26

[14] Purbawangsa I B A, Solimun S, Fernandes A A R and Mangesti Rahayu S 2019 Corporate governance, corporate profitability toward corporate social responsibility disclosure and corporate value (comparative study in Indonesia, China and India stock exchange in 2013-2016) Soc. Responsib. J. 16 983–99

[15] Bonn I 2004 Board structure and firm performance: Evidence from Australia J. Aust. New Zeal. Acad. Manag. 10 14–24

[16] Huse M and Solberg A G 2006 Gender-related boardroom dynamics: How Scandinavian women make and can make contributions on corporate boards Women Manag. Rev. 21 113–30

[17] Rao K K, Tilt C A and Lester L H 2012 Corporate governance and environmental reporting: An Australian study Corp. Gov. Int. J. Bus. Soc. 12 143–63

[18] Webb E 2004 An examination of socially responsible firms J. Manag. Gov. 8 255–77

[19] Rupley K, Brown D and Marshall S 2012 Governance, media and the quality of environmental disclosure J. Account. Public Policy 31 610–40

[20] Cho C H and Patten D M 2007 The role of environmental disclosures as tools of legitimacy: A research note Accounting, Organ. Soc. 32 639–47

[21] Patten D M 2002 The relation between environmental performance and environmental disclosure: A research note Accounting, Organ. Soc. 27 763–73

[22] Andrikopoulos A and Krikлина N 2013 Environmental disclosure and financial characteristics of the firm: The case of Denmark Corp. Soc. Responsib. Environ. Manag. 20 55–64