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The impact of green innovation and environmental accounting on the profitability of Indonesian listed manufacturing companies

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Abstrak

Tujuan penelitian ini untuk menginvestigasi pengaruh green innovation dan environmental management accounting terhadap profitabilitas perusahaan manufaktur yang listing di Bursa Efek Indonesia. Penelitian ini menggunakan pendekatan kuantitatif dengan data sekunder. Pemilihan sampel menggunakan metode purposive sample pada tahun 2021 sehingga jumlah sampel yang dipilih sebanyak 152 perusahaan. hasil penelitian ini mengindikasikan bahwa green innovation dan environmental management accounting dapat meningkatkan profitabilitas perusahaan manufaktur. Hasil penelitian ini dapat berkontribusi terhadap semua perusahaan dimana untuk meningkatkan profitabilitas perusahaan dengan menerapkan green innovation dan environmental management accounting dalam kegiatan operasional perusahaan.

Kata Kunci: Inovasi Hijau, akuntansi pengelolaan lingkungan hidup, profitabiltas, Bursa Efek Indonesia
JEL Code: D42, D40, D51

Abstract

This research investigates the impact of green innovation and environmental management accounting on manufacturing companies' profitability on the Indonesia Stock Exchange. The study uses a quantitative approach with secondary data. The sample was selected using the purposive sampling method in 2021. Therefore, the number of pieces chosen was 152 companies. This research indicates that green innovation and environmental accounting can increase manufacturing profitability. The results of this study may contribute to all firms through the implementation of green invention and environmental management accounting in firms' operations to improve firm profitability.

Keywords: Green innovation, environmental management accounting, profitability, Indonesia Stock Exchange

JEL Code: D42, D40, D51

Introduction

The industry's rapid growth requires significant resources, which causes damage to the environment if prevention and protection are not carried out. In carrying out its activities, the industry generates pollution that causes pollution such as production waste, water and air pollution (Agustia et al., 2019). This statement is supported by research (Sachs, 2005) that, according to data from the Earth Institute of the University of Colombia, global climate change is influenced by the lack of environmental awareness of industrial activities. Furthermore, companies have two main objectives in carrying out activities: maximising the company's profitability and the welfare of the company's owners. These objectives are directly proportional to each other, where the profit earned by the company increases the wealth of the owner of the company through the provision of dividends. One way of measuring a company's profitability is to look at the contribution made by the assets to the net profit generated by the company. Below are the results of a comparison of the profitability of manufacturing companies between 2020 and 2021.

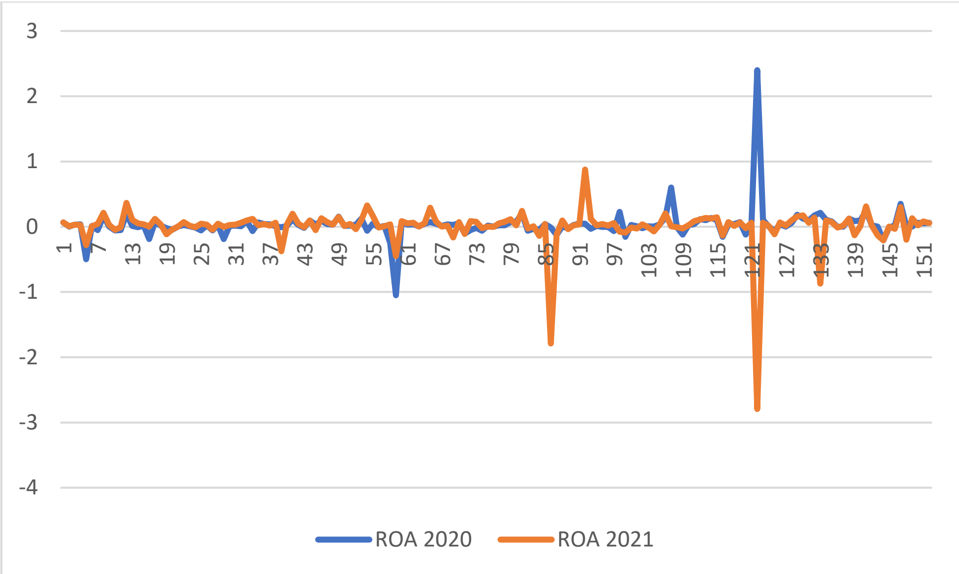

Figure 1 Comparison Return on Asset (ROA) in Manufacturing Companies Between 2020 and 2021

The figure above shows that the performance of the companies decreased from 2020 to 2021. The company must look for ways to increase profitability the following year, as this decline is quite significant. This study examines how green innovation and environmental management accounting affect company profitability.

The first factor affecting corporate profitability is green accounting. This concept shows an environmental strategy to develop the business without violating government regulations (Sezen & Çankaya, 2013). According to this concept, companies pay attention to the rules issued by the government when running their business to achieve profitability without damaging the environment. The strategy is to create innovations based on the environment. The benefits of adopting this concept are expected to maintain a balance of environmental, social, and economic to achieve sustainable development of the company (Asadi et al., 2020; Nilashi et al., 2019). In preventing these losses, this concept can also help companies create a more productive green innovation with an impact on reducing production costs and increasing company profitability.

Another factor influencing business profitability is environmental management accounting. This concept explains how accounting, especially management accounting, is a tool to provide information that ultimately increases the competitiveness of companies while paying attention to the environment. (Agustia et al., 2019). Environmental management accounting also includes accounting information about the company's activities that affect the environment and their impact on its domain (Burritt, 2004). This statement is in line with the findings of research (Hofer et al., 2012; Melnyk et al., 2003), where the application of environmental management accounting improves firm performance and value.

This research was carried out on manufacturing companies because the operational activities of this type of company have many negative impacts on the environment. Furthermore, using natural resources as the primary raw material will affect the environmental balance sheet. The results of this research will contribute to the importance of ecological innovation and environmental management accounting in monitoring operational activities so that companies can increase their profitability without damaging the environment.

Literatures Review

Profitability

Profitability is one of the factors that will convince potential investors to invest in the company. Investors or creditors will pay more attention to the company's sales growth and profits. There are many measures of a company's profitability, including return on assets. Return on assets shows how the company uses its assets to make profits. Important assets include natural resources, which are the company's raw materials. Companies need assets to produce products that are eventually sold to generate revenue. The greater the net profit generated using these assets, the more interested investors or creditors will be in investing in the company. However, companies compete to carry out the production process without paying attention to the consequences of their production activities, which produce pollution that has adverse effects. In addition, people have recently started to worry about the negative impact on health, which has become the government's main focus to reduce it (Banani & Sunarko, 2022). The development of environmental issues has caused many countries to start limiting and making policies, one of which limits the use of natural resources and participates in protecting and improving the environment by providing a percentage of net income. There are several views on the factors that affect company profitability. The factors are green innovation and environmental management accounting (Abu Seman et al., 2019; Aguilera-Caracuel & Ortiz-de-Mandojana, 2013; Agustia et al., 2019; Banani & Sunarko, 2022; Bartelmus, 1999; Ben Arfi et al., 2018; Burritt, 2004; Y. S. Chen et al., 2006; Wong et al., 2020).

Green Innovation

Green innovation is not a new term, but the concept has become an important issue today due to the negative impact of the production process on the environment. According to (Kemp & Pearson, 2007), green innovation is a product, assimilation or exploitation of a product, production process, service or management and business method that is new to the organisation and results in reduced environmental risk, pollution and other negative impacts of resource use throughout its life cycle compared to the use of relevant alternatives. Based on this definition, it shows that green innovation is a process to become a product that does not hurt the environment. Adopting this innovation is expected to improve performance in the allocation of resources (Chan et al., 2016; Tse et al., 2012; Wu et al., 2013). Research conducted (Y. S. Chen et al., 2006) also shows that the application of green innovation will affect the firm's competitive advantage, which will ultimately increase profits (Banani & Sunarko, 2022) and firm value (Agustia et al., 2019). However, research (Aguilera-Caracuel & Ortiz-de-Mandojana, 2013) shows that green innovation only significantly impacts firm performance. This aligns with research (Hull & Rothenberg, 2008), which shows that green innovation contributes little to the company's portfolio. In addition, the implementation of green innovation requires the provision of information in financial reports on corporate activities that have a positive impact on the environment. Based on the above explanation, the following hypothesis is generated:

H1: There is an impact of green innovation on the profitability of manufacturing companies in the Indonesian Stock Exchange.

H2: There is an impact of green innovation on environmental management accounting.

Environmental Management Accounting

Environmental management accounting is an accounting concept in which companies continue to pay attention to the environment's survival in their business activities. This concept relates to how the company provides information about its activities that affect the environment and its impact and management (Burritt, 2004). This concept is the main focus in preventing environmental damage due to management's failure to identify, classify, measure and report separate environmental information, especially on ecological costs. This statement is also supported by (Agustia et al., 2019), which state that companies need accurate, detailed and relevant information on invisible costs that aim to set limits on the use of resources and still maintain environmental sustainability, so it is necessary to adopt this EMA. Environmental management accounting is used to achieve corporate strategies and objectives to increase corporate competitiveness and profitability. The following hypothesis can be generated based on the above explanation:

H3: There is an impact of environmental accounting on the profitability of manufacturing companies in the Indonesian Stock Exchange.

Research Method

This study aims to determine the effect of green innovation on firm profitability, using environmental management accounting as an intervening variable. This research was conducted in manufacturing companies listed on the Indonesia Stock Exchange in 2021. The number of samples in this study was 152 companies. Criteria in selecting pieces that companies must be included in the participation of the Ministry of Environment of the Republic of Indonesia programme. This study uses path analysis in hypothesis testing. In using path analysis, regression analysis should be used to estimate the cause of several relationships based on theory (Ghozali, 2018). The study uses two relationships, direct and indirect, where the direct connection is where the independent variable directly affects the dependent variable. The indirect relationship is where the independent variable affecting other variables has to go through other independent variables. In this analysis, there are two equations, namely as follows:

$X2= b0+b1xX1 + e$

$Y= b0+b2xX1 + b3xX2+e$

Description:

Y= Profitability

X1= Green Innovation

X2= Environmental Management Accounting

Result and Discussion

Result

This study examines the effect of green innovation and environmental management accounting (EMA) on firm profitability, with the EMA variable as an intervening variable. The research was conducted on manufacturing companies listed on the Indonesia Stock Exchange in 2021, with a total of 152 companies according to predetermined criteria. Table 1 below presents the results of the hypothesis testing.

Table 1. Hypothesis Testing

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
Green Innovation -> Profitability	0.175	3.064	0.002
Green Innovation -> Environmental Management Accounting	0.400	6.321	0.000
Environmental Management Accounting -> Profitability	0.107	2.220	0.027

The first model shows the direct effect of green innovation as an independent variable on profitability. Based on the table, the results show that green innovation has a significant positive impact on increasing company profitability, which can be seen with a regression coefficient value of 0.002. In the second model, namely testing the effect of green innovation on environmental management accounting (EMA) as the dependent variable, the results show that green innovation has a significant positive impact on EMA where the significant level reaches 0.000. The third model is to test the impact of environmental management accounting on profitability as the dependent variable. Based on Table 1 above, the results show that the environment has a significant positive effect on increasing company profits with a significant level of 0.027. Furthermore, an indirect test of green innovation on firm profitability through environmental management accounting is carried out.

Table 2. Indirect Effect

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
Green Innovation -> Profitability	0.043	2.136	0.033

Table 2 shows the results of testing green innovation on company profitability through environmental management accounting. The result is that green innovation will significantly affect profitability through ecological management accounting. This result can be seen from the significant value obtained of 0.033.

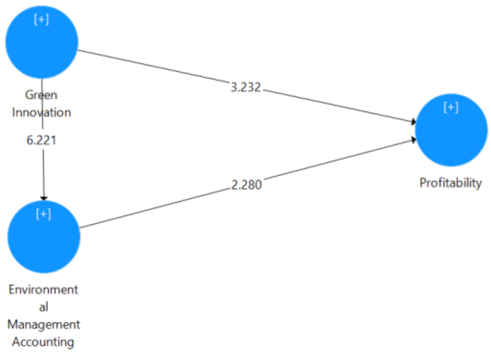

Figure 1. Path Analysis

Discussion

Based on the results obtained, green innovation significantly affects company profitability. Green innovation is a strategy produced by the company in the form of processes, products and organisations where the basis for preparing the plan is to prevent environmental damage. The results of this study indicate that implementing green innovation will increase company profitability. This is because companies that implement green innovation are more likely to care about the negative impacts caused by their operational activities, so they try to prevent further damage. This study's results align with research (Y. S. Chen et al., 2006; Cheng, 2020; Wong et al., 2020). In addition, the increasingly visible environmental damage we are experiencing, such as floods, landslides and extreme weather events, has made the general public aware of the importance of protecting the environment, and they are starting to choose environmentally friendly products. With the awareness and knowledge gained, people will prefer ecologically friendly products. If the company implements this strategy more, it will ultimately increase sales and profitability and have a competitive advantage. Green innovation also significantly impacts environmental management accounting and profitability through EMA. As companies innovate through process, product, and organisational greening, environmental accounting management is strengthened to ensure that fixed-cost accounting is directed towards ecological accounting (Banani & Sunarko, 2022).

In addition, there is Environmental Management Accounting (EMA) in increasing the company's profitability. EMA shows the company's strategy, where it applies an environmental accounting system in preparing financial statements. By implementing this system, the company will be more responsible for the environment by charging environmental costs to products. The company will have sufficient funds to improve the environment without diverting capital from other activities. Finally, setting environmental prices in each production process will increase the company's net profit. The results of this study contradict the research conducted (Agustia et al., 2019)

Conclusion

Based on the above discussion, it can be concluded that companies that implement green innovation and environmental management accounting will not only positively impact the prevention and reduction of environmental damage but also increase the company's profitability. From these results, it can be seen that green innovation and environmental management accounting have a significant effect both directly and indirectly on the company's profitability, which in turn is expected to give the company a competitive advantage over other companies. This research aims to increase business profitability by implementing green innovation so that the products produced maintain environmental sustainability and provide consumer confidence in product safety. This research has limitations in that it was only carried out on manufacturing companies and in one year of observation. It is hoped that further analysis can be conducted on other companies with longer observation years.

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