



Implementation of Green Accounting and Risk Management Disclosure on Firm Value

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ABSTRACT

Published Online: September 01, 2025

Firm value is a crucial aspect that must be maintained and continuously enhanced by companies. Firm value itself can be influenced by several factors, including the implementation of green accounting and risk management disclosure. This study aims to examine how the implementation of green accounting and the disclosure of risk management contribute to firm value. The research focuses on financial sector companies listed on the Indonesia Stock Exchange (IDX) in 2023. Data analysis was conducted using the Generalized Additive Model (GAM) through R Studio. The results indicate that the implementation of green accounting and the disclosure of risk management do not have a significant effect on firm value.

KEYWORDS:

Green Accounting, Risk Management, Firm Value

I. INTRODUCTION

The primary objective of a company is generally to maximize profits, ensure shareholder prosperity, and enhance firm value so that the company can continue to grow [1]. Firm value is an important indicator for assessing the performance and prospects of a business entity in the eyes of investors, creditors, and other stakeholders. It reflects market perceptions of a company's ability to generate long-term profits and sustain its operations. Firm value can be observed through its stock price. A high firm value is desired by shareholders because it represents shareholder prosperity [2].

Shareholders need to understand the condition of the company to assess the extent to which their investments can generate returns. When investing, investors pay close attention to the firm's value and carefully consider various aspects to minimize the risk of loss. To avoid harming stakeholders and surrounding communities, companies should not only focus on profits but also take other aspects into account [3]. This aligns with the triple bottom line

concept introduced by [4], which emphasizes profit, planet, and people. Accordingly, companies are expected not only to be profit-oriented but also to pay attention to environmental sustainability and the welfare of surrounding communities.

One way companies can contribute to environmental preservation is by implementing green accounting in their operations. Green accounting is a systematic approach to identifying, measuring, recognizing, recording, summarizing, and disclosing information related to financial, social, and environmental aspects in a comprehensive, integrated, and relevant manner. This provides support for decision-making and both economic and non-economic management [5]. The implementation of green accounting can help companies address environmental and social issues by collecting, classifying, and accumulating data that is presented in financial and environmental reports. Integrating environmental costs and benefits into business considerations can ultimately influence firm value [3].

In addition to green accounting, another factor that influences firm value is risk management disclosure. Over the past decades, the perception of risk management has shifted from being viewed merely as insurance coverage or regulatory compliance to a more comprehensive perspective. Greater attention to risk management emerged due to issues such as economic instability, environmental vulnerabilities, and rapid technological advancements [6]. Today, risk management is regarded as a holistic approach that plays a crucial role in ensuring managerial effectiveness and creating value for the company [7]. Risk management disclosure

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**Cite this Article: Norlena, Rahma Yuliani, Atma Hayat, Ade Adriani, Pusvita Indria Mei Susilowati, Muhammad Zaini Na'im, Muhammad Miftah Farid (2025). Implementation of Green Accounting and Risk Management Disclosure on Firm Value. International Journal of Social Science and Education Research Studies, 5(9), 860-865*

should not only focus on the quantity of information presented but also on its quality. Transparent and high-quality disclosure reduces information asymmetry between management and stakeholders, thereby enhancing trust and ultimately increasing firm value [7].

This study addresses these issues by examining the role of green accounting disclosure and risk management disclosure in influencing firm value among financial sector companies listed on the Indonesia Stock Exchange (IDX) in 2023. The financial sector is expected to pay attention to sustainability aspects, both environmental and social, given its strategic role in various economic activities. At the same time, this sector faces several inherent risks in normal business operations, such as credit, market, operational, and compliance risks [8]. The effectiveness of implementing green accounting and risk management, accompanied by transparent disclosure, may strengthen public trust and market perceptions of companies. Therefore, it is essential to examine how green accounting disclosure and risk management disclosure contribute to firm value, particularly in the financial sector.

II. LITERATURE REVIEW

A. Theoretical Review

a) Stakeholder Theory

Stakeholder theory, as introduced by Freeman (1984), explains to whom and to which parties a company has responsibilities. This theory emphasizes that corporate operations should not merely focus on achieving organizational goals but also consider the interests of stakeholders and strive to provide benefits to all parties involved or affected by the company's activities [10]. Stakeholders possess the capacity to influence the utilization of economic resources employed by the company. Therefore, companies are required to meet stakeholder expectations and interests. Moreover, stakeholders have the right to transparent information regarding corporate activities, as such information can directly affect their position and decision-making processes [11]. Based on stakeholder theory, companies are accountable not only to shareholders but also to all stakeholders involved in or affected by business activities. Hence, stakeholder satisfaction and trust are highly important because they help create a positive reputation, enhance loyalty, and strengthen long-term relationships. Ultimately, this condition contributes to improved performance and corporate image, as reflected in the increase of firm value in the eyes of investors and the market.

b) Firm Value

Firm value is one of the key indicators considered by investors in evaluating corporate performance [12]. On the other hand, the primary goal of a company is to enhance stakeholder welfare, particularly that of the owners. One approach to achieving this objective is by increasing firm value. Firm value can be defined as the price potential buyers or prospective investors are willing to pay to invest in a

company [13]. The higher the value, the more attractive the company becomes to investors, as it signals strong prospective performance. Furthermore, since investors tend to avoid risk, they will generally prefer investing in companies with higher firm value [14]. Therefore, management should prioritize firm value as the main objective, as it ultimately improves stakeholder welfare. In this study, firm value is measured using the Price to Book Value (PBV). PBV describes the relationship between stock price and book value per share. This ratio is applied because the book value of a stock should be reflected in its market value [15].

c) Green Accounting

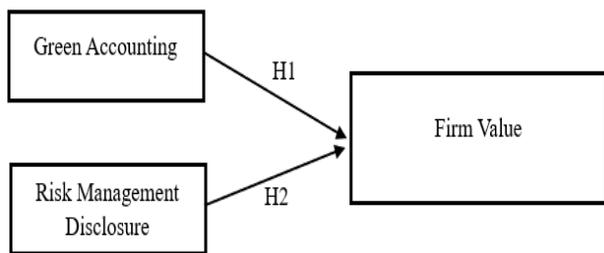
Environmental accounting refers to an accounting process that involves identifying, measuring, and allocating costs associated with environmental aspects. These costs are then integrated into corporate decision-making processes and communicated transparently to stakeholders [16]. Companies that demonstrate concern and commitment to effective environmental management have the potential to improve operational efficiency and strengthen their public image, which in turn positively contributes to firm value [17]. Green accounting can be measured through environmental costs incurred by the company, specifically by comparing corporate social responsibility (CSR) expenditures with net profit after tax [18].

d) Risk Management Disclosure

Risk arises due to conditions of uncertainty [19]. To address these risks, companies need tools for managing them. Enterprise Risk Management (ERM) is a process involving all parties within the company to identify potential events that may affect the firm, and subsequently control those risks, thereby providing assurance in achieving corporate objectives [20]. Risk management also plays a role in identifying opportunities that enable the efficient allocation of resources and improved profitability. Additionally, effective risk management can help reduce the likelihood of fraud. For this reason, information regarding risk management should be disclosed transparently to stakeholders through corporate financial reports. In this study, risk management disclosure is measured using the Enterprise Risk Management Index developed by COSO, which is calculated as the ratio of total disclosed items to the total items that should be disclosed [21].

B. Conceptual Framework

The conceptual framework of this study illustrates the relationship between the independent variables (Green Accounting and Risk Management Disclosure) and the dependent variable (Firm Value):



C. Hypothesis Development

Companies that actively demonstrate concern for environmental management and adopt green innovations are not only able to reduce production waste and increase productivity but also have opportunities to set higher prices for environmentally friendly products. This contributes to greater operational efficiency and strengthens the company’s image. This finding is consistent with studies by Faranika & Illahi (2023) and Aziz & Kholmi (2024), which show that green accounting disclosure has a positive and significant effect on firm value. On the other hand, research conducted by Aswangga & Widoretno (2025) found that green accounting does not affect firm value. Based on the above explanation, the following hypothesis is proposed:

- H1: Green Accounting has a positive effect on Firm Value
- Risk management information is non-financial information that is essential for investors in the decision-making process [23]. Risk management disclosure involves presenting information about risks currently being managed by the company or efforts being undertaken to control them. By disclosing this information, users of financial statements are informed about potential business threats, which helps them make better investment decisions. When the disclosed risk management creates a positive impression, the market responds favorably, which in turn enhances firm value. This is consistent with the findings of Faisal et al. (2021) and Shofiani et al. (2022), which state that risk management disclosure has a positive effect on firm value. However, research by Deffi et al. (2020) indicates that risk management disclosure has no effect on firm value. Based on this, the following hypothesis is proposed:
- H2: Risk Management Disclosure has a positive effect on Firm Value

III. RESULT AND DISCUSSION

A. Population and Sample

According to Sugiyono (2013), population refers to the generalization area that includes objects or subjects with certain qualities and characteristics defined by the researcher for a study, from which conclusions are drawn. Meanwhile, a sample refers to a subset of the population, both in terms of characteristics and number, from which conclusions are generalized to the population.

This study uses financial sector companies listed on the Indonesia Stock Exchange (IDX) in 2023 as the population,

totaling 106 companies. Furthermore, the researcher applies several sampling criteria as follows:

1. Companies that published annual and sustainability reports in 2023.
2. Companies that disclosed risk management in their annual reports or sustainability reports.
3. Companies that disclosed the total environmental costs incurred in 2023.
4. Based on these criteria, a total of 58 companies were selected as the final sample for analysis.

B. Data Analysis Method

The data analysis method employed is the Generalized Additive Model (GAM), a non-parametric regression approach that allows the relationship between independent and dependent variables to be modeled flexibly using smooth functions, without requiring a linear relationship or normal distribution [27]. The analysis was conducted using R Studio, with the model specified as follows, where f_1 and f_2 are smooth (non-parametric) functions estimated using smoothing splines:

$$PBVi = \beta_0 + f_1(X_1) + f_2(X_2i) + \epsilon_i$$

C. Non-Parametric Regression Analysis (GAM Model)

a) Significance Test of Smooth Functions ((X))

Hypothesis testing for each smooth function is defined as follows:

Ho: There is no significant effect of X on PBV.

H1: There is a significant effect of X on PBV.

Variabel	edf	F	p-value	Keterangan
s(X1)	1	0.405	0.527	Tidak signifikan
s(X2)	1	2.337	0.132	Tidak signifikan

Figure 2.2. Results of GAM Significance Test

Source: R Studio, processed by the researcher

From Table 2, it can be concluded that there is insufficient evidence to state that Green Accounting (X1) or Risk Management Disclosure (X2) has a significant effect on PBV (p -value > 0.05).

a) Coefficient of Determination

Statistik	Adjusted R Square
Deviance Explained (%)	4.11%
GCV Score	10166
Adjusted R ²	0.00622

Figure 2.2. Summary Results of GAM in R Studio

Source: R Studio, processed by the researcher

Based on the table above, the following conclusions can be

drawn:

1. Adjusted $R^2 = 0.00622$

This indicates that the model is only able to explain about 0.62% of the variation in firm value (PBV). This means the model's predictive ability is very low, and the majority of variation in the data cannot be explained by this model.

2. Deviance Explained = 4.11%

Deviance explained reflects how well the model accounts for the variance in the data. A value of 4.11% is considered very small, reinforcing the conclusion that the model is not sufficient in explaining the relationship between the predictors and the response.

3. GCV (Generalized Cross Validation) = 10166

GCV is used to assess model fit with a penalty for complexity. The smaller the GCV value, the better the model. A GCV of 10166 indicates that the prediction error of the model is quite high, suggesting that the model is not yet optimal.

b) Visualization

To provide a clearer picture of the relationship patterns between the predictor variables and the response variable in the GAM model, a visualization of the smooth function components was generated for each independent variable, namely Green Accounting (X1) and Risk Management Disclosure (X2).

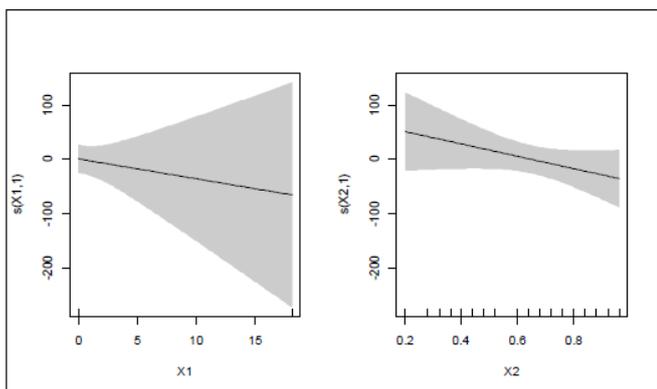


Figure 2.3. Output Results of GAM Model in R Studio
 Source: R Studio, processed by the researcher

Based on Figure 1, the visualization of the GAM model results shows two smooth function panels for each predictor variable. In the left panel, which represents the effect of Green Accounting measured using environmental costs (X1) on PBV (Y), the smooth function curve tends to show a slight downward trend. However, the gray shading representing the 95% confidence interval is very wide and even covers the zero axis, indicating that the relationship between X1 and Y is not significant.

Meanwhile, the right panel, which illustrates the relationship between Risk Management Disclosure (X2) and Y, also shows a slightly downward curve. Although its confidence interval area is narrower compared to the X1 panel, it still includes the zero axis. This indicates that uncertainty remains, and the relationship between X2 and Y also cannot be concluded as significant.

C. DISCUSSION

a) Green Accounting Disclosure

Theoretically, green accounting disclosure is expected to be a factor that enhances firm value. By disclosing the implementation of green accounting, a company can strengthen its image in the eyes of the public as it demonstrates concern and commitment toward environmental issues. However, the results of this study indicate that green accounting disclosure does not have a significant effect on firm value. The unsupported hypothesis may be explained by several factors, such as the relatively low public awareness of the importance of environmental sustainability alongside corporate profitability, as well as the absence of binding regulations on green accounting.

This finding is inconsistent with the results of Rani & Sisdianto (2025) and [29], who argue that green accounting disclosure significantly affects firm value. The discrepancy suggests that green accounting may not yet be regarded as a primary consideration in investment decision-making, thereby limiting its significant impact on firm value.

b) Risk Management Disclosure

The findings of this study also show that risk management disclosure does not have a significant effect on firm value. This result implies that information on corporate risk management has not been effective in enhancing firm value. In principle, risk management disclosure is expected to reduce information asymmetry for stakeholders and lower the likelihood of fraud, which in turn should improve firm value.

However, the results of this study contradict the conclusions of Iswajuni (2018) and Azizah (2022), who found that risk management disclosure has a significant positive effect on firm value. This divergence highlights a possible gap between reporting practices and the perceptions of investors and the public. On the other hand, the quality of risk management disclosure should also be considered, as it plays a crucial role in serving as a reliable basis for investors' decision-making.

III. CONCLUSION

This study aims to examine the effect of green accounting disclosure and risk management disclosure on the firm value of finance sector companies listed on the Indonesia Stock Exchange in 2023. Using the generalized additive model (GAM) to analyze 58 firms that met the criteria, several key findings were obtained. First, green accounting disclosure, measured by the proportion of environmental costs to net income, was found to have no significant effect on firm value, as measured by price to book value (PBV). This finding suggests that the implementation of green accounting in the financial sector has not yet become a substantial consideration for investors in assessing corporate performance and prospects.

Second, the study identifies that risk management disclosure also has no significant effect on firm value. This result indicates that although risk management has the

potential to enhance transparency and reduce information asymmetry, the quality and relevance of the information disclosed may not be sufficient to influence market perceptions of firm value in the financial sector.

LIMITATIONS AND RECOMMENDATIONS

Nevertheless, this study has several limitations. It only employed two independent variables—green accounting disclosure and risk management disclosure—while other factors may exert a stronger influence on firm value. Furthermore, green accounting disclosure was measured using the ratio of environmental costs to net income. Given that net income in the financial sector generally far exceeds environmental costs, this ratio tends to be very small with a wide distribution range, which may affect the statistical characteristics of the data and the interpretation of the results.

For future research, it is recommended to incorporate additional variables that may influence firm value, such as corporate governance quality and macroeconomic factors. Alternative measures of green accounting disclosure should also be considered, for instance, sustainability assessment indices or evaluation standards such as PROPER from the Ministry of Environment and Forestry, in order to provide a more comprehensive representation of firms' environmental performance.

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