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Research Article

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The Influence of Environmental, Social and Governance and the Risk of Financial Information Disclosure on Investment Efficiency in Environmentally Sensitive Industrial Companies in ASEAN 5 Period 2018-2022

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Abstract: *The aim of this research is to examine the effect of Environmental, Social, and Governance (ESG) disclosure and Financial Information Disclosure on Investment Efficiency where the variables used in this research are the dependent variable (Investment Efficiency), the independent variable (ESG and Risk of Financial Information Disclosure) and control variables (Tangible, Leverage, Company Performance). The population in this study are environmentally sensitive industrial companies in ASEAN 5 which have active status and are listed on the Indonesia Stock Exchange (IDX), Singapore Stock Exchange (SGX), Malaysia Stock Exchange (MYX), Philippine Stock Exchange (PSE), and Stock Exchange Thailand (SET) for the period 2018 – 2022. Sampling was carried out by purposive sampling. Based on purposive sampling in sample selection, 250 research samples were obtained for five consecutive years. The findings of this research indicate that Environmental, Social, and Governance (ESG) has no effect on investment efficiency. Meanwhile, the Risk of Financial Information Disclosure has a positive and significant effect on investment efficiency.*

Keywords*: environmental, social and governance (ESG), risk of financial information disclosure, investment efficiency.*

Introduction

Global progress has an effect on various sectors, one of which occurs in the economic sector. Many companies are competing to improve their companies by collaborating with other companies which will have a good impact on the company. An example of efforts made to improve a company is by carrying out investment activities with companies that have the potential to help develop the company. When a company obtains investment from investors, the company is obliged to create conditions where the investment provided by investors becomes an efficient investment. Investment efficiency is related to the level of sales of the company and the investment made. This illustrates the situation that when there is an increase in sales it can indicate increased company investment (Fathaya & Totok, 2022).

In general, investment is a company's capital investment activity in several sectors which will receive returns at a later date (Firawan, P. A., & Dewayanto, 2021). Investment activities carried out by the company must be efficient in order to bring profits to the company.

Investment efficiency is the company's optimal level of investment, where the investment is a type of investment that is profitable for the company. In order for an investment to be said to be efficient, the company should be able to avoid situations of overinvestment and underinvestment. To prevent the emergence of information asymmetry which can lead to over or underinvestment, a fairly strong monitoring function is needed from shareholders. The monitoring function for shareholders can be improved through quality company financial reports (Beatty et al., 2009).

Apart from paying attention to financial performance for the company's survival in the future, companies also need to pay attention to non-financial performance, one of which is ESG performance. ESG is a concept that prioritizes sustainable business activities which consists of three main concepts or criteria, namely Environmental, Social and Governance. Environmental provides an overview of the company's role in reducing negative impacts on the environment; Social looks at how companies establish and manage relationships with their surroundings; Governance looks at how a company organizes and implements governance policies well (Barman, 2018). Most ASEAN countries have recently introduced regulations regarding mandatory disclosure of information related to ESG (environmental, social and governance) companies (Tandelilin & Usman, 2022). The countries that issued ESG-related regulations for public companies in their countries were Malaysia in 2015, the Philippines in 2019, Singapore in 2017, and Thailand and Indonesia in 2017.

In general, openness is the provision of minimum legal requirements for information. So far, several structures, such as suitability, completeness, reliability, informativeness and timeliness, have been used as proxies for disclosure quality. Building strong corporate governance mechanisms can encourage investors to purchase company shares at higher prices by increasing appropriate disclosure of financial information and gaining investors' trust, ultimately maximizing company value. Increasing the level of high-quality disclosure related to financial reports leads to higher levels of investment in a company (Li et al. 2019).

Reporting quality has a direct and positive influence on investment efficiency. In addition, information transparency is positively related to investment efficiency for companies with strong governance (Roychowdhury et al., 2019). The high quality of financial information disclosure of a company is influenced by the strong corporate governance structure within the company through tighter supervision and strict rules to control managers' actions, thereby increasing investment efficiency, achieved through limiting excessive investment in negative NPV projects or underinvestment by ignoring positive NPV project (Elberry and Hussainey, 2021).

The main objective of this research is to look at the impact of ESG and financial information disclosure on investment efficiency in environmentally sensitive industries companies in ASEAN 5, namely Indonesia, Malaysia, Singapore, Thailand and the Philippines. Environmentally sensitive industries were chosen because companies operating in ecologically sensitive sectors are very important for maintaining ecological sustainability.

Companies in the energy, mining, iron, construction, chemical and paper processing industries can be classified as environmentally sensitive industrial companies by having production processes and business operations that affect the environment. In addition, industrially sensitive companies in developing countries have high sustainability and social responsibility performance. better than sensitive non-industrial companies (Garcia et al., 2017).

Theoretical Framework and Hypothesis Formulation

Signaling Theory

Signaling Theory is based on the assumption that there is information asymmetry between company management and parties who have an interest in that information. By reducing information asymmetry, companies are expected to increase their company value. One way to reduce information asymmetry is by providing signals to stakeholders about reliable financial information, thereby reducing uncertainty regarding the company's prospects in the future (Rokhlinasari, 2016)

Agency Theory

According to (Jensen & Meckling, 1976) explains that agency theory is related to agency in a contractual agreement with shareholders who hire managers to carry out services in the interests of shareholders in representing some authority to make decisions. The reasons for using this theory include that this theory is relatively mature and widely used in various fields and contexts, including corporate governance mechanisms, property rights, company and organizational performance (Chen et al., 2021). Apart from that, this theory can reduce information asymmetry and agent conflict so that it can increase investment efficiency (Hammami & Hendijani, 2020).

Legitimacy Theory

Legitimacy Theory is a theory that was first coined by Dowling and Pfeffer (1975) which focuses on interactions between companies and society. This theory considers that society is an important factor in the development of a company in the long term.

Disclosure Theory

Disclosure theory assumes that in certain circumstances, if a company discloses more information, the benefits obtained will be greater than the costs incurred (Urquiza et al., 2010). Disclosure is a multidimensional concept that integrates various attributes (Beattie et al., 2004).

Environmental Social Governance

ESG is a company sustainability standard in carrying out its business activities which consists of three indicators, namely environmental, social and governance. Environmental indicators focus on the use of raw materials and energy in the production process or providing services, as well as how companies manage production waste such as rubbish and waste so that they do not damage the environment. Environmental indicators will be taken into consideration by companies in carrying out financial performance and sustainable operational activities (Arviani, 2022).

Risks of Financial Information Disclosure

The term openness in its broadest concept means providing information. Accountants use this term in a more limited way, meaning publishing financial information relating to a company in financial reports (usually in the annual report). Nowadays, information has an important role in investors' investment decisions. Therefore, to obtain more information and overcome the problem of information asymmetry, information disclosure is used because of the separation of company ownership and management (Habbash et al. 2016).

Company Financial Performance

One indicator in looking at a company's financial performance is through the company's level of profitability. Profitability is a company's ability to generate profits in a certain period which can be calculated using performance-based accounting through return on assets (ROA) and return on equity (ROE) (Kasasbeh, 2021). This measuring tool can be used to see the company's historical performance and future projections (Atan et al., 2017).

Investment Efficiency

Investment efficiency means the organization invests in projects with positive net present value (Verdi 2006). The basic principles of corporate governance include ensuring compliance with ethics and protection of stakeholder rights, ensuring compliance with the code of ethics and other values.

Environmentally Sensitive Industries

The North American Industry Classification System (NAICS) categorizes environmentally sensitive industries as industries originating from industrial products, construction development, as well as property and mining. Environmentally sensitive industries are industries that are under greater pressure and disclose greater sustainability information compared to other industries.

Development of Research Hypothesis

ESG disclosure increases transparency, reduces information asymmetry and increases investment efficiency. Research conducted (Fajri & Annisaa, 2024) states that ESG disclosure in aggregate has a positive effect on investment efficiency. So based on this theory and research, the hypothesis proposed in this research is as follows:

H1: Environmental, Social, and Governance (ESG) disclosure has a positive effect on investment efficiency.

The quality of financial reports can function to reduce information asymmetry in order to attract more funds from investors. Financial reports contain explicit company data so that they can reduce the problem of information asymmetry between investors, companies and financial analysis (Ellili, 2022). Research conducted (Fathaya & Totok, 2022) states that the quality of financial reports has a significant positive influence on investment efficiency. So based on this theory and research, the hypothesis proposed in this research is as follows:

H2: The risk of financial information disclosure has a positive effect on investment efficiency.

Method

The population data in this study are companies in environmentally sensitive industries in ASEAN 5 which have active status and are listed on the Indonesia Stock Exchange (IDX), Singapore Stock Exchange (SGX), Malaysia Stock Exchange (MYX), Philippine Stock Exchange (PSE), and Stock Exchange of Thailand (SET). According to Hamudiana & Achmad (2017), environmentally sensitive industries include agriculture, automotive, aviation, chemical, construction, construction materials, energy, energy utilization, paper and forest products, logistics, metal products, mining, railway companies, waste management, and water use. This data will be collected over five periods (2018 – 2022).

In determining the sample, the researcher used non-probability sampling with purposive sampling to obtain a sample that met the criteria. This research uses one dependent variable and two independent variables and there are control variables to test the hypothesis in this research. This research is semi-experimental research in the field of accounting evidence research, and in terms of its objectives it is applied research. The inductive method is applied to ex-post data (using historical data), and correlation analysis is used for statistical analysis. Real and audited company information has been analyzed and consolidated using a multivariate linear regression model.

The dependent variable or dependent variable is a variable that is influenced or is a result of the existence of an independent variable (Indra & Cahyaningrum, 2019). The dependent variable in this research is investment efficiency which is measured using the investment model proposed by Biddle, et al. (2009) below.

$$INV_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t} + \varepsilon_{i,t}$$

An independent variable or free variable is a variable that influences or is the cause of the change or emergence of the dependent variable (Indra & Cahyaningrum, 2019). The independent variables in this research are environmental, social and governance (ESG) disclosure and financial information disclosure. The ESG Disclosure Variable in this research uses ESG disclosure indicators according to Nasdaq ESG Reporting 2.0 (2019). Next, the number of indicators disclosed by each company is calculated by the ESG Disclosure Index using the following formula.

$$\textbf{ESG Disclosure} = \frac{\textbf{Number of Indicators Disclosed}}{\textbf{Total Maximum Disclosure Indicators}} \textbf{ x 100\%}$$

The measurement of the Financial Information Disclosure variable in this study adopted the discretionary accrual model developed by Hutton et al. (2009). Based on the model developed by Hutton et al. (2009), financial information disclosure is calculated using the absolute value of discretionary accruals for three years. Using the absolute value of discretionary accruals for 3 years aims to determine the earnings management behavior that has occurred over the last few years, where the size of the value generated is directly proportional to management's tendency to influence reported earnings. The model can be displayed as follows.

$$\textbf{Transparency} = Abs\ (DiscAccr_{t-1} + DiscAccr_{t-2} + DiscAccr_{t-3})$$

Next, to obtain the discretionary accrual value (DissAccr) it can be calculated using the model developed by Kothari, et al. (2005) as follows.

$$\frac{ACCR_{i,t}}{TA_{i,t-1}} = \beta_0 + \beta_1 \frac{\Delta SALES_{i,t}}{TA_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{TA_{i,t-1}} + \beta_3 \frac{ROA_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t}$$

The control variables in this research consist of tangibility, leverage and company performance. The measurements of these three control variables can be described as follows.

1. The measurement of the Tangibility variable in this research uses the tangibility formula as proposed by Kasmir (2015)

$$Tangibility_{i,t} = \frac{Fixed\ Asset_{i,t}}{Total\ Asset_{i,t}}$$

2. The measurement of the Leverage variable in this research uses the debt to asset ratio formula as proposed by Kasmir (2015).

$$Leverage_{i,t} = \frac{Total\ Debt_{i,t}}{Total\ Asset_{i,t}}$$

3. The measurement of the Company Performance variable in this research uses the return on assets formula as proposed by Kasmir (2015).

$$\boldsymbol{ROA_{i,t}} = \frac{\boldsymbol{Net\ Profit_{i,t}}}{\boldsymbol{Total\ Asset_{i,t}}}$$

The data analysis method is a series of activities of reviewing, grouping, systematizing, interpreting and verifying data so that a phenomenon has social, scientific and academic value (Mamik, 2015).

The data analysis method used in this research is panel data regression analysis. According to Ghozali (2018), panel data regression is a regression technique that combines time series data with cross section data, where by combining the two types of data it can provide data that is more informative, more varied, and the level of collinearity between lower variables, greater degree of freedom and more efficiency.

The stages of data analysis using panel data regression analysis carried out in this research consist of: descriptive statistical tests, determining the estimation model (common effect model, fixed effect model or random effect model), determining the estimation method (using the Chow test, Hausman test and Lagrange multiplier), classical assumption tests (normality test, multicollinearity and heteroscedasticity), regression equation analysis, partial hypothesis test (t test), simultaneous hypothesis test (F test) and coefficient of determination test (R2).

Results and Discussion

Based on the purposive sampling method used, there were 250 companies. Eviews processed data which includes ESG, Risk of Financial Information Disclosure, Tangibility, Leverage, and Financial Performance in predicting Investment Efficiency will be able to determine the minimum value, maximum value, average (average), standard deviation of each variable. The data from the descriptive analysis can be seen in the table below:

Table 1. Descriptive Analysis

	X1	X2	X3	X4	X5	Y
Mean	64.36000	0.850495	0.283637	0.434527	3.917672	-8.00E-08
Median	63.33333	0.732880	0.244650	0.434469	2.714488	-0.265330
Maximum	93.33333	3.078150	1.041157	1.320460	45.77484	13.95684
Minimum	36.66667	0.003630	1.35E-05	0.001273	-42.09045	-2.164810
Std. Dev.	10.00509	0.620223	0.242775	0.229925	9.930000	1.349937
Skewness	-0.072189	0.926428	0.838569	0.367170	0.615768	7.480536
Kurtosis	2.907482	3.595795	3.103880	3.806909	7.065457	69.19304
Jarque-Bera	0.306301	39.45887	29.41232	12.39955	187.9648	47972.42
Probability	0.858001	0.000000	0.000000	0.002030	0.000000	0.000000
Sum	16090.00	212.6237	70.90924	108.6317	979.4181	-2.00E-05
Sum Sq. Dev.	24925.38	95.78452	14.67595	13.16356	24552.62	453.7599
Observations	250	250	250	250	250	250

Source: Data processed with Eviews 10, 2024

The ESG disclosure variable (X1) shows an average value of 64.36 percent and a standard deviation of 10.01. This means that the average value is greater than the standard deviation, thus indicating that data variation is low. Furthermore, a minimum value of 36.67% was obtained, which is the ESG disclosure value of the Hibiscus Petroleum company in 2020 and a maximum value of 93.3%, which is the ESG disclosure value of the RH Petrogas company in 2021.

The financial information disclosure variable (X2) has an average value of 0.85 and a standard deviation of 3.78. This means that the average value is smaller than the standard deviation, thus indicating that there is large variation in the data. The minimum value for financial information disclosure is 0.0036, which is the value of information disclosure for the company Ablegroup Behad in 2020 and the maximum value is 3.078, which is the value of financial information disclosure for Hibiscus Petroleum in 2018.

The tangibility variable (X3) has an average value of 0.2836 and a standard deviation of 0.2427. This means that the average value is higher than the standard deviation, thus indicating that the variation in tangibility data is low. The minimum value obtained is 0.0000135 which is the company value of Atok-Big Wedge in 2022 and the maximum value is 1.0411 which is the company value of Reach Energy in 2019.

The leverage variable (X4) has an average value of 0.43457 and a standard deviation of 0.2299. This means that the average value is greater than the standard deviation, thus indicating that the variation in company leverage data is low. The minimum leverage value obtained is 0.001273 which is the value of the Atok-Big Wedge company in 2022 and the maximum value is 1.3205 which is the value of Bumi Resources Tbk in 2021.

The company performance variable (X5) shows an average value of 3.91% and a standard deviation of 9.93. This means that the average value is smaller than the standard deviation, thus indicating that the data variation is large. Furthermore, a minimum value of -42.09% was obtained which is the performance of the Capallianz company in 2020 and a maximum value of 45.772% which is the performance value of the Semirara Mining and Power company in 2022.

The investment efficiency variable (Y) has an average value of – 0.00000008 and a standard deviation of 1.349. This means that the average value is smaller than the standard deviation, thus indicating that the variation in company profitability data is high. The minimum investment efficiency value obtained is -2.1648 which is the value of the Straits Trading company in 2020 and the maximum value is 13.9568 which is the value of the Hibiscus Petroleum Company in 2018.

Selection of the Best Approach Model

The results of testing the classical assumptions show that the research regression model has passed the normality test, autocorrelation test, multicollinearity test and heteroscedasticity test. After passing the classical assumption test, then after that is regression testing.

Tabel 2. Regression Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1_DISCLOSURE_ESG	-0.027404	0.008222	-3.332907	0.0010
X2_TRANSPARENCY	0.353895	0.169876	2.083258	0.0383
X3_TANGIBILITY	-0.851694	0.512260	-1.662621	0.0977
X4_LEVERAGE	1.001074	0.457768	2.186860	0.0297
X5_ROA	0.008524	0.008243	1.034054	0.3021
C	1.235893	0.624162	1.980083	0.0488

Source: Data processed with Eviews 10, 2024

Based on the table above, the following regression model is obtained.

$$Y = 1{,}2358 - 0{,}0274\ X1 + 0{,}3538\ X2 – 0{,}8516\ X3 + 1{,}0011\ X4 + 0{,}0085\ X5$$

or

Y = 1,2358 - 0,0274 ESG + 0,3538 Transparency – 0,8516 Tangibility + 1,0011 Leverage + 0,0085 Company Performance

A constant value of 1.2358 indicates that if all independent variables and control variables have a value of 0 then the investment efficiency value is 1.2358.

The ESG disclosure coefficient value (X1) is 0.0274, indicating that ESG disclosure has a negative influence on investment efficiency because it has a negative coefficient value. So it can be seen that if ESG disclosure increases by one percent, investment efficiency will decrease by 0.0274 units, and vice versa.

The coefficient value of financial information openness (X2) is 0.3538, indicating that financial information openness has a positive influence on investment efficiency because it has a positive coefficient value. So, it can be seen that if the value of financial information disclosure increases by one unit, investment efficiency will increase by 0.3538 units, and vice versa.

The value of the tangibility coefficient (X3) is -0.8517, which indicates that tangibility has a negative influence on investment efficiency because it has a negative coefficient. If the tangibility value increases by one unit, investment efficiency will decrease by 0.8517 units, and vice versa.

The leverage coefficient value (X4) is 1.0011, indicating that leverage has a positive influence on investment efficiency because it has a positive coefficient value. So it can be seen that if leverage increases by one unit, investment efficiency will increase by 1.0011 units, and vice versa.

The company performance coefficient value (X5) is 0.0085, indicating that company performance has a positive influence on investment efficiency because it has a positive coefficient value. So it can be seen that if the company's performance value increases by one percent, investment efficiency will increase by 0.0085 units, and vice versa.

Conclusion

The aim of this research is to examine the influence of ESG and the risk of financial information disclosure on investment efficiency. The sample companies for this research are companies that have active status and are already on the Indonesia Stock Exchange (IDX), Singapore Stock Exchange (SGX), Malaysia Stock Exchange (MYX), Philippine Stock Exchange (PSE), and Thailand Stock Exchange (SET) for the period 2018-2022. The sample criteria used in this research are companies that release financial reports and sustainability reports for five consecutive year. So a sample of 250 data was obtained.

Based on the results of research and testing using research sample data, it can be concluded that:

1. Environmental, Social and Governance Disclosures have a negative and significant influence on Investment Efficiency in Environmentally Sensitive Industrial Companies in ASEAN 5 Years 2018-2022. The higher the ESG disclosure, the lower the investment efficiency of the company. These results are not in line with research conducted by (Fajri & Annisaa, 2024) which stated that ESG disclosure in aggregate has a positive effect on investment efficiency. So H1 is rejected.
2. The Risk of Financial Information Disclosure has a positive and significant influence on Investment Efficiency in Environmentally Sensitive Industrial Companies in ASEAN 5 Years 2018-2022. The higher the level of financial information disclosure, the higher the investment efficiency in the company. These results are in line with research conducted by (Fathaya & Totok, 2022) which states that the quality of financial reports has a significant positive influence on investment efficiency. So H2 is accepted.

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