

Factors Affecting Environmental Accounting in Small and Medium Enterprises in Vietnam

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Abstract

This paper aims to determine the degree of influence of factors on the application of environmental accounting by small and medium enterprises in Vietnam. The study used both qualitative and quantitative methods. Qualitative research is used first with the case method through discussion techniques, interviews, and saturation points. Quantitative analysis is used to verify the model. Research results show that there are four factors affecting environmental accounting: (1) pressure from stakeholders; (2) manager's perception; (3) the relationship between costs and benefits; (4) qualifications of accountants. On that basis, the study makes some recommendations to encourage small and medium enterprises to apply environmental accounting and, at the same time, proposes research directions for the future.

Keywords: Environmental Accounting, SMEs, Vietnam.

1. INTRODUCTION

Environment and environmental issues have become topical topics in most countries and globally in recent years. In particular, since the 1992 Earth Summit in Rio de Janeiro, the business community has continuously raised awareness of the need to achieve sustainable development and reduce the environmental impact of activities they cause. Sustainable development is the process of development that meets the needs of the present generation without harming the interests of future generations. Sustainable development represents a balance between economic growth and protecting the environment from destruction, mainly by using natural resources rationally and responsibly. As an essential part, enterprises have the responsibility to value, playing a key and decisive role in sustainable economic development. They account for environmental factors to act to protect the environment. However, according to the United Nations Commission on Sustainable

Development (UNSD, 2001), most current accounting systems fail to reflect environmental costs: (1) Many ecological costs have not been fully recognized by the traditional cost management accounting system. These costs are often ignored and not included in the internal or individual prices of the accounting unit; (2) Traditional accounting has recorded a lot of environmental costs in overhead, so production managers have no incentive to reduce environmental costs because they often do not realize the existence of environmental costs. origin of those costs... When environmental costs are recognized in overhead and then allocated to production processes or products, product costs are unreliable or misrepresented; (3) Traditional cost management accounting only measures and records environmental costs in monetary units but does not pay attention to physical units, which leads to the fact that only environmental cost data is available used to evaluate financial performance but not yet

assess the environmental performance of the business's activities.

The change in social awareness has made environmental regulations more and more strict. The costs incurred due to non-compliance with environmental regulations are increasing, and the costs of enterprises to protect the environment are also increasing. Under the pressure of society to manage environmental problems, especially prices and related benefits, there is a need to expand the scope of traditional accounting. According to Gray and Bebbington (2000), applying environmental management accounting in management has become evident in economic units, especially in developed countries with a relatively complete ecological legal system, such as the US, Germany, and Japan. Here, many environmental cost accounting models have been studied and applied (environmental cost model by material flow at Canon corporation, Ciba Specialty Chemicals chemical company, supply chain model at the company). However, environmental management accounting is still relatively new for transitioning economies like Vietnam. That also explains the lack of studies on ecological cost management accounting in enterprises in Vietnam in the past time. That is also the motivation for the author to carry out this study.

2. Literature review

2.1. Environmental accounting

Environmental accounting appeared in the early 1970s; the first stage was social and environmental accounting. Social and ecological accounting is the voluntary disclosure of qualitative and quantitative information made by companies to inform stakeholders of the environmental impacts of their operations. Quantitative disclosures can be financial or non-financial items (Mathews, 1993).

Social and Environmental Accounting development is divided into three periods 1971-1980; 1981-1990; 1991 to 1995. The objective

of Social and Environmental Accounting is to expand corporate accountability to shareholders by promoting the disclosure of information about the society and the environment. The first stage does not have a theoretical framework. Still, only a few empirical studies exist or not whether the disclosure of the information relates to the social accounting aspect. In contrast, environmental information has not been paid attention to; few publications show the number of pages, lines, and words. Research results from the annual report of 500 companies show that the social disclosure rate is about 90%, but the average volume is about half a page (Ernst & Ernst, 1978). In the period 1981-1990, environmental information disclosure was concerned. The term ecological protection was emphasized during this time by the need for environmental protection. Several regulations related to the environment have not yet been enacted into law. From 1991-to 1995, the development of ecological economics promoted research in this area and several rules and regulations related to environmental issues (Mathews, 1997).

Environmental accounting includes all areas of accounting that may be affected by a firm's response to environmental issues, including the new location of ecological accounting (Gray et al., 1993). And IMA (1996) emphasizes the cost aspect: Environmental accounting is the identification, measurement, and allocation of environmental costs, incorporating environmental costs in economic decisions, disclosing information to stakeholders.

Environmental accounting is also a part of accounting to record, analyze and report information on the impacts of enterprises on the environment and the economic and ecological efficiency of the unit (Schaltergger et al., 2000). Environmental audit information is used internally, generating ecological data to help make management decisions about pricing, cost control, and capital budgeting; or disclosed to interested external parties such as the public, investors and financial institutions (Bartolomeo et al., 2000). Environmental management accounting aims to provide internal environmental information for better environmental cost management (Yakhou et al.,

2003). By 2005, the Japanese Ministry of Environment approached ecological economics from the point of view of sustainable development; this agency affirmed: Environmental economics has goals towards sustainable development for the community and pursues environmental protection activities at the same time. Disclosure of information for those who need to use it (MOE, 2005).

2.2. Pressure from stakeholders

The influence of legal factors: The results of interviews with nine managers and accountants at enterprises agree that: "The coerciveness of environmental laws is a decisive factor in applying the accounting system. environmental cost management accounting in oil and gas processing enterprises". Because the enterprises are operating in environmentally sensitive fields, with the characteristics of petroleum products with chemical components that can also release pollutants during the storage process, processing enterprises' oil and gas is strongly affected by environmental regulations of the law.

Pressure from the community and consumers: Most interviewees said that they hardly feel pressure from consumers because the characteristics of petroleum products are that consumers have little opportunity to choose products. Consumption, on the other hand, is on the Vietnamese market today. Customers all said that they are under pressure from consumers, but not much because of price pressure, not environmental standards. All respondents believe that social organizations (environmental) have little influence on them. "We all fully comply with environmental standards even higher than required by the authorities. It is verifiable that the environmental indicators of our operations and products have all been confirmed by the authorities to be above standards, so they (social organizations) cannot put pressure on us." The interview results show that pressure from the community and consumers has a negligible influence on the application of environmental cost management accounting.

Pressure from investors, banks, shareholders: Managers and accountants (September 9) all said they were under pressure from Shareholders, banks, and credit institutions. Investors and insurance companies disclose information about compliance with the Law on Environmental Protection for each business plan to ensure that they do not face any risk from the authorities when implementing business projects. When approved, the business plan, environmental impact assessment reports, and environmental monitoring reports are required by shareholders, banks, investors, and insurance agencies for oil and gas processing enterprises.

H1: Pressure from stakeholders has a positive relationship with the application of environmental accounting in small and medium enterprises.

2.3. Manager's perception

Business managers play an essential role in orienting the unit towards a common goal. Managers' perceptions and attitudes will determine their policies and actions to behave in business activities. When managers have a clear awareness and high consensus, expressed in strategic commitments and specific efforts to improve the business's environmental performance and activities, it will motivate the industry. Apply environmental cost management accounting. The survey results show that managers at oil and gas processing enterprises are pretty aware of the benefits of ecological cost management accounting with businesses and environmental responsibility. Demonstrated through commitments to comply with the State's Law on Environmental Protection and ecological policies of corporations and companies. Proactive attitude to prevent ecological risks through ISO 14001 management system... Therefore, awareness of ecological cost management accounting benefits and environmental responsibility of managers in enterprises SMEs play an essential role in promoting the application of environmental cost management accounting. From the arguments on the second hypothesis (H2) is built:

H2: Manager's perception has a positive relationship with the application of environmental accounting in small and medium enterprises.

2.4. Relationship between costs and benefits

Environmental cost management accounting has been proven to bring businesses many benefits in terms of financial activities. Still, oil and gas processing enterprises also have to spend significant financial resources when applying it. To restructure the accounting information system, train and update knowledge for the accounting team... These costs are not small in that businesses are currently facing many financial difficulties due to the above oil price. The world is on a downward trend. The group's oil and gas exploitation and processing output tends to cut volume to respond to the new situation. According to a qualitative survey, managers in enterprises still wonder about the financial efficiency of applying environmental cost

management accounting. Therefore, the third hypothesis (H3) is formulated:

H3: Relationship between benefits and costs positively relates to the application of environmental accounting in small and medium enterprises.

2.5. Qualifications of accountants

The qualitative survey results show the knowledge and practice of collecting, processing, and providing accounting information for environmental cost management of accountants in small-medium enterprises are limited. The limitations of knowledge and skills affect the level of application of environmental accounting in these enterprises. Therefore, the fourth hypothesis (H4) is formulated:

H4: Qualification of accountants affects the application of environmental accounting in small and medium enterprises.

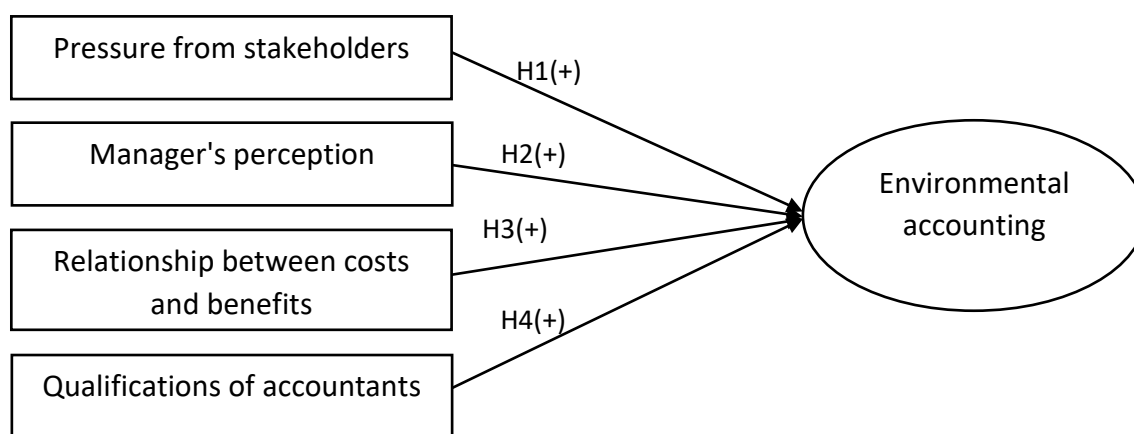


Figure 1. *Research model*

3. Methodology

3.1. Method research

The research was carried out through two steps: preliminary analysis and formal research:

Preliminary research is carried out by qualitative research method: the author will conduct interviews, discuss experts (who are experts in the field of financial accounting, management, are lecturers of universities), college; directors, chief accountants

specializing in the area of accounting and auditing practice) based on research articles and opinions related to the topic, the purpose of finding out the influencing factors to the extent of applying environmental accounting and choosing a model is the basis for the author to set up a questionnaire to use in official research.

The official study was carried out by quantitative research method: with this method, the author evaluates the reliability of

Cronbach's alpha and analyzes the EFA exploratory factor, then builds a multivariate regression model to assess the impact, as well as the level of contribution of aspects to the level of environmental accounting application of small and medium enterprises in Vietnam.

3.2. Scale

Based on theory, previous studies, and qualitative research (discussion of experts), the article has selected the scales and adjusted and supplemented them to match the actual situation of the listed companies in Vietnam. The factors affecting the level of application of environmental accounting are synthesized and proposed by the author, including Pressure from stakeholders, Manager's perception, Relationship between costs and benefits, and Qualifications of accountants. The results of the summary of experts' opinions on the scales in the research model are shown in Table 1.

Table 1. *Scale*

No	Items	Code
<i>Pressure from stakeholders</i>		
1	Investors	PS1
2	Customer	PS2
3	Goverment	PS3
<i>Manager's perception</i>		
4	Social responsibility	MP1
5	Knowledge of environmental accounting	MP2
6	Realize the importance	MP3
7	Applying information to decision making	MP4
<i>Relationship between costs and benefits</i>		
8	High cost of training	RB1
9	Vietnam's development level is still low	RB2
10	The capital market is still young	RB3
11	Most businesses do not have the need to publish financial	RB4

	statements	
<i>Qualifications of accountants</i>		
12	The training program has not mentioned environmental accounting	QA1
13	No applied research yet	QA2
14	Not updated with the latest software and knowledge	QA3
<i>Environmental accounting</i>		
15	Environmental budgeting	EA1
16	DSevelop evaluation criteria	EA2
17	Compare accounting information with the previous year	EA3
18	Full and annual publication	EA4

3.3. Sample size

Sample size in qualitative research is the number of experts through discussion to collect data until no new information can be collected. In the quantitative study, the authors used the method of exploratory factor analysis (EFA) with 18 observed variables. The authors have sent a survey to 320 small and medium enterprises, which have collected 315 valid questionnaires. Thus, the sample size is guaranteed to be suitable according to sample size conditions for EFA analysis and multivariate regression analysis. Data was entered, encrypted, cleaned, and analyzed through SPSS 25.0 software.

4. Results

4.1. Cronbach' alpha

Observed variables with an item-total correlation less than 0.3 will be excluded, and the scale will be selected when Cronbach's Alpha coefficient is from 0.6 or higher. The results of Cronbach's Alpha analysis are presented in Table 2.

Table 2. *Cronbach's Alpha*

Code	Items	Correlation coefficients	Cronbach' alpha if delete
<i>Pressure from stakeholders (Cronbach' alpha = 0.811)</i>			
PS1	Investors	.611	.784
PS2	Customer	.640	.765
PS3	Goverment	.703	.735
<i>Manager's perception (Cronbach' alpha = 0.815)</i>			
MP1	Social responsibility	.652	.660
MP2	Knowledge of environmental accounting	.373	.756
MP3	Realize the importance	.708	.635
MP4	Applying information to decision making	.697	.642
<i>Relationship between costs and benefits (Cronbach' alpha = 0.740)</i>			
RB1	High cost of training	.677	.605
RB2	Vietnam's development level is still low	.504	.697
RB3	The capital market is still young	.419	.771
RB4	Most businesses do not have the need to publish financial statements	.588	.652
<i>Qualifications of accountants (Cronbach' alpha = 0.749)</i>			
QA1	The training program has	.643	.766

	not mentioned environmental accounting		
QA2	No applied research yet	.743	.740
QA3	Not updated with the latest software and knowledge	.596	.776
<i>Environmental accounting (Cronbach' alpha = 0.805)</i>			
EA1	Environmental budgeting	.649	.900
EA2	DSevelop evaluation criteria	.654	.901
EA3	Compare accounting information with the previous year	.683	.895
EA4	Full and annual publication	.740	.886

4.2. Exploratory Factor Analysis

The scale of factors affecting the level of the environmental accounting application, including four factors measured by 14 observed variables after reaching the reliability of Cronbach's Alpha, continues to be included in the EFA exploratory factor analysis.

Bartlett's test results (Bartlett's test of sphericity) in the KMO and Bartlett's test table with sig = 0.000, that is, the observed variables are still linearly correlated with the representative factor.

And the index $0.5 < \text{KMO} = 0.860 < 1$ shows that exploratory factor analysis is still suitable for real data. At the Eigenvalues more significant than 1, the analysis extracted five from 22 observed variables with the extracted variance of 69.846% (greater than 50%). This means that the observed variables explain 69.846% of the variation of the factors.

Table 3. *Rotation matrix*

Variables	Factors			
	1	2	3	4
PS1	.903			
PS3	.891			
PS2	.720			
MP4		.881		
MP1		.829		
MP3		.818		
MP2		.789		
RB1			.741	
RB4			.704	
RB2			.732	
RB3			.671	
QA2				.804
QA1				.786
QA3				.632

Table 4. *Coefficients*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.016	.188		-.085	.932		
	PS	.182	.037	.196	4.850	.000	.821	1.218
	MP	.187	.041	.214	4.536	.000	.601	1.664
	RB	.125	.040	.119	3.126	.002	.920	1.087
	QA	.391	.044	.417	8.861	.000	.605	1.652

With the regression analysis results, the Sig. < 0.05; therefore, it can be asserted that the proposed hypotheses are all accepted.

Regression results show that the order of influence of factors on the level of environmental accounting application in order of importance is (1) qualifications of accountants; (2) Manager's perception; (3) pressure from stakeholders; and (4) relationship between costs and benefits.

5. Conclusion

This study inherits previous research results on environmental accounting, combined with data collected from qualitative research to identify influencing factors and build a theoretical model suitable for medium and large enterprises. small in Vietnam. Quantitative research on re-testing the model through Cronbach's Alpha, EFA and regression analysis shows that there are four factors that positively affect environmental accounting, namely pressure from stakeholders, manager's

4.3. Regression results

The model's independent variables were regressed once on SPSS software, with the results shown in Table 4.

perception, the relationship between costs and benefits, and qualifications of accountants. Based on that, the study proposes the following factors: recommendations to improve the quality of environmental accounting in small and medium enterprises.

Accounting apparatus: It is necessary to improve the accounting apparatus, focusing on training and fostering the professional qualifications of the accounting department, improving the sense of responsibility and creating conditions for accountants to participate in the training. Training to update professional knowledge when changing policies. Enterprises also need to invest in applying information technology to the organization of accounting work such as accounting software Misa, which helps to improve the stages in preparing financial statements. Accountants also have to improve their skills in reading and understanding financial statements, not only in preparing financial statements, but also in quantifying the quality of financial statements of SOEs to ensure the basic criteria of information such as

relevance and truthfulness. , easy to understand, comparable and timely, helping users to evaluate the quality of financial statements information.

Managers: Need to improve a certain level of their understanding of the accounting field. Managers must know how to evaluate, review and check the recording and preparation of financial statements of the accounting department, contributing to limiting errors in accounting information and data provided by this department. In addition, managers need to pay more attention to the content of information presented on the financial statements to make relevant decisions. Managers who know how to use and understand information from financial statements will create high reliability for users of financial statements.

Accounting vouchers: Organizing a good accounting voucher system has a great influence and indirectly supports the bookkeeping, monitoring and checking of information and data on the financial statements. scientifically and systematically. The organization of accounting vouchers must base on the production scale and level of organization and management of the enterprise to determine the appropriate quantity and type of vouchers. Relevant laws, regulations and circulars are also the basis to strengthen the legality of documents.

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