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Research Article

The Effectiveness of ESG Implementation in Improving Firm Performance and Earnings Informativeness

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Abstract: *This study investigates the effect of Environment, Social, and Governance (ESG) scores on financial performance, earnings informativeness, and market performance. The impact of government regulations on ESG affecting the sensitive industry and the banking sectors in Indonesia is used as a moderating variable. Value enhancing and shareholder's expense theory compete to explain the value relevance of ESG implementation in this study. Value-enhancing theory implies that ESG practices carried out by companies will be valued positively by the market. However, Shareholder's Expense theory states that ESG practices are considered to increase costs and generate low market value. The sample of the study is companies listed on the Indonesia Stock Exchange during 2016-2020. Ordinary-, weighted-, and 2-stage-least squares regression models are used to test the hypotheses. The test results show that the ESG scores have a positive and significant effect on ROE and Tobin's Q. However, companies that are included in the sensitive industry category have a weaker ESG effect on ROE and Tobin's Q but have higher earnings informativeness. Likewise, companies in the banking sectors have a weaker ESG effect on ROA. Regulators in Indonesia can effectively accelerate the implementation of ESG and increase firms' earnings informativeness; however, companies that are affected by these regulations will bear greater costs, thereby reducing their performance. This study contributes to the literature by comparing two theories to examine how ESG implementation affects financial conditions and prospects.*

Keywords: *ESG, Income Smoothing, Financial Performance, Market Performance, Earning Informativeness.*

I. INTRODUCTION

Recently, companies in the world have integrated non-financial aspects in sustainability reports. The results of the Klynveld Peat Marwick Goerdeler survey (2017) stated that 93% of the 250 major companies in the world have reported their sustainable performance to the public. This is carried out to achieve the Sustainable Development Goals (SDGs) developed by the United Nations (UN) in 2015. Zero poverty, zero hunger, excellent health and well-being, gender equality, safe drinking water and sanitation, reliable and inexpensive energy, and respectable employment and economic growth in industry, innovation, as well as structure are among the Sustainable Development Goals (SDGs). Other goals include reduced inequality, sustainable cities and communities, ethical consumption and manufacturing, action against climate change, life beneath the water, existence on land, peace, justice, and strong organizations. The ultimate goal of the SDGs is to deliver a better, sustainable future for all stakeholders by 2030. To achieve the ultimate goal of the SDGs, the Global Reporting Initiative (GRI) provides standards on how organizations can present sustainability reports (Lerwen & Ramakrishna, 2021). One of these standards is Environmental, Social and Governance (ESG) reporting. The guidelines provided by GRI have increased the focus of international organizations on sustainability reporting and put pressure on companies to have a role in sustainable development (Qureshi et al., 2019). This has led to the emergence of corporate ESG disclosure ratios by reliable database providers, such as Refinitiv from Thomson Reuters.

Indonesia is currently undertaking efforts to realize the SDGs through the Roadmap of SDGs Indonesia. OJK Regulation No.51/POJK.3/2017 concerning the implementation of sustainable finance has been enforced for financial services companies, issuers, and public companies. The Indonesian Stock Exchange has also made efforts to launch the ESG Leaders and Biodiversity (KEHATI) Index, which contains Sustainable and Responsibility Investment (SRI)-KEHATI. All of these support businesses in Indonesia to increase awareness of sustainable development in the future. However, so far not many companies in Indonesia have implemented ESG aspects in business activities. Companies listed on the Indonesia Stock Exchange (IDX) have reached 800 companies in 2020. Companies with an ESG score based on the Thomson Reuters database were only 49 companies in that year. This suggests that of all companies listed on the IDX, only 6.12% of companies implemented the ESG pillar in their business activities in 2020. The government has attempted to issue POJK No.51/POJK.3/2017 on the application of sustainable financing to issuers, publicly traded enterprises and monetary services providers. However, the percentage of companies implementing ESG is surprisingly low in Indonesia. This confirms the results

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of a survey released by PwC Singapore and the Center for Governance and Sustainability (CGS) in May 2022, which stated that ESG implementation classified as successful in a row of Asia Pacific countries was Taiwan-30%, Thailand-25%, Singapore and Japan each at 20%. While other countries, namely the Philippines, Indonesia, India, and Malaysia were categorized as lagging with a percentage of less than 10%.

The Indonesian government has sought various ways to realize the SDGs by increasingly stressing the application of ESG in the banking sector and industries categorized as sensitive industries. POJK No.51/POJK.3/2017 regulates that banking companies, issuers, and public companies are required to publish sustainability reports. Sustainability reports can later be used to oversee how the company achieves sustainable finance. In addition, the government has also undertaken the Company Performance Rating Assessment Program (PROPER) to promote the use of information tools in business structuring for managing the environment. PROPER is directed towards sensitive industries whose business activities are potentially large in affecting broad interests in terms of economic, social, and environmental aspects.

In Indonesia, research on sustainability with industry sensitivity has provided mixed results. Sari et al. (2017) found that PROPER encourages companies to always improve environmental performance to get appreciation. Research conducted by Widiastuti et al. (2018) and Kustina & Tzania (2020) suggested that companies included in the sensitive industry category positively influence the disclosure of Corporate Social Responsibility (CSR). Meanwhile, Sukasih and Sugiyanto (2017) discovered that environmental performance, as measured by PROPER ratings, has no significant effect on CSR disclosure. Harsono et al. (2012) found that the type of industry categorized as sensitive industry has no significant effect on CSR. The results of Buallay's (2018) research on ESG disclosure in banking suggest that ESG disclosure has a positive impact on company performance as well as can increase company value in banking companies in Europe. In reference to the mixed previous empirical pieces of evidence, a deeper study is required regarding the role of sensitive industries and banking sectors, which are specifically tied to government regulation, in the implementation of ESG in Indonesia.

The company's goal, in addition to generating profits, is to increase company value (Brealey et al., 2012). Mirales-Quiros et al. (2018) state that the application of ESG in business activities can generate competitive advantages that encourage value enhancement in the long term. This enhancing value refers to the company's financial performance, which is visible from the profitability ratio, namely Return on Equity (ROE) and Return on Assets (ROA). Therefore, it is crucial to investigate the impact of ESG implementation on company profitability. Previous studies investigating this support the value-enhancing theory. Kim and Zhichuan (2021) in their study found that ESG score has a positive and significant effect on company profitability (ROA). Buallay (2018) also found a positive effect of ESG disclosure on financial performance (ROA).

Companies with ESG concerns and success in improving the company's financial performance will be more likely to be transparent and disclose their internal information so investors can be aware of the company's future. One of the company information highlighted by investors is the company's earnings. Earnings informativeness generated by companies after implementing ESG needs to be investigated. Investors should be able to identify management's motivation in increasing the informativeness of the company's earnings. Increased corporate profits will actually increase earnings predictability, so the company will have a high value. Razaee and Ling (2019), revealed how critical it is to observe the effect between sustainable performance disclosure on ESG aspects and earnings informativeness of the company. This informativeness is observed from the quality of earnings generated in order to minimize information asymmetry towards stakeholders. One of the actions that management may take to inform the company's earnings to investors is smoothing earnings. This is necessary to ensure that the resulting earnings have low variability (smooth) and can be used to predict future earnings. Income smoothing reflects management's motivation to provide positive signals to investors regarding the company's earnings.

Companies with high earnings informativeness will have high company value. The results of previous studies on the effect of ESG on market performance show a positive effect. Miralles-Quiros (2018) disclosed that ESG has a positive effect on stock prices. This supports the theory of value enhancement. In addition, Wardhani & Anna's research (2020), Yoon et al. (2018), and Le & Kim (2013) also found that ESG disclosure has a positive effect on the company's value as measured by Tobin's Q. Therefore, ESG disclosure can create positive market value.

This study aims to investigate how ESG impacts company financial results and earnings quality. Earnings quality is measured by income smoothing (smoothness). Income smoothing is motivated to increase the company's earnings informativeness. Earnings without high variability (smooth) will be more attractive to investors, so they can increase the stock market price. Managers practice income smoothing to convey internal information about the company's future to the public. Therefore, income smoothing will assist the market in predicting the company's earnings in the future. Companies that are concerned about ESG will feature more transparent financial statements, so should these companies perform income smoothing, it certainly aims to convey good internal information to the market. Earnings informativeness will be higher along with the more transparent and quality earnings information presented by companies with ESG concerns. Increased earnings

informativeness will improve market performance, which affects company value. Hence, ultimately, this study also examines how ESG affects market performance.

The categories of companies belonging to the sensitive and banking industries are crucial to be included as moderating variables in this study. These two moderating variables indicate intervention from outside the company (government/regulator) in supporting the success of ESG. This study adds two moderating variables to disclose important facts related to the tendency of government intervention in corporate behavior in Indonesia in support of ESG effectiveness. The sensitive industry refers to sectors in companies with ESG scores, including those included in the industrial sector, utility sector, basic material sector and oil and gas sector (Lin et al., 2015; Garcia et al., 2017; Yoon et al., 2018; Qureshi et al., 2019; Loprevite et al., 2020). Sensitive industry sectors include companies that must pay more attention to the environment and get special requirements related to non-toxic packaging, non-polluting production processes, and manufacturing practices that are mindful of ecosystem balance (Lin et al., 2015). In addition, the categorical variable that separates the banking and non-banking sectors aims to spotlight the effectiveness of government regulations issued by the Financial Services Authority (OJK), namely POJK No.51/POJK.3/2017 regarding the implementation of sustainable finance for financial services companies in Indonesia.

After comprehensively testing the effect of ESG on financial performance, the quality of earnings information, and market performance, the following results were found. ESG scores positively impact the company's financial performance and market performance. This study differs from the previous ones in that there are categorial variables of sensitive industry and banking that reflect government/regulator intervention in encouraging the implementation of ESG. Interventions from the government and regulator, in particular those that occur in the sensitive industry and banking sectors, can degrade financial performance. This suggests that enforcement of ESG implementation by the regulator incurs higher costs for companies affected by the regulation. On the other hand, the results of this study suggest that the quality of earnings reporting from companies affected by these government regulations is getting even better. Income smoothing used to measure earnings informativeness indicates better earnings quality, especially for companies in Indonesia with higher ESG scores.

Accordingly, this study may contribute to companies and investors regarding the consequences of implementing ESG practices on company performance and earnings quality. For investors, this study is beneficial for making ESG-based investment decisions. The results of this study may also provide encouragement to the government/regulator on the effectiveness of regulations issued related to the implementation of ESG which supports the implementation of SDGs.

This is how the rest of the paper is structured. The literature review and elaboration of hypotheses are presented in Section 2. The statistical models, measurements of the research variables, and sample selection are presented in Section 3. Section 4 presents the empirical results together with the descriptive statistics. The research findings are elaborated upon in Section 5, and the article is concluded in Section 6.

II. LITERATURE REVIEW

A) Value Enhancing versus Shareholder's Expense Theory

Value-enhancing theory posits that the integration of socially responsible activities into corporate strategy and practice results in competitive advantages that drive long-term shareholder value creation (Miralles-Quiros et al., 2018). Such competitive advantages can include improved brand reputation, increased employee productivity, improved operating efficiency, improved relationships with regulators, communities, and other interested parties, access to better investment projects (Yu & Zhao, 2015), and broader financial resources (Charlo et al., 2015). Under this theory, the company's ESG practices are expected to be positively valued by the market.

Shareholder's expense theory states that investment in ESG practices can increase costs and position the company at an economic disadvantage, resulting in low market value. Marsat and Williams (2016) argue that a commitment to sustainability may lead to overinvestment and not align with shareholders' interests. Therefore, this theory states that the company's value would probably be destroyed and that the adoption of ESG and sustainability activities may not be lucrative. These two competing theories are commonly used to explain the value relevance of ESG implementation.

B) The Effect of ESG on Financial Performance, Income Smoothing, and Market Performance

According to the value-enhancing theory, companies that can integrate aspects of business and social responsibility in corporate strategy and practice generate competitive advantages that encourage the creation of long-term shareholders' value (Miralles-Quiros et al., 2018). This theory implies that a company's ESG practices will be valued positively by the market. This in turn, facilitates the company to get access to funding to encourage the improvement of its financial performance. Buallay (2018), in his study in Europe, found that ESG score disclosure has a positive effect on company performance. Kim and Zhichuan (2021) in their study also found that ESG score has a significant effect on company profitability (ROA). Based on these arguments, the following research hypothesis is formulated.

H1a: ESG score has a positive effect on the company's financial performance.

Companies that embrace ESG in their business activities are more likely to disclose their internal information more transparently, making it easier for investors to predict the company's future. Earnings information is one of the highlights of investors as it contains information that can be used to assess the company and make investment decisions. Therefore, sustainability disclosures are very pivotal and can improve the quality of earnings information. Investors expect quality earnings as it can provide confidence for investors that the earnings information obtained is free from unethical earnings management (Dichev et al., 2013). Quality earnings, when viewed from the variability of profit, are smooth earnings. Income smoothing is defined as the use of management policies to reduce fluctuations in earnings flow to obtain the desired benefits.

Income smoothing is a subset of earnings management patterns other than income increasing and income decreasing. The type of income smoothing is classified into two (2) types, namely natural smoothing and intentional being smoothing by management. Natural smooth implies that the profit-earning process can produce a smooth profit stream. Intentionally being smoothed by management is a deliberate smoothing of earnings and contains management intervention. Income smoothing is carried out by managers to reduce variations in earnings in order to stabilize the company's profit level (Chen et al., 2019). Management's motivation in performing income smoothing actions is to increase earnings informativeness so it can help investors and analysts predict the company's future earnings.

In relation to ESG implementation, companies with ESG scores should be reasonably transparent in reporting their financial condition. This is because the companies must also disclose ESG activities as additional information to the financial information in the traditional financial statements. As such, companies that implement ESG should perform earnings management through income smoothing. Outsiders can be sure that the motivation of these companies is to inform the market about promising future financial conditions. Therefore, income smoothing is intended to increase the informativeness of earnings, which improves the quality of earnings information received by the market.

Razaee and Ling (2019), in their study in the United States, found that the quality of sustainable disclosures (ESG) adopting the GRI guideline framework has a positive effect on innate and discretionary earnings quality. ESG disclosures have a positive effect on innate earnings quality and a negative effect on discretionary earnings quality. This suggests that sustainability (ESG) reporting can have a positive effect on earnings quality and reduce the information asymmetry that occurs between management and stakeholders. Less information asymmetry may occur as managers voluntarily disclose inside information by performing income smoothing. Thereby, the following hypothesis can be formulated.

H1b: ESG score has a positive effect on Income Smoothing

Value-enhancing theory implies that ESG practices carried out by companies will be valued positively by the market. Studies related to value enhancing theory (Lee & Kim, 2013; Miralles-Quiros et al., 2018; Wardhani & Anna, 2020) found that ESG score has a positive effect on market performance as measured by Tobin's Q. A study conducted by Buallay (2018) also found that total ESG has a positive impact on corporate financial performance (Tobin's Q) in the banking sectors in Europe. The results of previous studies are consistent with value enhancing theory, where socially, environmentally and governance responsible activities can create positive company value in the long run. Based on value enhancing theory and previous empirical shreds of evidence, the following hypothesis is formulated.

H1c: ESG score has a positive effect on Market Performance

C) The Role of Sensitive Industry Category on the Effectiveness of ESG Implementation

This study incorporates sensitive industry as a moderating variable to test whether this variable can strengthen the effect of ESG on corporate profitability, earnings quality, and company value. The government's role in implementing sustainable finance is reflected in POJK No.51/POJK.3/2017 regarding the implementation of sustainable finance for financial services companies, issuers, and public companies. This regulation was issued to realize sustainable development that is able to maintain economic stability based on ESG aspects, drive the national economy that prioritizes ESG aspects, develop an environmentally friendly financial institution system, and follow up on the Sustainable Finance Roadmap in Indonesia that has been published by the Financial Services Authority (OJK). In addition, there is the Company Performance Assessment Program (PROPER) as one of the Ministry of Environment's initiatives to promote business environmentally conscious structure through information tools. Companies are geared to comply with laws and regulations through reputational incentives and disincentives. Businesses that currently do well in terms of the environment are also urged to switch to cleaner production methods. A study by Sari et al. (2017) suggests that PROPER encourages companies to carry out environmental performance improvements so they receive appreciation. Efforts by the government in POJK No.51 / POJK.3 / 2017 and PROPER are focused on sustainable development and pay special attention to companies categorized as sensitive industries. This happens due to the fact that sensitive industry companies have a significant impact on broad interests, both in terms of economic, social,

and environmental aspects. Therefore, special supervision is necessary for the business activities carried out in order to continue to empower the ecosystem. Accordingly, companies with sensitive industries have high demands on ESG practices (De Klerk et al., 2015; Gracia et al., 2017; and Miralles-Quiros & Valante, 2018). Miralles-Quiros et al. (2018) state that ESG disclosure will be more significant in companies operating in industries more vulnerable to environmental impacts, namely companies belonging to sensitive industries. A study conducted by Yoon et al. (2018) assessed the effect of ESG score on sensitive industry as an environmentally sensitive sector. The sensitive industries included in the study are companies in the energy sector (including oil and gas), materials, and utility sectors. The sensitive industry sector is the most monitored sector by the government because the company's operations have a large impact on the environment. When a sensitive industry has interacted with ESG, the interaction between the two can have a significant effect on the company's value. Likewise, Loprevite et al. (2020) found a significant effect of the interaction of sensitive industry and ESG score on company profitability. Based on these arguments, the following hypothesis can be formulated.

H2a: The effect of ESG score on Financial Performance is stronger in the sensitive industry sector.
H2b: The effect of ESG score on Earnings Informativeness is stronger in the sensitive industry sector.
H2c: The effect of ESG score on Market Performance is stronger in the sensitive industry sector.

D) The Role of Banking Sectors on the Effectiveness of ESG Implementation

In addition to sensitive industries, the government also requires the banking sectors to realize sustainable finance. Pursuant to POJK No.51/POJK.3/2017 concerning the application of sustainable financing to issuers, public corporations, and monetary services firms, this study utilizes the banking sector as a moderating variable that will affect the ESG relationship with financial performance, earnings informativeness, and market performance. The growth of green finance is a sustainable development effort that integrates corporate financial performance and positive environmental, social, and governance impacts. Green finance is prioritized for banking and financial sector companies as the banking and financial sectors hope to be able to offer green financial products to the public. Banking and financial sector companies are the primary key to the successful implementation of ESG through regulations established by the government. With government regulations binding banks as financial service providers, the ESG performance of the banking sector will have a greater impact on financial performance, earnings informativeness, and market performance.

H3a: The effect of ESG score on Financial Performance is stronger in the banking sectors
H3b: The effect of ESG score on Earnings Informativeness is stronger in the banking sectors
H3c: The effect of ESG score on Market Performance is stronger in the banking sectors

III. RESEARCH METHOD

A) Sample Selection

This study is an empirical study in which the sample uses secondary data. The secondary data used were in the form of Annual Financial Statements of companies listed on the Indonesia Stock Exchange (IDX). Data sources were taken from the Osiris and Thomson Reuters or Refinitiv databases. The data collection technique used the purposive sampling method. The samples were selected from companies with ESG score data during the study period. Other criteria to be met were that the company must have complete financial data.

The samples in this study were companies listed on the Indonesia Stock Exchange (IDX) for the 2016-2020 period. The samples used in this study were companies with ESG score data based on Refinitiv. The year was chosen as ESG scores began to be quite widely available in 2016 and ended in 2020, which was the beginning of the pandemic. The companies used must have complete financial data to measure the dependent variables, independent variables, moderating variables, and control variables in the study.

B) Measures

a. Dependent Variables

Dependent variables used in this study are Return on Equity (ROE), Return on Assets (ROA), Smoothness, and Tobin's Q. ROE and ROA represent company profitability as a measure of financial performance. ROE is a profitability ratio that reflects the company's ability to generate net income from its total equity. Meanwhile, ROA is a profitability ratio that reflects the company's ability to earn net income from its total assets.

Smoothness is used as a proxy of the company's earnings informativeness. Smoothness is used to estimate the level of income smoothing performed by the companies motivated to increase the company's earnings informativeness. Quality earnings include earnings with relatively low variability (smooth) and can be used to measure future earnings. Measurement of smoothness (Dou et al. 2013) uses the standard deviation of operating profit (Std. OP) and the standard deviation of operating cash flow (Std. CFO).

$$\text{SMOOTH} = \frac{\text{Std. OP}}{\text{Std. CFO}}$$

For the smoothness variable, this study specifically calculates Std OP and Std CFO by using OP and CFO data from 2011-2020. In this case, the standard deviation is calculated using a period of 5 years back. A lower smoothness coefficient indicates earnings smoothing. If the smoothness value is greater than 1, it implies fluctuations in earnings from time to time.

Tobin's Q ratio is used to measure the company's value. Tobin's Q ratio is calculated by comparing total market value (MVS) and total book value of liabilities (D) with total book value of assets (TA). Tobin's Q can be formulated as follows:

$$\text{Tobin}'\text{s Q} = \frac{\text{MVS} + \text{D}}{\text{TA}}$$

The interpretation of Tobin's Q ratio calculation results is that if Tobin's Q value is less than 1, then the stock is undervalued. This suggests low investment growth potential and management failure in managing the company's assets. If Tobin's Q value is equal to 1, then the stock is on the average value. This indicates the potential for investment growth is not growing, and management is stagnant in managing the company's assets. If the Tobin's Q value is greater than 1, then the stock is overvalued. This suggests the potential for investment growth is very high, and management is successful in managing the company's assets.

b. Independent Variable

The independent variable used in this study is the total ESG score. The total ESG score is obtained from the Thomson Reuters or Refinitiv database, which offers the most comprehensive ESG data in the industry. Refinitiv's ESG data covers more than 70% of global market capacity with more than 450 different ESG metrics since 2002. The following is the weighting for ESG score based on Thomson Reuters.

Table 1: The Computation of ESG scores by Refinitiv

Pillars	Categories	Indicators in the Assessment	Weight	Pillar Weight
Environment (E)	Resource utilization	20	11%	34.0%
	Emission	22	12%	
	Innovation	19	11%	
Social (S)	Workforce	29	16%	35.5%
	Human Rights	8	4.5%	
	Society	14	8%	
	Product Responsibility	12	7%	
Governance (G)	Management	34	19%	30.5%
	Stakeholders	12	7%	
	CSR Strategy	8	4.5%	
Total		178	100%	100%

Source: *Thomson Reuters ESG Scores (2018)*

c. Moderating Variables

Moderating variables are variables that affect (strengthen or weaken) the effect of the independent variable on the dependent variables. The moderating variables used in this study are sensitive industry and banking categories. Measurement of moderating variables using dummy variables with values 1 and 0.

1. Sensitive Industry

The classification of sensitive industry, according to Loprevite et al. (2020), there are 4 sectors, namely industrial, utilities, basic materials, and oil and gas. Apart from these 4 sectors, it is not included in the sensitive industry category. The measurement for sensitive industry is 1, and the measurement for non-sensitive is 0.

Table 2: Sensitive and Non-Sensitive Sectors

Sectors	Sensitive industry	Dummy Variable
Industrial	Sensitive	1
Utilities	Sensitive	1
Basic Materials	Sensitive	1
Oil and Gas	Sensitive	1
Consumers Services	Non-Sensitive	0
Consumer Goods	Non-Sensitive	0

Health Care	Non-Sensitive	0
Technology	Non-Sensitive	0
Telecommunications	Non-Sensitive	0

Source: *Loprevite et al. (2020)*

2. Banking Sectors

In reference to Financial Services Authority Regulation (POJK) Number 51 / POJK.03 / 2017 about the Execution of Sustainable Finance for Financial Services Institutions, Investors, and Public Companies, the banking sectors serve as moderating factors. This banking variable will focus on the implementation of POJK 51 in banking companies on the IDX. The measurement used is a dummy variable, where the value is 1 for the banking sectors and 0 for the non-banking industry.

d. Control Variables

1. Leverage

Leverage functions as a ratio to measure the funding of a company that comes from the use of debt. Leverage will be measured using the Debt to Assets Ratio (DAR).

2. Size

Company size is valued from the total assets owned by the company. The measurement used to determine company size is the natural logarithm of total assets.

3. ROA and ROE

ROA will be utilized as a control variable to test Model 2, which is the effect of ESG on SMOOTH (income smoothing) that interacts with the moderating variable IS (sensitive industry). Then, testing model 3, namely the effect of ESG on SMOOTH which interacts with the moderating variable BNB (Bank / Nonbank).

Meanwhile, ROA and ROE will be utilized as control variables to test Model 3, namely the effect of ESG on Tobin's Q that interacts with the moderating variable IS (sensitive industry). This also applies to test model 3, namely the effect of ESG on Tobin's Q that interacts with the moderating variable BNB (Bank / Nonbank).

C) Statistical Model

The research model is developed based on the development of the tested hypotheses. The link of the variables is depicted and labeled in Figure 1.

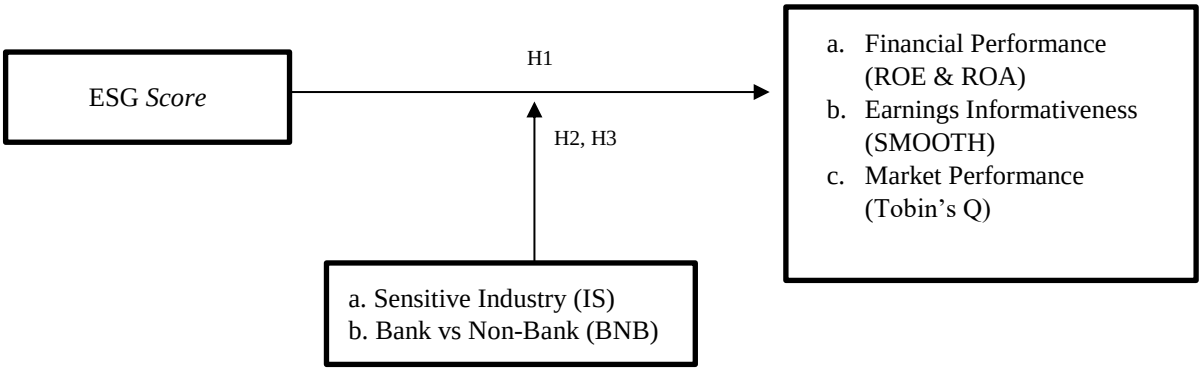

Fig 1. Research Model

The multiple regression models are used to test the impact of ESG scores on each dependent variable (ROE, ROA, SMOOTH, and TOBIN's Q). The multiple regression models with interaction effects are used to test the effect of moderating variables on the relation between ESG scores and each dependent variable. Ordinary least square (OLS) regression models are carried out. However, weighted least squares (WLS) and two-stage least squares (2 SLS) regression models are employed when there is a violation of the homoscedasticity assumption and multicollinearity of the independent variables, respectively. Hausman test has been conducted to make sure that there is no endogeneity problem in the independent variables. Therefore, the OLS regression model for unbalanced panel data is preferred to the Fixed Effect Model, in which OLS provides consistent and unbiased estimates for each regression coefficient in each regression model. The following are the statistical models carried out to test the research hypotheses.

Model 1a

$$\mathbf{ROE} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \mathbf{C_1DAR} + \mathbf{C_2SIZE} + \boldsymbol{\varepsilon}$$
$$\mathbf{ROA} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \mathbf{C_1DAR} + \mathbf{C_2SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_1 > 0$ and significant

Model 1b

$$\mathbf{SMOOTH} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \mathbf{C_1ROA} + \mathbf{C_2DAR} + \mathbf{C_3SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_1 < 0$ and significant

Model 1c

$$\mathbf{TOBINSQ} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \mathbf{C_1ROA} + \mathbf{C_2ROE} + \mathbf{C_3DAR} + \mathbf{C_4SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_1 > 0$ and significant

Model 2a

$$\mathbf{ROE} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \boldsymbol{\beta_2}\,\mathbf{IS} + \boldsymbol{\beta_3}\,\mathbf{ESG} * \mathbf{IS} + \mathbf{C_1DAR} + \mathbf{C_2SIZE} + \boldsymbol{\varepsilon}$$
$$\mathbf{ROA} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \boldsymbol{\beta_2}\,\mathbf{IS} + \boldsymbol{\beta_3}\,\mathbf{ESG} * \mathbf{IS} + \mathbf{C_1DAR} + \mathbf{C_2SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_3 > 0$ and significant

Model 2b

$$\mathbf{SMOOTH} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \boldsymbol{\beta_2}\,\mathbf{IS} + \boldsymbol{\beta_3}\,\mathbf{ESG} * \mathbf{IS} + \mathbf{C_1ROA} + \mathbf{C_2DAR} + \mathbf{C_3SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_3 < 0$ and significant

Model 2c

$$\mathbf{TOBINSQ} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \boldsymbol{\beta_2}\,\mathbf{IS} + \boldsymbol{\beta_3}\,\mathbf{ESG} * \mathbf{IS} + \mathbf{C_1ROA} + \mathbf{C_2ROE} + \mathbf{C_3DAR} + \mathbf{C_4SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_3 > 0$ and significant

Model 3a

$$\mathbf{ROE} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \boldsymbol{\beta_2}\,\mathbf{BNB} + \boldsymbol{\beta_3}\,\mathbf{ESG} * \mathbf{BNB} + \mathbf{C_1DAR} + \mathbf{C_2SIZE} + \boldsymbol{\varepsilon}$$
$$\mathbf{ROA} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \boldsymbol{\beta_2}\,\mathbf{BNB} + \boldsymbol{\beta_3}\,\mathbf{ESG} * \mathbf{BNB} + \mathbf{C_1DAR} + \mathbf{C_2SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_3 > 0$ and significant

Model 3b

$$\mathbf{SMOOTH} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \boldsymbol{\beta_2}\,\mathbf{BNB} + \boldsymbol{\beta_3}\,\mathbf{ESG} * \mathbf{BNB} + \mathbf{C_1ROA} + \mathbf{C_2DAR} + \mathbf{C_3SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_3 < 0$ and significant

Model 3c

$$\mathbf{TOBINSQ} = \boldsymbol{\alpha_1} + \boldsymbol{\beta_1}\mathbf{ESG} + \boldsymbol{\beta_2}\,\mathbf{BNB} + \boldsymbol{\beta_3}\,\mathbf{ESG} * \mathbf{BNB} + \mathbf{C_1ROA} + \mathbf{C_2ROE} + \mathbf{C_3DAR} + \mathbf{C_4SIZE} + \boldsymbol{\varepsilon}$$

Hypothesis is supported if $\beta_3 > 0$ and significant

Where:

ROE	: Return on Equity
ROA	: Return on Assets
SMOOTH	: Income Smoothing
TOBINSQ	: Tobin's Q
$\alpha 1$	: Constant
$\beta 1$, $C1$, $C2$, C3, C4	: Regression Coefficients
ESG	: Environmental, Social and Governance Scores
IS	: Sensitive Industry
BNB	: Bank/NonBank
DAR	: Debt to Asssets Ratio
SIZE	: Firm Size
e	: residual terms

VI. RESULTS AND DISCUSSION

A) Descriptive Statistics

The samples used in this study are companies with ESG Scores based on Refinitiv. These companies also have complete financial data to measure dependent variables, independent variables, moderating variables, and control variables. Table 3 presents the results of the purposive sampling procedure in the Indonesia Stock Exchange (IDX).

Table 3: Sample Criteria

	Number of Companies					Sub Total Observations
	2016	2017	2018	2019	2020	
Companies with ESG *scores*	38	41	42	45	49	215
Companies with missing data	-9	-9	-6	-9	-15	-48
Companies with complete data	29	32	36	36	34	167
Total observations (firm-year)						167

The number of companies on the IDX with Refinitiv ESG scores during the study period was 215 observations. The number of companies with ESG scores is increasing throughout the research period. The number of companies with ESG scores in 2020 was 49 companies. However, as not all companies with ESG scores have complete data available to measure each dependent variable, based on the sample selection using the purposive sampling method, the number of observations obtained was 167 firm-years.

Table 4 presents descriptive statistics for each variable in this study. It illustrates that the companies sampled in this study have an average ROA of 7.22%, and the highest ROA value is 44.68%. The average value of the ROE variable in this study is 13.99%, with the highest ROE value of 139.97% and the lowest of -150.26%. The average value of SMOOTH is 0.84, which indicates the practice of income smoothing carried out by the companies in the sample. The lowest and highest values of SMOOTH are 0.07 and 4.93, respectively. The average value of Tobin's Q is 1.73, indicating that the companies in the sample have, on average, a good market performance.

Table 4: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Dependent					
ROA	167	-17.14	44.68	7.22	8.82
ROE	167	-150.26	139.97	13.99	25.37
SMOOTH	167	0.07	4.93	0.84	0.72
TOBIN'S Q	167	-0.03	18.00	1.73	2.70
Independent					
ESG	167	8.55	87.60	48.78	20.15
Moderating					
IS (*Sensitive industry)*	167	0.00	1.00	0.32	0.47
BNB (Bank/ Nonbank)	167	0.00	1.00	0.16	1.37
Control					
DAR	167	0.02	0.91	0.50	0.21
SIZE	167	22.08	27.98	24.66	1.35
ROA **(model 2 & 3)**	167	-17.14	44.68	7.22	8.82
ROE **(model 2 & 3)**	167	-150.26	139.97	13.99	25.37

The independent variable, ESG, exhibits an average of 48.77%, which means that the ESG score of companies in the sample is still relatively low. Although there are companies with a high ESG score of 87.60%, the lowest ESG score is 8.55%. This implies that there are still companies in Indonesia that do not implement ESG properly. The moderating variable IS (sensitive industry) has an average value of 0.32, and BNB (bank/nonbank) has an average value of 0.16.

The control variable, DAR, exhibits an average of 0.50, which means that, on average, half of the assets of companies in Indonesia are funded by corporate debt. The highest value of DAR is 0.91. Companies with very high values of DAR are the United Tractors and three companies in the banking industry, namely Bank Tabungan Negara, Bank Danamon Indonesia, and Bank Mandiri, with DAR values surrounding 0.80.

B) Empirical Findings

Table 5 shows the regression results of model 1. The regression coefficients of ESG on ROE and TOBIN'S Q are indicated in Model 1a and Model 1c, respectively. The coefficients are 0.183 and 0.012, respectively and significant at the level α = 10%. These indicate that ESG has a positive impact on ROE and TOBIN's Q. Therefore, hypotheses 1a and 1c are supported. The higher the ESG scores, the higher the company's financial performance, represented by ROE, and market performance, represented by TOBIN'S Q. However, the regressions with ROA and SMOOTH as dependent variables cannot support the research hypothesis. ESG scores alone do not have a direct affect on financial performance, represented by ROA and earnings quality measured by income smoothing.

Table 5: Regression Results: Model 1

	Dependent Variable			
	Model 1a		**Model 1b**	**Model 1c**
	ROE	**ROA**	**SMOOTH**	**TOBIN'S Q**
Constant	62.916	40.898***	4.572***	-2.237
	(1.571)	(2.960)	(4.098)	(-0.752)
ESG	**0,183*** [1]	**0,020**	**-0,003**	**0,012***
	(1.853) [2]	**(0.594)**	**(-1.240)**	**(1.726)**
ROA			-0.005	0.173***
			(-0.891)	(5.699)
ROE				0.021**
				(1.995)
DAR	-7.479	-2.275	-0.521*	-1.097
	(-0.692)	(-0.610)	(-1.775)	(-1.412)
SIZE	-2.195	-1.367**	-0.133***	0.097
	(-1.247)	(-2.250)	(-2.734)	(0.753)
Adj R^2	0.021	0.040	0.119	0.556
Model	OLS	OLS	OLS	OLS
Hausman Test	not sig	not sig	not sig	not sig

Notes:
[1] regression coefficient
[2] T-value
*** significant at the level α = 1%
** significant at the level α = 5%
* significant at the level α = 10%

Table 6 shows the results of model 2 regressions. To test the research hypothesis of 2a, 2b, and 2c, the interaction coefficients of ESG*IS are highlighted. Out of the 4 regression results, only the regression model with the dependent variable of ROA does not have a significant regression coefficient of ESG*IS. The regression coefficient of ESG*IS on ROE is -1.421, and significant at the level α = 1%. This result indicates that companies in sensitive industries have a negative impact of ESG on ROE. The same result is shown in the coefficient of ESG*IS on TOBIN'S Q, which is -0.043 and significant at the α = 10%. Thus, companies in the sensitive industries have lower market performance as a result of ESG implementation, compared to those in the non-sensitive ones.

Interestingly, the coefficient of ESG*IS on SMOOTH is -0.078 and significant at the α = 1%. This means that the sensitive industry companies have more earnings informativeness, shown by the negative sign of the regression coefficient of ESG*IS. The result shows that the higher the ESG, the lower the SMOOTH scores are. Lower SMOOTH scores indicate more earnings smoothing. Therefore, hypothesis 2b is supported, in which the higher the ESG scores of the companies in the sensitive industry, they present better earnings quality reporting. They provide more informative earnings to the public by practising income smoothing in order to disclose their inside information. However, hypotheses 2a and 2c are supported in the other direction, that the higher the ESG scores of companies in sensitive industries, their financial performance represented by ROE, and market performance represented by TOBIN'S Q are lower. These findings may indicate that the government regulation on the sensitive industries to enforce the ESG implementation bears higher operational and capital costs.

Table 6: Regression Results: Model 2

	Dependent Variable			
	Model 2a		**Model 2b**	**Model 2c**
	ROE	**ROA**	**SMOOTH**	**TOBIN'S Q**
Constant	353.461***	158.930	10.109***	-1.208
	(8.582)	(9.139)	(3.608)	(0.408)
ESG	1.726***[1]	0.306***	0,004	0,029**
	(14.851) [2]	(6.734)	(0.537)	-3.417
IS	32.054**	-1.074	4.563***	1.352
	(2.101)	(-0.197)	(6.059)	(1.441)
ESG*IS	**-1.421*** **	**-0.105**	**-0.078*** **	**-0.043***
	(-5.546)	**(-1.165)**	**(-4.993)**	**(-2.518)**
ROA			-1.041	0.184***
			(-1.412)	-6.202
ROE				0.014

				(1.326)
DAR	-22.445*	-17.318***	0.004	-1.234
	(-1.804)	(-4.164)	(0.328)	(-1.591)
SIZE	-15.828	-5.946***	-0.392**	0.009
	(9.196)	(-8.293)	(-3.269)	(0.071)
Adj R^2	0.880	0.765	0.260	0.589
Model	WLS	WLS	WLS	OLS
Hausman Test	not sig	not sig	not sig	not sig

Notes:
[1] regression coefficient
[2] T-value
*** significant at the level α = 1%
** significant at the level α = 5%
* significant at the level α = 10%

Table 7 reports the regression results of model 3. The regression coefficients of ESG*BNB are also highlighted. Only the regression coefficient of ESG*BNB on ROA is significant at the level α = 5% with the coefficient value of -0.067. Thus, the companies in the banking industry have a negative effect on ESG scores on ROA. Only hypothesis 3a is supported in the reversed direction. The companies in the banking industries that implement ESG in providing their financial services resulted in a lower ROA. A similar interpretation to that of companies in sensitive industries holds. The implementation of ESG for banking industries results in the inefficiency of the use of their assets, which results in lower ROA. The higher operational costs might be followed in order to implement ESG. However, significant effects of ESG scores on ROE, SMOOTH, and TOBIN'S Q are not observed. The small number of companies in the banking industry available in the sample might be entitled to this result.

Table 7: Regression Results: Model 3

	Dependent Variable			
	Model 3a		**Model 3b**	**Model 3c**
	ROE	**ROA**	**SMOOTHNESS**	**TOBIN'S Q**
Constant	62.735	28.045*	4.429***	-1.646
	(1.454)	(1.932)	(3.765)	(-0.527)
ESG	0.191*[1]	0.060*	-0.003	-0.217
	(1.804) [2]	(1.671)	(-1.012)	(-1.280)
BNB	-4.096)	-1.323	0.066	0.010
	(-0.710)	(-0.681)	(0.420)	(-0.599)
ESG*BNB	**0.034**	**-0.067****	**-0.002**	**0.007**
	(0.403)	**(-2.341)**	**(-0.725)**	**(1.031)**
ROA			0.007	0.179***
			(-1.062)	(5.459)
ROE				0.020*
				(1.861)
DAR	-8.585	-2.492	-0.505*	-1.156
	(-0.788)	(-0.680)	(-1.718)	(-1.482)
SIZE	-1.803	-0.801*	-0.133***	0.098
	(-0.973)	(-1.286)	(2.659)	(0.733)
Model	2 SLS	2 SLS	2 SLS	2 SLS
Hausman Test	not sig	not sig	not sig	not sig

Notes:
[1] regression coefficient
[2] T-value
*** significant at the level α = 1%
** significant at the level α = 5%
* significant at the level α = 10%

C) Discussion

The results of the empirical tests suggest several practical implications to be drawn regarding the implementation of ESG in Indonesia. The efforts of regulators in developing special regulations to enforce ESG implementation are part of achieving the 17 SDGs of the United Nations by the year 2030. Indonesia has to contribute to this achievement by encouraging

the implementation of ESG for all business sectors in Indonesia. This study provides empirical evidence regarding companies in Indonesia with ESG scores according to Refinitiv during 2016-2020. The companies in this research sample have ESG scores that vary between 8.55% and 87.60% with the highest scale of 100%. The results of this study may provide an overview of the effect of ESG implementation in Indonesia on financial and market performance, as well as on the quality of earnings informativeness of the financial reporting.

The study's findings show that the only factor that significantly and favorably affects financial performance as determined by ROE is the impact of ESG. This result corroborates the beneficial impact of ESG adoption on the market performance of the business. ROE is the ratio most widely used by investors to make investment decisions. The results of this test are consistent with the study conducted by Kim and Zhichuan (2021), where there is a significant effect between ESG and company profitability. ESG implementation also has a positive effect on the company's market performance. Through empirical pieces of evidence, it can be concluded that investors in Indonesia have indeed considered ESG aspects in making investment decisions. However, there is no direct effect of ESG score on ROA and earnings informativeness. This generally implies that companies with high ESG scores are not more effective and efficient in using their assets compared to companies with relatively lower ESG scores. These results are also similar in relation to the quality of earnings information reported.

Another finding is presented from the results of empirical testing by separating the samples into two categories, namely companies that fall into the sensitive industry category and those that do not. The Industrial, Utilities, Basic Materials, and Oil and Gas sectors are sensitive industries. Other sectors, such as Consumer Services, Consumer Goods, Health Care, Technology, and Telecommunications, are not included in the sensitive industry category. In the Company Performance Assessment Program (PROPER), as one of the efforts of the Ministry of Environment, companies in the sensitive industry category are urged to pay attention to environmental management through information instruments. In order to evaluate excellent environmental performance and carry out environmentally friendly manufacturing, these companies have to comply with regulations and legislation through reputation rewards and obstacles.

The empirical findings of this study suggest that companies belonging to the sensitive industry category experience a weaker effect of ESG on their ROE and market performance. This certainly draws attention as it is inconsistent with the hypothesis derived from the Value Enhancing Theory. Although companies in the sensitive industry sector have relatively higher average ROE and Tobin's Q, the effect of ESG on ROE and Tobin's Q is lower than that of companies that are not in the sensitive industry sector. This finding implies that when viewed from the shareholder's expense theory, the existence of binding laws and regulations for companies in the sensitive industry sector will cause their own costs. When the amount is large enough, it will result in economic losses that will lower ROE and company value. With binding encouragement from the government/regulator, ESG implementation can be accelerated. However, this may pose a burden to the companies affected by the regulation. This explanation is consistent with the opinion made by Marsat and Williams (2016) that a commitment to sustainability can lead to overinvestment and is not in the best interest of shareholders.

When viewed from the investment perspective of "high-risk high return, low-risk low return", companies in the sensitive industry sector are initially in a high business risk position due to their large business impact on the environment and society. The existence of these laws and regulations can lower the company's business risk. This lower risk will certainly, in the short term, reduce the return of companies in sensitive industries. The return will be reflected in the weaker effect of ESG implementation on ROE and market performance. This explanation is consistent with the analytical model built by Pastor et al. (2021) in the Sustainable Investing in Equilibrium model. In such a model, it is justified that the expected return of companies that implement ESG will be lower than those that do not. However, the resulting realized return is higher when the risk factors that cause it to occur in the future. This finding is intriguing to investigate further, given that the empirical evidence generated in this study also supports that the average ROE and Tobin's Q of companies in sensitive industries remains higher than those not in sensitive industries. Although on the other hand, the effect of ESG score on ROE and Tobin's Q weakens.

Furthermore, it is also revealed that companies belonging to sensitive industries are relatively less informative in their financial reporting. However, the effect of ESG score on smoothness for these companies is stronger. This suggests that with government regulations encouraging these companies to implement ESG, the quality of their financial reporting is getting better. This is evident from the stronger effect of the ESG score on smoothness value.

Empirical pieces of evidence resulting from the grouping of samples of bank and nonbank sector companies do not provide satisfactory results. This is due to the small number of samples included in the banking sectors, which is about 6 banks from a total sample of 49 companies. Only does the effect of ESG on financial performance as measured by ROA provide significant results. The results of this study indicate that the effect of ESG scores on ROA for the banking sectors is weaker than that of the nonbank sectors. This implies that external pressure in the form of government/regulatory regulations can lower the company's profitability, which impacts the effectiveness and efficiency of asset management. Correspondingly, the

implementation of ESG weakens its effect on ROA for the banking sectors. The same explanation as before can be applied, which is related to the shareholder's expense theory and the risk-return relationship in investment activities.

ESG implementation will be more effective when supported by government regulations that bind companies, which in this study are related to the banking sectors and sensitive industries. Even though the implementation will require sacrifices for companies directly affected by the legislation. This suggests that the implementation of ESG will be more effective when the company has a high awareness of sustainable goals in business activities. Companies with sensitive industries are those with high risk and sustainability impacts as their business activities are highly dependent on natural resources. If the business activities of this sensitive industry are not carried out well, it will have a major impact on the environment, such as environmental pollution. As such, the companies bear great responsibility for the resulting environmental damage. Responsibility for natural damage will lead to high costs and the threat of running out of natural resources, which can also reduce company profits. The implementation of ESG will greatly assist companies included in the sensitive industry for sustainable business planning, so the quality of earnings presented by the companies can be constantly improved and help shareholders in predicting future earnings.

V. CONCLUSION

ESG score has a positive and significant effect on financial performance as measured by ROE and market performance. This finding is in favor of the value-enhancing theory, which states that the application of ESG can improve financial performance and market performance. However, the application of ESG has no effect on ROA and the earnings informativeness presented.

When companies are stratified into two categories, namely sensitive industry and non-sensitive industry sectors, companies in the sensitive industry category are found to have a higher average ROE. However, the effect of ESG score on ROE is significantly weakened. Likewise, the effect of ESG score on company value also weakens significantly. This finding supports the shareholders' expense theory. When there is external pressure in the form of government regulations that apply specifically to sensitive industry sectors, it will cause their own costs. When the amount is sufficiently large, it will lead to economic losses that will lower ROE and company value. In addition, the effect of ESG score on earnings informativeness is also stronger for companies in sensitive industry sectors. This study found no significant difference in the effect of ESG score on ROA.

When companies are stratified into 2 categories, namely the bank and nonbank sectors, the effect of ESG score on ROA in the banking sectors is significantly weakened. This implies that external pressure in the form of government/regulatory regulations can lower the profitability of the company, which has an impact on the effectiveness and efficiency of asset management. Correspondingly, the implementation of ESG weakens its effect on ROA for the banking sectors. This finding supports the shareholders' expense theory. This study found no significant difference in the effect of ESG score on ROE, earnings informativeness, and market performance in the bank and nonbank sectors.

The limitation of this study is that the measurement of the effectiveness of the implementation of government regulations related to POJK No.51/POJK.3/2017 is only carried out using dummy variables of companies included in the bank and nonbank sectors. Likewise, when categorizing companies in the sensitive industry category according to PROPER used in the testing model to compare companies, they are only categorized into two, namely sensitive and non-sensitive industry sectors.

Testing the value enhancing theory and shareholders' expense theory is conducted by testing the direct effect of ESG on financial performance, earnings informativeness, and market performance. ESG may have an indirect effect on these dependent variables. The test model excludes risk variables that should be included in the asset valuation model. Future studies are encouraged to accommodate research designs that directly measure the effectiveness of applicable laws and regulations by specializing in more specific industry categories. In addition, future studies can employ an asset valuation model by adopting the Ohlson model or the Fama and French multifactor model.

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