

THE SURVEY OF ENVIRONMENTAL STRATEGY ON INDONESIA CORPORATIONS: A REPLICATION MODEL

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Abstract

Environmental damage occurs at this time pushed corporations to change their business strategy into environmental strategy. Hence, performance measurement system is also used toward environmental. The Result of research conducted by Perego and Hartman (2009) has found relationship between environmental strategy and the use of performance measures mediated by performance measurement system (PMS). Based on the limitation of study conducted by Perego and Hartman (2009), this study replicate and meliorate by distributing questionnaires to corporate social responsibility (CSR) division of corporations in Indonesia. Because this division is part of the corporations, they are considered to understand more on the company's policy on social and environmental. Research of this study found that relationship between environmental strategy and the use of performance measurement system mediated manager sensitivity to environment and degree of congruity.

Keywords: environmental strategy, uses performance measurement, company policy, sensitivity, congruity.

Abstrak

Kerusakan lingkungan terjadi saat ini mendorong perusahaan untuk mengubah strategi bisnis mereka ke dalam strategi lingkungan. Oleh karena itu, sistem pengukuran kinerja juga digunakan terhadap lingkungan. Hasil penelitian yang dilakukan oleh Perego dan Hartman (2009) telah menemukan hubungan antara strategi lingkungan dan penggunaan ukuran kinerja yang dimediasi oleh sistem pengukuran kinerja (PMS). Berdasarkan keterbatasan penelitian yang dilakukan oleh Perego dan Hartman (2009), ini mereplikasi penelitian dan menjadi lebih baik dengan menyebarkan kuesioner kepada tanggung jawab sosial perusahaan (CSR) pembagian korporasi di Indonesia. Karena divisi ini adalah bagian dari perusahaan, mereka dianggap lebih memahami kebijakan perusahaan pada sosial dan lingkungan. Penelitian dari studi ini menemukan bahwa hubungan antara strategi lingkungan dan penggunaan sistem dimediasi sensitivitas manajer pengukuran kinerja lingkungan dan tingkat harmoni.

Kata kunci: strategi lingkungan, menggunakan pengukuran kinerja, kebijakan perusahaan, sensitivitas, harmoni.

I. INTRODUCTION

Environmental and social issues presently have taken a lot of attention among business and government. Businessmen are required to take responsibility for dealing with social and environmental problems caused by corporation activities. To prevent these issues the parliament passed the Law No. 40 Year 2007 regarding Limited Company of the obligations of companies disclose social and environmental responsibilities of companies. In addition to that, the President has enacted Government Regulation (PP) No. 47 of 2012 providing for

sanctions for the company who did not disclose social and environmental responsibility.

Unfortunately, despite the rules and regulations that have been clearly established by the government, in practice the implementation of social responsibility disclosure and corporate environment is still very low. This was evident from a preliminary survey in this study which found the fact that compared to all companies listing on the Indonesia Stock Exchange in 2010, only 25% showed the implementation of social and environmental responsibility in the Annual Report.

In addition, the advice research conducted by Perego and Hartman (2009), suggests that the survey should be conducted to better understand the parties regarding the implementation of social responsibility and corporate environments. Low levels of disclosing and research results, as in Perego and Hartman (2009), drive researchers to test whether such disclosure is part of the company's strategy or just to meet the statutory provisions alone. Seriousness of the implementation of environmental strategies within the company will also be reflected in the design of aligning and performance measurement system (PMS) that mediate environmental strategies with the use of environmental performance measures. So the purpose of the study was to test whether the PMS mediate the relationship between environmental strategy and the use of environmental performance measures.

II. LITERATURE REVIEW AND RESEARCH HYPOTHESES

Definition of Environmental Strategies

Definition of environmental strategies is a whole part of the organization recognizes and considers the importance of the environment (Banerjee, 2002). And formulate the strategy of the organization and integrating environmental issues into the strategic process. Environmental strategies can be described as a continuum that begins proactive strategies until reactive strategies (Roome, 1992). Reactive corporations that environmental objectives are not stated explicitly or not integrated into the organization's business strategy. In contrast, proactive corporations develop and explicitly have environmental objectives, and there is the strategic objectives, management policies and practices.

Corporations that have proactive response, will anticipate the impact of operations on the environment (Berry and Rondinelli, 1998). The study was conducted to examine whether the strategies affect the use of environmental information for decision making and control. Chenhall (2003) shows researchers speculate that the environment-oriented firms will tend to

use performance measures for planning and control environment. Researchers also examined the relationship between the indirect influences over the strategy to measure the performance characteristics of PMS information.

The Effect of Environmental Strategies on the Use of Performance Measures

Several studies conducted previously showed that it is very important there is aligning between PMS and the choice of strategy (Chenhall, 2003). According to Simons (2000), business strategy is the basis for performance measurement and effective control for two reasons. First, control and performance measurement system provide analysis and communication lines to formulate business strategy and ensure that strategic objectives delivered through the business. Secondly, control and performance measurement system is a tool to monitor the implementation of the strategy. It is also conveyed by Ittner, et al (2003), assuming control of the strategic importance was the need to adjust control specific practices to the choice of strategy. In addition, other researcher said that there are relationship between business, operational strategy and performance measurement choices. Manufacturing practices such as total quality management, just-in-time and flexible manufacturing systems have a relationship with the design of PMS (Stede, 2006).

Specifically, management qualities claimed benefits of the use of non-financial measures to track quality improvement efforts. Formal environmental management system has similarities to quality management. The similarity between the quality and environmental management is supported by research in operations management that emphasizes some aspect (Curkovic and Landeros, 2001). Some examples are the certification scheme based on managerial principles that exist in the quality management (ISO 9000) and environmental management, health and safety (ISO 14000). Second, based on surveys that have been done show that the managerial system is usually integrated with a company that tends to get certified for quality,

environmental and safety practices are usually conducted by a third party (Corbett and Kirsch, 2001). If organizations want to adapt environmental aspect into business strategy, hence it becomes an important performance measure to determine whether environmental strategy can be effectively carried out. Emphasis on environmental objectives which should be reflected in the control system can adjust management for business decisions and motivate employees to achieve the environmental strategy. Researchers estimate that the corporations were implementing environmental strategies (proactive) use measures of environmental performance than companies that only respect to environmental practices (reactive). So based on the above explanation, the researchers proposed the formulation of hypotheses are:

H1: *Environmental strategy has a positive effect on the use of environmental performance measures*

Contingency-Based indirect path

Organization's ability to survive and function well in the competitive environment is quite high, depending on the availability and quality of accounting information. Managers need the information to make decisions and evaluate performance. PMS also helps to understand the relationship between input and output, coordinating activities across multiple subunits (Galbraith, 1973). From the perspective of decision control, managers have to drive to improve performance as measured and evaluated (Perera et al, 1997). In order to get the potential benefits of performance indicators should fit with the strategic objectives. Empirical evidence about the suitability of the strategy and the characteristics obtained from the results of research conducted by (Cavalluzzo et al, 2004). They found that the uses of performance measures by government, is a function of performance measurement systems. Yet in the hospital organization (Abernethy, 2004) examined and found about the use of accounting information depends on the doctor's perception of the design criteria for PMS. They

are also found that the characteristics of the system design will affect the importance of PMS for controlling physician behavior by top management. Their expectations based on allegations of Milgrom and Roberts (1992), when information associated with the late manager's actions, does not accurately describe the behavior or not, managers usually do not use this information to measure the performance of subordinates. This study focused on the dimensions of PMS, namely quantification, scope and timeliness. It is based on the literature of management accounting system contingencies. Quantification expressed as the actual shape or structure of an accounting information system according to the measure used to express or encourage information (Larcker, 1981). Studies that examine the specific quantification of non-financial performance measures as may be appropriate environmental performance metrics to reflect the physical and quantitative (Davila, 2000). This variable contains the financial aspects of environmental performance. A difference between financial and non financial performance is a model of environmental management accounting grouping, a physical or ecological accounting system, so different from a pure financial accounting system (Schaltegger and Burritt, 2000). Second, this study tested the scope and extent of environmental PMS. This dimension is suggested by Chenhall and Morris (1986) and has been tested several times by the management accounting literature.

Information systems have narrow scope and focus on events within the organization, providing financial information and historical orientation. On the other side of the broad scope of information including information relating to the external environment, as well as non-financial factors in company operations Chenhall and Morris (1986). Broad scope of information systems also provide estimates of possible events that occur in the future. In this study, the scope of the environmental PMS as a level of environmental performance that focus on internal and external environmental performance dimension. So broad scope environmental PMS provides information about the manager outside the organization's

environmental performance, and upcoming events of the past that affect an organization's environmental performance.

Third, related to the timeliness claim frequency and speed of the internal reporting of environmental information systematically collected by corporations (Chenhall and Morris, 1986). Timely environmental information will improve the internal reporting of events and feedback to the decision taken. In the context of environmental management, this dimension is important to ensure appropriate response to environmental or preventive measures to reduce environmental risks. Epstein (1996) said that successful application depends on the accumulation of environmental strategy, overall, the measurement and reporting of information related to the company's environmental impact to the various managers within the company. Researchers estimate that proactive corporations will invest more environmental information system to adapt to the environmental strategy (Lambert et al, 2000). This system would be better to quantify the environmental impact of processes and products (Brown et al, 2005). By improving the efficiency of resource used, reducing waste and improving environmental performance, the corporations are expected to create performance measures that can help managers achieve the environmental objectives (Epstein, 2008). Research conducted by Joshi et al (2001) found that the expense is recognized related to the environment has a low degree of accuracy. In addition, Clarkson et al (2004) said that high-polluting are not recorded as an environmental risk. Though the environmental information that is expressed in units of non-financial services can improve the control and make decision. Broad scope PMS environment is expected to increase in a proactive organization. Broad scope operations management shows the importance of environmental information internally and externally, so as to reduce adverse impacts on the environment throughout the product supply chain (Angell and Klasen (1999). McEvily and Markus (2005) said that the company will be performed jointly efficient in pollution when they acquire information and knowledge to solve the problem of supplier environmental

issues. Supplier also enables companies to imitate the practices of other companies in the industry. In addition, information related to the company's environmental practices benchmark against competitors and industry standards to push the performance can be monitored and improved, so that the objectives set are achieved. Therefore, broad scope information about standards, practices, regulatory, technological and social expectations of the environment encourages managers to make proactive environmental practices. In addition, the accuracy of PMS environment encourages managers to respond quickly to prevent that can damage the environment, accidents that occur during the production process that can damage the health and environmental damage. Based on the above explanation, the researchers estimate that the PMS environment will affect the relationship between environmental strategies with the use of environmental performance measures. So that the formula proposed hypotheses are:

H2a: environmental strategy positively affected the use of environmental performance measures through the quantification

H2b: environmental strategy positively affected the use of performance measures through the scope

H2c: environmental strategy positively affected the use of performance measures over the timeliness

Economics-Based indirect path

PMS can also be assessed on the basis of economic performance measure used in the compensation contract should also be integrated with organizational objectives (Prendergast, 1999). PMS of the economy will test three variables the sensitivity, verifiability, and the congruence of performance. Based on agency theory, incentive system should be an integrated part in the environmental strategy (Zabel and Roe, 2009). Because of environmental damage will impact to the profits.

Sensitivity as an integral part of uses performance measures. It is used as a basis for understanding the ability of control and influence the environmental performance through the manager's actions. In the agency

terminology, reflecting changes in performance measures in response to a change agent. Researchers estimates sensitivity environmental performance measures will have a close relationship to the objectives of corporate strategy, providing more information about the relationship input and output production process and estimate the root causes of the risks associated with environmental degradation (Holliday et al, 2002).

Verifiability is a measure of environmental performance can be verified by a third party (Gibbs et al, 2004). It is based on stakeholders can see the size of the environmental performance on the way an objective and unbiased. Researchers estimate proactive corporation will arrange measure environmental performance with internal control procedures and verification by a third party.

Finally, aspect of PMS is the congruence or the suitability of environmental performance measures with the aim corporations. Based on the agency's perspective, the suitability of performance measures will help managers allocate actions in a variety of tasks. When faced with a variety of sizes, manager will focus set size for balance between compliance and cost information. Researchers estimate that measuring environmental performance through a strategy to ensure align priorities right and understand the business decision-making process. Researchers estimate, goals and objectives of the company managers are aligned at a proactive company. Since the purpose of proactive corporate managers believe that environmental goals are also a corporate goal, compared to a reactive company. So that the formulation hypotheses are:

- H3a: environmental strategy has a positive effect on the use of performance measures through the sensitivity
- H3b: environmental strategy has a positive effect on the use of performance measures through the verifiability
- H3c: environmental strategy has a positive effect on the use of performance measures through the congruence

RESEARCH METHOD

Data

Selected populations in this study are companies listed on the Indonesia Stock Exchange. Sampling method using purposive judgment sampling method, with several criteria: (1) Corporations listed on the Indonesian Capital Market Directory in 2010 as many as 402 corporations, (2) Minus by the corporation has not revealed the social and environmental responsibility in the company's annual report as many as 107 , (3) Minus by a corporation that does not have a direct impact on the environment as much as 77 companies, (4) Minus by a corporation that is not available to sample as many as five companies, so the total sample of companies into 20 corporations.

Respondents are come from a division of Corporate Social Responsibility (CSR). The reason is the CSR division was involved in the process of corporate social responsibility so that a better understanding of social responsibility and corporate environments. Of the 100 questionnaires distributed, there were 40 questionnaires returned and 38 (38%) questionnaires that can be processed.

Operational Definition

Environmental strategy is the respondents' perceptions of the degree of integration of environmental policy in the policy of the organization as a whole. The questionnaire was taken from questions developed by Banerjee (2002). These variables using Likert scale of 1 to 5.

Quantification is the perception of respondents about the extent to which performance measures are quantified and reported in the company's management accounting system. The questionnaire was taken from questions developed by Marshall and Brown (2003). Quantification is divided into two size financial quantification and nonfinancial quantification.

Scope is the perception of respondents about the availability of environmental information in each unit of the company. The questionnaire was taken from questions developed by Chenhall and Morris (1986).

Timeliness is the perception of respondents about the frequency and speed of provision of reports on environmental and social responsibility undertaken by the company. The questionnaire was taken from Chenhall and Morris (1986).

Sensitivity is the perception of how far the actions of respondents affected by the performance measures used in the corporate environment. The questionnaire is taken from Nakamura, et al (2001).

Verifiability is the perception of respondents regarding the extent to which environmental performance measures stated in an objective and verifiable. Questionnaires taken questions developed by Moers (2006).

Congruence is the respondents' perceptions regarding the degree of correspondence between the sizes of the respondent's environmental performance with financial performance measures. The questionnaire was taken from questions developed by Baker (2002).

The use of environmental performance measures is the perception of respondents regarding uses level of environmental performance measures used in control decisions. The questionnaire was taken from questions developed by Cavalluzzo et al (2004).

RESULT of RESEARCH

Construct validity assessed by cross loading or by looking at the Average Variance Extracted (AVE). An instrument which is used in this study has a value above 0.5 AVE so that it can be concluded that construct used is valid, as shown table 1.

Table 1. Average Variance Extracted (AVE)

	AVE
CONG	0.787320
QF	0.649184
QNF	0.588824
SCOPE	0.684997
SENS	0.498314
STRAT	0.659331
TIME	0.694064
USE	0.609013
VER	0.539641

Reliability is used to see the consistency of the instruments. This can be measured by looking at the value of Cronbach's alpha and composite reliability. Based on the data processing results show the value of Cronbach's alpha and composite reliability of each construct was above 0.7 so that it can be stated that the instrument used reliable, as shown table 2.

Table 2. Cronbach's alpha and Composite Reliability

	Cronbach's alpha	Composite reliability
CONG	0.745389	0.880561
QF	0.519193	0.780850
QNF	0.670143	0.805526
SCOPE	0.772285	0.865710
SENS	0.673559	0.794703
STRAT	0.925085	0.939019
TIME	0.559717	0.819366
USE	0.838227	0.885830
VER	0.783405	0.853113

Hypotheses were tested using Partial Least Square (PLS) as shown table 3. The PLS analysis shows that environmental strategy directly affects the use of environmental performance measures at 5 per cent significant level, thereby support to H1. All of indirect alignment variables as predicted in H2 are not supported. Further, significant direct effects are found between environmental strategy and the two performance measure properties of sensitivity, and congruity of environmental performance measures. The two path coefficients show positive and significance levels at 10 per cent, thereby support to H3.

Table 3. Results Hypotheses

	Original Sample (O)	T Statistics (O/STERR)
STRAT -> USE	0.730062	13.944973 *
STRAT -> QF	0.096926	1.019034
QF -> USE	0.247988	2.607933
STRAT -> QNF	0.224111	2.598361
QNF -> USE	0.138609	1.694551
STRAT -> SCOPE	0.702211	8.992624
SCOPE -> USE	0.098858	0.966917
STRAT -> TIME	0.562552	3.430275
TIME -> USE	-0.096054	1.229506
STRAT -> SENS	0.574822	4.194907**
SENS -> USE	0.189939	2.168902**
STRAT -> VER	0.713282	6.567625
VER -> USE	-0.074692	0.937785
STRAT -> CONG	0.626790	5.510596**
	-0.159724	1.730564**

* Significant at level 5%

** Significant at level 10%

CONCLUSIONS

The results of this study found that environmental strategy has the influence on the use of environmental performance measures. This study also proved that the congruence variable and sensitivity variable as mediated relationship between environmental strategy and the use of environmental performance measures. However, this study failed to prove that quantification, scope and timeliness as mediated relationship between environmental strategy and the use of environmental performance measures. Because level of difference of need and availability of environmental information in each corporation.

In our conclusion, the relationship between environmental strategy and the use of

performance measures could not analyzed by contingency approach, but the economic approach. Therefore corporations in Indonesia should consider the economic aspects when it will implement an environmental strategy. So they can achieve the goals.

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