



# The Influence of Social and Environmental Disclosure on Firm Value Moderated by External Assurance

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**Abstract.** The purpose of this research is to examine and analyze how social and environmental disclosure affects firm value, and its interaction with external assurance affects this relationship. Research of this kind is quantitative in nature. The study focused on mining businesses that were listed between 2019 and 2023 on the Indonesia Stock Exchange (IDX). Annual reports are the source of research data, which may be accessed on each company's official website. The research sample consists of 36 companies and 180 observations. Purposive sampling is used to select samples. Using STATA software version 17, a panel data regression analysis utilizing a random effects model was conducted to examine the data. The results suggest that environmental disclosure positively impacts firm value, while social disclosure has a negative effect. Furthermore, moderation analysis revealed that external assurance, a factor moderating both social and environmental disclosure, does not significantly influence firm value. These findings suggest that corporate management ought to adopt strategic approaches to social and environmental disclosures to ensure that the benefits exceed the costs, thereby positively impacting firm value and investor sentiment. What sets this study apart is its examination of the separate effects of social and environmental disclosures on firm value. Furthermore, this research expands the existing literature on introducing external assurance as a moderating variable, an area that has not been widely studied.

**Keywords:** social disclosure, environmental disclosure, external assurance, firm value.

## 1. Introduction

The escalating pace of globalization and intensified market competition has compelled businesses to prioritize performance enhancement, thereby maximizing firm value and shareholder wealth. As a barometer of corporate success, firm value is intricately linked to investor sentiment and share prices. The elements that determine a firm's worth have been the subject of increasing research, with profitability, leverage, dividend policy, and sales growth emerging as key factors. However, the intricate relationship between firm value and non-financial factors, such as corporate social responsibility (CSR), remains a subject of ongoing debate [33].

The increasing prominence of environmental and social concerns has prompted a heightened focus on the role of CSR in shaping firm value. Consequently, companies no longer solely focus on recording and reporting financial information (single bottom line), but also consider the surrounding conditions, encompassing social and

environmental aspects (triple bottom line). These three pillars (people, planet, profit) mutually support each other in achieving sustainable development [22]. This notion encapsulates the understanding that a company's goal should be to provide shared benefit for all stakeholders involved while minimizing negative effects on the environment and social, in addition to maximizing profit.

Existing literature consistently suggests that CSR and firm value are positively correlated [5,20,30,53]. Other research further delves into the immediate and secondary effects of social and environmental disclosure on firm value, highlighting the mediating role of financial performance [42]. Moreover, there is an emphasis on the dual role of data regarding social and environmental performance in influencing both external stakeholders and internal decision-making [38]. However, the empirical evidence is not entirely consistent. There are studies that find a lack of correlation between CSR and firm value [19,34] while other studies find a negative relationship [24,51]

Previous studies on the relationship between firm value and CSR disclosure has yielded inconsistent results. The present study re-evaluates this relationship by isolating social and environmental disclosures within sustainability reports. Social disclosure is defined as information pertaining to human well-being. From a social standpoint, companies should prioritize issues such as heightened gender discrimination and limited diversity, substandard employee safety in high-risk operations, and income disparity. Growing public scrutiny of corporate social responsibilities has compelled firms to allocate more resources and time to social initiatives, thereby fulfilling stakeholder expectations [44]. In simple terms, environmental disclosure is the publication of information pertaining to environmental management practices, including topics such as water, air quality, and responsible production methods designed to reduce waste. Furthermore, environmental management encompasses the conservation of biodiversity in mining regions and the mitigation of adverse environmental effects. The primary purpose of such disclosure is to facilitate environmentally sustainable operations and attain sustainability performance objectives. Mining companies, in particular, tend to exhibit higher levels of disclosure to bolster and safeguard their reputations. Conversely, a lack of disclosure can adversely affect shareholder value [46].

In addition to disclosing sustainability-related matters, the standard of reporting on sustainability is paramount importance. Firms utilize externally assured sustainability reports to bolster their reliability among stakeholders. The assurance process is designed to furnish investors with transparent and accountable information, thereby reducing the likelihood of misinterpretation and errors in evaluating corporate performance [10]. As a result, the signals transmitted by management are incorporated into investor valuations, ultimately contributing to an enhancement of firm value [24].

The firms with greater levels of external assurance on sustainability reporting command higher valuations from investors [32]. Nevertheless, sustainability reporting assurance remains voluntary, prompting companies to weigh the benefits against the costs of implementing external assurance as a strategy to enhance sustainability reporting quality [49]. The substantial costs associated with external assurance procedures account for this voluntary nature. Consequently, this research provides a

novel contribution with the aim of exploring the consequences of external assurance on the association between social and environmental disclosure on firm value.

By analyzing the unique impacts of social and environmental disclosures as stated in sustainability reports, this study seeks to investigate this relationship. The researchers are particularly interested in this inquiry as it will provide a more granular examination of the level of disclosure regarding social and environmental responsibilities and their subsequent impact on firm value. Furthermore, there is a moderating variable in this study, namely external assurance is used to explore how its presence moderates the association between social and environmental disclosures and firm value, thereby contributing novel insights to the existing literature. By concentrating on Indonesian mining companies and considering the nuances of social and environmental disclosures within this context, this study contributes to the corpus of existing knowledge and offers insightful information for corporate managers, investors, and legislators.

## **2. Literature Review**

### **2.1 Signaling Theory**

Management strategically employs disclosures to signal their assessment of the company's future prospects to investors, consistent with signaling theory. If shareholders are to invest in a company, management must inform them about the resources available to the company and how effectively and efficiently these resources are utilized [43]. Based on this theory, signals take the form of information conveyed about management's efforts to satisfy the owners' desires of the business.

Within the context of this research, corporate social and environmental disclosures are employed as a tactical instrument to transmit positive signals to interested parties and the market, indicating the company's strategic direction and long-term sustainability objectives. Given the social and environmental implications of its operations, the company can leverage these disclosures to set itself apart from rivals and enhance its position in the market [24].

### **2.2 Legitimacy Theory**

Legitimacy theory posits that organizations seek to legitimize their operations through discretionary disclosure to align with societal expectations [37]. The concept of a contractual relationship between the business and its stakeholders serves as the foundation for this theory, whereby the organization is obligated to operate in a manner that is perceived as legitimate. The underlying assumption is that organizational survival and growth are contingent upon securing and maintaining social legitimacy. Within this theoretical framework, organizations are embedded within a broader social context and do not possess inherent entitlements to resources [18].

Given the social and environmental aspects, legitimacy theory suggests that organizations are motivated to seek approval or acceptance from society. An

organization's legitimacy is considered to be at risk when it fails must adhere to the "social contract's" requirements, resulting in a legitimacy gap due to misalignment with societal expectations. An organization perceived as failing to meet societal expectations may face sanctions, such as operational restrictions, difficulties in acquiring necessary resources including labor, decreased demand for goods and services, and so on [1]. If a company ignores these concerns, it may tarnish its public image, thereby impacting its firm value.

### 3. Hypothesis

#### 3.1 Social Disclosure and Firm Value

One way to lessen information asymmetry is by the inclusion of social disclosure in annual reports. Investors are informed about the company's positive view for the future via the sharing of social activity information. Corporate social responsibility disclosures can extend beyond mere costs or charitable acts; in fact, they may provide a competitive edge and a source of innovation, thereby enhancing firm value [48]. Social disclosure influences the enhancement of firm value due to the provision of non-financial information that constitutes added value for investors. Studies carried out by [11] concludes that value creation has evolved in parallel with social responsibility, where corporate objectives are no longer solely focused on profit maximization, but rather on a concept of shared value, emphasizing the integration of social issues and needs into corporate strategy.

In the Asian setting, social disclosure and firm value were positively correlated, indicating that companies with higher social disclosure levels are better equipped to create value [39]. Consistent with their findings, there is provide additional evidence of social disclosure and firm value in the Indonesian mining industry have a positive relationship [29]. Larger firms, in particular, are inclined to disclose both financial and social information to mitigate reputational risks associated with social irresponsibility. This broader disclosure strategy enhances corporate image and ultimately contributes to increased firm value [8]. Consequently, the following research hypothesis is put forth:

H1: Social disclosure has a positive impact on firm value

#### 3.2 Environmental Disclosure and Firm Value

Signaling theory posits that companies engaging in environmental disclosure send a positive signal to investors, indicating a proactive environmental strategy [24]. This disclosure makes investors aware of the company's potential to remain sustainable in the long run, where the perception of environmental management practices has shifted from an expenditure to an investment. If the signaling theory is underpinned by information asymmetry towards stakeholders, legitimacy theory uses motivation to gain societal approval or acceptance.

Environmental disclosure influences firm value [55], this aligns with the fact that

a positive impact of environmental disclosure increased firm value [7,40]. Such disclosure is a form of corporate reporting on both positive and negative environmental impacts, and also serves as a strategy for companies to maintain their legitimacy. Considering the description above, the following research hypothesis is proposed:

H2: Environmental disclosure has a positive impact on firm value.

### **3.3 Social Disclosure, Firm Value, and External Assurance**

Signaling theory provides a theoretical foundation for understanding why external assurance is necessary for all corporate social actions to convey signals of trust, credibility, and quality [54]. By sending credible signals through social disclosure, companies can attract sustainability-conscious investors and build long-term reputations. Assurance is of paramount importance in reinforcing the credibility of these signals and reducing information asymmetry [6].

Legitimacy theory emphasizes the quality of reporting to maintain a company's legitimacy and remain competitive while ensuring sustainability [21]. Given the inherent uncertainty surrounding the quality of social disclosure, external assurance is anticipated to serve as a crucial validation mechanism. Companies demonstrating strong social performance are more inclined to voluntarily provide externally assured reports to signal the credibility of their disclosures [12]. External assurance enhances the credibility of information for decision-making, fosters transparency and reliability in reporting, and verifies information for stakeholders with limited knowledge or expertise [16]. The increasing prominence of assurance in sustainability reporting can be attributed to recommendations from institutions like AccountAbility and the Global Reporting Initiative advocating for the assurance of corporate social disclosures [35].

High-quality, assured social disclosure inevitably requires significant costs and resource consumption for companies to collect, measure, and verify information, as well as for report publication [23]. The significant costs associated with developing and assuring high-quality sustainability reporting deter some companies from undertaking such initiatives. Nevertheless, long-term benefits, including enhanced stakeholder legitimacy and improved financial performance, can be realized from investing in high-quality social disclosure [25]. Given these arguments, the following research hypothesis is proposed:

H3: External assurance moderates the relationship between social disclosure and firm value.

### **3.4 Environmental Disclosure, Firm Value, and External Assurance**

External assurance is essential in bolstering stakeholder confidence in the credibility of environmental disclosures [41]. Furthermore, external assurance can incentivize companies to provide more reliable and accurate environmental information [28]. By proactively signaling the credibility of their environmental performance practices,

companies can positively influence investor perceptions [35]. The companies irrespective of their environmental performance, tend to seek external assurance their reports on sustainability in order to bolster the credibility and reliability of their environmental disclosures [26].

When environmental disclosure indicators are well linked with the company's strategic objective, assurance considerably boosts investors' propensity to invest [14]. This result implies that assurance on environmental disclosure acts as a positive signal conveying the significance of the disclosed information to investors. Thus, companies that display environmental disclosure using external assurance will influence investor assessments which also have an impact on firm value compared to companies that do not have an assurance statement at all. The following is the hypothesis that this study is founded on:

H4: External assurance moderates the relationship between environmental disclosure and firm value.

#### 4. Research Method

Mining firms listed on the Indonesia Stock Exchange (IDX) during the period from 2019 to 2024 constitute the population of this study. For this study, a final sample of 36 businesses was chosen, yielding 180 observations during a five-year period. Secondary data was gathered by visiting the relevant firms' official websites, including annual reports and sustainability reports.

The dependent variable in this research is firm value, which is defined as the market's assessment of a company, as represented in its stock price. This study uses Tobin's Q, a statistic created by James Tobin (1967), to calculate firm value. The following formula can be used to get Tobin's Q:

$$\text{Tobin's Q} = \frac{\text{Market Value of Equity} + \text{Total Liabilities}}{\text{Total Assets}}$$

This study examines the impact of social and environmental disclosure on firm value. The Global Reporting Initiative (GRI) framework, which includes human rights, labor practices, societal impact, and product responsibility, is used to measure social disclosure. The extent of social disclosure is determined by comparing the number of disclosed items to the GRI's prescribed 40 social items [45].

Similarly, environmental disclosure is assessed based on the GRI framework, which includes broader environmental issues as well as consequences connected to inputs (such water and energy) and outputs (such trash and emissions). The GRI standard mandates 32 environmental items [3].

The moderating variable of external assurance is included to investigate its effect on the correlation among disclosures and firm value. The implementation of external assurance is done using a dummy variable. If the business has external assurance on its sustainability report, its value is 1, and if not, it is 0.

The quantitative research methodology of this work makes use of panel data regression analysis to investigate the relationships among variables. Data were

analyzed using STATA 17. The proposed regression model is:

$$FV_{i,t} = \alpha + \beta_1 SD_{i,t-1} + \beta_2 ED_{i,t-1} + \beta_3 SD.EA_{i,t-1} + \beta_4 ED.EA_{i,t-1} + e_{it}$$

FV : Firm Value  
 $\alpha$  : Constanta  
 $\beta_1$ - $\beta_4$  : Coefficient  
SD : Social Disclosure  
ED : Environmental Disclosure  
EA : External Assurance  
e : error

## 5. Research Findings

### 5.1 Descriptive Statistic

**Table 1.** Descriptive Statistic

Variable	Obs	Mean	Std. dev.	Min	Max
FV	180	1.5798	1.5163	0.5972	12.918
SD	180	0.3442	0.2098	0	0.975
ED	180	0.3168	0.2696	0	1
EA	180	0.2722	0.4463	0	1

A summary of the descriptive statistics for every variable can be found in Table 1. Tobin's Q indicates that the average firm value is 1.5798, with minimum values of 0.5972 and maximum values of 12.9182. A higher firm value, as indicated by the stock price, indicates that the market is optimistic about the company's prospects and attributes this to optimal asset management. In terms of social disclosure, the range is minimum at 0 and maximum at 0.975, with a mean value of 0.3442. Comparably, environmental disclosure shows an average of 0.3168, with 0 serving as the minimum and 1 serving as the maximum. These results show that while some corporations disclose little or nothing about social and environmental issues, other others disclose a great deal. This underscores the need for regulatory interventions to mandate social and environmental disclosures, given the overall low levels of disclosure observed.

### 5.2 Preliminary Test

At this stage, the most effective estimation model will be selected among Common Effect Model (CEM), Fixed Effect Model (FEM) or Random Effect Model (REM). Based on Table 2, Chow test results for comparing CEM and FEM models show a Prob > F value of 0.0000, indicating that  $(\text{Prob} > F) < 5\%$ , thus the best estimation model is FEM. Subsequently, the model testing continues with Hausman test to

compare FEM and REM. The Prob > chi2 value in Hausman test results shows a value of 0.7634, meaning (Prob > chi2) > 5%, hence the best estimation model is REM. To further validate the choice of REM, a Lagrange Multiplier test will be conducted to compare REM and CEM. Based on Lagrange Multiplier test results, the Prob > chibar2 value shows a figure of 0.0000, indicating that (Prob > chibar2) < 5%, thus the most suitable estimate model is REM. Therefore, the statistical analysis conducted in this study using REM panel data regression analysis to examine the impact of social and environmental disclosure on firm value, moderated by external assurance.

**Table 2.** Preliminary Test Results

<b>Chow Test</b>	
F(35,141)	5.32
Prob > F	0.0000
<b>Hausman Test</b>	
chi2 (3)	1.16
Prob > chi2	0.7634
<b>Lagrange Multiplier Test</b>	
chibar2 (01)	74.43
Prob > chibar2	0.0000

### 5.3 Classical Assumption Test

The classical assumption tests were carried out prior to performing a regression analysis of panel data to assess the hypotheses. Classical assumption tests are essential to ensure that the estimated regression model is unbiased and efficient. Multicollinearity and heteroscedasticity tests were conducted. The multicollinearity test was performed to assess whether there exists a strong or perfect linear relationship among the independent variables. To ensure accurate and reliable results, a model should exhibit low levels of multicollinearity. Multicollinearity, when severe, can result in inflated standard errors and unstable coefficient estimates, thereby hindering the accurate identification of the true relationship between the dependent and independent variables.

**Table 3.** Multicollinearity Test

Variable	VIF	1/VIF
SD	6.64	0.150596

ED	6.85	0.145961
EA	1.99	0.503117
Mean VIF	5.16	

As demonstrated in Table 3, the mean Variance Inflation Factor (VIF) score is 5.16, showing that the data used in this research model is not suffering from multicollinearity, as the mean VIF value is less than the commonly accepted threshold of 10.

Furthermore, the heteroscedasticity test is utilized to assess if the distribution of the residuals in the model of regression varies throughout data. Table 4 displays the findings of the heteroscedasticity test.

**Table 4. Heteroscedasticity Test**

Variable	P >  z
SD	0.068
ED	0.110
EA	0.101

As shown in Table 4, all significance values of the variables exceed 0.05 ( $\alpha > 0.05$ ). Consequently, the assumption of homoscedasticity in the panel data regression model is fulfilled, implying that there is no evidence of heteroscedasticity in the model.

#### 5.4 Hypothesis Test Result

**Table 5. Hypothesis Test Results**

FV	Coefficient	Std. err.	z	P> z	[95% conf. Interval]
SD	-2.130928	1.019671	-2.09	0.037	-4.129447 -0.132409
ED	1.985147	0.6941268	2.86	0.004	0.6246837 3.345611
EA	-0.5670966	0.6408845	-0.88	0.376	-1.823207 0.6890141
SD*EA	2.014993	1.720327	1.17	0.241	-1.356787 5.386773
ED*EA	-1.862281	1.403743	-1.33	0.185	-4.613566 0.8890039
cons	1.829937	0.3002466	6.09	0.000	1.241465 2.41841

The results of the hypothesis test regarding the relationship between social and environmental disclosure, firm value, and the moderating effect of external assurance are presented in Table 5. Social disclosure (SD) exhibits a statistically significant negative relationship with firm value because given a p-value of 0.037, the result is statistically significant at the 5% level, and a negative coefficient value.

Consequently, hypothesis 1 is **not accepted**. Conversely, environmental disclosure (ED) is positively and significantly relationship with firm value because  $P > |z| = 0.004$  is smaller than the significance level of 0.05, and a positive coefficient value. Therefore, hypothesis 2 is **accepted**.

The probability value for the interaction of social disclosure and external assurance variables is 0.241. This value indicates that the interaction between social disclosure and external assurance variables is not significant to the firm value variable, since the significance value exceeds the 0.05 threshold. Thus, Hypothesis 3 is **not accepted**. Additionally, the probability value for the interaction of environmental disclosure and external assurance variables is 0.185. This value also indicates that the interaction between environmental disclosure and external assurance variables has an insignificant influence on firm value. Therefore, Hypothesis 4 is **not accepted**.

## 5.5 Discussion

The first hypothesis test results show a considerable negative impact of social disclosure on firm value. These findings refute the signaling and legitimacy theories underlying the assumptions about social disclosure and firm value in this research. Contrary to the expectation that companies would disclose both financial and non-financial performance to mitigate information asymmetry and demonstrate social accountability, social disclosure was found to have no positive signaling effect on firm value. In contrast to the expectation that social disclosure would provide valuable information and transparency, this study found that the signals sent by companies in the form of social disclosure through sustainability reports could be received by investors, but could not be responded to properly and were not fully successful in becoming a medium for assessing investment in the company.

The literature offers inconsistent evidence that social disclosure might have a negative effect on market value, despite the fact that there are numerous reasons why it can serve as a favorable signal for investors. A possible disadvantage is that social disclosure, or sustainability reporting, calls for a significant investment of corporate resources [24]. Initiatives for corporate social responsibility are important to investors nowadays, but their willingness to forgo resources for social performance is limited [50]. It is the financial duty of management to create wealth for shareholders, and it is still feasible that the expenses of reporting may deplete shareholder value without having a major positive impact on other stakeholder groups [36].

Investors also perceive that social impacts, such as poor working conditions, inequality, or human rights violations, are often more complex and difficult to measure. Initiatives for social disclosure that are misaligned with a company's goals, competencies, resources, or business plan, can result in increased costs without commensurate benefits, potentially jeopardizing investor value. Consequently, the research findings indicate a negative relationship between such misaligned social disclosure and firm value.

In conformity with preceding studies, the outcomes of this research suggest a negative influence of social disclosure on firm value [4,24]. Moreover, The negative impact of social disclosure in emerging markets to the non-profit orientation, charitable nature, and community-serving characteristics of such disclosures, leading

to increased costs that adversely affect firm value [9]. Our results corroborate these findings. However, a more complex relationship was proposed suggesting that the influence of social activities on firm value may be contingent upon the extent of such activities [13].

The second hypothesis indicates that environmental disclosure significantly raises a firm's value. This finding aligns with the argument that broader environmental disclosure enhances firm value. Signaling theory posits that a firm's environmental disclosure provides a positive signal to investors regarding its effective environmental performance, thereby positively influencing firm value. In conformity with preceding studies, the outcomes of this research suggest that firm value is positively influenced by environmental disclosure [2,7,31,52]. Furthermore, providing relevant and high-quality environmental information can enhance market perception of firm. In addition, lower capital costs and higher projected cash flows show a favorable relationship between enhanced environmental disclosure reliability and firm value [47].

Environmental disclosure is more important than social disclosure for a number of reasons. Environmental disclosure reflects a company's awareness and responsibility regarding its environmental impact, particularly in mining companies. These impacts are critical, especially in countries facing urgent issues like climate change, air pollution, and water scarcity. Given the current state of environmental rules and enforcement, as well as the growing public awareness and need for preservation of the environment, environmental disclosure can potentially to enhancing a company's standing and credibility among stakeholders.

Investors believe that the benefits of environmental disclosure for mining companies outweigh the costs associated with such disclosures. Environmental disclosure can provide valuable information to investors, as measuring environmental impact often involves concrete quantitative data, such as garbage generation, water use, and greenhouse gas emissions. It is possible to measure and verify this data scientifically. Due to its potential to assist businesses and society in areas like environmental conservation, stakeholder involvement, and financial outcomes, environmental disclosure is therefore more important than social disclosure. Negative environmental impacts, such as pollution, ecosystem degradation, and climate change, have tangible long-term global consequences, making environmental issues more easily visualized and understood by the public.

The third research hypothesis was tested, and the findings indicate that there is no discernible impact of social disclosure and external assurance on firm value. It follows that external assurance has not moderated the influence of social disclosure on firm value in the mining sector. Investors do not appear to incorporate external assurance in social reporting into their decision-making processes.

The implementation of external assurance to improve social performance has yet to demonstrate a substantial increase in firm value due to a multitude of factors, such as investor perception and associated costs. The first factor related to investors not realizing that external assurance reveals independent social is an added value for the company that discloses it. The level of disclosure in voluntary reports varies greatly between companies. Therefore, companies that provide more limited social information in their disclosures are less inclined to look for external assurance. In addition, companies with less developed social disclosure systems tend not to see

assurance as something useful.

Although it can improve the company's social insight, there are still few companies that apply external assurance when it comes. There is considerable skepticism about the purpose of covering social [15]. External assurance requires expensive costs so that only companies that are truly committed to social responsibility reporting are willing to bear the additional costs. In this case, high costs associated with external assurance may lead investors to perceive it as a cost rather than a value-add, thus altering their perception. This causes external assurance not to affect investor assessments so that they have not been able to moderate the impact of social dissemination on firm value. So, the result of this discovered no link between external assurance and increased market value for businesses that offer social information.

Finally, the findings from our empirical analysis of the fourth hypothesis show that the interaction of external assurance and environmental disclosure has no discernible effect on firm value. The findings suggest that external assurance is ineffective in moderating influence on the relationship between environmental disclosure and firm value within the mining industry. The best way to persuade stakeholders about the accuracy and openness of information without resorting to unduly punitive regulations is through external assurance of environmental disclosure provided by external auditors [10]. However, there are obstacles in the way of implementing assurance, especially due to the lack of demand and attention from investors, lack of understanding of the company, and high costs and the assumption of company management that assurance will only increase company expenses without any benefits obtained by investors. Investors focus more on the company's internal control system to manage environmental activities. A strong internal control system shows the involvement of top management in sustainability issues as an indispensable element of the company's business strategy.

Unlike financial reports that are required to use external assurance, the use of external assurance to ensure sustainability reports is still voluntary. This is demonstrated by the research sample, which shows that the number of businesses using external assurance for their sustainability reports is lower than the number of businesses not using it. In this study, there were 180 observations from a total sample of 36 companies during 2019-2023. From the data, only 27% used external assurance services in their sustainability reports and 73% had not implemented it. This shows that the level of awareness of mining companies listed on the IDX to carry out assurance on the company's sustainability report is still low. Moreover, the absence of demand, attention, and consideration from stakeholders regarding assurance causes companies not to use external assurance services.

This study's findings are distinct from those of earlier research who found that external assurance significantly strengthens the relationship between disclosure of environmental activity items in sustainability reports and firm value [14]. However, the outcomes of this research are consistent with the studies who concluded that the moderating role of assurance on the association between environmental disclosure and firm value was not significant [5,17]. Top management faces more challenges in considering the best strategy in implementing externally guaranteed corporate environmental disclosures in order to bring benefits to all parties while still paying attention to the costs incurred to realize it.

## 6. Conclusion

The findings of the hypothesis test and subsequent analysis reveal several key insights regarding the relationship between social and environmental disclosure, firm value, and the moderating role of external assurance in Indonesian listed mining companies. Contrary to expectations, social disclosure exhibits an inverse relationship with firm value. Conversely, firms that engage in comprehensive environmental disclosure tend to have higher firm value. The moderating effect of external assurance, however, is found to be insignificant, suggesting that the implementation of external assurance has not yet been effective in enhancing firm value. This could be attributed to the limited uptake of external assurance among listed mining companies and the limited awareness among investors, coupled with the perceived additional costs associated with such assurance.

## 7. Limitations and Further Study

The current study is limited to a quantitative analysis of disclosure items in sustainability reports, neglecting the qualitative aspects of the disclosed information. Furthermore, the study only considers whether external assurance is present or not, without delving into its specific benefits. Future research could enhance the understanding of social and environmental disclosure by employing content analysis to assess the quality of disclosures and by investigating the nuanced impact of external assurance. Additionally, incorporating additional variables that influence firm value could provide a more comprehensive analysis. Further researchers can also re-test the moderating variables in this study by adding samples and research periods so that it can increase the predictive power of the study.

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