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On

16**the Value Relevance of** Information on **Environmental, Social, and Governance** (ESG): an **Evidence from**

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24**Department of Accounting, Diponegoro University, Semarang, Indonesia** *Corresponding author **email** : whinihita@students **.undip.ac.id ;**email:** handayaniaktif2015@gmail **.com** **Abstract : This**

2**paper** intends **to extend** prior **developed market-based** researches **on the value relevance of**

non- financial information, which is reflected in

1**Environmental, Social and Governance (ESG) disclosure, by** examining **the**

association between companies' financial performances and their non-financial performances. We use 281 firm-year observations of 34 public-listed firms in Indonesia during the period of 2012 - 2018.

11**As the majority of prior studies have** focused on **the**

use of price model, we employ regression of both

22**price and return models to** assess **the value relevance.**

We also analyze the value relevance of ESG disclosure on both aggregate and singular aspects. We employ sensitivity analysis to assess any differences in the value relevance of both models. The findings show that environmental, social, and ESG disclosure have significant impacts on share prices and stock returns, therefore they have value relevance in both price model and return model. Only governance disclosure has no effect on both share prices and stock returns. Our paper addresses an additional approach in assessing the value relevance of non-financial information. By incorporating two models,

16**we provide a** better understanding **of the value relevance of**

ESG information. Our empirical evidence supports the process of developing sustainability reporting regulation in Indonesia regarding the value relevance of non- financial

1**information. Keywords : value relevance, non-financial information,** sustainability reporting, **ESG**

disclosure, emerging market. 1. Introduction Value relevance is the main aspect of the qualitative characteristics of financial statements. Accounting numbers are said to have value relevance if they have a significant influence on the market values [1]. Accounting information that has no value relevance is not relevant to be used in decision making processes by users of financial statements. Financial statements should have the value relevance, including Corporate Social Responsibility (CSR) reports.

9**Value relevance** research **also** includes **the relevance of non- financial information.**

The importance of sustainability performance has become a concern for researchers and practitioners in the last two decades. In Indonesia, companies' obligation to carry out social and environmental responsibilities is regulated by the government through

31**Government Regulation Number 47** of **2012 concerning Limited Corporate Social and Environmental Responsibility.**

Many countries have begun to emphasize sustainability reporting obligations, including Indonesia. The implementation of mandatory sustainability reporting is regulated by Indonesia's

13**Financial Services Authority (OJK),** namely OJK Regulation **(POJK) No. 51** of 2017 **concerning the Implementation of Sustainable Finance for Financial Services Institutions,** Issuers, **and Public Companies,**

which will begin in 2019 and is targeted for completion in 2024. The issuance of regulations requiring companies to report sustainability reporting shows that issues related to social responsibility are valuable information that will be valued by investors. Empirical

4**evidence shows a decrease in the value relevance of accounting information**

from year to year [2–4]. The decline in the value relevance is also found in CSR information [5–7].The declining value relevance is a signal of declining quality of accounting information [3]. Declining quality of accounting information can cause distortions in decision making processes, resulting in a loss of the usability of accounting information.

21**Previous studies on the value relevance of** CSR **information**

have shown inconclusive findings. Some scholars have found a positive effect of CSR information on share prices [8–10]. Other scholars, meanwhile, have secured evidence that CSR information has a negative effect on market values [11–13]. The inconclusiveness on the research findings is caused by the varied research methods and measurements of CSR information [12,14]. The differences

9**in the** assessment **of the value relevance of** CSR **information** are also caused **by**

differences in assumptions regarding CSR information, which are either seen as economic benefits or as costs that can reduce future earnings predictions [11,15]. Some studies have only used a small portion of environmental information components, such as information on water and air waste emissions [13], sulfur dioxide (SO2) emissions [16] and carbon emissions [17]. Some researchers have also only focused on the negative aspects of CSR performances such as: environmental pollution [18,19], court claims for corporate violations of government regulations [20] and public complaints [5]. Meanwhile, other researches have focused on the positive aspects of the company CSR performances, such as: allowances for reducing pollutant gas emissions [16] and environmental management programs [14]. Market participants will react negatively to CSR information that has a negative content and will respond positively to CSR information that shows good companies' performances in carrying out their social responsibilities [5]. The concept of corporate sustainability is measured through three aspects also known as the "Triple Bottom Line" [21]. Most researches on the relevance of CSR information have focused on a single aspect, namely the environmental aspect alone, which belongs to the "planet" from the triple bottom line aspect [8,22]. The lack of comprehensive reporting of information causes difficulties for

36**investors to** classify **future economic benefits and costs related to** the companies' **environmental**

performances [23]. Subsequent researches then began to consider the aspects of "people" from the triple bottom line, that are reflected in social information and corporate governance information [24–27]. Bloomberg ESG information has combined people and planetary aspects from the triple bottom line component. Bloomberg measures ESG disclosure's scores by considering "hard" and "soft" items of each type of information. Bloomberg also gives higher scores for information items that are revealed more than other information items. Thus, Bloomberg also considers the quality of ESG information disclosure [25]. Bloomberg ESG score includes all types of CSR information disclosure, both negative (such as: levels of pollutant gas emissions) and positive (such as: the use of renewable energy). Most early studies seem to have a similar focus on the aggregate analysis of ESG factors to examine the effect of ESG information on companies' financial performances. ESG information contains various types of information that are put together in a proxy. The influence of each type of information for investors can vary. ESG analysis at the aggregate level can cover the effect of each component of information on financial performance, hence the results obtained can be inaccurate [28–30]. Individual analysis is important to decide the determinant factors of each type of information. This study aims to assess the value relevance of ESG information by using the Bloomberg measurement proxy. We use pricing models and return models to assess the value relevance. Most researches

15**on the value relevance of CSR disclosure** have used **a**

price model that is based on Ohlson's Model [31]. Price models give a higher R2 (measure of value relevance) than return models [32]. However, price models have more serious problems than return models [33]. The use of single price

9**models to** test **the value relevance of accounting information**

will lead to biased interpretation due to serious econometric problems, especially heteroscedasticity. Hence, the use of return models is recommended [34]. The

18**rest of this paper is structured as follows. Section 2 discusses literature review and hypotheses development.** In third **section,**

we describe our research method, including research design. Section 4 discusses research findings. Overall conclusion is presented in the last section (section 5).

27**2. Literature Review and Hypotheses Development 2.1 The effect of** environmental information discourse **on**

share price Information, which is freely available, is used by individuals to make decisions [35]. Lack of access to public information will lead to information asymmetry. Information asymmetry occurs when people who hold certain information are able to make better decisions [35], hence they earn abnormal return because they have better understanding about a firm's performance. Signal effectiveness can be improved by disclosing information that is relevant and needed by the receivers, hence the receivers are able to attain a comprehensive picture of the company and make accurate decisions. Disclosure of information related to corporate environmental responsibility delivers a positive signal for investors. Good environmental performance can be a competitive advantage for companies, as competitors with lower environmental performances would have difficulties imitating them [36]. Such an advantage can

11**have an impact on the** long-term **sustainability of** the **companies**

in generating profits for investors. Companies committing to carrying out environmental responsibilities and disclosing information to the public will be valued more highly by market participants, which is reflected by the rise in their stock prices [17]. Environmental disclosure is a tool which helps investors assess future financial prediction and reduction in cost of capital [36]. High level of disclosure enhances

37**market liquidity,** consequently **reducing the cost of capital through** a reduction of **transaction** cost **and**

an increase in the company's securities demand [37]. Johnston [16] has conducted research on the value relevance of greenhouse gases information (GHG). GHG information is measured by SO2 gas emission. Information on SO2 gas emission allowances affects the increase in the companies' stock prices. According to Johnston [16], investors considered information on SO2 gas emission as a corporate strategy for managing companies' risks associated with GHG gas emissions. Johnston [16] concluded that SO2 gas

emission information had information content and was considered informative by market participants. Neglecting environmental aspects can be a negative signal for investors on companies' performances and can lead to financial losses. Disclosure of environmental aspects, such as greenhouse gas emissions, waste installations and the use of renewable energy, has proven to be able to increase companies' superiority [38,39]. Disclosure of new information will be responded with various forms of responses. If the information has content, the reaction of investors can be examined through the rise of share prices. The theoretical and empirical researches support the following hypothesis: H1 : Disclosure of environmental information has

5**a positive effect on the company's share price.**

2.2 The effect of social information disclosure on share price Social information describes a company's achievements on social aspects within a certain period of time. Social aspects such as employee welfare, customer satisfaction, work accident rates, and customer complaint levels are other indicators besides financial indicators that can be sensitive information for stakeholders.

29**Information asymmetry can be reduced** through **the disclosure of relevant information** [30]. Along with **the** changing public perception **of**

the existence of a company, the company's activities are no longer focused on financial performance measures to maximize profit. Greater disclosure of sustainability activities can decrease confusion of firm value, hence can increase the level of investors' confidence [40]. Therefore, market participants are expected to give higher values on companies which disclose information more highly. Companies have a responsibility in the social and environmental aspects. Good corporate social performance can be reacted as a positive signal by investors

10**because it is** related **to** the **long-term sustainability** of **the**

companies' operations and can increase investors' awareness of the importance in considering

1**social factors as an indication of potential** risks in the **future**

[30]. Disclosure of social information is said to have value relevance when used by investors as a basis for decision making. Qiu

32**et al.** [25] **have conducted** a **research on the value relevance of** environmental and social **disclosure**

in the UK. They found that only social disclosure had value relevance and mattered to investors. Environmental disclosure has no significant effect on market value. Higher market value earned by companies that disclose social information highly is driven by greater prediction of growth rate in their future cash flow [25]. The

1**importance of social** aspects **as** a signal **of potential future risk and return** among investors **has** raised **attention**

on the disclosure of social information [30]. Based on the previous literature and empirical researches, the second hypothesis is proposed as follows: H2 : Disclosure of social information has

5**a positive effect on the company's share price.**

2.3 The

19**effect of** governance **information disclosure on** share price **Corporate**

governance information is information about the mechanism within the

10**company to** balance **the interests of the company and** those of **the**

stakeholders, which is intended to create long-term shareholder value [41]. Good corporate governance structure is an important requirement for companies to carry out social responsibility and achieve sustainable development. Good corporate governance also assures the rights of stakeholders and ensures good corporate social responsibility [42].

25**Corporate governance plays an important role in**

protecting shareholders' rights. Information about good governance structures is a positive signal for investors. Investors believe that the company can prevent potential fraudulent behaviors and maintain shareholders' value. Disclosure of governance information helps ensure investors that corporate social responsibility activities are running well. Disclosure of corporate governance information is indicated to be able to attract more investors [43]. Previous studies have examined the effect of corporate governance in improving companies' financial performances. Governance information is considered

21**to have a positive impact on firm value**

[43,44]. Empirical evidence has proven that effective corporate governance can increase corporate investors' confidence. Investors are ensured that the company is able to protect their interests. Disclosure of governance information is expected to be responded positively by investors, which can be observed through an increase in stock prices. Based on the argument, hypothesis three is proposed as follows: H3 : Disclosure of governance information has

5**a positive effect on the company's share price.**

2.4 The effect of ESG information disclosure on share price ESG disclosure is information about environmental, social and governance that is integrated, making it possible to provide a more comprehensive picture of companies' non- financial performances. The ESG disclosure policy helps companies ensure investors that the company has made a commitment to improving its operations [39]. Therefore, information is a positive signal for investors. ESG information can reflect companies' sustainability performances. Disclosure of ESG information is considered relevant by investors if the information can be used in decision making processes. ESG information can affect companies' financial performances in a several ways [30]. First, ESG reporting can enhance companies' reputation, and thus it will increase investors' confidence. Second, ESG information related to efficient use of resources allows the

company to have a competitive advantage, hence they have a better ability to compete with competitors. Third, ESG policy leads to more motivated employees, increasing their productivity and innovation, which then allows companies to gain new market shares [30]. Quiros [27] have conducted a

1**research on the** effect **of ESG disclosure on** firm **value.**

They use a sample from public-listed companies in Brazil within the period of 2011- 2015. They found that market participants positively valued ESG disclosure. Similar finding is provided by [30,40,45]. Based on literature reviews and empirical evidence, ESG disclosure

1**is expected to have a positive impact on** market values. Therefore, **the** fourth hypothesis **is**

proposed as follows : H4 : Disclosure of ESG information has

5**a positive effect on the company's share price.**

2.5 The effect of environmental information disclosure on stock return Environmental disclosure contains information about companies' environmental performances. Awareness on environmental aspects such as: the level of pollutant gas emissions, prevention of waste and recycled waste, and the use of renewable energy is important to assess the feasibility of the companies' operations. Disclosure of information about environmental performances can reduce investment risks [26], which can be perceived as a positive signal by shareholders. Dutta et al. [46] have examined the effect of environmental disclosure on stock returns. In this case, the environmental disclosure was measured by CO2 emission. They used a large sample of public-listed companies in the European Emission Allowances (EUA) market between 2009 and 2017. The empirical result showed that environmental disclosure was positively associated with stock returns. This finding is supported by previous studies [47,48]. Based on the argument, environmental disclosure

1**is expected to have a positive impact on** stock returns. Therefore, **the** fifth hypothesis **is**

proposed as follows: H5 : Disclosure of environmental information

4**has a positive effect on the** company's **stock return.** 2.6 **The**

effect of social information disclosure on stock return. Companies are part of a broad social system and have the responsibility to contribute to the social welfare of the community [49]. Disclosure of social responsibility information acts as a positive signal for investors. Investors believe that the companies have the commitment to dealing with social and environmental issues [50]. Cormier [38] states that disclosure of social responsibility information will improve corporate social performances, which in turn will increase company visibility and credibility. Good corporate credibility will make the companies have a good brand image and reputation, which have an impact on financial benefits in the form of premium market values, superior financial performances and low capital costs [51]. Lagore, Mahoney and Thorne [50] have

6**examined the impact of corporate social** responsibility **disclosure on** stock **returns.**

They use 122 public-listed firms in the United States of America (USA). They found that firms which disclosed standalone CSR reports had a positive association on stock returns. Investors rely on CSR reports because they reward sustainability performances for the issuing firms [50]. This finding is confirmed by prior studies [52–54]. Based on previous studies, it can be inferred

1**that social disclosure has a positive** relation **on** stock return. **Thus, the** sixth **hypothesis is**

written as follows: H6 : Disclosure of social information

4**has a positive effect on the** company **stock return.** 2.7 **The**

effect of governance information disclosure on stock return Governance disclosure is information about the mechanisms, relationships and processes regarding companies' management and control [41]. According to Mouselli [55] information about governance is a major determinant in company valuation, capital costs and market liquidity. Implementation of effective governance mechanisms will encourage companies to disclose higher quality information. The consequence of improving the quality of information disclosure is an increase in the companies' reputation, delivering a positive signal for investors. Koerniadi, Krishnamurti and Rad [56] have

10**examined the impact of** corporate governance **on stock returns. They**

used 88 firms in New Zealand between 2004 and 2008. They found that well-governed firms had higher levels of stock returns due to lower levels of risks. Disclosure on governance information can assure investors that firms have a commitment to maintaining shareholders' values. Governance is associated with low levels of risk. This empirical result is supported by Rostami et al [57] and Khan et al [43]. Based on prior empirical studies, it can be drawn that governance disclosure is positively related to stock returns. Therefore, hypothesis regarding this can be proposed as follows: H7 : Disclosure of governance information

4**has a positive effect on the** company **stock return.** 2.8 **The**

effect of ESG information disclosure on stock return Integration of environmental, social, and governance information into a singular proxy provides a more comprehensive picture regarding companies' non-financial performances. Disclosure of ESG information on aggregate level helps investors in comprehensively assessing the firms' non-financial performances [30]. Bernardi [58] has found an empirical evidence that integrated reporting had an impact on the accuracy of earning prediction. Disclosure of relevant ESG information can be a positive signal for investors. Peiris and Evan [58] have examined the relationship between ESG aspects on stock return. The research was conducted based on 250 stocks in Domini Social Index (DSI) in the USA between 1991 and 1996. The empirical result showed that ESG disclosure

23**had a** significant **positive effect on stock returns.** According to Peiris **and**

Evan [58], higher levels of ESG disclosure implied higher capabilities in generating profit. This empirical evidence is supported by other scholars [47,59]. Based on previous literature and empirical researches, it can be presumed

23**that ESG** disclosure **has a positive effect on**

stock returns. Therefore, hypothesis eight is proposed as follows: H8 : Disclosure of ESG information has a positive effect on the company's stock return. 3. Research

7**Method 3.1 Sample Selection The population of this study consists of** 467 public **-listed companies**

forming 3.789 firm-year observations in Indonesia within the period of 2012-2018. The number of the companies vary from year to year based on the number of companies listing. We then use the purposive sampling method to select a sample for the study. The criteria to select the sample

2**is based on the availability of data,** hence **companies that do not** disclose ESG **information**

are not selected as samples. After excluding 397 companies which do not have ESG disclosure, the sample is reduced to 70 companies and leaves a pooled sample of 532 firm-year observations. As our study focuses on mining, agriculture and manufacture sectors, we further select companies which hold ESG disclosure on the three sectors. We choose the three mentioned sectors as our focus due to their sensitivity on environmental issues. The final sample consists of 34 companies and forms 281 firm-year observations. 3.2 Research Model We use price model and

12**return model to** assess **the value relevance of**

ESG disclosure. Both models are derived from Ohlson's model [31]. Adopting Zuraida [30], we use four regression

22**models to** test **the value relevance of** ESG in **price model.**

Model one to three are used to assess the value relevance of the singular aspect of ESG disclosure. Model four is used to analyze the value relevance of ESG disclosure in aggregate. We do not put all the models into single regression due to serious multicollinearity as argued by Zuraida [30]. The price models are written as follows: Pit+1 = α + β1ENVit + β2BVeffect + β3EPSeffect + β4SIZEeffect +ε…(1) Pit+1 = α + β1SOCit + β2BVeffect + β3EPSeffect + β4SIZEeffect +ε…(2) Pit+1 = α +β1GOVit + β2BVeffect + β3EPSeffect + β4SIZEeffect +ε…(3) Pit+1 = α + β1ESGit + β2BVeffect + β3EPSeffect + β4SIZEeffect +ε…(4) For return model, we use a model modified by Ota [32]. We also employ four regression models in return model. All the variables in return model are deflated by Pt-1. ESG disclosure is not deflated by Pt-1 as the information is assumed to be independent and not affected by the scale of the company [11]. The return models are written as follows: Rit+1= α+β1ENVit + 2 + 3 +β4SIZEeffect + +ε…(5) Rit+1= α+β1SOCit + 2 +3 + β4SIZEeffect + +ε…(6) Rit+1= α+β1GOVit+ 2 +3 + β4SIZEeffect + +ε…(7) Rit+1= α+β1ESGit + 2 + 3 + β4SIZEeffect + +ε…(8) Where : Pit+1 :

26**share price of company i** at **year t+**

1 Pt-1 :

26**share price of company i** at **year t-**

1 Rit+1 : stock return of company i

17**at year t+1** ENVit : environmental disclosure **of** company **i at year t**

SOCit : social disclosure

35**of company i** at **year t** GOVit : governance disclosure **of company i** at **year t**

ESGit : ESG disclosure of company i at year t BVeffect : control variable of book value per share EPSeffect : control variable of earning per share SIZEeffect : control variable of company size ∆ EPSit : control variable of changes in earning per share Share prices are measured by companies' closing prices as of April 30 or four

34**months after the end of the fiscal year.** April 30 **is the** deadline **of**

annual report submission for public companies in Indonesia. Stock returns are measured by changes in the closing prices between the end of the fiscal year and April 30 and are then deflated by closing prices at the end of the fiscal year (December 31). Both share price and stock return are taken quite shortly after the submission deadline of annual report, which is aimed to reduce the effect of other information. ESG disclosure is measured by Bloomberg scores. Bloomberg ESG scores range from 0 to 100. The figures reflect the percentage of company disclosure that can be achieved in a year. As the scores are provided in percentage, they allow for comparison among companies. According to Qiu [25], Bloomberg measures the scores based on points gathered through annual reports, sustainability reports, and company websites. Bloomberg has 120 different points (60 points for environmental disclosure, 26 points for social disclosure and the rest is for governance disclosure). Among the disclosure points, 80% are considered as "hard" items that can be quantified, such as carbon emissions and the use of renewable energy, while the remaining 20% are considered as "soft" items, such as energy efficiency policy and waste reduction policy [25,58]. By considering both "hard" and "soft" items, Bloomberg scores represent not only the quantity of the disclosure, but also its quality [25,58]. The scoring or weighting system used by Bloomberg to obtain overall scores cannot be disclosed due to copyright concerns. Several control variables are used to improve goodness of fit of the model.

2**Book value per share is** measured **by** deflating **book value of equity by the number of outstanding** common stock. Current **book value**

can be a determinant factor of future earning, thus it can be used to predict market value of the companies [31]. Earning

2**per share is measured by** dividing earning after **interest and** tax **by** the **number of outstanding**

common share. Earnings contain useful information to assess firms market value [31]. Company

6**size is measured by the** natural **logarithm of** the **number of total**

asset. According to Cooper and Owen [60], the bigger the company size, the higher the company's voluntary disclosure level. This argument is supported by Moneva and Cuellar [12], who argued that company size can influence the value relevance of environmental information. Therefore, company size is

11**used as a control variable in this study.**

4. Research Findings and

7**Discussion 4.1 Descriptive Statistics The descriptive statistics of** 281 firm-year **observations are presented in table** 1. **On average, the** environmental disclosure score **of all companies**

is at 11.40%,

8**with a minimum score of** 0% **and a maximum score of**

56%. It indicates that environmental disclosure among the companies is low. Social disclosure is at a mean of 21.13%,

8**with a minimum score of** 0% **and a maximum score of**

63%, which indicates that social disclosure among the companies is low. The average of governance disclosure and ESG disclosure are at 48.15% and 22.26% respectively. Governance disclosure has

8**a minimum score of** 23% **and a maximum score of**

75%, while ESG disclosure recorded a

20**minimum and** a **maximum score of** 6% **and** 54% **respectively.** Governance disclosure among **the**

companies is considered as high. On the other hand, ESG information has a low level of disclosure. The average of share price is Rp8,413.35, with a minimum of Rp50 and a maximum of Rp98,400. Stock return has an average of Rp6.54, with a minimum and a maximum return at Rp(48) and Rp323 respectively. The data shows a wide range of sample distribution. Table 1. Descriptive Statistics Variables Mean Min Max SD ENV 11.40 0 56 14.02 SOC 21.13 0 63 19.58 GOV 48.15 23 75 8.42 ESG 22.26 6 54 13.11 P 8,413.35 50 98,400 13,246.19 R 6.54 -48 323 33.87 Notes : ENV : environmental disclosure, SOC : social disclosure, GOV : governance disclosure, ESG : ESG disclosure, P : share price, R : stock return 4.2 Regression Results The regression results of price model and return model are presented in table 2. Model 1 to 4 are the price model used to test hypotheses 1 to 4, while model 5 to 8 are the return model used to test hypotheses 5 to 8. Table 2. Regression Result of Price Model and Return Model Model Variables Coef t F R2 Adj R2 Model 1 Constant 8.249 12.91* 20.18* 0.23 0.22 ENV 0.016 2.59* BVeffect 0.127 4.68*

EPSeffect 0.124 4.06* Sizeeffect -0.51 -1.99 Model 2 Constant 8.265 12.90* 19.70* 0.22 0.21 SOC 0.010 2.29* BEPVSefeffefcetct Sizeeffect Model 3 Constant GOV BVeffect EPSeffect Sizeeffect Model 4 Constant ESG BEPVSefeffefcetct Sizeeffect Model 5 Constant ENV EPS per Priceeffect ∆EPS per Priceeffect Sizeeffect 0.132 4.84* 0.116 3.79* -0.052 -2.03* 7.964 9.34* 0.008 0.78 0.134 4.88* 0.115 3.73* -0.048 -1.84 8.106 12.55* 0.016 2.38* 0.130 4.78* 0.120 3.93* -0.052 -2.01* 4.138 5.692* 0.022 2.567* -3.027 -1.561 6.157 2.821* -0.032 -1.195 18.25* 0.21 19.84* 0.22 4.19* 0.058 0.20 0.21 0.044 Model Variables Coef t F R2 Adj R2 Model 6 Constant SOC EPS per Priceeffect ∆EPS per Priceeffect Sizeeffect Model 7 Constant GOV EPS per Priceeffect ∆EPS per Priceeffect Sizeeffect Model 8 Constant ESG EPS per Priceeffect ∆EPS per Priceeffect Sizeeffect 4.083 5.608* 0.015 2.22* -3.276 -1.686 6.150 2.817* -0.033 -1.208 2.889 2.941* 0.027 1.942 -3.143 -1.611 6.020 2.745* -0.025 -0.930 3.867 5.260* 0.024 2.634* -3.141 -1.620 6.150 2.820* -0.032 -1.202 4.13* 0.057 3.46* 0.048 4.28* 0.059 0.043 0.034 0.045 *significance at 5% The coefficient of ESG disclosure in price model is the same as that of environmental disclosure (0.016). It can be interpreted that investors value environmental disclosure as high as ESG in aggregate level. On the other hand, the coefficient of ESG in return model (0.024) is the highest among its singular components. Social disclosure has the lowest coefficients both in price model (0.010) and return model (0.015). Investors consider ESG in aggregate as the most value relevant. As Baboukardos [15] stated that information with comprehensive disclosure can assist investors in evaluating firm performance better than standalone disclosure. The overall coefficients in

12**return model are higher than those of**

price model. However, return model has lower explanatory power (R2), meaning

14**that the value relevance of** return model **is** lower **than that of** price **model.**

Comparing the explanatory power of

12**price model and return model, the**

empirical test shows that price model (model 1 to 4) has a higher explanatory power than return model (model 5 to 8). The explanatory power of price model is around 20% to 22%, while return model is around 3% to 4%. The wide explanatory power gap between price model and return model supports Kothari and Zimmerman's [33] argument. Return model has a lower level of R square than price model. Our empirical result provides a strong support for hypothesis 1 (0.016, p<0.05). We have found a positive and significant effect of environmental disclosure on share price. The result indicates that environmental information has value relevance according to price model. As stated by Lang and Lundholm [61] and Cormier and Magnan [22], disclosure of quality environmental information can decrease the level of cost of capital. Environmental disclosure matters to investors in assessing firms' risks [36]. Environmental disclosure acts as a positive signal to investors and helps investors predict future companies' performances. The response of investors to the issuance of environmental information is reflected on market value. Hypothesis 2 is strongly supported by the result of empirical test (0.010, p<0.05). We have proven that social

15**disclosure is positively associated with share** price **and** considered as **value relevant information.**

Disclosure of social information such as wage and salary policies, employee welfare and work safety procedures can help companies get quality employees [38], which in turn can increase employees' loyalty and productivity [25]. According to Qiu [25] employees' productivity can reduce conflicts within companies

while simultaneously becoming an implicit cost that can reduce the cost of capital. Disclosure of social information is a form of corporate commitment to

> 30**social responsibility to** all **stakeholders.** Companies **are** committed **to**

protecting

> 30**the interests of** its **stakeholders,** especially those **of** the **shareholders.**

Social disclosure can enhance the level of confidence of prospective investors about the companies' sustainability performances in the future. Social disclosure sends a positive signal for investors. Investors and potential investors also have the expectation that the companies will be able to create long-term values for them. Thus, disclosure of quality social information can be directly responded by investors through the companies' stock prices. Hypothesis 3 cannot be supported by the empirical test ($p>0.05$). Governance disclosure has no effect on share price. The absence of influence of governance information on stock prices does not mean to indicate that governance information has no value relevance. According to Ball and Brown [62], the absence of investors' response to disclosure of accounting information is caused by the anticipation that has been made by investors before the information is disclosed. The content in governance information is relatively the same as the content of information disclosed in the previous year. The information content has been predicted by investors in the time before the disclosure of information, so there are no more investors' reactions around the time of information publication. In addition, governance information is mandatory. All companies have disclosed governance information with relatively the same content, so investors get the same understanding of corporate governance structures. According to Benston [63], mandatory disclosure of information is not responded by investors because they believe about the accuracy of the information content. Empirical test shows evidence to support hypothesis 4 (0.016, $p<0.05$). ESG disclosure has a positive impact on share price. ESG disclosure is value relevant based on price model and becomes a positive signal for investors. Aggregated ESG information can help investors get a more comprehensive picture of companies' environmental, social and corporate governance performance [30]. Baboukardos [15]

> 20**argued that** the **disclosure of** comprehensive **information** can **help investors** get **better understanding**

on firm performance. ESG information disclosure can help improve companies' reputation, increase investors' confidence and reduce the

> 19**cost of capital. The higher the quality of disclosure, the** higher **the**

incentives that the company can get. Investors who are aware of the value added of the company in a form of competitive advantage are willing to pay premium shares [30]. Thus, disclosure of quality ESG information can affect companies' market values. Hypothesis 5 is supported empirically (0.022, $p<0.05$). The positive influence of

> 17**environmental information** indicates **that environmental information is** considered as **value relevant.**

Investors' responses are reflected on the changes of stock return. Environmental disclosure

3**has value relevance** on both **price model and return model.**

The similarity of investors' responses

6**to the disclosure of environmental information,** as shown by **the** increase **of**

stock prices and stock returns, shows that investors already have a common perception of the importance of environmental performance to assess a company's sustainability performance. Environmental aspect is one of the important factors for companies' sustainability. Higher sustainability performers have a greater ability to create a long-term value for shareholders than the lower performers [41]. Hypothesis 6 is proven by an empirical evidence (0.015, p<0.05). Investors react to the issuance of social disclosure and their responses are reflected on the changes in stock return. Social information

3**has value relevance** both on **price model and return model.**

Companies' high social performances indicate that they are committed to social problems that might threaten the companies' sustainability. A high commitment to the aspect of corporate sustainability is evidence that companies are committed to maintaining the long-term value of shareholders [41].

6**Disclosure of social information in the form of**

good news will be reacted positively by investors [5]. Disclosure of social information can also increase competitive advantage and form a positive brand image, which can create premium value of the companies' shares [50]. Hypothesis 7 cannot be supported by an empirical evidence (p>0.05). Governance disclosure has no effect on both share price and stock return. As Ball and Brown [62] stated that investors have anticipated the content of accounting information before the information is published. Governance information is information that contains relatively the same information content over a period of several years, unless there are changes in policies or corporate governance structures. Disclosure of governance information is anticipated by investors in the period before the information is published, so that there are no investors' reactions at the time the information is published. Governance information is mandatory information with a level of accuracy that has been trusted by investors [63]. The final hypothesis is supported empirically (0.024, p<0.05). Companies with high ESG performance, which includes environmental, social, and governance aspects, reflect the quality of their management [64]. High ESG performance is also related to fulfilling the rights of stakeholders in a wider scope and not only limited to shareholders. By fulfilling the rights of stakeholders, the companies are able to maintain its sustainability. Corporate sustainability is an important aspect in creating long-term values for shareholders. Investors are willing to pay a premium price for companies that have higher ESG performances compared to those with lower performances [64]. Thus, the

25**disclosure of** ESG **information has a** positive **impact on**

companies' stock returns. A number of control variables is significant at the level of 5% significance. However, they are not identical for the eight models.

33**Book value per share and earning per share are** significant **in** overall **price**

models (model 1 to 4), while company size is significant only in model 2 and 4. Changes in earning per share are significant in overall return models (model 5 to 8), while earning per price deflated by share price and company size has no significance in overall return models. 4.3 Sensitivity Analysis We employ an additional analysis to obtain evidence on whether price model and return model explain the value relevance of ESG disclosure differently. To examine that, we employ a sign test. The result of the sign test is provided in table 3. Table 3. Sign Test of Price Model and Return Model Frequencies N Negative Differencesa 0 Positive Differencesb 4 Tiesc 0 Exact Sig (2-tailed) 0.125 a. Coefficients of return model < price model b. Coefficients of return model > price model c. Coefficients of return model = price model The empirical test show that all of the coefficients of return model are higher than those of price model. However, both models are not different statistically in providing a measurement of the value relevance (p>0.05). Kothari and Zimmerman [33] argued that the low explanatory power of return model led scholars to derive incorrect conclusions. It can be caused by noises in earning or reflection of investors' irrationality[33]. Consistent results of the value relevance of ESG disclosure show that both models can explain the value relevance in a similar way. Environmental, social and ESG disclosure have value relevance in both price model and return model, while governance disclosure

3**has no value relevance in both models. The** use **of**

both models in value relevance studies is fully recommended in order to get a more convincing evidence. 5. Summary and Conclusion Confirming the content of information on sustainability report is an important aspect for sustainability practitioners. A significant relationship between accounting numbers and share price or stock return indicates information content. We investigate whether ESG disclosure is considered as value- relevant. By using two models, we are capable of obtaining better evidence on the value relevance of ESG disclosure. Overall, our empirical test leads us to infer that environmental, social and ESG information has been reacted positively by investors in both price model and return model. Governance information is not reacted by investors in both price model and return model. The absence of reaction of investors on governance disclosure does not mean that it has no value relevance. Governance disclosure has been anticipated by investors, hence there was no more reaction in the issuance of the information. ESG information has the highest coefficient among its singular components, proving that investors focus more on aggregate ESG information. Among environmental and social information, investors pay higher attention to environmental information. Thus, environmental information has a more valuable impact for investors among the three types of ESG information. Sensitivity analysis is applied

3**to examine** whether **the value relevance** in **both models** is different. **The**

result suggests

3**that there is no difference** on **the** measurement of the **value relevance**

in both models. The price and the return regression indicate a consistent result in explaining the value relevance of ESG disclosure. Our study has several limitations. First, disclosure of voluntary information such as ESG can be influenced by company size [25]. Large-scale companies have greater resources to make disclosures that are better in quality and quantity than small-scale companies. This study only uses firm size as a control variable, but does not see

14**the impact of** each size **on the value relevance.** The limitations **of the**

sample are the reason for not analyzing the impact of company size. Second, ESG measurement used in this study is the Bloomberg score. Bloomberg uses a scoring method that might be different from other database providers. Using ESG data from other providers with different valuation methods might produce stronger evidence related to the relevance of ESG value. We leave it to forthcoming studies to further validate such measures and the related association with voluntary sustainability disclosures. Finally, our empirical evidence supports the process of developing sustainability reporting regulation in Indonesia regarding the value relevance of non-financial information. This study also offers an implication for capital market practitioners to integrate ESG information into investment valuation models. Acknowledgement Suhita Whini Setyahuni acknowledges the financial support from

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