

The Effect of Environmental Management Accounting (EMA) on Financial Performance and Working Capital Management (WCM) as Mediation Variables in the Textile Processing Industry in Bogor Regency

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ABSTRACT

Sustainable accounting is a concern where the demands for financial information become wider, EMA as an accounting concept that accommodates the weaknesses of conventional accounting in disclosing environmental costs. The research aims to analyze the effect of EMA on the company's financial performance and working capital management (WCM) as a mediator. The data was obtained through a questionnaire survey of seventy eight respondents from textile manufacturing companies in Bogor Regency. The path analysis model is tested using Smart PLS. The results of the study found that EMA has a direct significant effect on financial performance and the role of working capital management as a mediator contributes to the indirect effect of EMA on financial performance. EMA information is critical in providing information that increases managers.

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1. INTRODUCTION

The current accounting system has transformed into green accounting or sustainable accounting. This company's accounting is not only required to estimate the costs of the production process and its activities but is also required to be able to estimate the negative impacts that may arise from its activities. Green accounting or what is known as environmental accounting has long been a concern of accountants. Corporate environmental accounting is a form of corporate social responsibility towards its environment. Although many companies now tend to use the term "sustainability" rather than referring exclusively to the environment, this is still an area where accounting solutions are clearer on the environment (Bennett et.al, 2011).

The existence of environmental accounting is important considering that the natural environment has a major influence and contribution to the national economy. Along with economic growth, it will be followed by industrial growth in various sectors, in its operations it will produce waste which has an impact on environmental pollution. In various "sustainability" studies it is known that the manufacturing industry sector makes a major contribution to pollution by eleven point nine percent of greenhouse gas emissions besides the highest mining sector at fifteen point one percent in 2015. The textile processing industry is one of the industries that is of concern in pollution, estimates for this industry show that more than thirty-five percent of chemicals released in the environment are the result of various textile processing and dyeing processes (Thiry, 2011), as well as the consumption of fresh water by the textile industry of around three trillion gallons worldwide and used to produce sixty billion Kilograms of cloth (Global Market Report on Sustainable Textile 2010). Research findings by Desore and Narula (2018a) note that compared to other industries, the textile industry is considered a major contributor to environmental pollution and has an impact on various ecological problems (water pollution, waste, air pollution) throughout the supply chain from fiber production to fabric finishing. The existence of the textile industry in Bogor Regency shows the largest number of companies in the medium and large industrial groups as four hundred seven companies in 2019 (BPS, 2021).

The issue of environmental damage and climate change builds awareness of the environment and motivates companies to make efforts to improve the disclosure of environmental data to outside parties. Human and financial resources are critical in shaping a company's environmental strategy along with other internal organizational resources. (Desore and Narula, 2018b). Basically the main objective of environmental accounting is not only to improve the company's environmental performance but also to improve financial performance, this is in line with studies that explain a positive relationship between EMA and financial performance including Magara et.al (2015), Chaudhry et.al (2020), Amacha and Dastane (2017), Nnmani and Ugwu (2017), while the study by Okegbe et.al (2019) found that environmental restoration costs, pollution prevention costs and environmental protection costs affect ROA in Nigeria. Businesses that have good environmental performance will provide complete environmental accounting reporting information so that companies that have good environmental performance have a linear correlation with their financial performance. There are several factors that determine working capital which can come from within or outside the company, as research conducted by Gill (2011), Mansoori and Muhammad (2012), Taleb, et.al (2010),

Naseer, Nuseibeh and Hadeya (2013), Hill, Kelly and Highfield (2010), Bei and Wijewardana (2012), Nazir and Afza (2009), Nakamura and Nakamura (2011) and Azami and Tabar (2016). Determinants that come from the company's internal include company size, company growth, operating cash flow, ROA and leverage. While the company's external factors are the macroeconomic conditions of a country. But on the other hand explaining research using working capital as an antecedent variable on company financial performance Sonia et.al (2014) and Prempeh & Peprah (2020), in the context of other studies found the importance of environmental accounting (EMA) in influencing sustainable financial performance.

Based on previous studies, there is a research gap, there is a limited relationship between the EMA variables, working capital and financial performance. This study aims to fill this void by building novelty models, sustainable business models are an important area but have not been sufficiently researched (Boons et.al, 2013). Also what distinguishes this research, with previous research using primary data through a questionnaire survey, with the EMA (environmental management accounting) construct as an antecedent variable, financial performance (FF) as a consequent variable and working capital management (WCM) as an intervening variable. The formulation of the problems that can be proposed in this study are as follows:

- Does EMA have an influence on the company's financial performance?
- Does EMA have an influence on working capital management?
- Does working capital management have an influence on financial performance company?
- Does EMA have an influence on the company's financial performance through working capital management?

2. RESEARCH METHODS

The locus in this study is the entire textile industry and textile products for the medium and large groups registered with the Central Bureau of Statistics for Bogor Regency in 2021 as many as four hundred seven companies. The sampling technique uses purposive sampling. The sample was taken based on the criteria used: the textile industry and textile products are registered at the BPS Bogor Regency in 2021, the website address is known and has been operating for five years. Data collection techniques used field studies to obtain information obtained directly from the research object using questionnaires and library research. Based on the distribution of questionnaires with google forms in November 2022 there were two hundred questionnaires, the number of questionnaires returned or responded to was ninety three, fifteen questionnaires rejected, thus the number of samples used in this study was seventy eight samples.

Data analysis

The path analysis model is used in this study to analyze the pattern of relationships between variables, to understand the direct and indirect effects of the EMA variable on financial performance variables. Path analysis is used to describe and demonstrate a model of the relationship between variables in the form of a causal relationship. Measurement of research variables can be seen in table 1 below:

Table 1. Measurement of Research Variables

Variable	Indicator
Endogenous Variable : Financial Performance (FF)	<ul style="list-style-type: none"> - The company's profit increased from the previous year - Sales of the company experienced growth from the previous year - The company's market share has increased from the previous year - The ratio of net profit to total sales of the company increased from the previous year - The ratio of total sales to total assets of the company increased from the previous year
Exogenous Variable : Environmental Accounting Management (EMA)	<ul style="list-style-type: none"> - There is management of expenses related to the environment. - Understand sanctions for violations of laws or environmental provisions - Understand the existence of law suits from stakeholders due to environmental pollution by companies - Cost savings because the company focuses on environmental preservation - The Company's operations have conducted an environmental impact analysis (AMDAL) - The use of decision support techniques related to environmental preservation by companies - Company use of measurement tools to measure environmental efficiency - Use of tools to control the consequences/impact on the environment for the company's business activities, either directly or indirectly - The company has facilities and infrastructure to communicate environmental preservation both internally and externally - Production processes that produce environmentally friendly products
Intervening variable : Working Capital Management (WCM)	<ul style="list-style-type: none"> - The company actively manages working capital - Working capital is used as a performance measure in the company's internal reports - Employee assessment of working capital KPIs - The company is currently working on optimizing the level of working capital - The company's current level of working capital can be optimized - The company combines a high focus on working capital and long-term growth

Source: Researcher Data (2022)

Path Coefficient Significance Test (t test)

The t-test serves to determine the effect of each variable partially. The decision to accept or reject a hypothesis in a study is based on consideration of the significance of the coeffi-

cients of each exogenous variable to the endogenous variables and formulates a test hypothesis as follows:

- $H_0 : \rho_{32 \times 21} = 0$, EMA has no significant effect on financial performance through working capital.
 $H_a : \rho_{32 \times 21} \neq 0$, EMA has a significant effect on financial performance through working capital management.
- $H_0 : \rho_{31} = 0$, EMA has no significant effect on financial performance.
 $H_a : \rho_{31} \neq 0$, EMA has a significant effect on financial performance.
- $H_0 : \rho_{21} = 0$, EMA has no significant effect on working capital.
 $H_a : \rho_{21} \neq 0$, EMA has a significant effect on working capital.
- $H_0 : \rho_{32} = 0$, Working capital management has no significant effect on financial performance.
 $H_a : \rho_{32} \neq 0$, Working capital management has a significant effect on financial performance.

Test criteria as follows:

If $t\text{-count} \geq t\text{-table}$ or if $-t\text{ count} \geq -t\text{-table}$, then H_0 is rejected.

If $t\text{-count} < t\text{-table}$ or if $-t\text{ count} < -t\text{-table}$, then H_0 is accepted.

Test of Significance (sobel-test)

Test the significance of the relationship of variables indirectly which also tests whether the model is fit or not, is carried out using a significance test (sobel-test) with the following criteria:

- If the significance value ≥ 0.05 , the research variables have no significant relationship
- If the significance value < 0.05 , the research variables have a significant relationship.

3. RESULTS & DISCUSSION

The pecking order theory claims that because of information asymmetry, managers set priorities in their financing approach, starting with internal financing (retained earnings) and continuing to use external sources of financing, where debt is preferred over other external financing. Funding internally, the problem of information asymmetry can be avoided, according to this theory, there is no optimal capital structure and the observed level of corporate debt is the result of many managers' decisions over time (Myers, 1984).

Akinsulire, (2008) points out that no performance review is debatable, for example reported earnings are a matter of opinion. If earnings are measured in terms of increases or decreases in a company's wealth, it is clear that some definition of the wealth stock is needed. There are three categories in measuring wealth; as financial capital, equity shares in a company in the form of money, real financial capital, equity shares in a company in real terms (ownership concept); operating capacity capital, the company's ability to maintain its ability to provide goods and services (entity concept). In addition, measuring performance is very important because it is based on results, making decisions that differ in economic units.

Working capital management involves managing cash, receivables, inventory and payables (Naseer and Hadeya, 2013). In cash management, the company ensures that cash is available to meet its operational costs and reduce cash storage costs. Receivables management involves

adopting appropriate credit policies for the company's customers. Appropriate credit policies are expected to attract customers and boost sales. Although the policy will have a positive impact on profits and return on capital, it does affect the company's cash flow. Therefore, company management needs to strike a balance between increasing sales and securing the necessary cash flow.

The application of Environmental Management Accounting (EMA) has a significant impact on the company's finances. The better the implementation of Environmental Management Accounting (EMA), the more efficient the company will be financially. Research conducted by Hatef and Dadashian (2016) found that financial managers' knowledge of environmental aspects has a significant impact on financial decisions made by organizations. This happens because managers have access to accurate and comprehensive financial information, so that by implementing or implementing Environmental Management Accounting (EMA), companies are expected to be able to identify environmental aspects, reduce consumption of raw materials and energy (thus reducing costs), and finance accurately management to reduce the waste generated during production.

The application of management accounting (EMA) can be used as an effort to achieve a company's strategic position. As previously mentioned, the strategic position in question is the company's long-term competitiveness, or more generally, the company's competitive advantage (Prasetya, 2021). The application of Environmental Management Accounting (EMA) provides an advantage for a company compared to other companies, especially its competitors. Research conducted by Jasch and Statiskiene (2005) concluded that environmental management accounting (EMA) is increasingly important for product and production process design, cost allocation and control, budgeting, procurement, product pricing, and performance evaluation. Companies implementing Environmental Management Accounting (EMA) use it as part of an integrated management system to provide accurate and complete information for environmental performance measurement and reporting. The results of this study explain that the implementation of environmental management accounting (EMA) has a positive impact on company performance.

Furthermore, in table 2 below, it can be seen that several relevant studies related to the relationship between the variables studied are as follows;

Table 2. Relevant Research

Author	Method	Conclusion
<i>Chaudhry et.al (2020).Environmental Innovation And Financial Performance: Mediating Role Of Environmental Management Accounting And Firm's Environmental Strategy</i>	Quantitative method with Structural Equation Modeling (SEM) analysis	The findings show that EMA and FES moderate the relationship between manufacturing innovation and FFP in Pakistan. The EMA literature study illustrates a comprehensive theoretical model in the Pakistani manufacturing context by introducing two mediators between environmental innovation associations and financial firm performance. This study recommends that managers of manufacturing companies or similar departments introduce innovations in their products and processes to develop a better EMA system.
<i>Ugwueze et.al (2021).Effect of Environmental Sustainability Cost on the Financial Position of Quoted Manufacturing Firms in Nigeria: Evidence from the Healthcare Sector</i>	Quantitative method with descriptive statistics and regression analysis (stationarity) and cointegration test	The findings show that environmental sustainability costs, run by community development costs, employee benefit costs and raw material costs, contribute positively to the long-term sustainable growth and development of Nigerian manufacturing companies.
<i>Farhan et. al (2021).Working Capital Management Policies in Indian Listed Firms: A State-Wise Analysis</i>	Quantitative method with multiple regression analysis	The findings show that all companies across the Indian states follow conservative financing and investment policies. Companies are advised to follow conservative investment and financing policies that are effective and efficient in increasing the company's profitability for financial sustainability.
<i>Nihat et.al (2015).Is working capital management value-enhancing? Evidence from firm performance and investments</i>	Quantitative method with regression analysis	Given the optimal level of working capital investment, that company investment is the channel through which efficient WCM translates into superior company performance. An efficient WCM is invaluable, especially in periods of investment expansion.

Source: Researcher Data (2022)

Based on the developed model, it is known that there is a relationship between the antecedent EMA variable and the consequent variable of financial performance and working capital management as intervening variables, which can be seen in Figure 1 below;

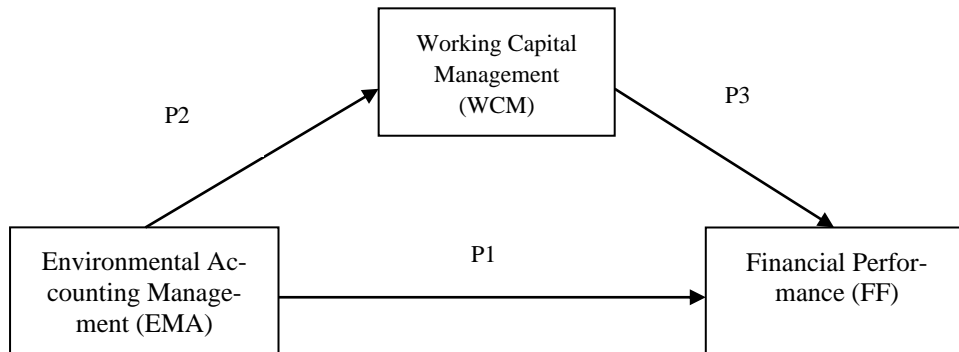


Figure 1. Relationship Model between Variables

Source: Data Processed, 2022

The EMA path analysis model of financial performance with working capital management as an intervening variable, in the figure it can be explained that EMA can have a direct effect on financial performance, but can also have an indirect effect through working capital management. The better the perception of working capital management perceptions, the better the financial performance will be. With the following equation:

- Direct influence : EMA to FF = p1.....(1)
- Indirect influence : EMA to WCM to FF = p2 x p3.....(2)
- total influence : EMA to FF = p1 + (p2 x p3).....(3)

Hypothesis Development

Basically, the main objective of environmental accounting is not only to improve the company's environmental performance, but also to improve the company's financial performance. Disclosure of information on all cost elements that are complete in everything related to company activities, will be a source of information in decision making. The accuracy of a decision will support cost efficiency and revenue optimization, this is consistent with research that describes a positive relationship between EMA and financial performance conducted by Magara et al. (2015), Chaudhry et al (2020), Amacha and Dastane (2017), Nnmani and Ugwu (2017), and Okegbe et.al (2019) found that environmental improvement costs, pollution prevention costs and environmental protection costs affect Nigeria's ROA. One of the factors behind the decline in financial performance is environmental accounting disclosures. This is because companies with good environmental performance will disclose their environmental accounting reports appropriately, so companies with good environmental performance will also have good financial performance. Based on the description above, the writer proposes the first hypothesis as follows

H1: There is an influence of EMA on the company's financial performance

Research conducted by Huseno (2018) explains that the application of environmental accounting is not detrimental to oil industry companies in Riau. The application of EMA actually provides a competitive advantage for companies, thus maintaining the company's image in managing the environment while building good social relations with the wider community. The study by Jasch and Statiskiene (2005) then concluded that environmental management accounting (EMA) is increasingly important for product and production process design, cost allocation and control, budgeting, procurement, product pricing and performance evaluation. In terms of controlling costs incurred by companies implementing EMA, they will use more efficient costs which will have an impact on lower working capital management.

H2: There is an influence of EMA on working capital management

Working capital management is a factor that influences financial performance, the use of good working capital management functionally will reduce costs and increase company profits. Measurement of good financial performance will depend on optimal company profits. This is supported by the research of Prempeh & Peprah (2020), which shows a significant positive linear relationship between working capital management and company profitability, while Sonia et al. (2014) company performance was found to be positively correlated at low levels of working capital and negatively correlated at higher level. In this description, the third hypothesis proposed is as follows:

H3: There is an influence of working capital management on the company's financial performance

Research Result

The object of this research is a manufacturing company, based on predetermined criteria using a purposive sampling method, there are seventy eight companies obtained. The study used a questionnaire submitted to the company's financial managers who were used as respondents. Based on the results of distributing the questionnaires, the following descriptions were obtained:

Table 3. Data Description

Variable	Minimum	Maximum	Means	Standard Deviation
EMA	25,00	40,00	32,28	3,34
WCM	14,00	24,00	19,43	2,66
FF	13,00	20,00	16,87	1,76

Source: Primary Data Processed (2022)

The table above shows that the value of environmental accounting management has an average of 32.28. This value explains that the respondents' responses to environmental accounting management averaged 32.28. With a relatively small standard deviation of 3.34, it indicates that the implementation of environmental accounting management by companies is relatively the same. Conditions show environmental accounting management has been

implemented by these companies. Then obtained an average value of working capital management of 19.43 which explains that respondents' responses to working capital management averaged 19.43. The standard deviation value of working capital management is 2.66 indicating that the quality of working capital management carried out by the company is relatively the same.

Companies' working capital management has a long-term oriented management system, which tends to increase its current assets in order to maintain company liquidity. The average value of the company's financial performance is 16.87 which explains that the response of respondents to the average financial performance is 16.87. Then the standard deviation value is 1.76 which indicates that the financial performance of the sample companies is relatively the same. The financial performance of companies tends to be the same. This can happen because the company's financial management system is not much different. Therefore the level of profit obtained by these companies is relatively the same.

Data Analysis

This study uses path analysis analysis based on the structural model equation below:

$$WCM = 0.441EMA$$

$$FF = 0.357 EMA + 0.570WCM$$

Table 4. Statistical t- test

Structural Model	+/_	β	t-test	Sig	Conclusion
EMA → WCM	+	0.441	4,690	0.000	Accepted
EMA → FF	+	0.357	2,677	0.008	Accepted
WCM → FF	+	0.570	4,427	0.000	Accepted
EMA → WCM → FF	+	0.251	2,843	0.005	Accepted

Source: Primary Data Processed (2022)

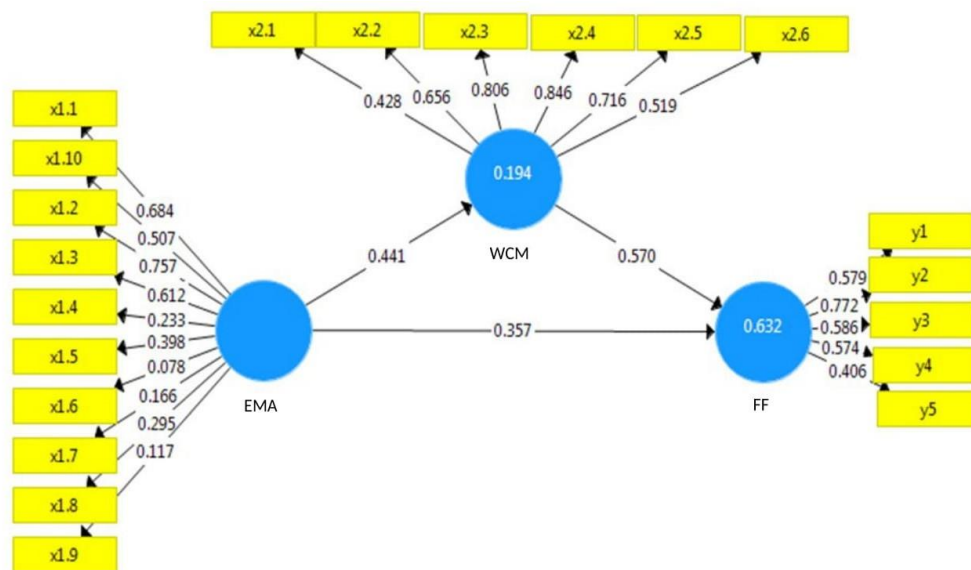


Figure 2. Structural Model of the Effect of EMA on Financial Performance

Source: Primary Data Processed, 2022

Table 4 shows that EMA has a coefficient value of 0.441 with a significance of 0.000. A significance value of 0.000 <0.05 indicates that environmental accounting management (EMA) has a direct significant influence on working capital management (WCM). Then the EMA coefficient value is 0.357 with a significance of 0.008. The significance value is 0.008 <0.05 which indicates that environmental accounting management has a direct significant influence on financial performance (FF). The coefficient value of working capital management (WCM) is 0.570 with a significance of 0.000. The significance value of 0.000 <0.05 thus indicates that working capital management has a direct influence on financial performance.

Sobel test

Testing indirectly by internalizing the intervening variable as a result of the interaction of the EMA variable and the WCM variable obtained a regression coefficient (EMA*WCM) of 0.251 (0.441*0.570). To examine the significance of the effect of environmental accounting management on financial performance through working capital management, the Sobel test was carried out. Based on the test obtained:

Table 5. Sobel Test Results

Structural Model	+/_	β	Sobel test Statistics	Sig		Conclusion
				one-tailed Prob.	two-tailed Prob	
MA → WCM → FF	+	0.251	3,216	0.000	0.001	Accepted

Source: Primary Data Processed (2022)

Table 5 shows the statistical Sobel test value of 3.216 with a significance (one-tailed probability) of 0.000 and (two-tailed probability) of 0.001. The significance value (one-tailed probability) is 0.000 <0.05 and the significance value (two-tailed probability) is 0.001 <0.025 thus indicating that environmental accounting management (EMA) has a significant influence on financial performance (FF) through working capital management (WCM)). The direct and indirect effects of the results of this data analysis are explained in the following table:

Table 6. Structural Model of the Effect of EMA on Financial Performance

Structural Model	Influence		
	Direct	Indirect	Total
EMA → WCM	0.441	-	0.441
EMA → FF	0.357	0.251	0.692
WCM → FF	0.570	-	0.570

Source: primary data processed (2022)

The table above explains that environmental accounting management (EMA) has a direct influence on working capital management of 0.441. Then environmental accounting management has a direct and indirect influence on financial performance (FF) each of 0.441 while the

indirect effect is 0.251. Thus the total effect of environmental accounting management (EMA) on financial performance (FF) is 0.692. Meanwhile, the direct effect of working capital management (WCM) on environmental performance (FF) is 0.570.

Discussion

Fatoki's study (2019) states that businesses that have long-term goals, elements of knowledge, technology and financial resources will provide solutions to environmental problems. Companies that apply environmental accounting management will have a better image compared to companies that do not apply environmental accounting management. This can happen because the application of environmental accounting is related to people's assessment of corporate responsibility for the surrounding environment. Therefore those who implement environmental accounting management will be viewed favorably by the public, because they are considered concerned about environmental preservation. However, on the other hand, the objective paradigm is to obtain optimum profit, companies are faced with the option of minimizing costs.

The application of environmental accounting management is often seen by companies as something that can increase operating costs, thereby reducing the company's working capital which at the same time can also reduce the company's liquidity level. Companies that implement environmental accounting management generally have obtained a balance between benefits and costs for environmental conservation activities, the challenge of environmental change will create opportunities for business (Casey and Sieber, 2016; Haldar, 2018). The application of environmental accounting is expected to increase cost efficiency, because it is related to the creation of quality products and waste management, all of which are investments for companies to develop their businesses. IFAC (2005) explains that EMA is invaluable for internal management initiatives with a specific environmental focus, such as cleaner production, supply chain management, green product or service design, greener purchasing. There are a variety of reasons why many managers have become interested in EMA information, including compliance with environmental regulations imposed on organizations, increasing awareness of the importance of managing an organization's environmental impact, promotion of EMA by international and national agencies, and the availability of EMA tools to assist in the management process (Burritt, 2005; Bebbington et.al, 2001). However, it is generally known that awareness of the environment is caused by government pressure through government regulations related to Environmental Protection and Management (Perda No. 6 th 2016). Thus, to accommodate these regional regulations, the company implements programs that are environmentally oriented and discloses information on costs in presenting financial reports related to environmental management. The inclusion of environmental management costs in the financial statements will automatically change the working capital management (WCM) system towards a more dynamic and long-term focus, therefore the application of environmental accounting directly affects working capital management.

Companies that apply environmental accounting will have good environmental performance. However, if analyzed further companies that apply environmental accounting, apart from fulfilling the objectives of increasing environmental performance, can also improve the company's financial performance. This can happen because the disclosure of complete financial information such as EMA (monetary and physical environment information) will make it easier

for management to make investment decisions. Previous studies have shown that the benefits of EMA practices include identifying cost-saving opportunities, avoiding future costs associated with investment decisions, improving product mix and pricing decisions, and improving environmental performance (Ferreira et.al .2010). The financial information obtained includes all costs incurred for the company's operations. This condition causes companies to be more certain to make decisions to optimize profits. Therefore it can be said that the disclosure of information about the environment causes the company's financial information to be more complete, thereby supporting the improvement of the company's financial performance because the business decisions taken become more optimal.

In accordance with the objectives of working capital management to analyze and maintain an optimal balance between each component of working capital so that it can play a role in increasing profitability, the results of the indirect effect test with the sobel-test explain that working capital management strengthens the EMA relationship with the company's financial performance. While partial testing shows that working capital management will be directly related to the company's financial performance, the measurement of company performance in general can be seen from the profit growth and sales level (growth & share) that the company gets every time. Management of the company's working capital will determine the level of profit obtained by the company. Better working capital management will determine the clearer direction of working capital allocation, thus more efficient and effective. Working capital management directly has a direct influence on company performance, better working capital management causes better (higher) company performance.

4. CONCLUSION AND SUGGESTION

Conclusion

Overall the findings show the important role of EMA in improving the company's financial performance. Therefore, EMA information is essential in providing information that increases managers' awareness of environmental issues, enables them to better respond to external pressures, and promotes better financial performance in making decisions and implementing working capital management that enables action when considering issues environment, working capital management decisions and implementing actions that increase the likelihood of achieving better financial performance wanted. The results of this study also explain that there is a positive influence of environmental accounting management on working capital management, this shows that there is a company's awareness of sustainability by managing the impacts arising from company operations.

Suggestion

Limitations in this study concern the limited number of samples and data obtained only through questionnaires, disclosure data has not been explored and the role of managers in sustainability. Given the importance of business sustainability going forward, further research needs to be conducted in a larger and more interesting sample size to investigate financial behavioral factors influencing corporate decisions regarding environmental accounting management that can be associated with conflicts of interest between managers and shareholders.

Implication

Company managers can innovate to determine alternatives to prevent or minimize waste from company operations with a lower burden so as to increase company profits. One of the advantages of implementing environmental accounting management is that the company will be able to continue to make innovations in the production process and the products it produces so that it can further reduce the waste it produces. Good environmental accounting management requires collaboration and coordination between parts of the company. Companies can invest resources to manage certain areas of working capital in parts that are performing poorly, unclear WCM directions are understood to have implications for poor financial performance, thus managers need managerial strategies in working capital planning.

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