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THE ENVIRONMENTAL COST IMPACT ON FIRM PERFORMANCE IN AVIATION SECTOR: DOES THE MANAGERIAL POWER REALLY MATTER

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ABSTRACT

This study aims to analyze the effect of environmental costs on company performance with managerial power as a moderating variable in the aviation sector in Indonesia. The research method used is quantitative with a regression approach using time series data from 2016 to 2023. The sample consists of eight airline companies that meet the purposive sampling criteria, namely companies that have published annual reports and sustainability reports for more than 10 years and explicitly disclose environmental costs. The results of the study indicate that environmental costs have a significant effect on company performance. Although managerial power is not significant individually, this variable together with environmental costs simultaneously affects company performance. However, managerial power is not proven to be a moderating variable that strengthens the relationship between environmental costs and company performance. The conclusion of this study emphasizes the importance of environmental cost disclosure and the strategic role of managers in driving corporate sustainability, in line with the Triple Bottom Line theory.

ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh biaya lingkungan terhadap kinerja perusahaan dengan kekuatan manajerial sebagai variabel moderasi pada sektor penerbangan di Indonesia. Metode penelitian yang digunakan adalah kuantitatif dengan pendekatan regresi menggunakan data time series dari tahun 2016 hingga 2023. Sampel terdiri dari delapan perusahaan penerbangan yang memenuhi kriteria purposive sampling, yaitu perusahaan yang telah mempublikasikan laporan tahunan dan laporan keberlanjutan selama lebih dari 10 tahun serta secara eksplisit mengungkapkan biaya lingkungan. Hasil penelitian menunjukkan bahwa biaya lingkungan berpengaruh signifikan terhadap kinerja perusahaan. Meskipun kekuatan manajerial secara individu tidak signifikan, variabel ini bersama-sama dengan biaya lingkungan secara simultan berpengaruh terhadap kinerja perusahaan. Namun, kekuatan manajerial tidak terbukti sebagai variabel moderasi yang memperkuat hubungan antara biaya lingkungan dan kinerja perusahaan. Simpulan dari penelitian ini menekankan pentingnya pengungkapan biaya lingkungan dan peran strategis manajer dalam mendorong keberlanjutan perusahaan, sejalan dengan teori Triple Bottom Line.

INTRODUCTION

As Companies embark to compete in the global market, they should admit the shifting concept that occurred in the business market which is not only require the economic performance but also the environmental performance (Dienes, Sassen, and Fischer 2016). The element of environmental performance such as Environmental cost and environmental disclosure are two elements that jointly impact the economic performance in a company. Aviation sector is one of the leading industries in Indonesia that continous to growth and had disclose their environmental activity on the annual report.

In the period of January to July 2024 there are over 26 million people travelled to various routes in Indonesia. This number of passengers increase slightly for about 2% compared to the 6 previous years in the same period in January to July 2019 which only had about 25,48 million passengers (Joniansyah 2024). While the aviation sector experience better growth in 2024 and has become an important transportation for Indonesian people as well as provide a number of jobs to Indonesian employment, it also has performed fuel efficiency improvements such as the reduction of emissions usage and greenhouse gas c. Aviation sector is reported responsible for about 2% of human-induced carbon dioxide emissions and also about 3,5% of global warming with its non-CO2 (Dodd and Yengin 2021). In addition, air transportation sector also had huge groups of stakeholders, and the industry should give its responsibility to the stakeholder by disclose the reporting to all insider and outsider stakeholders (Zieba and Johansson 2022).

On the other hand, the managerial power is also could strengthen the policy and operational activity including its annual report and performance (van Essen, Otten, and Carberry 2015). This study offered integrated analysis of how the environmental cost contributed to the company performance and this study also want to test the robustness of managerial power, including its role and power to trigger the publication of environmental report as the complementary of Financial Performance. Understanding this interrelation could encourage the internal and external stakeholders trust as well as interest.

The latest research on the relations between environmental disclosure and company performance commonly only test the interrelation among these two variables but not specific on Environmental cost and also not add moderating effect of managerial power (Zieba and Johansson 2022). The Scholars in the field study of Economics, management, business, and finance have focused on the issue about Is going green good for profits? Furthermore, the accounting researchers mainly focused on the issue about could the report of environmental activity on the annual report increase the firm value and the interest of investors? While this study has advanced purpose in specific topic, there is no past literature which attempt to test the issue Can the Managerial Power Moderate the interrelation between Environmental Cost and Firm Performance?

LITERATURE REVIEW

In order to explain the inclusive relation among these three variables, this study work combined the Triple Bottom Line Theory from Elkington (Elkington 2013)and Agency Theory from Jensen and Meckling as the main theory(Jensen and Meckling 2012). Triple bottom line theory emphasizes that if a company want to sustain, it should consider the balance between People, Profit and Planet . Meanwhile the agency theory stress about the role of manager in controlling the activity of the company. The logic is manager has power to give policy as well as decision making in the profit organization, which means that manager has power to trigger the allocation budget for environmental cost and the disclosure of environmental performance which could increase the company profit as well as company value. Therefore, it could give positive signal to the other stakeholders such as investors and debtors.

RQ1. Environmental Cost Increase the Firm Performance
RQ2. The Managerial Power Increase the Firm Performance
RQ3. The Managerial Power and Environmental Cost Increase the Firm Performance
RQ4. The Managerial Power Could Strengthen the Effect of Environmental Cost on Firm Performance

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The information on the annual report which convey about environmental cost and environmental disclosure could become beneficial information for the stakeholders, which can describe about the company responsibility towards the environment. Therefore, the combination of these two theories could become the grand theory for this study work and could contribute to the growing body of environmental accounting knowledge.

This academic research lies on the previous research from Al-Tuwaijri et al., 2004 which examined about the relation of environmental performance on company value. While the study from (Al-Tuwaijri et al. 2004) focus mainly on the company value and its effect for the future of the company. The originality of this study lies on the role of managerial power as the moderating variable between environmental cost and company performance. Therefore, the objective of this study is to examine the impact of environmental cost on company performance with managerial power as the moderating variable.

METHOD RESEARCH

The purpose of this research is to examine the testable hypotheses by using quantitative method. This study examines the company that had environmental impact toward society and environment, such as air transportation company or known as aviation sector that have published annual report as well as sustainability report on the website. This paper employee 65-unit sample analysis that could fulfill the purposive sampling requirement, such as: firstly, the company is one of the air transportation company in Indonesia; secondly the company that had been published their annual report as well as sustainability report more than 10 years; lastly the company that disclosed about their environmental cost clearly and comprehensively for example electricity cost, water usage cost, the reduction of emission, and the cost of nature protection. The data is a time series data begin from year 2023 to 2016 from eight companies in the aviation sectors in Indonesia. For the variable of firm performance, this research employee the Return on Asset data (ROA) which gathered from annual report. In order to get data of the managerial power variable, this research employee the CEO tenure which had been disclosed in annual report. The air transportation company had been chosen as the sample, because it contributed to the increasing level of air pollution that is triggered by the usage of emission from the burn fossil fuel in the airplane. Therefore, this company is determined essential to be analyzed. The tool of data analysis in this research is JSAP application, which could examine the interrelation between these three variables. This tool had the same tools as Spss application. This tool had been chosen because of its advantage such as free and friendly for the user, and beside it could perform the data accurately and clearly. The equation model of the research is proceeding as follows:

Y = a + b1X1 + b2*X1 + e
Y = dependent variable (firm performance)
a = constant
b1 = independent variable (environmental cost)
b2 = moderation variable
e = error

Table 1. The Data of Model Summary 1

Model	R	R^2	Adjusted R^2	RMSE
M_0	0.000	0.000	0.000	2.349

Table 1. The Data of Model Summary 1

Model	R	R^2	Adjusted R^2	RMSE
M_1	0.571	0.326	0.279	1.994

Table 2. The Data of ANOVA 1

Model		Sum of Squares	df	Mean Square	F	p
M_1	Regression	55.696	2	27.848	7.005	0.003
	Residual	115.288	29	3.975		
	Total	170.984	31			

Table 3. The Data of Coefficients 1

Model		Unstandardized	Standard Error	Standardized	T	p
M_0	(Intercept)	9.603	0.415		23.131	< .001
M_1	(Intercept)	25.504	15.546		1.641	0.112
	Ec	-4.445	1.328	-0.513	-3.347	0.002
	PM	15.642	11.546	0.207	1.355	0.186

Table 4. The Data of Model Summary 2

Model	R	R^2	Adjusted R^2	RMSE
M_0	0.000	0.000	0.000	2.349
M_1	0.573	0.328	0.256	2.025

Table 5. The Data of ANOVA 2

Model		Sum of Squares	df	Mean Square	F	p
M_1	Regression	56.118	3	18.706	4.560	0.010
	Residual	114.867	28	4.102		
	Total	170.984	31			

Table 6. The Data of Coefficients 2

Model		Unstandardized	Standard Error	Standardized	t	p

Table 6. The Data of Coefficients 2

Model		Unstandardized	Standard Error	Standardized	t	p
M_0	(Intercept)	9.603	0.415		23.131	< .001
M_1	(Intercept)	-398.646	1322.917		-0.301	0.765
	Ec	54.393	183.505	6.274	0.296	0.769
	PM	439.904	1323.226	5.835	0.332	0.742
	Ec ✻ PM	-58.857	183.562	-8.401	-0.321	0.751

RESULTS AND DISCUSSION

The data of model summary 1 on table 1 described about the value of R square in the model regression. This model gives information that the environmental cost and managerial power could affect the firm performance for about 0,326 or 32,6% which means that about 67,4% could be triggered by the other factors or variable. The data of table 2 gives information about The Data of ANOVA 1 which examined the effect of Environmental Cost and Power of Management jointly on Firm performance that had probability value about 0,0003. These two variables had significant value, which means that Environmental Cost and Power of Management could affect the Firm performance positively. The Data of Coefficients 1 on table 3 showed information about the probability value of Environmental Cost and Power of Management separately on Firm performance which is about 0,002 and 0,186 respectively.

The table 4, table 5 and table 6 described about the data after the model had been added the moderation variable. Based on these data, it can be concluded that the R square is only increase 2 points which is about 3,28%. The P value on Anova table is only 0,010 which means that these two variables still had significant value on firm performance. But, the most surprising finding is in the data of coefficient 2 on table 6, its found that the p value of moderation variable is about 0,751 or 7,51% which is higher than 0,05%. This evidence reflected that the power of managerial cannot moderate the interrelation between environmental cost and firm performance variable.

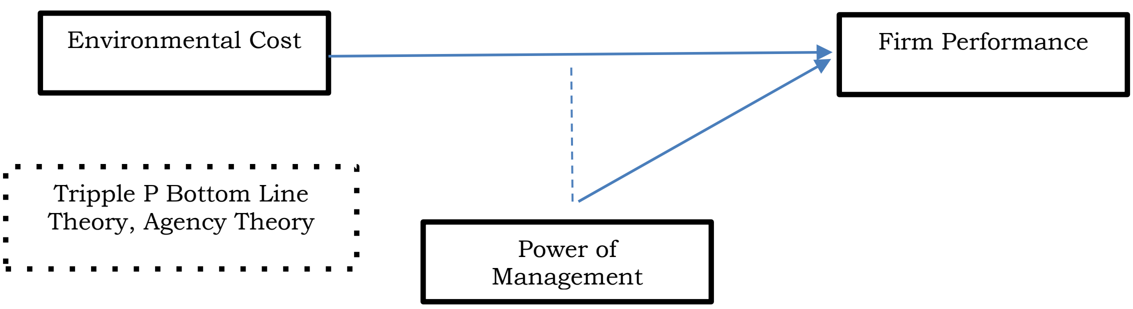

Figure 1. Theoretical Framework of How Environmental Cost Effect the Firm Performance with Managerial Power as the Moderating Variable

After the unpredictable emergency condition caused by COVID-19, in the period of January to July 2024 there are over 26 million people travelled to various routes in Indonesia. This number of passengers increase slightly for about 2% compared to the 6 previous years in the same period in January to July 2019 which only had about 25,48 million passengers (Joniansyah 2024). While the aviation sector experience better growth in 2024 and has become an important transportation for Indonesian people as well as provide a number of jobs to Indonesian employment, it also has performed fuel efficiency improvements such as the reduction of emissions usage and greenhouse gas c. Aviation sector is reported responsible for about 2% of human-induced carbon dioxide emissions and also about 3,5% of global warming with its non-CO2 (Dodd and Yengin 2021). In addition, air transportation sector also had huge groups of stakeholders, and the industry should give its responsibility to the stakeholder by disclose the reporting to all insider and outsider stakeholders (Zieba and Johansson 2022).

In the past, the terms of sustainability reporting which disclose the additional information about environment and social reporting is determined not essentials for the company. Meanwhile in this era, people tend to had high consciousness about how important the sustainability of environment to their business. Its start from1970 that the information of cost environment and environment responsibility begin to be published in the company report. This activity invited scholars to think and make concept about the continuity or sustainability in the corporate level. Then until 1994 John Elkington wrote about sustainable corporation strategy for sustainable development (Elkington 2013), and in this paper Elkington explain about a graph which combine the concept of eco-efficiency, greening supply chains, virtual zero discharge impact which requires shifting paradigm from the old paradigm which only focus on product and closed transparency to the new paradigm that more concern about product function and open transparency. Elkington predicted that in the future there will be a revolution which driven by market revolution that more open to competition then it resulting the economic earthquakes transformation.

In this economic earthquake’s transformation, a business should learn how to cope and survive with the situation. The customers and financial market require the application of triple bottom line theory aspect on their commitments and performance. Therefore, the business will shift to a new concept, using triple bottom line principle in Economics aspect including accounting in order to response the stakeholder’s demand. The figure 1 described the operational concept of triple bottom line theory on the one of the environmental accounting field topics. This model attempt to connect the environmental cost to firm performance towards main question; is environmental cost that has been spent by the company could affect the firm performance? This inquiry has been examined by using scientific steps through the model regression analysis and interestingly, it has been found that environmental cost could had significant effect to the company performance, which means that the environmental cost could increase the firm performance, mainly the financial performance. This finding is in line with the Elkington theory that in order to make sure that the company could earn profit, the company should consider the sustainability of environment aspect, and social aspect.

The next finding is the managerial power does not have the moderating effect to both of these variables. While this finding is unpredictable, because it contradicts with the prediction that a manager had a role to trigger the publication of sustainable report. But in the data of ANOVA in table 5 the effect of EC and The PM to FP is still significant. This reflects that EC and PM jointly could increase the value of FP. This finding supported the agency theory, which state that the role of manager in an enterprise is important, because manager is the delegation of investor in the company that directly involve in the top decision making. In addition, Cheikh and Zarai argue that the personal character of the manager has an effect on the realization of the performance. This means that, the performance of the company will improve if the firm entrusts its operational to CEO that have certain managerial competence. This condition could create conflict among the different partners of the firm (Ben Cheikh and Zarai 2008). While this study only considers the managerial tenure as the indicator of PM, there are also some other characteristics that could become indicator of the managerial power such as sociological aspects, professional aspect, and capacities of the CEO. For example, there are some studies who elaborate about the male and female characteristics. They found that men are more competent, active, independent, confident, objective and responsible and the CEO women tend to be more emotion, dependence, sensitivity and consideration. In addition, the CEO women are more interested in improve their professional quality without stressing their managerial power.

The other literature also mentioned about the age characteristics and showed that senior CEO did not interest in thinking and executing the innovation as well as new ideas. But on the other hand, a junior CEO is more interested in taking risk and incitive. Furthermore,(Mouta and Meneses 2021) discuss that managerial influence is expressed by the CEO power and this characteristic commonly embedded in young CEO characteristics. The professional characteristics of the CEO is reflected on the professional experience, the level of instruction and the seniority. The capacities of the CEO could be seen on their specialized training. Therefore, it could be concluded that manager or CEO had huge effect on the firm performance based upon some specific criteria.

Actually, the managerial power is also related with triple bottom line theory, manager is part of human resources that had power and impact on the growth of the company and its decision-making process (Jensen, M.C., & Meckling 1976). Elkington explain that in terms of corporate growing process, there are four classifications of corporate (see the matrix in figure 2), such as corporate locust, corporate caterpillars, corporate butterfly and corporate honeybees. Corporate locust is defined as a corporate that could destroy the natural, human, social and economic capital and unsustainable. The second is corporate caterpillars that only had internal impacts, showed single minded dedication (only focus on earning profit) and unsustainable and this corporate begin to pioneering the metamorphose towards sustainable. Furthermore, Corporate butterfly is corporate that implement the sustainable model and had a strong commitment to the social responsibility and sustainable development agendas. Finally, the corporate honeybees are a company that implement a sustainable business model, do constant innovation, sustainable production of natural, human, social, institutional and cultural capital(Elkington 2013).

Each type of these corporate had weakness and needs helped by the main stakeholder such as manager and government. For example, the stage of corporate locust, this type of company needs a manager that have power, competence and could make decision to switch their business orientation from the destruction of resources and capital to the building resources and capital. This company commonly do not publish their environmental cost on their annual report and do not publish sustainability report. The managerial power that embedded on the CEO is predicted could triggered this company to publish their complementary report. The corporate that only had internal impact, the corporate caterpillars could also be encouraged by providing opportunities to grow, but manager should use regulatory and financial incentive to make sure these businesses develop in line with environmental and sustainable development objectives(Elkington 2013).

The aviation industry consists of various types of companies, there are first class airplane in Indonesia which could be classified as the corporate honeybees, and the other as the butterfly, caterpillar and locust corporate. This argument is supported by the evidence that the Indonesian airplane begins to implement the sustainability in all operational activity, including report about their environmental cost such as electricity cost, water cost, reducing emissions, reducing and recycling the paper, and cost of protection the nature.

Table 2. Corporate Characteristics

	Low Impact	**High Impact**
Regenerative (Increasing Return)	Butterflies	Honeybees
Degenerative (Decreasing Return)	Caterpillars	Locust

The environmentally friendly activity such as reducing the waste packaging could also reduce cost. The other activity such as reducing the emission usage could avoid the rapid growing of climate change. Therefore, it can be concluded that the environmental cost and managerial power jointly could increase the firm performance. But in certain aviation company even they had implemented the sustainability aspect on their activity, they did not yet publish the environmental cost on their report which is reflected that the company is still in the phase of corporate caterpillar. This finding could be become major contribution for the governance as well as corporate. This study recommends the corporate that still in the phase of corporate locust and caterpillars to start implement sustainability development objectives on their whole activity including the publication of sustainability report and the disclosure of environmental cost on the report. Manager of the company also could begin to encourage the corporate to shift their paradigm from the old paradigm to the new paradigm known as sustainability in all aspects. The governance is also could release the regulation about environmental activity disclosure locally that could cover the stakeholder’s requirement as a whole. Because nowadays, investing in company that environmentally friendly is one of the stakeholder alternatives.

CONCLUSION

This research found that while environmental cost significantly impacts the firm performance, the managerial power did not impact the firm performance. But surprisingly, the managerial power is proven cannot moderate the effect of environmental cost on firm performance. On the other hand, this research also found that environmental cost and managerial power jointly had significant effect on firm performance. This finding is different with the study from (Zieba and Johansson 2022) which did not add managerial power as the moderation variable. The other originality of this study lies also on the indicator of environmental cost which is measured by using electricity cost, water usage cost, the reduction of emission, and the cost of nature protection.

This study works also found that there are four stages of corporate according to the triple bottom line theory which fit with the nature of companies in the aviation sector, such as locust corporate, caterpillar corporate, butterfly corporate and honeybee corporate. The first-class air transportation company in Indonesia is in the position of the fourth stage known as honeybee corporate. This type of corporate is described as a company that implement a sustainable business model, do constant innovation, sustainable production of natural, human, social, institutional and cultural capital. Each type of these corporate had weakness and needs helped by the main stakeholder such as manager and government. For example, the stage of corporate locust, this type of company needs a manager that have power, competence and could make decision to switch their business orientation from the destruction of resources and capital to the building resources and capital. This company commonly do not publish their environmental cost on their annual report and do not publish sustainability report. The managerial power that embedded on the CEO is predicted could triggered this company to publish their complementary report. The corporate that only had internal impact, the corporate caterpillars could also be encouraged by providing opportunities to grow, but manager should use regulatory and financial incentive to make sure these businesses develop in line with environmental and sustainable development objectives.

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