



Paper Code : AACT7 – 77

FACTORS AFFECTING DISCLOSURE LEVEL OF ENVIRONMENTAL ACCOUNTING INFORMATION – THE CASE OF VIETNAMESE FIRMS DOING BUSINESS UNDER THE MODEL PARENT COMPANY – SUBSIDIARY COMPANY

Nguyen La Soa

Tran Thi Hang

Nguyen Thi Nga

*Faculty of Accounting and Auditing, Hanoi University of Industry, Vietnam
soanguyen310383@gmail.com*

ABSTRACT

This research was conducted for assessing factors affecting disclosure levels of environmental accounting information. The data was collected from 85 Vietnam firms that are doing business under of the model parent company – subsidiary company listed on Vietnam Stock Exchange for the period from 2013 to 2017. Basing on quantitative research method, the disclosure levels of accounting information and factors affecting this level were investigated. The results indicate that the disclosure levels of environmental accounting information of construction firms tends to increase, especially in 2017. In addition, the results also point out that the level of disclosure is influenced by factors of size of firms, profitability, financial leverage, number of years listed and independent auditing, the number person in Management Board, Chair of management Board cum General Director. Through findings, some recommendations are given for improving the disclosure levels of environmental accounting information to satisfy the demand for information of the stakeholders in the context of integration.

Keywords: *Environment accounting information, information disclosure, parent company – subsidiary company*

Introduction

Globalization, international economic integration and trade liberalization have been outstanding trends in the modern world economy. The process of deepening, broadening and effective integration of Vietnam into the world economy has brought about great achievements for the country in general as well as firms in particular. Vietnamese firms have more opportunities to enter the global market and integrate deeper into the world financial market for accessing foreign capital inflows. However, countries in the world, especially in Western Europe and East Asia, have been investing heavily in green growth strategies. They are particularly interested in combating and removing access to markets of imported products that do not comply with the production process and do not meet the requirements of environmental protection. In that context, Vietnamese firms with stable and strong development need to pay attention to environmental and social responsibility apart from getting profits.



Vietnam is a member of the TPP agreement, so the implementation and disclosure of environmental accounting information by Vietnamese firms is considered as a key factor. It is also a necessary condition helping firms improve competitive capacity and develop sustainably in the context of global economic integration. Circular No. 155/2015/TT-BTC issued by Ministry of Finance, effective from January/1/2016, mandates public firms to publish some environmental information for sustainable development goal. In Vietnam now, companies, especially large companies, operating under the parent-subsidiary model have been aware of the importance of disclosure and transparency environmental accounting to the existence and development of the company. The level of disclosure of environmental accounting information is influenced by internal factors and external factors. Therefore, the consideration and evaluation of the factors affecting the level of disclosure of environmental accounting information in enterprises operating under the model of the parent company is necessary, contributing to the proposal of orientation. And effective solutions to promote enterprises to implement and disclose environmental accounting information in the coming time.

2. Literature Review

In developed countries, environmental accounting has received the attention of both academics and business executives. Although officially mentioned in the guidelines on environmental accounting by the United Nations Commission on Sustainable Development (UNSD) in 2001 and The International Federation of Accountants (IFAC) in 2005, environmental accounting in reality has been investigated since 1970s and implemented in many firms in developed countries since the 1990s. In the field of research, scientific papers on environmental accounting appeared very early in the 1970s, but it was not until the 1990s that there were more and more researches conducted, with 45 works, research papers on environmental accounting is published each year on average. In particular, the period from 1997 to now is considered to be a boom period for studies related to environmental accounting (NI, 2017) In addition to popular research such as the theoretical studies related to environmental accounting, research on how to apply practical accounting practices to businesses in different fields, studies on factors influencing the application of environmental accounting and factors affecting the disclosure levels of environmental accounting information are also of great concern.

The study by (Arif & Tuhin, 2013) showed that the number of years of operation and annual profitability of the bank significantly influenced the level of disclosure of non-financial information, while the size of the bank did not.

The study by (Jamil, Mohamed, Muhammad, & Ali, 2015) indicated that most firms allocate funds for environmental activities and environmental accounting practices in non-monetary aspects.

The study by (Majeed, Aziz, & Saleem, 2015) showed that there is a positive and significant impact of the size of the board. The level of board independence, the degree of decentralization and the size of the business have a noticeable impact on the level of disclosure corporate social and environmental responsibility.



The study by (Barakat, Pérez, & Ariza, 2015) showed that the level of disclosure of environmental accounting information in firms in Jordan is higher than that of Palestinian firms in all aspects.

The study by (Denčić-Mihajlov & Spasić, 2016) help in determining the level of transparency of Serbian listed companies and in formulating recommendations for improving the quality and relevance of disclosed information.

The study by (Yang & Liangb, 2017) showed that the larger the company to strengthen the trust of investors, obtain more financing opportunities, they tend to disclose the environmental accounting information more. Moreover, the company through the ISO certification, it is necessary to establish a good external image, internationally recognized, and urge them to enhance the environmental accounting information disclosure, improve the disclosure level

The study by (Hitt, Freeman, & Harrison, 2017) was carried out for developmentping of the idea of “stakeholder management” as it has come to be applied in strategic management. This research shows raditionally the stakeholder approach to strategic management has several related characteristics that serve as distinguishing features.

In Vietnam, recent research is concerned with factors affecting the level of disclosure of accounting information in general as well as environmental accounting: The study by (Hung, 2016) showed that there were five factors affecting financial information disclosure including: the number persons in Management Board, Chair of Management Board cum General Director, independent audit, firm size and rate of return. However, this study considers the level of disclosure of general accounting information that has not yet been considered separately for the field of environmental accounting.

The study by (Anh & Binh, 2017) has also demonstrated the factors that influence the level of disclosure such as size of business, financial leverage, size of board of directors, independence of executive directors and independent auditors. However, the study was conducted jointly for all firms in different business fields without considering the impact of those. Moreover, the study do not mention in details about environmental accounting information to propose future improvements.

The study by (Nguyen, Tran, Nguyen, & Le., 2017) indicated that the level of disclosure is influenced by factors of size of firms, profitability, financial leverage, number of years listed and independent auditing. Therefore, when studying the factors affecting the level of disclosure of environmental accounting information of enterprises operating under the parent-subsidiary modelmodel, there will definitely be some differences.

Thus, in the past time, in the world and in Vietnam, there have been a lot of studies on the factors affecting the ability to provide non-financial, social responsibility information, environment and factors influencing the ability to apply environmental accounting to different types of firms. However, because the Vietnam firms doing business under of the model parent company – subsidiary company have their own characteristics of management organization, production and business system, the level of environmental impact in the process of business operations and production.



Therefore, the above researches were applied selectively by the authors in our research but did not overlap.

3. Theoretical Background and Research Hypotheses

3.1. Theoretical Background

Research views on environmental accounting argue that environmental accounting is judged in two aspects, accounting and environmental management. In addition to supporting internal decision making in the business operations of the business with the view to improving financial and environmental performance, environmental accounting also provides information outside the business to stakeholders such as banks, financial institutions, environmental management agencies, communities, etc. Thereby it helps businesses to (i) Enhance competitive advantage due to green consumption of clean products, (ii) Change and increase the level of awareness and action of organizations and stakeholders on environmental issues in each company and the economy as a whole. Thus, the sufficient, timely and accurate information environmental accounting disclosure of construction firms listed on the stock market in Vietnam plays an important role not only for businesses, investors but also for state management agencies. To explain the disclosure of environmental accounting information of enterprises, we use the following theories as:

Theory of Legitimacy and Responsibility for Publicizing Environmental Accounting Information: Legitimacy Theory is defined by (Dowling & Pfeffer, 1975) as follows: "An entity can exist when its value system is consistent with the value system of the larger social system in which it is located" Inheriting and developing the theory of legalization, (Guthrie & Parker, 1989) argue that the theory of legalization is related to the power of society. He said that business enterprises in society must sign a social contract that managers agree to implement. The terms of this contract may be specified in terms of legal provisions or unspecified depending on the expectations of the social community. Legal theory explains the responsibility for implementing environmental accounting of enterprises as follows: (1) The necessity to implement environmental accounting derives from society, government's dissatisfaction and the pressure from demand of workers, consumers and stakeholders (2) Environmental disclosure is a motivation for businesses to legitimize their activities, thereby promote their image that benefits them. Thus, disclosing public environmental information in annual reports is a strategic representation of the business. This strategy implies that the business is operating legally and has social responsibility.

Relevant stakeholder theory and the responsibility to disclose environmental accounting information: The Stakeholder Theory is derived from the perspective of economic interests in all actions by the economist Freeman (1984). According to Freeman, all stakeholders are affected by all business behaviors, including shareholders, suppliers, customers, employees, competitors, social workers, lawmakers, academics, indigenous peoples, labor organizations, local administration and the government. Based on stakeholder theory, (Ullmann, 1985) explains that if a stakeholder controls an important source of business, the business will find a way to satisfy their needs. Environmental information disclosure is considered an effective



governance strategy that addresses relationships and satisfies needs of stakeholders. On the other hand, the study by (Chiu & Wang, 2014) shows that return on equity ROE is positive and debt to equity ratio is reverse to the disclosure of information about the environment.

Signalling Theory and the responsibility to disclose environmental accounting information: Signal Theory suggests that asymmetric information between businesses and investors leads to adverse selection for investors. To avoid this situation, businesses voluntarily publish information and give positive signals to the market. According to this theory, the larger the business, the greater the imbalance of information (Guthrie & Parker, 1989). In addition, higher-yielding firms will tend to publish more information to provide positive signals to investors about growth prospects, which will have a positive impact on stock prices of the business.

Relationship Between Cost & Benefit And Levels Of Environmental Accounting Information Disclosure Theory: The Cost Benefit Theory shows that the benefits of disclosure of environmental accounting information should be considered in relation to the cost of creating and providing that information. Thus, the level of disclosure of environmental accounting information should be taken into consideration between the added benefits and the increased costs when performing this task.

3.2. Research Hypothesis

Based on an overview of international and national empirical research on the factors affecting the level of disclosure of environmental accounting information, and the study of background theories concerning the level of disclosure. The research team synthesizes the factors affecting the level of disclosure of environmental accounting information of Vietnam firms doing business under of the model parent company – subsidiary company listed in Vietnam Stock Exchange as follows:

Business Size (SIZE): Previous empirical studies have shown that size of business affects the level of disclosure of its environmental accounting information (Arif & Tuhin, 2013). In addition, the larger the business is, the more it wants to maintain and enhance its image, belief and prestige in the eyes of investors and government agencies, so they are available to spend money to disclosure information to meet the requirement of stakeholders (Yang & Liangb, 2017).

Number of Subsidiaries (SUB): A complex corporate structure requires the company to have an effective management information system for control purposes (Inchausti, 1997) and the availability of such a system would reduce costs per unit of information. Therefore, the study expects many more subsidiaries to publish more information.

Size of board of director (BOA): The size of members of the board that influences the disclosure of information (Ali, Ahmed, & Henry, 2004) found the relationship between member size Board of Directors and information disclosure level. There are two perspectives in relation to this relationship. The first point of view is that the size of the board members is small, the information sharing between members, the processing of information will be easier and faster. The second view, however, is that the board of directors has a larger number of members, with broader knowledge base



to carry out advisory duties, thus performing roles, overseeing, advising Better and more informative.

Ownership of foreign shareholders (SHA): (Reverte, 2008) (Reverte, 2008) found a positive relationship between foreign ownership and the level of disclosure of listed companies in Malaysia. The larger the foreign invested companies, the more information they need to disclose. Foreign investors use this information as a means to monitor management activity.

Profitability (PRO): According to stakeholder theory, the more profitable businesses are, the more ambitious they are to meet and satisfy the information needs of the stakeholders, especially the stakeholders are in control of the important resources of the business. It is an opportunity for businesses to increase the value of their stock in the market. The greater the financial performance is, the more they are willing to devote their financial resources to the development of a sustainable environment in which they operate (Ullmann, 1985; Yang & Liangb, 2017).

Leverage (LEV): According to stakeholder theory, the higher the financial leverage is, the higher the debt to equity ratio is, the greater the conflict of interest between the parties involved is, such as debtors, shareholders and managers. The requirement to provide information to satisfy the stakeholders is also higher. However, firms with higher debt ratios often face financial difficulties and solvency, so according to cost and benefit theory, it is very difficult for them to decide on expense on environmental and social issues. Empirical study by (Chiu & Wang, 2014) also shows that the debt-to-equity ratio is reverse to the level of disclosure.

The age of being listed on the stock market (AGE): (Barakat et al., 2015) study has shown that the firm's age does not affect the level of disclosure of environmental accounting information. In contrast, the study by (Majeed et al., 2015) shows that business's age has a significant effect on the level of mandatory information disclosure. However, according to the theory of legalization, the longer the firms is listed on the stock market (Nguyen et al., 2017), the easier they will be to comply with the disclosure requirements. In terms of additional disclosure, the extra cost they have to spend is not much higher than that of young firms. So in cost and benefits theory, these firms will tend to spend cost for the disclosure of environmental accounting information.

Independent Auditing (AUD): In order to maintain their reputation and prestige, the more reputable independent auditing firms are, the more likely they are to require higher level of disclosure as well as want their customers to follow the complex accounting standards. Therefore, the fact that firms actively choose reputable independent auditing firms to audit their own businesses is considered as a good signal in ensuring the information transparency and disclosure of enterprises.



Table 1: Research Hypotheses

Hypothesis	Description	Sign Expectation
H ₁	The relationship between business size and the level of disclosure of environmental accounting information	+
H ₂	The relationship between number of subsidiaries and the level of disclosure of environmental accounting information	+
H ₃	The relationship between size of board of director and the level of disclosure of environmental accounting information	+
H ₄	The relationship between ownership of foreign shareholders and the level of disclosure of environmental accounting information	+
H ₅	The relationship between profitability and the level of disclosure of environmental accounting information	+
H ₆	The relationship between financial leverage and the level of disclosure of environmental accounting information	-
H ₇	The relationship between the age of being listed on the stock market and level of disclosure of environmental accounting information	+
H ₈	The relationship between independent auditing and the level of disclosure of environmental accounting information	+

4. Research Methodology

4.1. Data Collection

The sample includes 85 Vietnam firms that are doing business under of the model parent company – subsidiary company listed on the HOSE, HNX, OTC, UPCOM among 167 firms as of 31 December 2017, accounting for 50,898 % of the total listed firms. Data are collected from 2014 to 2017. Financial information of listed firms is obtained from the website of finance.vietstock.vn. Environmental accounting information is disclosed from annual reports in which financial statements have been audited, sustainable reports and business administration reports published on the websites of 85 firms in the sample. The data used for the analysis includes 340 observation variables of 85 firms in four consecutive years from 2014 to 2017.

4.2. Variable Measurements

Dependent variable measurement (ENVI) – Level of disclosure of environmental accounting information

According to the Global Reporting Initiative's (2013) Sustainable Development Report Guidelines, the total number of items for disclosure of mandatory environmental accounting information is 44 items in the 12 relevant fields as Table 2:



Table 2: Items for Mandatory Environmental Information Disclosure

No.	Field	No of items have to be disclosed	No.	Field	No of items have to be disclosed
1	Material	2	7	Information on label of products and services	2
2	Energy	5	8	Compliance	11
3	Water	3	9	Transportation	1
4	Biodiversity	4	10	Overall	1
5	Emissions	7	11	Supplier's Review of the Environment	2
6	Wastewater and Waste	5	12	Environmental complaints mechanism	1

To assess the extent of disclosure of environmental accounting information, information regarding the criteria is scored in Table 3.

Table 3: Method for Assessing Disclosure Levels of Environmental Information

Level of information disclosure	Score
Publication information is both quantitative and qualitative form	4
Only qualitative, non - quantitative disclosure	3
Quantitative information both in object and value, no qualitative information	2
Quantitative information on the value, no object and no qualitative information	1
No information disclosure	0

The disclosure index is calculated according to the weighted approach, depending on the quality of the information provided to assess the score for each item, then averaged for each field and calculated environmental accounting information disclosure index. The formula is as follows: The level of information disclosure of firms $X = \frac{\sum_{i=1}^{34} Y_i}{35}$ (Y_i is the score of information item i published by firm X). Similarly, research has calculated the level of information disclosure by field.

Measure independent variables

Independent variables are measured and presented in Table 4, below:

Table 4: Measurement of Independent Variables

Code	Independent Variable	Measurement
SIZE	Business Size	Log (Total Assets)
SUB	Number of Subsidiaries	Total number of subsidiaries of the business
BOA	Size of board of director	Total number of board of director members
SHA	Ownership of foreign shareholders	Ownership rate of foreign shareholders of the business
PRO	Profitability	Profit after tax divided by equity
LEV	Financial leverage	Total long-term debt divided by total assets



AGE	Listing period	Number of years from the beginning of listing to the end of 2017
AUD	Independent Auditing	= 1, independent auditor of Big 4; = 0, the rest

In order to achieve the objective of investigating the factors affecting the level of disclosure of environmental accounting information, the study conducted the test of hypotheses from H1 to H8 with the support of data analysis software of Stata. Multivariate linear regression was applied to the model as follows:

$$\text{ENVI} = \beta_0 + \beta_1 \text{SIZE} + \beta_2 \text{SUB} + \beta_3 \text{BOA} + \beta_4 \text{SHA} + \beta_5 \text{PRO} + \beta_6 \text{LEV} + \beta_7 \text{AGE} + \beta_8 \text{AUD} + e$$

5. Results and Discussion

5.1. Evaluations of Disclosure Levels of Environmental Accounting Information

Table 5 describes the environmental accounting information disclosures index of firms in the sample.

Table 5: Results of the assessment of the level of annual disclosure of environmental accounting information by firms in the sample

No	Information disclosure field	2014	2015	2016	2017
1	Materials	1.734	1.787	2.463	2.587
2	Energy	1.812	1.876	2.598	2.764
3	Water	1.876	1.907	2.649	2.856
4	Biodiversity	1.882	1.901	2.763	2.896
5	Emissions	1.765	1.856	2.678	2.987
6	Wastewater and waste	1.894	2.019	2.995	3.076
7	Information on label of products and services	2.014	2.087	2.567	3.447
8	Compliance	1.956	1.996	2.365	3.208
9	Transportation	1.979	2.014	2.286	3.367
10	Overall	1.956	2.267	2.289	3.047
11	Supplier's Review of the Environment	1.586	1.688	1.987	2.910
12	Environmental complaints mechanism	2.612	2.943	3.027	3.443

As can be seen from Table 5, mean values of the environmental accounting disclosure indicators have been gradually increasing for the period from 2014 to 2017, which is a good sign demonstrating that Vietnam firms doing business under of the model parent company – subsidiary company are paying attention to the release of information on environmental indicators, especially after the detailed guidance of Circular No. 155/2015/TT-BTC on 06 October 2015. This is shown by the mean value of the environmental accounting disclosure indicators in 2016, 2017 compared to the previous years. However, with the highest score calculated for each item of 4, the average value of this indicator in each field ranged from 1,586 to the highest of 3.447, a number not really as expected. Of course, the number of calculations shows that there is more positive than the author's previous research (Nguyen et al., 2017). It points out that the attention to disclosure of environmental accounting information in the past was not in correspondence with its importance. The two groups of

information elements that mostly disclosed by enterprises are information on the environmental complaint mechanism (3.443 in 2017), the number of complaints about environmental impacts filed, processed and resolved through formal complaint mechanisms, and information on label of products and services (3.447 by 2017). However, some important fields receiving special concern from stakeholders have lower score, for example energy only scores 2.764, emissions scores 2,987, wastewater and waste scores 3,076 in 2017.

5.2. Evaluation of Correlation Between Variables

Table 6 presents basic statistical describing parameters of independent variables and dependent variables. According to (Tauchen, 1986), condition for estimation of reliability for performing regression analysis is $n > 200$. According to (Joe F. Hair, Christian M. Ringle, & Sarstedt., 2014), there should be 15-20 observations for a variable to be estimated. Combined with these principles, the sample size chosen by the author with 340 observations of 85 firms is reasonable. The result insure the reliability. The results in Table 6 show that the level of environmental accounting information disclosure is 2.545 and range from 1.276 to 3.498. The size of the business ranges from 10.875 to 18.083, indicating that the size of the firms in the sample differs widely. The period of listing on the stock market is 14.374 years on average and fluctuates from 10.300 to 17.600, which proves that the listed firms in the sample are not too young.

Table 6: Statistical Analysis

	ENVI	SIZE	SUB	BOA	SHA	PRO	LEV	AGE	AUD
Number of Observations	340	340	340	340	340	340	340	340	340
Mean value	2.545	15.087	5.306	5.294	0.253	0.167	0.429	14.374	0.417
Standard Deviation	2.579	5.152	12.579	4.328	0.236	0.105	0.304	7.217	0.423
Minimum value	1.276	10.875	1.000	4.000	0.000	0.108	0.312	10.300	0.000
Maximum value	3.498	18.083	54.000	12.000	0.489	0.287	0.783	17.600	1.000

Table 7 presents the results of the correlation coefficient test between the variables and the results of the multi-collinearity test. The results show that there is a variation between the independent and dependent variables of the model. The level of disclosure of environmental accounting information has positive relationship with the variables: business size, profitability, listing time, and independent auditing, and negative relationship with financial leverage. At the same time, correlated pairs are less than 0.8 and the VIF of independent variables is less than 5, which proves that there is not multi-collinearity.



Table 7: Correlation and Multi-collinearity Test

	ENVI	SIZE	SUB	BOA	SHA	PRO	LEV	AGE	AUD	VIF
ENVI	1.000									-
SIZE	0.464	1.000								2.134
SUB	0.372	0.134	1.000							3.165
BOA	0.471	0.267	0.236	1.000						2.864
SHA	0.304	0.432	0.165	0.215	1.000					2.674
PRO	0.307	0.302	0.564	0.426	0.198	1.000				2.532
LEV	-0.312	0.148	0.137	0.156	0.183	0.261	1.000			2.016
AGE	0.567	0.231	0.218	0.167	0.189	0.187	0.265	1.000		1.967
AUD	0.289	0.261	0.165	0.112	0.201	0.123	0.157	0.427	1.000	1.765

5.3. Discussions

Table 8 presents the results of regression using the least squares (OLS), fixed effects model (FEM) and random effects model (REM). The results show that there are differences between the three methods. Therefore, to conclude what results should be used, the authors conducted two following tests: Step 1: Use Hausman test to decide to use whether FEM or REM method. The p value of Hausman test is 0.000, therefore the FEM model is more appropriate. Step 2: Use the F_test test to select the result between the FEM or OLS method. The p value of F – test is 0.000, so the FEM model is more appropriate. Thus, the conclusion is that in this case using regression results of the FEM method is best suitable. As a result of this model, H1, H4, H5, H6, H7, H8 hypotheses are acceptable, business size, ownership of foreign shareholders, profitability, listing time, and independent auditors affect the level of disclosure of Vietnam firms doing business under of the model parent company – subsidiary company listed on the stock market in Vietnam (with a significance level of 0.05). The fluctuation of these variables explains 53,945% of the variation of the dependent variable (the level of disclosure of environmental accounting information). The regression equation is rewritten as:

$$\text{ENVI} = 0.310 + 0.4328 \times \text{SIZE} + 0.546 \text{SHA} + 0.387 \times \text{PRO} - 0.458 \times \text{LEV} + 0.543 \times \text{AGE} + 0.287 \times \text{AUD} + e$$

Table 8: Regression Results

	Constant	SIZE	SUB	BOA	SHA	PRO	LEV	AGE	AUD	R - Squared
OLS	0.156	0.324 (.0023)	0.453 (.0081)	0.634 (.0074)	0.345 (.0041)	0.453 (.0029)	0.634 (.0046)	0.345 (.0061)	0.235 (.0034)	0.49876
FEM	0.310	0.328 (.0021)	0.438 (.0082)	0.539 (.0350)	0.546 (.0017)	0.387 (.000)	- 0.458 (.000)	0.543 (.0012)	0.287 (.0023)	0.53945
REM	0.298	0.432 (.0068)	.0564 (.0087)	0.584 (.0065)	0.427 (.0028)	.0564 (.0036)	0.584 (.0034)	0.427 (.0029)	0.338 (.0026)	5.50174

Where: The values in the first row in each cell are taken from the Coefficient column



The values in brackets are taken from the p_value column of the variable

6. Conclusion and Recommendations

The research results indicate the importance of environmental accounting information disclosure of enterprises in the long-term business strategy. Highly effective firms are often among the top firms in the industry that are well-regarded for their environmental responsibility, as demonstrated by adequate and detailed disclosure of information related to the environment. The disclosure of environmental accounting information is a way for businesses to enhance their image and reputation with stakeholders, especially in the integration trend when developed countries are very interested in green growth and sustainable development. However, the situation shows that the accounting work and information disclosure related to the environment have not been properly paid attention by Vietnam firms doing business under of the model parent company – subsidiary company. Therefore, in the coming time, businesses need to strengthen the solution to improve environmental accounting to support the disclosure of information related to the. From the research results, the research team proposed some recommendations as follows:

First, the research results show that the size of enterprises and time of listing on the stock market affect positively to the disclosure of environmental accounting information. In other words, the larger the business size and the longer listing time is, the higher the level of disclosure of environmental accounting information is. Consequently, state agencies and stakeholders should have policies to support and promote small and medium firms, new firms listed on the stock market to implement and disclose environmental accounting information.

Second, the ownership ratio of foreign shareholders in the business affects the level of disclosure of enterprise environmental accounting information. That means, when the owners of the business are foreigners, they often have the desire to transparently account for environmental information. Therefore, in order to attract investment from foreign shareholders, enterprises need to publicize information on environmental accounting.

Third, profitability has positive impact on the level of disclosure of environmental accounting information. In contrast, financial leverage has reverse impact. This suggests that one of the measures to promote the disclosure of environmental accounting information is improving profitability and reducing financial leverage. Therefore, depending on the business strategy of each period, the enterprise should have reasonable level of financial leverage adjustment, ensure high profitability and pay attention to the allocation of resources for implementation and disclosure of environmental accounting information.

Fourth, listed construction firms audited by large firms among big 4 auditors usually have the higher level of disclosure of environmental accounting information than that of the rest. Therefore, the selection of independent auditors is an important element that the board of directors and executives need to take into consideration. It is also an element of enhancing corporate image and prestige with stakeholders. This is also



considered as a measure to contribute to the completion of environmental accounting in the enterprise.

Basing on the quantitative and qualitative research method, the team have assessed the factors affecting the level of disclosure of environmental accounting information. The results show that the level of disclosure tends to increase over time and is influenced by factors such as business size, ownership of foreign shareholders, profitability, listing time, and independent auditors, from which the team has made several recommendations to promote the level of disclosure of environmental accounting information in the future. The article has enriched sources of research on environmental accounting as well as contributed to promoting the disclosure of environmental accounting information in the future. However, the article has some limitations such as: Research sample accounts 50,898 % of the total listed firms, so the reliability of research results inferring to the overall is not perfect; The extent to which the factors in the model explain for the fluctuation of the disclosure of environmental accounting information is not high, which suggests that there are other factors not being mentioned in our study. Nevertheless, we consider these to be suggestive for further research in the future.

References

- Ali, M. J., Ahmed, K., & Henry, D. (2004). Disclosure compliance with national accounting standards by listed companies in South Asia. *Accounting and Business Research*(3). doi:<https://doi.org/10.1080/00014788.2004.9729963>
- Anh, Đ. P. N., & Binh, T. T. (2017). *Reality and Factors Affecting the Levels of Disclosure of Social Responsibility Information of Listed Enterprises in Vietnam's Stock Market*. Paper presented at the Proceedings of National Workshop: Research and Training Accounting and Auditing of Vietnamese Universities according to international standards, National Economics University.
- Arif, H. M., & Tuhin, M. H. (2013). Disclosure of Non-Financial Information Voluntarily in the annual report of Financial institutions: A study on listed banks of Bangladesh. *European Journal of Business and Economics*, 8(2).
- Barakat, F. S. Q., Pérez, M. V. L., & Ariza, L. R. (2015). Corporate social responsibility disclosure (CSR) determinants of listed companies in Palestine (PXE) and Jordan (ASE). *Review of Managerial Science*, 9. doi:<https://doi.org/10.1007/s11846-014-0133-9>
- Chiu, T.-K., & Wang, Y.-H. (2014). Determinants of Social Disclosure Quality in Taiwan: An Application of Stakeholder Theory. *Journal of Business Ethics*, 129(2). doi:<https://doi.org/10.1007/s10551-014-2160-5>
- Denčić-Mihajlov, K., & Spasić, D. (2016). Mandatory and Voluntary Disclosures of Serbian Listed Companies - Achieved Level and Some Recommendation for Improving their Relevance. *International Journal of Business and Economic Sciences Applied Research*, 9(1). doi:<http://ijbesar.teiimt.gr/>
- Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: social values and organization behavior. *Pacific Sociological Review*, 18. doi:<https://doi.org/10.2307/1388226>



- Guthrie, J., & Parker, L. D. (1989). Corporate Social Reporting: A Rebuttal of Legitimacy Theory. *Accounting and Business Research*, 19(76). doi:<https://doi.org/10.1080/00014788.1989.9728863>
- Hitt, M. A., Freeman, R. E., & Harrison, J. S. (2017). *A Stakeholder Approach to Strategic Management*. Published Online: 26 NOV 2017: The Blackwell Handbook of Strategic Management.
- Hung, D. N. (2016). Factors affecting the level of financial information disclosure of firms doing business under of the model parent company-subsidary companies. *Kinh tế & Phát triển*, 224(II).
- Inchausti, B. G. (1997). The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. *European Accounting Review*, 6(1). doi:<https://doi.org/10.1080/096381897336863>
- Jamil, C. Z. M., Mohamed, R., Muhammad, F., & Ali, A. (2015). Environmental Management Accounting Practices in Small Medium Manufacturing Firms. *Procedia - Social and Behavioral Sciences*, 172. doi:<https://doi.org/10.1016/j.sbspro.2015.01.411>
- Joe F. Hair, Christian M. Ringle, & Sarstedt, M. (2014). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*. doi:<http://dx.doi.org/10.2753/MTP1069-6679190202>
- Majeed, S., Aziz, T., & Saleem, S. (2015). The Effect of Corporate Governance Elements on Corporate Social Responsibility (CSR) Disclosure: An Empirical Evidence from Listed Companies at KSE Pakistan. *International Journal of Financial Studies*, 3. doi:10.3390/ijfs3040530
- Nguyen, L. S., Tran, M. D., Nguyen, T. X. H., & Le., Q. H. (2017). Factors Affecting Disclosure Levels of Environmental Accounting Information: The Case of Vietnam. *Accounting and Finance Research*, 6(4). doi:<https://doi.org/10.5430/afr.v6n4p255>
- NI, T. (2017). *Disclosure of the Environmental Accounting Information Research*. Paper presented at the International Conference on E-commerce and Contemporary Economic Development (ECED 2017).
- Reverte, C. (2008). Determinants of Corporate Social Responsibility Disclosure Ratings by Spanish Listed Firms. *Journal of Business Ethics*, 88(2). doi:DOI 10.1007/s10551-008-9968-9
- Tauchen, G. (1986). Finite state markov-chain approximations to univariate and vector autoregressions. *Economics letters*, 20(2). doi:[https://doi.org/10.1016/0165-1765\(86\)90168-0](https://doi.org/10.1016/0165-1765(86)90168-0)
- Ullmann, A. A. (1985). Data in Search of a Theory: A Critical Examination of the Relationships Among Social Performance, Social Disclosure, and Economic Performance of U.S. Firms. *Academy of Management Review*, 10(3). doi:10.5465/AMR.1985.4278989
- Yang, L.-H., & Liangb, X.-T. (2017). *Study on the Influencing Factors of Environmental Accounting Information Disclosure*. Paper presented at the International Conference on Economics, Management Engineering and Marketing (EMEM 2017).