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The Effect of Implementing Green Accounting and Material Flow Cost Accounting (MFCA) on the Value of Manufacturing Companies

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

This article aims to determine the effect of implementing green accounting and material flow cost accounting (MFCA) on the value of manufacturing companies. This research uses secondary data in the form of an Annual Report which is accessed via the BEI page which is accessed via the relevant manufacturing company's website. The reporting period used is the period 2018 to 2022. The population in this research is the annual reports of manufacturing companies listed on the BEI and the websites of related manufacturing companies as secondary data sources. Using purposive sampling technique to select samples from manufacturing companies listed on the BEI. The data analysis method used is multiple linear regression analysis. The research results show that Green

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Accounting on Company Value shows a significant positive influence. This proves that the higher the Green Accounting will increase the Company Value. Material Flow Cost Accounting on Company Value shows a significant positive influence. This proves that the higher the Material Flow Cost Accounting will increase the Company Value. The result of this research can add and contribute to development of theory regarding the application of Green Accounting and Material Flow Cost Accounting (MFCA).

Keywords: Green accounting; Material Flow Cost Accounting (MFCA); company value.

1. INTRODUCTION

“Sustainable Development Goals (SDGs) is a long-term world program to optimize all the potential and resources of each country. Initially, the program launched by the United Nations (UN) since 2000 was the MDGs program. This program was launched during the period 2000 to 2015. Furthermore, from 2016 to 2030, the UN again launched a follow-up program, namely Sustainable Development Goals (SDGs)” [1].

“One of the Sustainable Development Goals (SDGs) programs is the issue of climate change and global warming. This climate change problem is point 13 in the Sustainable Development Goals (SDGs). Global warming and climate change have become the most challenging environmental problems that must be faced by various countries, including Indonesia. Public concern for the problems caused by climate change has led to the emergence of environmental regulations. Green Accounting has emerged as an element that contributes to improving the company's economy without ignoring the environmental conditions around the company” [2].

“Company value is an important consideration for stakeholders. Financial factors are the main factors that can influence company value. Financial factors can show how a company obtains funds and utilizes them profitably, consistently but nowadays, Company performance is not only assessed based on financial factors; Non-financial factors also influence greatly a company's performance and value. The objects of this research are all manufacturing companies listed on the Indonesia Stock Exchange (BEI) in 2018 - 2022. The reason for using manufacturing companies is because manufacturing companies are more easily affected by economic conditions” [3,4,5]. “The selection of manufacturing companies as the population in this research is because the manufacturing industry plays an important role in efforts to increase the value of investment and exports so that it becomes a mainstay sector for accelerating national growth. The industrial sector contributes to GDP by 20%, then to taxation around 30%, and exports up to 74%. This achievement was the largest contributed by five manufacturing sectors. The five industrial sectors referred to are the food and beverage industry, textile and clothing industry, automotive industry, chemical industry and electronics industry” (Ministry of Industry, 2023).

The following is the manufacturing sector performance data quarterly for 2018 – 2022:

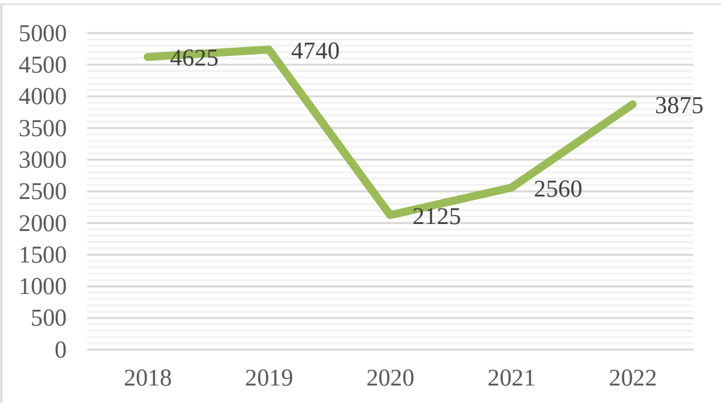

Fig. 1. Development of average company value
Source: Factbook-Reporting, 2023

Based on the performance of the manufacturing sector, it showed that there was a decline in the average company value of manufacturing companies on Indonesia Stock Exchange in 2020 because the Indonesian manufacturing sector has quite a large dependence on China, which is the epicenter of the corona virus outbreak. This phenomenon showed a decline in the company value of most manufacturing companies on the Indonesian Stock Exchange. When the value of the company experiences a significant decline in value, it will create losses for the company, where the assumption is that when there was a decline in the value of the company, it showed that the market is less interested in the prospects offered by the company, so that the problem that arises is that is difficult for company management to obtain funds from third parties. Of course, it can help companies to increase their production scale. Signaling theory is the basis for this research because Green Accounting and MFCA are representations that impact company value through profits. Signals can be used by stakeholders as performance benchmarks in one period. Novelty in the research is the use of material flow cost accounting variables in the manufacturing sector as a whole because MFCA is thought to be able to increase company value from an economic, social, environmental and technological perspective. The originality of this research is that there are three conditions before, during and after the pandemic, so it can provide a different assessment of the value of manufacturing companies in Indonesia.

Research by Ulupui et al. [6], Lestari & Restuningdiah [7], Rilla et al. [8], Dianty [9], Pardomuan et al. [10], Rofiqoh et al. [11] showed that Green Accounting and MFCA have an effect on company value . However, there was a research gap in the results of research conducted by Khotimah et al. [12] showed that Green Accounting had no effect on company value. Research by Christian et al. [13] showed that material flow cost accounting had no effect on company value.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Legitimacy Theory

Legitimacy theory is a theory that was first coined by Dowling and Pfeffer in 1975. Legitimacy theory is a theory that explains the interaction between companies and society. Legitimacy theory explains that an organization or company must continuously ensure that the company carries out its operations within the norms upheld by society and ensure that these activities can be accepted by outside parties [14].

2.2 Stakeholders Theory

Stakeholder Theory was first put forward by the Stanford Research Institute (SRI) in 1963. Stakeholder Theory has undergone changes in definition over the last few years. Tandelilin, [15] defined “stakeholders as parties who have an interest in the company and can influence the company's activities. The parties referred to as stakeholders are the community, employees, government, suppliers, capital markets and others”. “The size of operational activities within a company can be reflected through company size” [1].

2.3 Signaling Theory

“Signaling Theory was first put forward by Michael Spence in 1973. A signal is an action taken by company management that provides clues to investors about how management views the company's prospects. Companies with profitable prospects will try selling shares and seeking new capital in other ways, such as using debt. This theory is based on the assumption that managers and shareholders do not have access to the same company information” [15].

2.4 Hypothesis

Disclosure of environmental burdens will increase shareholder value because of the company's concern for environmental preservation. Shareholders can more easily and quickly obtain information from these disclosures, making decision making easier. Green Accounting is used for decision making by analyzing the many burdens associated with managing activities that have an impact on environmental performance. Green Accounting is more focused on being applied as the final output of accounting reporting which is related to the disclosure report on the company's performance.

Research by Ulupui et al. [6], Lestari & Restuningdiah [7], Rilla et al. [8], Dianty [9], Pardomuan et al. [10], Rofiqoh et al. [11] showed that Green Accounting has a positive effect on company value. Based on this explanation, the researcher proposed the following hypothesis:

H1: Green Accounting has a positive effect on company value.

According to Santi (2022) “Material flow cost accounting (MFCA) is a management tool that helps organizations to better understand the potential environmental and financial consequences of materials and energy practices and seek to improve them through changes in their practices”. Selpiyanti and Fakhroni (2020) explain that “material flow cost accounting is a management tool with the aim that the burden of losses resulting from material production can be evaluated and then a decision can be made that helps the company to treat its waste”.

Research by Ulupui et al. [6], Lestari & Restuningdiah [7], Rilla et al. [8], Dianty [9], Pardomuan et al [10], Rofiqoh et al. [11] showed that the MFCA has an effect on company value. Based on this explanation, the researcher proposed the following hypothesis:

H2: Material flow cost accounting (MFCA) has a positive effect on company value.

3. METHODS

Population is all the elements that will be used as a generalization area, where objects/subjects have certain quantities and characteristics determined by researchers to be studied and then conclusions drawn (Sugiyono, 2021). The population in this research is the annual reports of manufacturing companies listed on the BEI and related manufacturing company websites as secondary data sources. Using purposive sampling technique to select samples from manufacturing companies listed on the BEI. The data analysis method used is multiple linear regression analysis. The following is a summary of the results of the sample selection made in the table below:

Table 1. Research Sample Selection Criteria

Criteria	Total
Manufacturing companies listed on the BEI are consistently listed in the period 2018 – 2022	168
Manufacturing companies that publish Annual Reports in the period 2018 – 2022	(68)
Manufacturing companies that provide complete information regarding research variables	(86)
Number of companies that meet the criteria	14
Number of samples during the research year (14*5)	70

Source: Data is processed, 2024

4. RESULTS AND DISCUSSION

4.1 Results

4.1.1 Descriptive statistics

Descriptive statistical analysis in research is basically a process of transforming research data in tabulated form so that it is easy to understand and interpret. This research uses descriptive statistics to determine the description or description of data which can be seen from the average (mean), maximum and minimum values and standard deviation of the research variables (Ghozali, 2021). The results of descriptive statistical data processing for research variables appear in Table 2.

Based on the results of the analysis in Table 2, it can be seen that the Green Accounting variable (X_1) showed an average value of 11.97. The lowest value for the Green Accounting variable (X_1) is 8.86 and the highest value is 14.88. The standard deviation is 1.7678. This means that the standard deviation value is closer to the average value (mean) and the size of the data spread is getting smaller.

Based on the results of the analysis in Table 2, it can be seen that the Material Flow Cost Accounting (X_2) variable shows an average value of 0.64. The lowest value for the Material Flow Cost Accounting (X_2) variable is 0.13 and the highest value is 0.94. The standard deviation is 0.2518. This means that the standard deviation value is closer to the average value (mean) and the size of the data spread is getting smaller.

Based on the results of the analysis in Table 2, it can be seen that the Company Value (Y) variable shows an average value of 2.08. The lowest value of the Company Value (Y) variable is 0.64 and the highest value is 22.30. The standard deviation is 2.6503. This means that the standard deviation value is closer to the average value (mean) and the size of the data spread is getting smaller.

4.1.2 Multiple linear regression analysis

The analytical method used in this research is multiple linear analysis. This multiple linear analysis aims to obtain a comprehensive picture of the relationship between independent variables and dependent variables for company performance (Ghozali, 2021). The results of multiple linear regression analysis of the research hypothesis can be seen in Table 3 as follows:

Table 2. Descriptive statistics result

Research Variable	N	Min	Max	*Mean*	Deviation Standard
Green Accounting (X_1)	70	8,86	14,88	11,97	1,7678
MFCA (X_2)	70	0,13	0,94	0,64	0,2518
Company Value(Y)	70	0,64	22,30	2,08	2,6503

Source: Data is processed, 2024

Table 3. Multiple linear regression analysis result

Variable	Regression Coefficient	Sig.	Information
Konstanta	0,058	-	-
Green Accounting (X_1)	0,316	0,000	Significant
MFCA (X_2)	0,404	0,000	Significant

Source: Data is processed, 2024

The regression equation obtained from this test is:

$$Y = 0{,}058 + 0{,}316X_1 + 0{,}404X_2 + e$$

The multiple linear regression equation can be explained as followed:

1. The constant in the regression equation is 0.058. It means that if Green Accounting (X_1) and Material Flow Cost Accounting (X_2) have a value of 0, then the Company Value (Y) is 0.058.
2. The regression coefficient value for the Green Accounting variable (X_1) is 0.316. It means that If there is an increase in the Green Accounting variable (X_1), then the value of the Company Value variable (Y) will increase by 0.316.
3. The regression coefficient value for the Material Flow Cost Accounting (X_2) variable is 0.404. This means that if there is an increase in the Material Flow Cost Accounting variable (X_2), then the value of the Company Value variable (Y) will increase by 0.404.

4.1.3 Hypothesis test

The hypothesis test used in this research is the t test (Ghozali, 2021). The t test results are as follows:

Table 4. t test result

Variable	Sig
Green Accounting (X_1)	0,000
MFCA (X_2)	0,000

Source: Data is processed, 2024

Based on this table, it can be seen the magnitude of the influence of each independent variable on the dependent variable as follows:

1. The influence of the Green Accounting variable (X1) on the Company Value variable (Y) Based on 4, it can be seen that the probability level (α) is 0.000. This means that Green Accounting has an effect on Company Value (Y). Because the significant value of the Green Accounting variable is <0.05, it is proven to be true (H_1 is accepted).
2. The influence of the Material Flow Cost Accounting variable (X_2) on the Company Value variable (Y) Based on Table 4, it can be seen that the probability level (α) is 0.000. This means that Material Flow Cost Accounting has an effect on Company Value (Y). Because the significant value of the Material Flow Cost Accounting variable is <0.05, it is proven to be true (H_2 is accepted).

4.2 Discussion

4.2.1 The effect of green accounting on company value

The results of the multiple linear regression analysis in the t test on the first hypothesis (H_1) can be seen in Table 4 that Green Accounting has an effect on Company Value by looking at the significance level, which is 0.000 and the regression coefficient is positive, meaning that the higher the Green Accounting, the higher the Company Value (H_1 is accepted).

Signal theory explained how signals of success or failure of company management should be expressed to investors or other stakeholders (Widyatuti, 2017). The signal that has been conveyed will become information that can be useful as a consideration for investors in making decisions. The implementation of Green Accounting is closely related to the delivery of information, so the information contained in this financial report includes how a company is performing. The report produced must be in accordance with reality, so that the information obtained by report users such as the public and investors will be in accordance with what the company has experienced [16].

Legitimacy theory is a theory that was first coined by Dowling and Pfeffer in 1975. Legitimacy theory is a theory that explains the interaction between companies and society. Legitimacy theory explains that an organization or company must continuously ensure that the company carries out its operations within the norms upheld by society and ensures that these activities can be accepted by outside parties (Widyatuti, 2017).

Disclosure of environmental burdens will increase shareholder value because of the company's concern for environmental preservation. Shareholders can more easily and quickly obtain information from these disclosures, making decision making easier. Green Accounting is used for decision making by analyzing the many burdens associated with managing activities that have an impact on environmental performance. Green Accounting is more focused on being applied as the final output of accounting reporting which is related to the disclosure report on the company's performance.

The results of this research are in line with previous research conducted by Ulupui et al [6], Lestari & Restuningdiah [7], Rilla et al. [8], Dianty [9], Pardomuan et al. [10], Rofiqoh et al. [11] showed that Green Accounting has a positive effect on company value.

4.3 The Effect of Material Flow Cost Accounting on Company Value

The results of multiple linear regression analysis in the t test on the second hypothesis (H2) can be seen in Table 4 that Material Flow Cost Accounting has an effect on Company Value by looking at the significance level, which is 0.009 and the regression coefficient is positive, meaning that the higher the Material Flow Cost Accounting, the higher the increase Company Value (H_2 is accepted).

“Signal theory emphasizes the importance of information released by the company which will influence investment decisions taken by parties outside the company” [16]. “For investors and other business people, information is considered a very important element, because information essentially provides information, notes or a picture of the company regarding past, current conditions and projections of future conditions” [1].

“In the perspective of legitimacy theory, a company will voluntarily report its activities if management considers that this is what the community expects. Legitimacy theory is based on a 'social contract' between the company and the community in which the company operates” [15]. “The level of investor confidence is determined by the size of the company. Large companies have more public attention as a result of the company's influence on society and the environment” [6].

According to Santi (2022) “Material Flow Cost Accounting (MFCA) is a management tool that helps organizations to better understand the potential environmental and financial consequences of materials and energy practices and seek to improve them through changes in their practices”. Selpiyanti and Fakhroni (2020) explained that “material flow cost accounting is a management tool with the aim that the burden of losses resulting from material production can be evaluated and then a decision can be made that helps the company to treat its waste”.

The results of this study were not in line with previous research conducted by Ulupui et al. [6], Lestari & Restuningdiah [7], Rilla et al. [8], Dianty [9], Pardomuan et al. [10], Rofiqoh et al. [11] showed that MFCA had an effect on company value.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

1. The results of multiple regression testing on the influence of Green Accounting on Company Value show a significant positive influence. This proves that the higher the Green Accounting will increase the Company Value.
2. The results of multiple regression testing on the influence of Material Flow Cost Accounting on Company Value show a significant positive influence. This proves that the higher the Material Flow Cost Accounting will increase the Company Value.

5.2 Recommendations

1. For future researchers, it would be better to use other variables such as Institutional Ownership, Foreign Ownership, and etc.
2. It is hoped that future researchers can use a sample of service companies in Indonesia and increase the number of observation periods to 10 years.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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