JOURNAL OF INTERNATIONAL CRISIS AND RISK COMMUNICATION RESEARCH
ISSN: 2576-0017
2024, VOL 7, NO 2

ESG DISCLOSURE IN CREATING STAKEHOLDERS VALUE THROUGH ENVIRONMENTAL MANAGEMENT ACCOUNTING

Sarita Vania Clarissa[1]*, Nurkholis[2], Erwin Saraswati[3], Arum Prastiwi[4]

1.Department of Accounting, Faculty of Economics and Business, Universitas Brawijaya, Malang, 65145, Indonesia
2.Department of Accounting, Faculty of Economics and Business, Universitas Brawijaya, Malang, 65145, Indonesia
3.Department of Accounting, Faculty of Economics and Business, Universitas Brawijaya, Malang, 65145, Indonesia
4.Department of Accounting, Faculty of Economics and Business, Universitas Brawijaya, Malang, 65145, Indonesia

***corresponding author email:** vaniaclarissa@student.ub.ac.id

Abstract: This research seeks to investigate the impact of ESG disclosure on stakeholder value creation through environmental management accounting. This research is driven by the limitations that uses subjective measures in measuring and evaluating environmental management accounting. This study is also motivated by the limitations of previous research that does not consider all stakeholders in the distribution of wealth such as the community, so this study adds the community in measuring stakeholder value creation using the entropy weighting method. The findings of the research found that ESG disclosure has no impact on stakeholder value creation. However, ESG disclosure has an effect on the creation of stakeholder value through environmental management accounting. This suggests that businesses in Indonesia remain concentrated on short-term profits. The results of this study also found that stakeholder value creation has begun to shift from shareholders to other stakeholders.
Keywords: Stakeholder Value, Stakeholder Value Creation, ESG Disclosure, Environmental Management Accounting

Introduction

This research was conducted in response to Adesanmi (2022) who stated that the practice of disclosing environmental information has become an issue that has been widely researched but does not have an impact on the value of stakeholders in particular. Several studies have shown that ESG awareness has an effect on shareholder value creation through improving financial performance (Zumente and Bistrova, 2021; Quiros, 2019). In addition, different studies generally investigate ESG related on financial performance as a means of evaluation a firm's ability to generate value for stakeholders (Chouaibibi and Chouabibi, 2022; Mohammad and Wasiuzzaman, 2021; Arayssi and Jizi, 2019; Cheng et al, 2014; Buallay et al, 2020; Radhouane et al, 2020; Grisales and Caracuel, 2018). Other research links ESG reporting to a company's positive image which has an impact on stakeholder value creation (Chouaibi and Chouaibi, 2021; Zhang et al, 2020; Carlos and Guan, 2018). Signori, et al (2021) stated that there has been no study that specifically examines the effect between ESG disclosure and value creation and its distribution to stakeholders, so a broader assessment of stakeholder value needs to be considered (Al-Jaifi, 2020).

The company discloses ESG with the aim of being transparent by reporting all company activities, so that the company's goal to obtain and create value in the eyes of stakeholders is achieved. However, in its implementation, companies need maximum capital, resources and time to get the best results (Cahyandito, 2006). Inard (2023) stated that ESG considerations emphasize long-term sustainability rather than immediate profits, but there is a gap between the costs that must be incurred in the short term due to ESG disclosure compared to the uncertainty of future

profits, so it is necessary to measure, analyze and report financial information related to business actions that affect the environment.

Environmental management accounting is a practice that deals with the measurement, analysis, and reporting of financial information related to business activities that have an impact on the environment. Environmental management accounting is increasingly a key component of sustainability accounting. (Schaltegger et al., 2008) and it serves as a vital tool for companies seeking to lower overall environmental expenses and minimize the ecological footprint of their activities, products, and services (Hyrslova and Hajek, 2006). Environmental management accounting is to assist management in making sustainable and environmentally friendly decisions, and to encourage the efficient utilization of resources. Environmental management accounting offers companies a comprehensive view to reduce costs and enhance performance.

Resource Based View Theory which assumes that the company's practices by relying on company resources such as the company's practices that involve developing a management system so that it is able to direct the company to be sustainable (Barney, 1986). In line with the theory, several previous research have stated that the current implementation of environmental management also has a positive effect on companies (Ali et al, 2022; Agustia et al., 2022). Chaudhry (2020) found that environmental management accounting acts as a mediator in the connection between disclosure and company performance. In other words, Companies that adopt environmental management accounting will be able to make improved decisions and strategies in enhancing their environmental performance (Chaudhry, 2020).

This research is motivated by the limitations of research that uses subjective measures in measuring and evaluating environmental management accounting (Chaudhry, 2020). Cahyandito (2006) stated that companies implementing ESG and green innovation require more capital, resources and time, so there is a gap between the costs that must be incurred in the short term compared to the uncertainty of future profits (Inard, 2023). The gap entails measuring, analyzing and reporting financial information related to business activities that impact the environment through environmental management accounting. This study uses objective indicators in measuring management accounting for better and more accurate measurement of variables using the environmental management accounting formula from Schaltegger, et al (2008) by dividing the economic added value of a business activity by the environmental impact generated by the activity.

This study adopts the measurement of stakeholder value creation from Signori, et al (2021) and Xu, et al (2023), but the limitation in both measurements is that it does not consider all stakeholders in the distribution of wealth such as the community, so this study adds the community in the measurement of stakeholder value creation. The research aims to investigate ESG disclosure in creating stakeholder value, but ESG reporting requires costs that must be incurred now compared to the benefits that will be received in the future, so it is necessary to identify, collect, and analyze information related to environmental costs and performance in an organization through environmental management accounting. The goal is to assist managers in decision-making that supports more sustainable and environmentally friendly business practices. This study tries to answer the following questions: (1) Does ESG disclosure have an impact on creating stakeholder value? (2) Do the level of environmental management accouting of ESG disclosure have an impact on creating stakeholder value? (3) How important is stakeholder value creation for a company?

Material Studied, Area Descriptions, Methods and Techniques

Stakeholder Value Creation Concept

Stakeholder value creation is important for the sustainability of the companies. Theory of Stakeholder states that existence of a companys not only influenced by the needs of not only shareholders but also stakeholders (Freeman, 1984). Freeman (1984) proposed a broader approach

in considering stakeholders in organizational decision making. Stakeholders are individuals or groups that can influence or be influenced by the objectives, decisions and activities of the organization. Organizations are not only responsible to shareholders but also to all parties involved, not only internal parties but also internal including the public can be said to be Stakeholders who are impacted by the organization's operational. Figure 1 shows how companies not only prioritize shareholders, as well as generate value for all stakeholders.

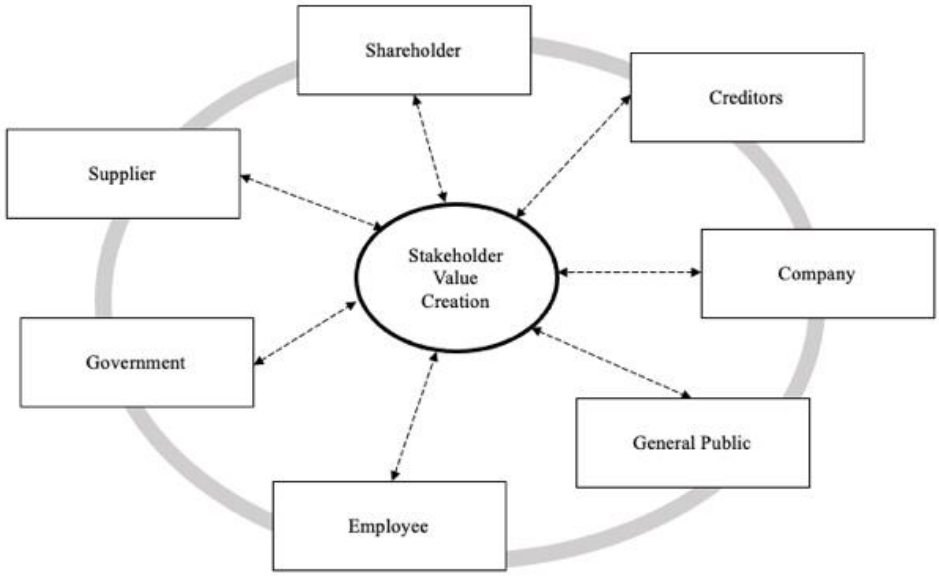


Figure 1. Stakeholder Value Creation Concept

Figure 1 shows that stakeholders include shareholders, suppliers, employees, government, creditors and publics.

ESG disclosure involves the practice of revealing information related to an organization's performance and commitments regarding environmental, social, and corporate governance. Legitimacy theory suggests that organizations strive to uphold or enhance their legitimacy in the perceptions of the public, government, and other stakeholders (Deegan, 2004). One way that companies can build or maintain legitimacy is through Environmental, Social, and Governance (ESG) disclosures. ESG disclosures can help in maintaining legitimacy by communicating information about how companies manage risks and their effect on society and the environment.

Stakeholder theory asserts that a company's existence is shaped not only by the interests of shareholders but also by the interests of other stakeholders (Freeman, 1984). Creating value for stakeholders is crucial for the long-term viability and growth of the company. Stakeholders play various roles in developing measurement initiatives, such as indicators, ratings, and reporting standards, to address sustainability concerns by meeting stakeholders' needs for information through ESG disclosures (Searcy, 2016). ESG disclosures aim to provide relevant information to stakeholders, including investors, employees, consumers, and the general public, to assess and compare the performance along with the social and environmental effects of an organization.

Brogi and Lagasio (2019) found that ESG is regarded as an effective indicator of social responsibility, as ESG is considered evidence of how companies care about their stakeholders, as well as their effect on the environment (Harrison et al, 2020). Beck and Ferasso (2023) stated that stakeholder value creation and sustainability can be a new way to meet stakeholder needs. Several other studies have found that ESG is related to financial performance as a way to measure a company's ability to create stakeholder value Chouaibibi and Chouabibi, 2022; Mohammad and

Wasiuzzaman, 2021; et al., 2018; Arayssi and Jizi, 2019; Cheng et al, 2014; Buallay et al, 2020; Radhouane et al, 2020; Grisales and Caracuel, 2018). Other research found that ESG reporting has an effect on a company's positive image which has an impact on stakeholder value creation (Chouaibi and Chouaibi, 2021; Zhang et al, 2020; Carlos and Guan, 2018).

H1 : ESG disclosure has a positive effect on stakeholder value creation

The company discloses ESG with the aim of being transparent by reporting all company activities, so that the company's purpose to obtain and create value in the eyes of stakeholders is achieved. However, in its implementation, companies need maximum capital, resources and time to get the best results (Cahyandito, 2006). Inard (2023) stated ESG factors prioritize long-term sustainability over short-term profits, but there is a gap between the costs that must be incurred in the short term due to ESG disclosure compared to the uncertainty of future profits, so it is necessary to measure, analyze and report financial information related to business activities that have an effect on the environment.

Environmental management accounting is an accounting practice that deals with the measurement, analysis, and reporting of financial information related to business activities that have an effect on the environment. Environmental management accounting is increasingly recognized as a key aspect of sustainability accounting (Schaltegger et al., 2008) and serves as a vital tool for companies seeking to reduce overall costs or environmental expenses while minimizing the environmental effects of their operations, products, and services. (Hyrslova and Hajek, 2006). The goal of environmental management accounting is to assist management in sustainable and environmentally friendly decisions, and to promote the efficient use of resources. Environmental management accounting can offer companies a framework to reduce costs and enhance performance.

Resource Based View Theory which assumes that the company's practices by relying on company resources such as the company's practices that involve developing a management system so that it is able to direct the company to be sustainable (Barney, 1986). Consistent with the theory, several previous studies have indicated that the current adoption of environmental management also has a positive effect on companies (Ali et al, 2022; Agustia et al., 2022). Chaudhry (2020) found that environmental management accounting acts as a mediator in the relationship between ESG disclosure and company performance. In other words, companies that adopt environmental management accounting will be better equipped to make improved decisions and strategies for enhancing their environmental performance (Chaudhry, 2020; Sutami, 2024; Mahanta et al, 2024; Kweh et al, 2024; Wang, 2024; Alnain, 2023; Daud et al, 2023; Lazzolino et al, 2023; Lu et al, 2023; Del et al, 2022; Ali et al, 2022; Sudha, 2020; Chaudhry, 2020; Broadstock et al, 2019; Meutia et al, 2019).

H2 : Environmental management accounting mediate the impact of ESG disclosure on stakeholder value creation

Material and Methods

Stakeholder value creation recognizes that an organization has a responsibility to pay attention to and meet the interests of all parties involved, not just shareholders. Thus, stakeholder value creation is concerned with all possibilities to create an optimal rate of return that All stakeholders who have committed their interests to an organization seek. Measurement of stakeholder value creation in this study adopts research from Signori, et al (2021) by calculating value creation is the wealth that a company distributes to different stakeholders. Stakeholders include shareholders (including minorities), suppliers, employees, Government, creditors, companies and the public. The measurement of stakeholder value creation in this study combines measurements from Signori, et al (2021) and Xu et al (2023), but the limitations and this study

does not consider all stakeholders in the distribution of wealth such as society, so this study adds society in the measurement of stakeholder value creation. (1) Shareholders (including minorities) in the form of wealth distributed by the company in the form of dividends distributed to shareholders including minorities; (2) Suppliers in the form of wealth distributed by the company in the form of expenses to suppliers; (3) Employees in the form of wealth distributed by the company in the form of salary expenses; (4) The government in the form of wealth distributed by companies in the form of tax burdens; (5) Creditors in the form of wealth distributed by the company in the form of interest expenses; (6) The company in the form of assets kept by the company for future company operations in the form of retained earnings; (7) The community in the form of wealth distributed by the company to the community in the form of expenditure to the community

The measurement of Signori, et al (2021) calculates the creation of stakeholder value by adding up all the wealth distributed by the company to each stakeholder of the company, so it is considered to be less reflective of the value of the distribution of stakeholders, so this study uses measurements from Xu, et al (2023) to obtain the value of stakeholder value creation from each stakeholder indicator.

Indicators of stakeholder value creation measurement are carried out in three steps, namely:

1) First, it is carried out using the entropy weight method is used to determine the weight of stakeholder indicators, namely shareholders, suppliers, employees, government, creditors, companies and the community. The entropy weighting method is used in the concept of creating shared value (CSV) as a strategic business approach, Where companies generate economic value while simultaneously creating value for society. The entropy weighting method is often used in multi-criteria decision-making (MCDM) to determine the weight of the criteria based on the variability of the data. This method can be applied in a variety of contexts, including to measure the added value generated by the Creating Shared Value (CSV) initiative. The calculation with the entropy method is carried out in several stages as follows (Zhu et al, 2020):
   a) Data Normalization
      The data that has been recapitulated is then normalized. Data normalization is necessary so that all indicators have a comparable scale. Data normalization is carried out using the following formula:

$$d^k{}_i = \frac{x^k{}_i}{x^k{}_{i_{max}}} d_i = d^1{}_i, \dots, d^m{}_i \quad \text{.....} (1)$$

$$D_i = \sum_{k=1}^{m} d^k{}_i \quad i = 1,2,\dots,n \quad \text{.....} (2)$$

      Information:
      DKI = normalized data value
      EXPORT = value of data that has not been normalized
      DKI Max = the value of the unnormalized data that has the highest value
      At = the sum of the normalized data values
      m = number of alternatives

   b) Calculation of the Entropy Method

The decision-making method is by calculating Entropy from data that has previously been collected and normalized. For each criterion, the entropy calculation is carried out with the following equations:

$$e_{max} = \ln m \quad \text{..... (3)}$$

$$K = \frac{1}{e_{max}} \quad \text{..... (4)}$$

$$e(d_i) = -K \sum_{k=1}^{m} \frac{d^k{}_i}{D_i} \ln\left(\frac{d^k{}_i}{D_i}\right), \; K > 0 \quad \text{.....(5)}$$

Information:
emax = Entropy maximum
K = constant Entropy
E(di) = Entropy for each attribute / criterion i

c) Determining Weights for Each Criterion
The weights for each criterion are calculated by the following formula:

$$w_i = \frac{1 - E_i}{\sum_{i=1}^{m} (1 - E_i)} \quad \text{..... (6)}$$

Information:
Free wi = weights for each criterion
Ei = Entropy for each attribute / criterion i

The determination of weights for each of these criteria is carried out to provide a value to each criterion (Zhu, et al 2020). The higher the weight value of each criterion, the higher the value creation for each stakeholder.

2) Second, it is carried out by taking the mean value of the calculated results for each indicator of measuring the value creation of stakeholders consisting of shareholders, suppliers, employees, government, creditors, companies and the community.
3) Finally, the value of stakeholder value creation is calculated with the results shown below.
SVC = 0.1428705.Y1 + 0.1428657.Y2 + 0.1428521.Y3 + 0.1428799.Y4 - 0.1428503.Y5 + 0.142846.Y6 + 0.1428649.Y7 ..... (7)
Information:
SVC = Stakeholder Value Creation
Y1 = Shareholders
Y2 = Supplier
Y3 = Employee
Y4 = Government
Y5 = Creditors
Y6 = Company
Y7 = Community

ESG disclosure measurement utilizes the ESG Score provided by Refinitiv Rating Agency. Refinitiv boasts one of the industry's most extensive ESG databases, encompassing over 85% of global market capitalization and more than 630 distinct ESG metrics, with data available since 2002. The Refinitiv ESG score ranges from 0 to 1, with a score closer to 1 indicating a better performance by the company.

Environmental management accounting is an accounting practice that deals with the measurement, analysis, and reporting of financial information related to business activities that

have an effect on the environment. By optimizing environmental management accounting, companies can achieve business goals while still paying attention to environmental sustainability (Schaltegger et al., 2008). Environmental management accounting in this study use eco-efficiency formula can be calculated by dividing the economic added value of a business activity by the environmental impact produced by the activity. Here is the eco-efficiency formula (Schaltegger et al., 2008):

$$\text{Eco} - \text{efficiency} = \frac{\text{Product Added Value}}{\text{Environmental Impact}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Information:

Product added value = Net sales of products (net sales) in Rupiah

Environmental Impact = Energy use, raw material use, waste and use electricity in tCO2eq

The following is how to calculate the conversion of the use of raw materials, waste and electricity into CO2:

CO2 conversion = total material consumption x factor .... (2)

CO2 cost = total CO2 conversion x CO2 price per ton .... (3)

Information:

The price of CO2 per ton is based on mean market price of the world's carbon emissions.

The higher the environmental management accounting value, the better which means more economic value is generated with less environmental impact. Environmental management accounting value is getting higher means that a process, company, or economic activity becomes more efficient in relation to the use of natural resources and energy, while reducing adverse effects on the environment.

Results And Discussion

Statistical Descriptive Analysis

Table 1 below shows the results of descriptive statistical tests.

Table 1: Results of Descriptive Statistical Analysis

Variable	Mean	Std. Deviation	Min	Max
ESG	47	16	20	94
Eco-Efficiency	39	08	18	78
Stakeholders Value Creation	24	13	00	79

Source: data processed by researcher

Information:

ESG: shows the score of the Refinitv Rating Agency; Eco-efficiency denotes environmental management accounting; stakeholder denotes the creation of company value to stakeholders.

Multiple Regression Analysis and Path Analysis

The following is a summary of the results of the regression test of the independent variable on mediation and the results of the regression test of the mediation variable on the dependent variable.

Table 2: Summary of Regression Test Results Between Variables X, M and Y

Variable	Coef.	Std. Error	p-value	Information
X → Y	0,0422588	0,0295642	0,153	Insignificant
X → M	0,3262864	0,0100753	0,000	Significant
M → Y	0,4894978	0,0533938	0,000	Significant

Source: data processed by researcher

Information: Y: the creation of corporate value to stakeholders; X: ESG disclosure; M: environmental management accounting.
Mediation testing was conducted using the Sobel test. The Sobel test in this study used the Sobel test calculator from quantpsy.org. The results of the Sobel test between ESG disclosure (X1) and stakeholder value creation (Y) through environmental management accounting (Z) are presented in Table 3 as follows:

Table 3. Output results of sobel test between X1, X2 against Y through M

Variable	Coef.	Std. Error	p-value	Information
$X \rightarrow M \rightarrow Y$	8,82105064	0,01810629	0	Significant

Source: data processed by researcher
Information: Y: the creation of corporate value to stakeholders; X: ESG; M: environmental management accounting.

Table 3 found ESG disclosure (X1) on the creation of stakeholder value (Y) through environmental management accounting (M) shows a Sobel test value (z-value) of 8.82105064 > 1.96 or a p-value of 0 < 0.05 which means that there is an ESG disclosure that influences the creation of stakeholder value through environmental management accounting.

Discussion

Table 2 presents the hypothesis testing results, which do not support the first hypothesis (H1). The findings found that ESG does not have a direct impact on stakeholder value creation. This finding contradicts the theory of legitimacy which explains that organizations seek to maintain or increase Their legitimacy in the view of the public, the government, and various stakeholders (Deegan, 2004). Furthermore, the findings of this study challenge the stakeholder theory, which suggests that a company's existence is influenced not only by shareholder interests but also by the interests of other stakeholders (Freeman, 1984).

Companies conduct ESG disclosures with the aim of providing evidence that the company is paying attention to their stakeholders, as well as its impact on the environment (Harrison *et al,* 2020). However, the results of the study using stakeholder value creation measurements from Xu *et al* (2023) found that ESG disclosure is not necessarily able to directly affect stakeholder value creation. ESG disclosure cannot affect stakeholder value creation because many companies may adopt ESG principles as part of corporate social responsibility, but their implementation is not in-depth or strategic enough. This can be seen from the average value of ESG score based on Refinitiv Rating Agency is 0.47, which means that the average non-financial company in Indonesia shows a reasonably satisfactory ESG performance with a moderate degree of transparency in disclosing relevant ESG data to the public. In addition, based on Table 5.2, the results of the descriptive statistical test show that the minimum value of the ESG variable is 0.20, meaning that out of all ESG score values, non-financial companies in Indonesia have the lowest ESG score of 0.20 based on the Refinitiv Rating Agency. In other words, there are still non-financial companies in Indonesia demonstrate relatively poor ESG performance, with an insufficient level of transparency in reporting essential ESG data to the public. Consistent with the research by Harymawan et al. (2019), it was found that sustainability disclosure in Indonesia is generally low, though it varies across different proxies each year. For companies in Indonesia, ESG is only carried out as a formality or simply complying with regulations, so it does not have a significant impact on stakeholder value creation. This can be seen in the sustainability report reporting standards which

do not have specific guidelines according to conditions in Indonesia, considering that the *sustainability report* reporting standards use the GRI Standard.

The results of this study also prove that in fact, some companies in Indonesia are currently more focused on short-term profits, while the impact of ESG is often only seen in the long term. This can hinder full involvement in ESG practices, resulting in limited contribution to stakeholder value creation. Cahyandito (2006) stated that in the implementation of ESG disclosure, companies need more capital, resources and time. Inard (2023) also stated that ESG prioritizes Long-term sustainability takes precedence over short-term profitability, creating a gap between the immediate costs incurred and the uncertainty of future returns.

In some cases, stakeholders are not fully aware of the benefits of ESG initiatives or are not involved in ESG-related decision-making processes. This can result in a lack of recognition or appreciation for ESG efforts, so that value for stakeholders is not created optimally. The study's findings align with this, revealing that the majority of non-financial companies listed on the IDX from 2018 to 2020, based on Refinitiv ratings, demonstrated relatively satisfactory ESG performance and a moderate level of transparency in reporting key ESG data to the public. Specifically, 443 companies, or 61.19%, fell into this category. Additionally, 190 companies (26.24%) exhibited relatively good ESG performance and above-average transparency in their ESG reporting, while 46 companies (6.35%) displayed excellent ESG performance and high transparency. On the other hand, 45 companies (6.22%) showed relatively poor ESG performance and insufficient transparency in disclosing material ESG data.

The findings of this study contradict previous research, such as that of Brogi and Lagasio (2019), who argued that ESG serves as a strong indicator of social responsibility, reflecting how companies care for stakeholders and their environmental impact (Harrison et al., 2020). Beck and Ferasso (2023) suggested that creating stakeholder value and focusing on sustainability could be a new approach to meeting stakeholder needs. Several other studies have shown a link between ESG and financial performance, using it as a measure of a company's ability to generate stakeholder value (Chouabibi and Chouabibi, 2022; Wan et al., 2021; Et al., 2018; Arayssi and Jizi, 2019; Cheng et al., 2014; Buallay et al., 2020; Radhouane et al., 2020; Grisales and Caracuel, 2018). Additional research has found that ESG reporting positively influences a company’s image, which in turn impacts stakeholder value creation (Chouaibi and Chouaibi, 2021; Zhang et al., 2020; Noronha et al., 2018).

The findings of this study align with Adesanmi (2022), who stated that while the practice of disclosing environmental information has been widely studied, it does not significantly impact stakeholder value specifically. Similarly, Cheng et al. (2014) found that ESG disclosure does not influence stakeholder value creation.

The second hypothesis (H2) in this study posits that environmental management accounting mediates the relationship between ESG and stakeholder value creation. The results of the hypothesis test indicate that H2 is supported, meaning that ESG influences stakeholder value creation through eco-efficiency. The positive coefficient suggests that enhanced ESG disclosure and eco-efficiency will further boost stakeholder value creation. These findings align with the Resource-Based View Theory, which suggests that company practices relying on internal resources, such as developing management systems, can steer the company toward sustainability (Barney, 1986). Companies disclose ESG information to ensure transparency and report all activities, ultimately aiming to create value in the eyes of stakeholders. However, to achieve the best outcomes, companies require significant capital, resources, and time (Cahyandito, 2006). Inard (2023) noted that ESG factors prioritize long-term sustainability over short-term profits, but a gap exists between the short-term costs of ESG disclosure and the uncertainty of future profits.

As a result, it is essential to measure, analyze, and report financial information related to business activities impacting the environment.

Environmental management accounting is a practice that focuses on measuring, analyzing, and reporting financial data related to business activities that affect the environment. It has become a crucial component of sustainability accounting (Schaltegger et al., 2008) and is a key tool for companies aiming to reduce overall environmental costs and lessen the environmental impact of their operations, products, and services (Hyrslova and Hajek, 2006). The goal of environmental management accounting is to support management in making sustainable, eco-friendly decisions while promoting efficient resource use. It also helps companies minimize costs and enhance performance.

Consistent with the theory, several previous studies have highlighted that the current implementation of environmental management has a positive impact on companies (Ali et al., 2022; Agustia et al., 2022). Chaudhry (2020) found that environmental management accounting acts as a mediator in the relationship between innovation and company performance. In other words, companies that adopt environmental management accounting can make better decisions and strategies to enhance their environmental performance (Chaudhry, 2020). The findings of this study also align with several previous studies, which indicate that companies implementing environmental management accounting are better equipped to make improved decisions and strategies in managing their environmental performance (Sutami, 2024; Mahanta et al., 2024; Kweh et al., 2024; Wang, 2024; Alnain, 2023; Daud et al., 2023; Lazzolino et al., 2023; Lu et al., 2023; Del et al., 2022; Ali et al., 2022; Sudha, 2020; Chaudhry, 2020; Broadstock et al., 2019; Meutia et al., 2019).

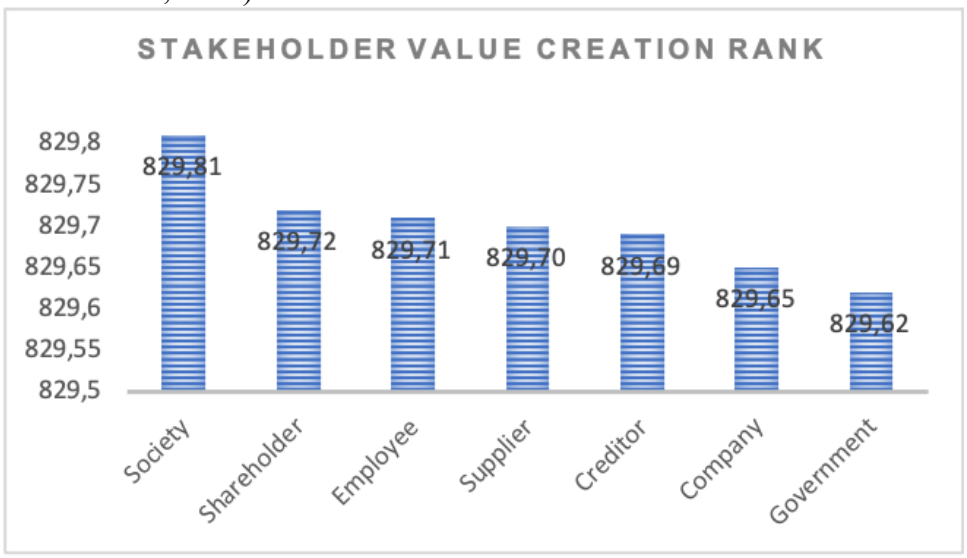


Figure 1: Stakeholder Value Creation Rank

Based on Figure 2, it can be seen that based on the calculation of entropy weights for each stakeholder criteria, the results of the order of the company's level of interest in stakeholders are: (1) society; (2) shareholders; (3) employees; (4) suppliers; (5) creditors; (6) companies; (7) Government. This indicates that non-financial companies listed on the IDX for the 2018-2020 period have now begun to shift from shareholders to other stakeholders, in other words, they are no longer only concerned with shareholders but also other stakeholders. Companies currently tend to create value or distribute their wealth for the benefit of society, then shareholders, employees, suppliers, creditors, and finally the Government.

Conclusion

This research outlines the problem of stakeholder value creation that is influenced by ESG disclosure. The test results show that first, companies that disclose ESG are not able to directly improve stakeholder value creation. Second, the test results show that the higher the ESG disclosure accompanied by the more consistent use of environmental management accounting, the more it will increase the creation of stakeholder value. This provides empirical evidence that ESG disclosure requires the use of environmental management accounting to enhance stakeholder value creation. The findings of the study provide empirical evidence that implementing green innovation necessitates the application of environmental management accounting to boost stakeholder value creation.

The results of this study also found that based on the calculation of the weight of entropy in each stakeholder criterion, the results of the order of the level of the company's interest in the stakeholders were obtained, namely: (1) the community; (2) shareholders; (3) employees; (4) suppliers; (5) creditors; (6) companies; (7) Government. This indicates that non-financial companies listed on the IDX for the 2018-2020 period have now begun to shift from shareholders to other stakeholders, in other words, no longer only concerned with shareholders but also other stakeholders. Companies today are more likely to create value or distribute their wealth for the benefit of the community, then shareholders, employees, suppliers, creditors, and finally the Government.

The findings of this study challenge the legitimacy theory and stakeholder theory. ESG disclosure and green innovation are intended to demonstrate the company's commitment to stakeholders and its environmental impact. However, in practice, Indonesian companies tend to prioritize short-term profits, while ESG and green innovation disclosures are focused on long-term benefits rather than immediate gains.

The findings of this study demonstrate that environmental management accounting is a crucial component of sustainability accounting, particularly in ESG disclosure for companies. It serves as an essential tool for companies aiming to reduce environmental costs and minimize the environmental impact of their operations, products, and services (Hyrslova and Hajek, 2006). Companies engage in ESG disclosures to show that they are attentive to their stakeholders and their environmental impact (Harrison et al., 2020). However, in practice, implementing these disclosures requires significant capital, resources, and time, leading to a gap between the costs incurred and the benefits gained. This gap highlights the need for measuring, analyzing, and reporting financial information related to business activities that affect the environment.

The findings of this study are also empirical evidence that confirms the theory *Resource Based View* who think that the company's practice by relying on company resources such as the company's practice that involves developing a management system so that it is able to direct the company to be sustainable (Barney, 1986). Companies that disclose ESG need further stages of research and development so that its implementation can run effectively and efficiently (Cahyandito, 2006). These stages require maximum capital, resources and time to get the best results. Environmental management accounting as one way to assist management in making sustainable and environmentally friendly decisions, and to promote the efficient use of resources. Environmental management accounting can provide an overview for companies to minimize costs and improve performance that impacts stakeholder value creation.

In practical terms, the findings of this study are a reference for company management that environmental management accounting is important to apply and become a guideline in ESG disclosure. Environmental management accounting is one way to assist management in making sustainable and environmentally friendly decisions, and to promote the efficient use of resources.

Environmental management accounting can provide an overview for companies to minimize costs and improve performance that impacts stakeholder value creation.

This research is limited to content analysis research. The process of coding, categorizing, and interpreting data in content analysis involves some degree of subjectivity. So that for further research, it can be combined with other research techniques to get a more comprehensive understanding of complex phenomena.

The results of this study are useful for management of the importance of applying environmental management accounting as a key element of sustainability, where companies must operate more efficiently in the use of natural resources To reduce negative environmental impacts and maximize social benefits, thereby ensuring long-term advantages for stakeholders, it is recommended that company management adopt environmental management accounting. This approach should serve as a guide for internal decision-making concerning social and environmental activities. By disclosing ESG information, companies can enhance stakeholder value creation, highlighting the significance of ESG disclosure in the process.

The results of this study also show that ESG disclosure will not be effective in creating stakeholder value if it is not accompanied by an increase in environmental management accounting. Therefore, the Government can design new regulations that require companies to provide more comprehensive and measurable ESG disclosures, including in environmental management accounting performance reporting as part of the company's sustainability report.

References

Adesanmi, T. (2022). Environmental Accounting Practices and Stakeholder Value of Selected Listed Companies in Nigeria. *The International Journal of Business & Management*, *10*(8). https://doi.org/10.24940/theijbm/2022/v10/i8/BM2208-008

Agustia, D., Sawarjuwono, T., & Dianawati, W. (2019). The mediating effect of environmental management accounting on green innovation: firm value relationship. International Journal of Energy Economics and Policy, 9(2), 299-306. https://doi.org/10.32479/ijeep.7438

Ali, Q., Salman, A., & Parveen, S. (2022). Evaluating the effects of environmental management practices on environmental and financial performance of firms in Malaysia: the mediating role of ESG disclosure. Heliyon, 8(12). https://doi.org/10.1016/j.heliyon.2022.e12486

Ar, I. M. (2012). The impact of green product innovation on firm performance and competitive capability: the moderating role of managerial environmental concern. Procedia-Social and Behavioral Sciences, 62, 854-864. 10.1016/j.sbspro.2012.09.144

Arayssi, M., & Jizi, M. I. (2019). Does corporate governance spillover firm performance? A study of valuation of MENA companies. Social Responsibility Journal, 15(5), 597-620. https://doi.org/10.1108/SRJ-06-2018-0157

Bapuji, H., Husted, B. W., Lu, J., & Mir, R. (2018). Value creation, appropriation, and distribution: How firms contribute to societal economic inequality. Business & Society, 57(6), 983-1009. https://doi.org/10.1177/00076503187583

Barney, J. B. (1986). Strategic factor markets: Expectations, luck, and business strategy. *Management science*, *32*(10), 1231-1241. https://doi.org/10.1287/mnsc.32.10.1231

Beck, D., & Ferasso, M. (2023). How can stakeholder capitalism contribute to achieving the Sustainable Development Goals? A Cross-network literature analysis. *Ecological Economics*, *204*, 107673. https://doi.org/10.1016/j.ecolecon.2022.107673.

Beck, D., & Ferasso, M. (2023). Bridging 'stakeholder value creation'and 'urban sustainability': the need for better integrating the environmental dimension. *Sustainable Cities and Society*, *89*, 104316. https://doi.org/10.1016/j.scs.2022.104316

Brogi, M., & Lagasio, V. (2019). Environmental, social, and governance and company profitability: Are financial intermediaries different?. Corporate Social Responsibility and Environmental Management, 26(3), 576-587. https://doi.org/10.1002/csr.1704

Buallay, A. (2020). Sustainability reporting and firm's performance: Comparative study between manufacturing and banking sectors. International Journal of Productivity and Performance Management, 69(3), 431-445. https://doi.org/10.1108/IJPPM-10-2018-0371

Ebinger, F., Cahyandito, M. F., von Detten, R., & Schlüter, A. (2006). Just a paper tiger? Exploration of sustainability reporting as a corporate communication instrument. In *Sustainability Accounting and Reporting* (pp. 511-531). Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-1-4020-4974-3_23

Carlos Noronha, C., & Guan, J. (2018). Introducing Social Contribution Value Per Share (Scvps) as a Measurement of CSR Performance. 10.2139/ssrn.3342396

Chaudhry, N. I., Asad, H., & Hussain, R. I. (2020). Environmental innovation and financial performance: Mediating role of environmental management accounting and firm's environmental strategy. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, *14*(3), 715-737. https://hdl.handle.net/10419/224961

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic management journal*, *35*(1), 1-23. https://doi.org/10.1002/smj.2131

Chong, L. L., Ong, H. B., & Tan, S. H. (2018). Corporate risk-taking and performance in Malaysia: the effect of board composition, political connections and sustainability practices. *Corporate Governance: The international journal of business in society*, *18*(4), 635-654. https://doi.org/10.1108/CG-05-2017-0095

Chouaibi, S., & Chouaibi, J. (2021). Social and ethical practices and firm value: the moderating effect of green innovation: evidence from international ESG data. *International Journal of Ethics and Systems*, *37*(3), 442-465. https://doi.org/10.1108/IJOES-12-2020-0203

Chouaibi, S., Chouaibi, J., & Rossi, M. (2022). ESG and corporate financial performance: the mediating role of green innovation: UK common law versus Germany civil law. *EuroMed Journal of Business*, *17*(1), 46-71. https://doi.org/10.1108/EMJB-09-2020-0101

Deegan, C. 2004. Financial Accounting Theory. Sydney: McGraw-Hill.

Freeman, R.E. 1984. Strategic Management a Stakeholder Approach. Massachusetts: Pitman Publishing Inc.

Freeman, R.E. 1984. Strategic Management a Stakeholder Approach. Massachusetts: Pitman Publishing Inc.

Edward Freeman, R. (2010). Managing for stakeholders: Trade-offs or value creation. Journal of business ethics, 96(Suppl 1), 7-9. https://doi.org/10.1007/s10551-011-0935-5

Duque-Grisales, E., & Aguilera-Caracuel, J. (2021). Environmental, social and governance (ESG) scores and financial performance of multilatinas: Moderating effects of geographic international diversification and financial slack. *Journal of Business Ethics*, *168*(2), 315-334. https://doi.org/10.1007/s10551-019-04177-w

Harrison, J. S., Phillips, R. A., & Freeman, R. E. (2020). On the 2019 business roundtable "statement on the purpose of a corporation". *Journal of Management*, *46*(7), 1223-1237. https://doi.org/10.1177/0149206319892669

Harymawan, I., Putra, F. K. G., Agni, T. D. K., & Kamarudin, K. A. (2020). Sustainability report practices in Indonesia: Context, policy, and readability. *International Journal of Energy Economics and Policy*, *10*(3), 438-443. https://doi.org/10.32479/ijeep.8979

Hyršlová, J., & Hájek, M. (2006). Environmental management accounting in Czech companies that have implemented environmental management systems. In *Sustainability accounting and*

reporting (pp. 433-456). Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-1-4020-4974-3_19

Inard, L. (2023). Cash flow valuation and ESG. In *Valuation and Sustainability: A Guide to Include Environmental, Social, and Governance Data in Business Valuation* (pp. 99-128). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-031-30533-7_4

Mohammad, W. M. W., & Wasiuzzaman, S. (2021). Environmental, Social and Governance (ESG) disclosure, competitive advantage and performance of firms in Malaysia. *Cleaner Environmental Systems*, *2*, 100015. https://doi.org/10.1016/j.cesys.2021.100015

Radhouane, I., Nekhili, M., Nagati, H., & Paché, G. (2020). Is voluntary external assurance relevant for the valuation of environmental reporting by firms in environmentally sensitive industries?. *Sustainability Accounting, Management and Policy Journal*, *11*(1), 65-98. https://doi.org/10.1108/SAMPJ-06-2018-0158

Schaltegger, S., Bennett, M., Burritt, R. L., & Jasch, C. (2008). *Environmental management accounting (EMA) as a support for cleaner production* (pp. 3-26). Springer Netherlands. https://doi.org/10.1007/978-1-4020-8913-8_1

Signori, S., San-Jose, L., Retolaza, J. L., & Rusconi, G. (2021). Stakeholder value creation: Comparing ESG and value added in European companies. *Sustainability*, *13*(3), 1392. https://doi.org/10.3390/su13031392

Xu, W., Li, M., & Xu, S. (2023). Unveiling the "Veil" of information disclosure: Sustainability reporting "greenwashing" and "shared value". *PloS one*, *18*(1), e0279904. https://doi.org/10.1371/journal.pone.0279904

Zhang, F., Qin, X., & Liu, L. (2020). The interaction effect between ESG and green innovation and its impact on firm value from the perspective of information disclosure. *Sustainability*, *12*(5), 1866. https://doi.org/10.3390/su12051866

Zhu, Y., Tian, D., & Yan, F. (2020). Effectiveness of entropy weight method in decision-making. *Mathematical Problems in Engineering*, *2020*(1), 3564835. https://doi.org/10.1155/2020/3564835

Appendix

```
. regress stakeholdervalue esg inovasi ecoefi
```

Source	SS	df	MS		
				Number of obs	= 830
				F(3, 826)	= 90.46
Model	3.67547964	3	1.22515988	Prob > F	= 0.0000
Residual	11.1874096	826	.013544079	R-squared	= 0.5473
				Adj R-squared	= 0.5446
Total	14.8628892	829	.017928696	Root MSE	= .11638

stakeholde~e	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
esg	-.4320579	.0387004	-11.16	0.000	-.5080207	-.3560951
inovasi	-.47739	.0399982	-11.94	0.000	-.5559	-.39888
ecoefi	1.453682	.0886884	16.39	0.000	1.279601	1.627763
_cons	.0417326	.0198364	2.10	0.036	.002797	.0806683

Calculation for the Sobel Test

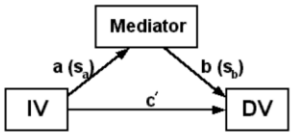
quantpsy.org

An interactive calculation tool for mediation tests

- Curriculum vitae
- Selected publications
- Supplemental material for publications
- Online utilities
- Mediation & moderation material
- PSY-GS-8879 / PSY-PC-3743: Factor Analysis
- PSY-GS-8882: Multilevel Modeling
- Vanderbilt Psychological Sciences
- Vanderbilt Quantitative Methods
- Organizations
- Friends and colleagues
- Contact me

An illustration of mediation

a, *b*, and *c′* are path coefficients. Values in parentheses are standard errors of those path coefficients.



Description of numbers needed

a = raw (unstandardized) regression coefficient for the association between IV and mediator.
s_a = standard error of *a*.
b = raw coefficient for the association between the mediator and the DV (when the IV is also a predictor of the DV).
s_b = standard error of *b*.

To get numbers

1. Run a regression analysis with the IV predicting the mediator. This will give *a* and s_a.
2. Run a regression analysis with the IV and mediator predicting the DV. This will give *b* and s_b. Note that s_a and s_b should never be negative.

To conduct the Sobel test

Details can be found in Baron and Kenny (1986), Sobel (1982), Goodman (1960), and MacKinnon, Warsi, and Dwyer (1995). Insert the *a*, *b*, s_a, and s_b into the cells below and this program will calculate the critical ratio as a test of whether the indirect effect of the IV on the DV via the mediator is significantly different from zero.

	Input:		Test statistic:	Std. Error:	*p*-value:
a	0.3262864	Sobel test:	8.82105064	0.01810629	0
b	0.4894978	Aroian test:	8.81715981	0.01811428	0
s_a	0.0100753	Goodman test:	8.82494662	0.01809829	0
s_b	0.0533938	Reset all	Calculate		

Calculation for the Sobel Test

quantpsy.org

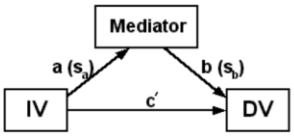
An interactive calculation tool for mediation tests

- Curriculum vitae
- Selected publications
- Supplemental material for publications
- Online utilities
- Mediation & moderation material
- PSY-GS-8879 / PSY-PC-3743: Factor Analysis
- PSY-GS-8882: Multilevel Modeling
- Vanderbilt Psychological Sciences
- Vanderbilt Quantitative Methods
- Organizations
- Friends and colleagues
- Contact me

Â© 2010-2024,
Kristopher J. Preacher

An illustration of mediation

a, *b*, and *c′* are path coefficients. Values in parentheses are standard errors of those path coefficients.



Description of numbers needed

a = raw (unstandardized) regression coefficient for the association between IV and mediator.
s_a = standard error of *a*.
b = raw coefficient for the association between the mediator and the DV (when the IV is also a predictor of the DV).
s_b = standard error of *b*.

To get numbers

1. Run a regression analysis with the IV predicting the mediator. This will give *a* and s_a.
2. Run a regression analysis with the IV and mediator predicting the DV. This will give *b* and s_b. Note that s_a and s_b should never be negative.

To conduct the Sobel test

Details can be found in Baron and Kenny (1986), Sobel (1982), Goodman (1960), and MacKinnon, Warsi, and Dwyer (1995). Insert the *a*, *b*, s_a, and s_b into the cells below and this program will calculate the critical ratio as a test of whether the indirect effect of the IV on the DV via the mediator is significantly different from zero.

	Input:		Test statistic:	Std. Error:	*p*-value:
a	0.3314721	Sobel test:	8.79516418	0.01844819	0
b	0.4894978	Aroian test:	8.79100126	0.01845693	0
s_a	0.0106343	Goodman test:	8.79933301	0.01843945	0
s_b	0.0533938	Reset all	Calculate		