


The Influence Of Female Directors, The Size Of The Board Of Directors And Digital Transformation On Environmental, Social, And Governance (ESG) Disclosure

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| Article Info | ABSTRACT |
|--|--|
| Keywords: Female Directors Size of the Board of Directors Digital Transformation ESG | This study aims to determine the influence of Female Director, Board of Directors Size and Digital Transformation on Environmental, Social, and Governance (ESG) disclosure. The research method used is a quantitative method. The data used in this study is secondary data in the form of financial statements from the website (www.idx.co.id) and the Refinitiv Eikon Database. The population in this study is all companies listed on the Indonesia Stock Exchange (IDX) for the 2018-2023 period. The sample was selected from the purposive sampling method and obtained a sample of 41 companies from several criteria that have been set. The analysis technique used in this study is panel regression analysis with the help of EVIEWS version 10. The results of the analysis show that Female Directors have a significant positive effect on ESG disclosure. The size of the board of directors does not have a significant positive effect on ESG disclosure. Digital Transformation has a positive and significant influence on ESG disclosure. This research can contribute to adding literature related to additional considerations such as Female Director, Board of Directors Size and Digital Transformation for investors in evaluating the Company's potential. |
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INTRODUCTION

In Indonesia, the Financial Services Authority (OJK) has mandated financial institutions and issuers to produce sustainability reports, as stipulated in the OJK Regulation No. 51/POJK.03/2017. This regulation governs the implementation of sustainable finance for financial institutions, issuers, and public companies in Indonesia, aiming to promote sustainability disclosure (Market, 2023). According to Achmad Daniri, from the National Committee on Governance Policy (KNKG), the level of disclosure regarding ESG in Indonesia is currently estimated at less than 50% compared to other countries, and there is a low level of ESG implementation in Indonesia (Setianda, 2023). The ESG index of the capital market

in Indonesia ranks 36th out of 47 capital markets globally as of March 2021, with Indonesia's ESG index trailing behind the Philippines, Singapore, Malaysia, Thailand, and India (Deha, 2023). This is due to the absence of written penalties or fines for companies that do not disclose ESG. Companies that fail to disclose ESG are only subject to administrative sanctions in the form of warnings or written reprimands.

Data from the "Gender Equality in Corporate Leadership Asia 2023" report shows that, on average, women hold 16% of board seats, 7% of chair positions, and 5% of CEO positions across the Asia region. As seen in Figure 1 below, Indonesia, on the Indonesia Stock Exchange (IDX), stands out as having the second-highest percentage of chair positions held by women after Vietnam, with 13% of board seats held by women. This places Indonesia in a relatively strong position in terms of gender diversity in corporate leadership compared to other Asian countries. However, in Indonesia, based on data from companies listed on the Indonesia Stock Exchange (IDX), the percentage of firms with all-male boards ranks the highest in Asia at 47%, and the percentage of board seats held by women ranks among the lowest, placing Indonesia fourth from the bottom out of 17 Asian countries, with a percentage of 13% (United Nation Sustainable Stock Exchanges, 2023).

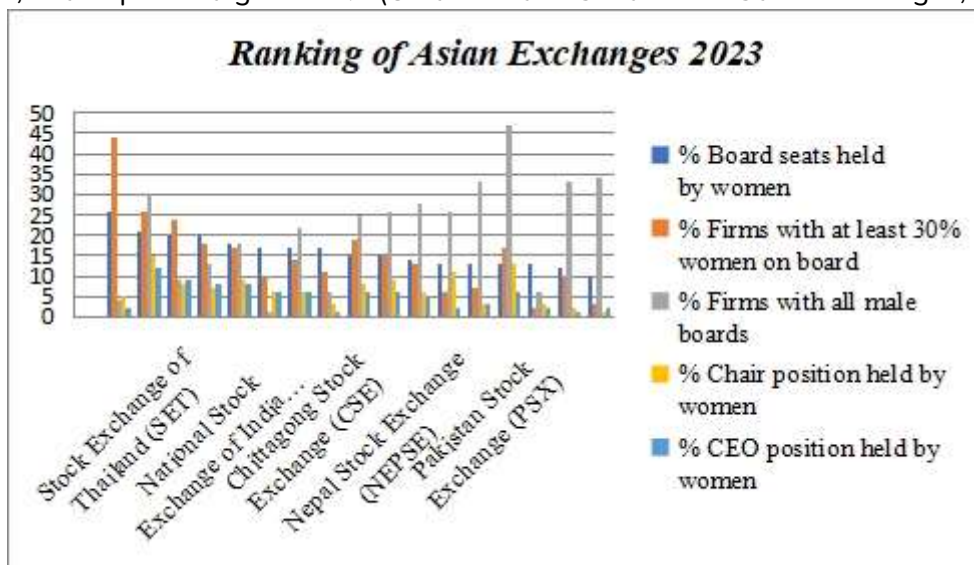


Figure 1. Ranking of Asian Exchanges 2023

The data above indicates that gender diversity in Indonesia remains low, as many boards of directors are still dominated by men. The board of directors is one of the most important aspects of corporate governance mechanisms to ensure responsible business conduct. The composition or size of the board of directors refers to the number and characteristics of its members. Indonesia implements a two-tier system structure that divides the duties and authority of the board of directors through the General Meeting of Shareholders (GMS), as regulated by Law No. 40 of 2007. Decisions made by the board of directors must align with the GMS, which limits the authority of the board of directors (Sirait dan Fuad, 2020).

Another factor that can influence ESG disclosure is Digital Transformation. In the digital economy era, digital transformation is a critical pathway for high-quality corporate development in both operational and strategic aspects. Research on the relationship between digital transformation and ESG disclosure is still relatively unexplored. Digital transformation can support and facilitate companies in implementing and reporting ESG practices. A study discussing the relationship between Digital Transformation and ESG disclosure, conducted by (Li et al. 2024), shows that digital transformation significantly enhances ESG performance by encouraging the adoption of digital tools to monitor and report ESG metrics, offering incentives to companies that demonstrate effective use of technology in advancing their sustainability efforts.

Based on the explanation above, this study aims to examine the influence of Female Directors, Board Size, and Digital Transformation on ESG Disclosure in companies listed on the Indonesia Stock Exchange. It is expected that through this research, companies can be informed that the elements of female directors, board size, and digital transformation can affect the level and quality of Environmental, Social, and Governance (ESG) disclosure.

Stakeholder theory, first developed by Freeman (1984), states that companies must consider the interests of all parties affected by their activities, not only pursuing their own goals but also considering the well-being of other stakeholders. In the context of ESG disclosure, this theory emphasizes the importance of paying attention to the needs and interests of various stakeholders, such as employees, consumers, society, and the environment.

This theory was proposed by Jensen and Meckling (1976), the agency theory explains the agency relationship agreement or the relationship that involves shareholders (principals). In the context of ESG disclosure, strong corporate governance can ensure that management prioritizes the interests of shareholders, including the disclosure of information about sustainable environmental, social, and governance practices. Typically, the principals (owners) delegate the management and control of resources to management (agents) to act in the best interests of the principals. Conflicts of interest between principals and agents require agents to present information that may not align with the principals' interests, particularly information related to measuring agent performance. This conflict of interest is driven by the agent's motives, which are often influenced by short-term profits and opportunities. Proper treatment of agents is one way companies align their interests to address agency conflicts between owners and agents, ensuring that managers act to maximize shareholder wealth (Rahim et al. 2024).

According to Kim dan Li (2021), ESG represents activities related to fulfilling social and environmental responsibilities, as well as applying business ethics under effective governance, resulting from the impact of business activities. ESG scores can be assessed by third parties such as Bloomberg, Refinitiv, and others to minimize bias. Based on Refinitiv Eikon, ESG scores range from 0-100 (Thomson Reuters, 2022). A score of 0 indicates a minimum level of ESG disclosure by the company, while a score closer to 100 represents maximum ESG disclosure.

The composition of male and female directors has different characteristics, so diversity brings a new dynamic to the company's leadership process. Diversity fosters a range of ideas, thoughts, skills, and expertise that benefit the company (Tejedo-Romero et al. 2017). Companies with female directors tend to exhibit different behaviors regarding investment decisions, which can significantly impact financial performance, with men being more confident and women more conservative and cautious (Zhou, 2019). Female directors refer to the proportion of women on the board of directors. The importance of diversity on the board lies in ensuring balanced decision-making, logic, and good supervision. Gender diversity can lead to good governance (Wijaya dan Dwijayanti, 2023). Research conducted by Birindelli et al. (2018), Arayssi et al. (2020), Lavin dan Montecinos-Pearce (2021), Gurol dan Lagasio (2023), Marrone et al. (2023) Wasiuzzaman & Wan Mohammad (2020), and Dicuonzo et al. (2023), shows that gender diversity (female directors) positively impacts ESG disclosure.

According to Mali dan Amin (2021), the structure of the board of directors plays an important role due to its diverse backgrounds and expertise, which can influence decision-making aimed at maximizing company performance. Board size refers to the number of directors on the board. The larger the board size, the better the company's ESG performance will be, as the directors' expertise becomes more varied and can lead to better decision-making (Birindelli et al., 2018). Research conducted by Birindelli et al. (2018), Husted dan Sousa-Filho (2019), Gurol dan Lagasio (2023), and Marrone et al. (2023) shows that board size has a positive effect on ESG disclosure.

Digital Transformation is a re-engineering process aimed at improving operational efficiency and organizational performance through the use of connectivity, communication, computing, and information technologies (Chen et al. 2019). Research conducted by Li et al. (2024), P. Yang et al. (2024), and Wu et al. (2024) shows that Digital Transformation positively affects ESG disclosure. This study uses control variables such as company size, leverage, and profitability. Based on the literature review outlined above, the following hypotheses can be proposed:

1. Female Directors have a positive and significant effect on ESG Disclosure.
2. Board Size has a positive and significant effect on ESG Disclosure.
3. Digital Transformation has a positive and significant effect on ESG Disclosure.

METHODS

This research is conducted to test the hypotheses. The hypothesis test is aimed at explaining the nature of certain relationships. The dependent variable in this study is ESG Disclosure, while the independent variables are Female Director, Board Size, and Digital Transformation. Additionally, this study uses control variables, namely Firm Size, LEV, and ROA. This research employs panel data regression analysis and will be processed using Eviews 10.

The study also uses secondary data. The secondary data for this research is sourced from the annual financial reports of companies listed on the Indonesia Stock Exchange (IDX)

from 2018 to 2023, as well as ESG score data from the Thomson Reuters Eikon database. The population of this study consists of all companies listed on the IDX during the 2018-2023 period. The sample is obtained using purposive sampling techniques based on several predetermined criteria. The sample in this study includes 41 companies over the 2018-2023 period, resulting in a total of 246 observations. The operational definitions and research variables are as follows:

Table 1. Operational Definitions and Research Variables

| Variable | Definition | Measurement | References |
|------------|--|--|---|
| ESG Score | A metric that measures a company's performance in sustainable environmental, social, and governance aspects. | ESG score issued by Thomson Reuters Eikon. | Dicuonzo et al. (2023) Menicucci & Paolucci (2022) |
| Female | The representation of women serving as board directors. | (Total female directors / total board of directors) x 100% | Sirait & Fuad (2020) |
| UD_Direksi | Refers to the total number of members of the board of directors of a company. | The number of board of directors in the company. | Birindelli et al. (2018) Dicuonzo et al. (2023) |
| DT | A re-engineering process aimed at improving operational efficiency and organizational performance through the use of connectivity, communication, computing, and information technologies. | DT = Natural logarithm of one plus the frequency of keywords related to DT in four relevant technologies (internet, artificial intelligence, blockchain, cloud, and big data) from the company's annual reports. | Lin et al. (2023) Li et al. (2024) |
| Firm Size | Indicates the size of the company, measured by using the natural logarithm of total assets. | Firm Size = Natural logarithm of total assets. | Sirait & Fuad (2020) |
| LEV | The ratio that measures how much a company uses debt compared to its assets. | Total liabilities / total assets. | Sirait & Fuad (2020) |
| ROA | A ratio that measures how efficiently a company generates profits from its owned assets. | Net profit (loss) of the current year / total assets | Sirait & Fuad (2020) |

*)Source: Previous Research

The model used in this research is a multiple linear regression model. The model is as follows:

$$ESG\ Score = a + b_1\ Female + b_2\ UD_Direksi + b_3\ DT + b_4\ Firm\ Size + b_5\ LEV + b_6\ ROA + e$$

Explanation:

- ESG Score = Disclosure ESG
- a = Constant
- b1,b2,b3 = Regression coefficients of variable
- Female = Female Directors
- UD_Direksi = Size of the Board of Directors
- DT = Digital Transformation
- Firm Size = Company Size
- LEV = Leverage
- ROA = Profitability
- e = Error or the level of error

Conceptual Framework

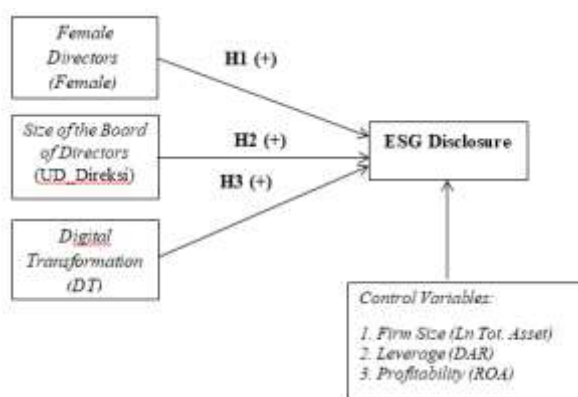


Figure 2. Conceptual Framework

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Table 2. Descriptive Statistics

| | Observation | Mean | Median | Maximum | Minimum | Std. Dev |
|------------|-------------|----------|----------|----------|----------|----------|
| ESG Score | 246 | 53.87484 | 54.61500 | 87.54000 | 10.62000 | 19.60379 |
| Female | 246 | 0.162073 | 0.140000 | 0.600000 | 0.000000 | 0.162323 |
| UD_Direksi | 246 | 7.512195 | 7.000000 | 15.00000 | 4.000000 | 2.301254 |
| DT | 246 | 526.2073 | 373.5000 | 2300.000 | 34.00000 | 488.2843 |
| Firm Size | 246 | 2.05E+08 | 54615921 | 2.17E+09 | 4832910. | 4.00E+08 |
| LEV | 246 | 0.559797 | 0.570000 | 0.990000 | 0.120000 | 0.230124 |
| ROA | 246 | 0.072073 | 0.050000 | 0.470000 | -0.19000 | 0.084032 |

*)Source: Processed Data from Eviews 10

Selection of Panel Data Regression Model

Chow Test

From the results of the model analysis using the Chow Test, the following results were obtained:

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Table 3. Chow Test Results

| Effect Test | Statistic | d.f. | Prob. |
|--------------------------|------------|---------|--------|
| Cross-section F | 25.254597 | -40,199 | 0.0000 |
| Cross-section Chi-square | 443.881438 | 40 | 0.0000 |

*)Source: Processed Data from Eviews 10

The results of the Chow test in the table above show that the probability value of cross-section chi-square is < 0.05 , namely 0.0000, which means that H_0 is rejected and H_a is accepted. This indicates that the regression model chosen will be the fixed effect model (FEM). The analysis is then continued with the Hausman Test.

Hausman Test

The results of the Hausman test are as follows:

Table 4. Hausman Test Results

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|----------------------|-------------------|--------------|--------|
| Cross-section random | 20.945774 | 6 | 0.0019 |

*)Source: Processed Data from Eviews 10

Based on the results of the Hausman test in the table above, the probability value obtained is 0.0019, showing that the probability value is < 0.05 , so it can be concluded that the correct model to choose is the Fixed Effect Model (FEM). Since there is no difference in the model used from the results of the Chow and Hausman tests, the Lagrange Multiplier test is not performed.

Classical Assumption Test of Panel Data

Normality Test

The results of the normality test for this research are as follows:

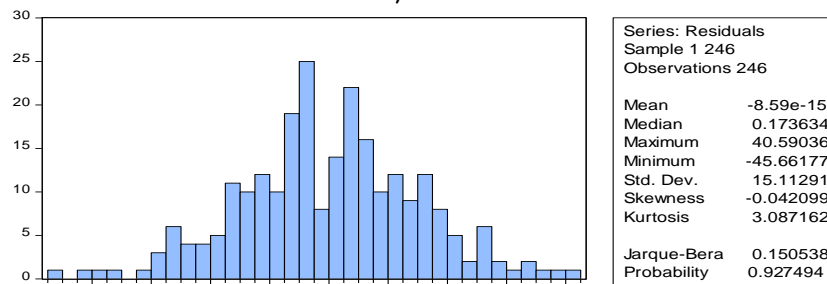


Figure 3. Normality Test Results

Based on the normality test results, it is known that the probability value is $0.9274 > 0.05$. Therefore, there are no issues with normality, and the data have passed the normality test.

Multicollinearity Test Results

The results of the multicollinearity test are as follows:

Table 5. Multicollinearity Test Results

| Variabel | VIF |
|----------|-----|
|----------|-----|

| Variabel | VIF |
|------------|----------|
| Female | 1.249242 |
| UD_Direksi | 2.018056 |
| DT | 1.615101 |
| Firm Size | 3.133900 |
| LEV | 1.575691 |
| ROA | 1.307795 |

*)Source: Processed Data from Eviews 10

From the table above, it can be concluded that all independent variables used in the equation are free from multicollinearity problems, as all variables used in this study have a VIF value ≤ 10 , which means the data used in this study do not experience multicollinearity.

Heteroscedasticity Test Results

The results of the heteroscedasticity test are as follows:

Table 6. Heteroscedasticity Test Results

| F-statistic | Probability |
|-------------|-------------|
| 1.573091 | 0.1557 |

*)Source: Processed Data from Eviews 10

Based on Table 4.6 above, it is known that the Prob. F value is $0.1557 > 0.05$, indicating that there are no symptoms or issues with heteroscedasticity.

Autocorrelation Test Results

The results of the autocorrelation test for this study are as follows:

Table 7. Autocorrelation Test Results

| | | | |
|--------------------|----------|-----------------------|-----------|
| R-squared | 0.461534 | Mean dependent var | -8.59E-15 |
| Adjusted R-squared | 0.443358 | S.D. dependent var | 15.11291 |
| S.E. of regression | 11.2755 | Akaike info criterion | 7.719041 |
| Sum squared resid | 30131.45 | Schwarz criterion | 7.847285 |
| Log likelihood | -940.442 | Hannan-Quinn criter. | 7.770679 |
| F-statistic | 25.39244 | Durbin-Watson stat | 2.014279 |
| Prob(F-statistic) | 0.00000 | | |

*)Source: Processed Data from Eviews 10

Based on the table above, the DW (Durbin-Watson) value is 2.014. This value is then compared with the DW table at a 5% significance level (0.05) using the formula $(k;n)$. The number of independent variables is 6, while the sample size (N) is 246. Thus, the dL value is 1.746 and the dU value is 1.831.

The DW value of 2.014 is greater than the upper limit (dU) of 1.746 and less than $(4 - dU) 4 - 1.831 = 2.169$. Therefore, as per the DW test, it is concluded that there is no autocorrelation problem. Hence, this research can proceed.

Panel Data Regression Model

The selected panel data regression model is the fixed effect model, as determined by both the Chow and Hausman tests. The results of the linear panel data regression analysis are as follows:

Table 8. Regression Results with Fixed Effect Model

| Variabel | Coefficient | Std. Error | t-Statistic | Prob. |
|------------|-------------|------------|-------------|--------|
| Constanta | -216.8884 | 43.46746 | -4.989672 | 0.0000 |
| Female | 17.67559 | 7.6296 | 2.316713 | 0.0215 |
| UD_Direksi | 0.082238 | 0.57914 | 0.142001 | 0.8872 |
| DT | 6.103316 | 1.897675 | 3.216208 | 0.0015 |
| Firm Size | 13.09305 | 2.573273 | 5.08809 | 0.0000 |
| LEV | -7.608437 | 7.644138 | -0.99533 | 0.3208 |
| ROA | -15.07585 | 9.824363 | -1.534537 | 0.1265 |

*)Source: Processed Data from Eviews 10

Based on the table above, the regression equation is as follows:

$$Y = -216.8884 + 17.67559 \text{ Female} + 0.082238 \text{ UD_Direksi} + 6.103316 \text{ DT} + 13.09305 \text{ Firm Size} - 7.608437 \text{ LEV} - 15.07585 \text{ ROA} + e$$

Hypothesis Testing

Coefficient of Determination (R²)

The following are the results of the coefficient of determination (R²) test:

Table 9. Coefficient of Determination (R²)

| | |
|---------------------|----------|
| Weighted Statistics | |
| Adjusted R-squared | 0.879582 |

*)Source: Processed Data from Eviews 10

Based on the results of the fixed effect model test, the obtained R-Squared value is 0.8795. This indicates that the independent variables, which include female directors, board size, and digital transformation, along with the control variables consisting of firm size, leverage, and profitability, can explain the dependent variable of Environmental, Social, and Governance (ESG) Disclosure by 87.95%, while the remaining 12.05% is determined by other factors outside the model that are not detected in this study.

F-Test Results

The F-Test results obtained are as follows:

Table 10. F-Test Results

| | |
|---------------------|----------|
| Weighted Statistics | |
| F-statistic | 39.90408 |
| Prob(F-statistic) | 0.000000 |

*)Source: Processed Data from Eviews 10

Based on the fixed effect model test, the analysis shows a significant value of 0.0000 (Sig. 0.0000 < 0.05). Therefore, it can be concluded that the independent variables collectively influence the dependent variable (Y), making the model considered valid.

T-Test Results

The T-Test results obtained are as follows:

Table 11. T-Test Results

| Variable | Coefficient | Prob. | Information |
|------------|-------------|--------|---|
| Female | 17.67559 | 0.0215 | Positively and Significantly Influences |
| UD_Direksi | 0.082238 | 0.8872 | Does Not Significantly Influence |
| DT | 6.103316 | 0.0015 | Positively and Significantly Influences |
| Firm Size | 13.09305 | 0.0000 | Positively and Significantly Influences |
| LEV | -7.608437 | 0.3208 | Does Not Significantly Influence |
| ROA | -15.07585 | 0.1265 | Does Not Significantly Influence |

*)Source: Processed Data from Eviews 10

Hypothesis Testing Results

Based on the test results obtained, the researcher shows the influence of each variable and summarizes the hypothesis testing results in the table below:

Table 12. Hypothesis Testing Results

| Hypothesis | Result | Conclusion |
|--|--|-----------------|
| H1: Female Directors positively and significantly influence ESG disclosure. | Female Directors positively and significantly influence ESG disclosure. | H1: Accepted |
| H2: Board Size positively and significantly influences ESG disclosure. | Board Size does not positively and significantly influence ESG disclosure. | H2: Rejected |
| H3: Digital Transformation positively and significantly influences ESG disclosure. | Digital Transformation positively and significantly influences ESG disclosure. | H3: Accepted |

*)Source: Processed Data by Author

Discussion

The Influence of Female Directors on ESG Disclosure

The results show that female directors have a positive and significant influence on ESG disclosure. This aligns with agency theory, where the inclusion of women on the board encourages broader communication on sustainability disclosures, thereby reducing information asymmetry regarding the company's activities. Having women on the board can affect the quality of ESG disclosures because they bring a broader perspective and enhance the company's understanding of stakeholder needs. These results are consistent with studies by Birindelli et al. (2018), Arayssi et al. (2020), Lavin dan Montecinos-Pearce (2021), Marrone et al. (2023) and Wasiuzzaman & Wan Mohammad (2020), and Dicuonzo et al. (2023) which state that having women on the board positively influences ESG disclosure. However, this study contradicts research by Husted dan Sousa-Filho, (2019a) and Sirait dan Fuad (2020), which found that women on the board do not significantly affect ESG disclosure.

The Influence of Board Size on ESG Disclosure

This study finds that board size does not have a positive and significant influence on ESG disclosure. This result contradicts existing theory, which suggests that the more board members a company has, the better control and oversight it will have over management activities, potentially encouraging disclosure to reduce information asymmetry. However, this study indicates that larger boards do not significantly influence ESG disclosure. This could be due to the difficulties larger boards face in coordination and decision-making, which may reduce the effectiveness of company oversight and hinder their ability to maximize board responsibilities and corporate compliance in ESG disclosure. These findings are consistent with research by Sirait dan Fuad (2020) and Dicuonzo et al. (2023) which state that board size does not significantly impact ESG disclosure, but they contradict studies by Birindelli et al. (2018), Husted dan Sousa-Filho, (2019a), Marrone et al. (2023), and Jimantoro et al. (2023), which found that board size does influence ESG disclosure.

The Influence of Digital Transformation on ESG Disclosure

The results show that digital transformation has a positive and significant influence on ESG disclosure. This aligns with theory, where the implementation of digital transformation increases ESG disclosure. This is because digital transformation helps monitor and report ESG practices, improving transparency and the accuracy of the information disclosed. By reducing information asymmetry between managers and shareholders, digital transformation can enhance transparency, efficiency, and social responsibility, leading to better ESG performance. This study aligns with the findings of Li et al. (2024), P. Yang et al. (2024), Wu et al. (2024), and Zhao dan Cai, (2023), which state that digital transformation positively and significantly influences ESG disclosure.

CONCLUSION

Based on the analysis above, female directors have a positive and significant influence on ESG disclosure. Board size does not have a positive and significant influence on ESG disclosure. Digital transformation has a positive and significant influence on ESG disclosure. The implication of this research includes that companies with female directors on their board should encourage the active role of female directors in ESG disclosure. Thus, having female directors should complement the existing board members and enhance ESG disclosure. Additionally, digital transformation has a positive and significant influence on ESG disclosure. Companies that invest in and implement digital technology can help improve the company's ability to monitor and report ESG practices. For investors, this research can be a guide in making the right investment decisions by using the company's Environmental, Social, and Governance (ESG) metrics. This research also contributes to the literature regarding the influence of female directors, board size, and digital transformation on ESG disclosure. This study uses several variables related to Environmental, Social, and Governance (ESG) disclosure and acknowledges that there are still many variables that have not been tested. This study is limited to companies listed on the Indonesia Stock Exchange (IDX) over a period of five years, from 2018 to 2023. The range of time and scope of the

study may affect the generalizability of the results. Therefore, future research is expected to expand the tested variables. Comparing the role of female directors, board size, and digital transformation on ESG disclosure across different countries may reveal whether the results observed in this study can be generalized. Future research could also include moderation variables.

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