



Factors Affecting the Application of Environmental Accounting in Manufacturing Enterprises in Vietnam

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Abstract

Purpose: Starting from the goal of economic development associated with environmental protection activities, this study examines the factors affecting the application of environmental accounting (EA) in manufacturing enterprises in Vietnam.

Methodology: This study is conducted using a combination of qualitative research methods (review of previous theories and research papers related to the research) and a quantitative research model (testing the degree of the appropriateness of the scale and the theoretical model through Cronbach's Alpha reliability coefficient, exploratory factor analysis (EFA), multivariable regression analysis to determine the relationship between factors affecting the application environmental accounting in manufacturing enterprises in Vietnam.

Results: Multivariable regression analysis shows that all factors (six factors) included in the study have an impact on the application of environmental accounting in manufacturing enterprises in Vietnam. Which stakeholder pressure has the strongest impact and financial resources have the weakest effect on the application of EA in these enterprises.

Originality/Value: This study provides empirical evidence about the impact of each factor on the application of environmental accounting, thereby helping state management agencies, professional associations, and businesses in the process of developing and promulgating policies affecting these factors to promote the application of environmental accounting in Vietnamese enterprises.

Introduction

Recognizing the role of global climate change and implementing Vietnam's commitment to the international community to protect the earth's climate. Since 2004, Vietnam has issued strategic orientations for sustainable development in Vietnam. Accordingly, sustainable development is an issue that needs the attention of the government, ministries, branches and localities as well as agencies, businesses, social organizations, and communities throughout the country. However, Vietnam is a developing country and is strongly affected by global climate change. Especially in recent times, pollution, degradation, environmental incidents, and adverse natural changes are affecting the economy and the quality of life of Vietnamese people. By putting profit as the top priority instead of socio-economic development goals associated with environmental protection activities, many enterprises in Vietnam have caused environmental disasters and consumed costs and time great for remediation of the environment.

Therefore, to combine socio-economic development with sustainable and long-term environmental protection in the future, enterprises in Vietnam need to implement environmental accounting (EA) in their operation and business management. In fact, EA is a useful tool to help business managers control costs more effectively; besides, it brings not only financial benefits but also brings great competitive advantages to enterprises in the current period of integration into the world economy. EA provides enterprises with the information they need to reduce their environmental impact, improve economic and environmental performance, and achieve sustainability (IFAC, 2005). However, in Vietnam, EA is a relatively new concept and has not been widely disseminated to many enterprises, while there are no specific legal regulations on EA. Along with that, due to the limited awareness of enterprises in general and enterprise managers in particular about EAs. Managers are not aware of the benefits (such as increased profit, revenue, reduction, cost savings, etc.) of improving environmental performance and from decisions derived from environmental management accounting information (IFAC, 2005). Enterprises are only interested in financial benefits (monetary measures) but have not paid attention to the benefits of

applying EA to increase their position and image, enhance reputation, increase access to capital, and ease easier than plans for facility expansion or changes due to increased community trust, etc. (USEPA, 1995).

Stemming from the above statements along with the goal to promote the application of EA in Vietnamese enterprises, this study examines the relationship between the factors such as firm size, the pressure of stakeholders, perception of the benefits of implementing EA, legal regulations, financial resources, staff qualifications affect the application of EA in manufacturing enterprises in Vietnam. This study will provide empirical evidence on the impact level of each factor on the application of EA, thereby helping state management agencies, professional associations, and enterprises develop and promulgate policies affecting these factors to promote the application of EA in Vietnamese enterprises.

Literature Review

The Concept of Environmental Accounting

EA is an accounting department related to the recording, analysis, and disclosure of information about business activities that have environmental impacts and the socio-economic performance of an enterprise. It serves as the service for management and addresses all areas of accounting that are related to the environment, reflecting business activities to environmental issues, including ecological accounting. According to Gauthier et al. (1997), EA is a part of accounting associated with environmental issues and cannot be separated from enterprise financial accounting and management accounting. It is an information system that allows data collection and analysis, performance monitoring, evaluation, decision making, and accountability to manage environmental costs and risks. EA records analyze and report the environmental impacts to provide users with a clear and complete painting of the environmental performance of the whole economic system (Ienciu, 2009). In addition, according to USEPA (1995) and IFAC (2005), EA in enterprises includes both environmental financial accounting and EMA content. Environmental financial accounting is the process of accounting and preparing environmental liabilities and costs in financial statements based on recognized accounting

principles. The purpose of providing information to external parties is to improve competitiveness (Qian, 2007). EMA refers to accounting systems and techniques that provide decision-makers and management with financial and non-financial information about the firm or organisation and its environment (Bouma & Correlje, 2003). EMA is a technique for identifying, collecting, analysis of environmental information using both value and in-kind measures, providing information that is responsive to the organization's internal analysis and decision-making (UNSD, 2001). In addition, according to IFAC (2005), EMA is the management of economic performance and the environment through the implementation and implementation of an appropriate accounting system and practices related to environmental issues.

Factors Affecting the Application of EA

To investigate the realities of environmental accounting in waste management, Qian (2007) suggested that environmental strategy, task complexity, and interdisciplinary communication play an important role in explaining indirect internal and external costs for waste management. In addition, institutional factors, regulatory pressures, and environmental awareness did not significantly contribute to any aspect of EA practice in waste management. Christ & Burritt (2013) investigated whether organizational characteristics influenced the EMA performance of enterprises in Australia. The results show that environmental strategy factors, the organization's scope, and the business sector are sensitive to the environment and significantly affect the applicability of EMA. At the same time, the organizational structure was not related to the perceived use of EMA by accountants within their organization. In addition, the research also shows that in Australian businesses, the application of EMA is still limited, and the determination of enterprise strategy and firm size will promote the application of EMA in the present and the future. Based on legislative, institutional, and regulatory theories, Wachira (2014) examined several factors that could influence the adoption of EMAs and showed that compliance costs, environmental strategies, and financial performance stand as the main influencing factors. While firm size and age of the business, as measured by years of operation, do not seem to affect the extent of EMA adoption. In addition, applying institutional

theory to examine the factors and barriers affecting the application of EMA in practice in small and medium enterprises in Malaysia, Jamil et al. (2015) find the factors that apply coercive force have a significant influence on the application of EMA, if the coercive pressure increases, SMEs are willing to implement the EMA. On the other hand, financial constraints are the biggest barrier to EMA development in SMEs in the manufacturing sector. In addition, the lack of knowledge and skills related to the environment and the absence of any guidelines on EMA have made it difficult to incorporate environmental issues into the accounting system. According to Alkisher (2013), education level affects the company's intention to use EMA. In other words, insufficient knowledge about environmental costs and benefits (Jamil et al., 2015) and a lack of skills will limit the integration of environmental issues into accounting systems in SMEs (Tran et al., 2021). Ofoegbu & Megbuluba (2016) examined the impact of factors belonging to the characteristics of manufacturing enterprises in Nigeria on the implementation of environmental accounting. The regression analysis results show that the business sector factor and the size of the enterprise have an impact on the implementation of EA in these enterprises. The institutional characteristics of the environment are increasingly being noticed as important determinants of organizational structure and performance (Hussain & Gunasekaran, 2002). However, businesses tend not to apply EMA when there is no pressure from state management agencies, so increasing coercive pressure, especially from the government will increase the intention to apply EMA (Chang, 2007). Government regulations and legal documents of environmental management agencies influence the disclosure of environmental information of companies (Nguyen et al., 2020); therefore, the development of the EMA will be handled by the Government and other authorities (Jamil et al., 2015). Pressure from the government, environmental protection organizations, and inter-agency environmental regulatory agencies significantly affect the ability to implement EMA practices (Tran et al., 2021). On the other hand, according to IFAC (2005), applying EMA will add value to the traditional management accounting system. At the same time, it provides valuable information for businesses in the process of management and improvement

towards sustainable growth. In addition, the EMA is also seen as a support tool for external stakeholders interested in environmental performance. In addition, some studies show that financial resources play an important role in EMA adoption (e.g., Wachira, 2014; Jamil et al., 2015), and financial resources also have a significant influence on environmental disclosure activities (Nurul Huda, 2015), despite the increasing environmental awareness, the lack of financial resources is a major obstacle for SMEs to implement an environment management system in their business (Gadenne et al., 2009).

Background Theory

Isomorphic Institutional Theory

DiMaggio & Powell (1983) consider isomorphism as the concept that best describes the homogenization process. The authors believe that the organization's characteristics will be changed to match the features of the environment. The institutional theory of isomorphism deals with three elements: coercive isomorphism, simulated isomorphism, and normative isomorphism. From the point of view of coercive isomorphism, the legal system is the primary determinant of EA adoption. Enterprises may face the pressure of institutional pressure, and they must apply EA to satisfy the expectations and requirements of stakeholders, especially those with strong influence, such as regulators or owners; even coercive pressures come from customers, investors, competitors, etc.

Legitimacy Theory

The theory of legitimacy holds that an organization's activities must conform to the values or social norms in which it operates. The failure of organizations to adhere to social values or norms can make it difficult for the organization to gain the community's support to continue working. The sustainable development of enterprises must be considered from three perspectives: economic, environmental, and social (Elkington, 1997). Accordingly, an enterprise operates to create economic values while protecting and developing environmental and social values. However, the reality shows that enterprise activities always have increasingly serious impacts on the environment and social community. Therefore, the pressure of legal

authorities and environmental groups as well as the social community forces businesses to implement environmental responsibility through environmental management according to standards and changing the accounting system to disclose appropriate environmental information. Pressure from society will force enterprises to fulfill their responsibility for the environment through standards and change the accounting system to disclose appropriate environmental information.

Develop Research Hypotheses and Models

Firm Size

Firm size affects the structure and use of management controls in the enterprise. A larger enterprise typically has larger total resources and better internal information systems, facilitating EA adoption. When examining the factors affecting the application of EA in enterprises, Christ & Burrirt (2013) and Ofoegbu & Megbuluba (2016) show that firm size affects EA implementation; precisely, the larger the enterprise's revenue, the more feasible the EA implementation will be. Based on the above argument, the first hypothesis of the study is stated as follows:

H1: Firm size positively affects the application of EA in manufacturing enterprises.

The Pressure of Stakeholders

Stakeholders such as shareholders, creditors, consumers, employees, suppliers, or society, can be seen as people interested in social and environmental activities business. Stakeholders significantly impact the production and business activities of enterprises in the community. When considering the factors affecting the application of EA in enterprises, AlKisher (2013) and Jamil et al. (2015) show that pressures from the community or the media and the government agency on environmental protection standards will put pressure on enterprises to apply environmental accounting. Through the above arguments, the second hypothesis of the study is stated as follows:

H2: The pressure of stakeholders positively affects the application of EA in manufacturing enterprises.

Perception of the Benefits of Implementing EA

Understanding and awareness of people working in the field of accounting and related subjects towards EMA plays an important role in the application and development of EMA in practice. The issue of perceived usefulness reflects an understanding of the EMA platform, the role and importance of EMAs in helping corporate governance, and connecting the interests of businesses with social benefits. Applying EMA helps improve the organization's image but also increases the relationship with the community and stakeholders, complies with environmental laws, avoids fines and compensation, and fixes environmental problems (IFAC, 2005). Burritt et al. (2002) and Ferreira et al. (2010) mention the benefits of EMA and argue that EMA helps businesses identify cost-saving opportunities and make decisions about improving product structure and pricing to avoid future costs associated with investment decisions and improve financial performance. Through the above arguments, the third hypothesis of the study is stated as follows:

H3: Perception of the benefits of implementing EA positively impacts the application of EA in manufacturing enterprises.

Legal Regulations

Institutional features of the environment are increasingly being noticed as essential determinants of organizational structure and performance (Hussain & Gunasekaran, 2002). Coercive factors significantly impact EMA performance (Jamil et al., 2015). Therefore, without government pressure on organizations to implement EMA, organizations are less likely to voluntarily apply EMA (Chang, 2007). The lack of EMA guidance is also a barrier to integrating environmental issues into existing accounting systems and practices, and the lack of EMA guidance makes it difficult to collect, identify, analyze and effectively evaluate data on the environment, especially waste management, prevention of environmental pollution (Jamil et al., 2015). Based on the above arguments, the fourth hypothesis of the study is stated as follows:

H4: Legal regulations directly and positively influence the application of EA in manufacturing enterprises.

Financial Resources

Cost is an essential factor in implementing any new system. This is one of the issues that many businesses are concerned about. Although the benefits of applying EMA are great, the cost of organizing the EMA system is not small. Therefore, finances are the most critical barrier preventing businesses from implementing EMA. Financial resources are one of the factors affecting the level of EMA adoption (Wachira, 2014; Jamil et al., 2015) as well as environmental disclosure (Nurul Huda, 2015); despite the increasing environmental awareness, the lack of financial resources is a significant obstacle for SMEs to implement environmental management systems in their enterprises (Gadenne et al., 2009). Based on the above arguments, the fifth hypothesis of the study is stated as follows:

H5: The larger the financial resources of the enterprise, the higher the possibility of applying EA in manufacturing enterprises.

Staff Qualifications

Staff qualifications are considered an important factor in successfully applying to EA because if the employees do not master the knowledge and skills, the application of EA in the enterprise will face difficulties. Alkisher (2013) showed that education level is one-factor affecting enterprises' intention to apply EMA. Applying EMA tools is considered too complicated and requires highly qualified staff (Tran et al., 2021); therefore, a lack of knowledge and skills also limits the integration of environmental issues into the accounting system in SMEs (Jamil et al., 2015). Based on the above principles, the sixth hypothesis of the study is stated as follows:

H6: Staff qualifications impact and influence in the same direction as the application of EA in manufacturing enterprises.

Based on the above hypotheses, the authors propose a research model presented as shown in Figure 1.

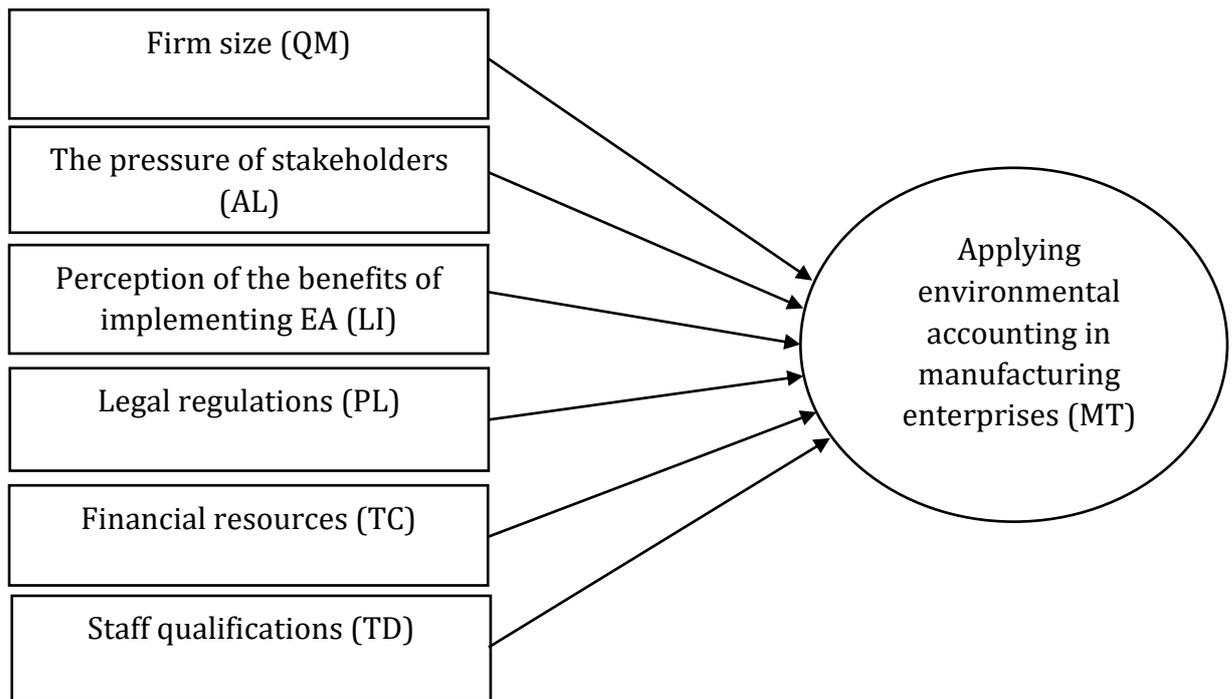


Figure 1: The proposed research model

Source: Suggestions by the authors

Based on the arguments presented above, the authors propose a regression equation describing the correlation between factors with the application of EA in manufacturing enterprises in Vietnam as follows:

$$MT_i = \alpha + \beta_1 QM_i + \beta_2 AL_i + \beta_3 LI_i + \beta_4 PL_i + \beta_5 TC_i + \beta_6 TD_i + \epsilon_i$$

In which MT_i is the application of EA in manufacturing enterprises sample i . The variables QM , AL , LI , PL , TC , and TD are the variables of firm size, the pressure of stakeholders, perception of the benefits of implementing EA, legal regulations, financial resources, and staff qualifications.

α - Constant term.

β_i - Coefficient of the explanatory variables.

ϵ_i - Residual.

Research Methodology

Data Collection Methods

The data of the study were collected through primary and secondary data sources. Secondary data is collected from research-related sources such as domestic and foreign journals and articles that have been published. Primary data was collected through a survey using a questionnaire with a 5-point Likert scale (in which 1 - Strongly disagree, 2 - Disagree, 3 - Normal, 4 - Agree, 5 - Strongly agree) by interviewing directly or sending questions via email and post. The survey questionnaire was built based on the scales of previous studies and adjusted to suit the practice in Vietnam. Specifically, the six items of MT are the content of environmental issues based on the guidelines of USEPA (1995), UNDSO (2001), and IFAC (2005). The three items of QM are based on previous research by Christ & Burritt (2013), Nurul Huda (2015), and Ofoegbu & Megbuluba (2016). Next, five items of AL are based on previous research by AlKisher (2013) and Jamil et al. (2015). The four items of LI are based on previous research by Burritt et al. (2002) and Ferreira et al. (2010). The four items of PL are based on previous research by Jamil et al. (2015) and Chang (2007). The four items of TC are based on previous research by Gadenne et al. (2009), Wachira (2014), and Jamil et al. (2015). Finally, the three items of TD build on previous research by Alkisher (2013), Tran et al. (2021), and Jamil et al. (2015). The questionnaire asked 265 managers, accountants, and people with knowledge of EA in manufacturing enterprises in some provinces and cities of Vietnam. The survey period is from January to April 2022.

Sampling Method

Sample size: in multiple regression analysis, the sample size is calculated by the formula $n \geq 50 + 8p$ (p - the number of independent variables in the model, n - sample size) (Tabachnick & Fidell, 2007). According to Hair et al. (1998), for exploratory factor analysis (EFA) minimum sample size $n > 5*N$ (N : total number of observed variables). Thus, with a theoretical scale of 29 observed variables of six independent

variables and one dependent variable, the minimum sample size is 145.

Survey sample characteristics: the authors sent 300 questionnaires to the surveyed subjects at manufacturing enterprises in Vietnam. As a result, the number of valid questionnaires is 265 (an 88.33 percent response rate). The remaining 35 questionnaires were invalid due to multiple-choice a question, leaving the required answers blank. Thus, the sample size used in the study is 265 (the sample size is completely suitable in the multiple regression analysis). In this study, the characteristics of the study sample are shown in Table 1.

Table 1: Description of the characteristics of the study sample

Characteristics	Classification	Frequency	Percentage (%)
Enterprise size	Large scale	45	17
	Medium size	95	36
	Small scale	125	47
Work position	Director	34	13
	Deputy Director	45	17
	Chief accountant	58	22
	Accountant	98	37
	Other	30	11
Working time	Less than 5 years	36	14
	From 5 years to less than 10 years	97	37
	From 10 to less than 20 years	89	34
	Over 20 years	43	16
Qualifications	Postgraduate level	35	13
	University degree	182	69
	College degree	48	18

Source: Compiled by the authors

Data Analysis Method

After data cleaning, the author uses SPSS 20 software for analysis, and data processing and runs multiple linear regressions through criteria such as testing the reliability of Cronbach's Alpha scale, exploratory factor analysis (EFA), and multivariable linear regression test to consider the impact of factors on the application of EA in manufacturing enterprises in Vietnam.

Results and Discussion

Scale Reliability Test Results

This study uses Cronbach's Alpha test to test the close correlation between the observed variables of a factor included in the regression model. The results of the reliability test of the scale presented in Table 2 show that all variables included in the regression model have Cronbach's Alpha coefficients greater than 0.6, so the scale of the variables is both reliable and usable. The reliability test results of the scale presented in Table 2 show that all variables included in the regression model have Cronbach's Alpha coefficients greater than 0.6, so the scale of the variables is both reliable and usable (Hoang & Chu, 2008). Thus, through testing the scale's reliability, the observed variables of the factor groups remain the same.

Table 2: The results of testing the reliability of Cronbach's Alpha scale

	Variables	N of items	Cronbach's Alpha
1	Firm size (QM)	3	0.865
2	The pressure of stakeholders (AL)	5	0.834
3	Perception of the benefits of implementing EA (LI)	4	0.844
4	Legal regulations (PL)	4	0.808
5	Financial resources (TC)	4	0.844
6	Staff qualifications (TD)	3	0.841
7	Applying EA in manufacturing enterprises (MT)	6	0.865

Source: Synthesized from the results of research data analysis

Exploratory Factor Analysis (EFA)

Analysis of the Scale of Factors Affecting the Application of EA

The test results presented in Table 3, Table 4, and Table 5 show that the KMO coefficient is 0.738 (satisfying the condition $0.5 \leq KMO \leq 1$), so it is satisfactory; the bartlett's test has a Sig value of 0.000 (less than 0.05), so these observed variables have a close relationship with each other and are suitable for EFA analysis. The total variance extracted is 69.407% (satisfying the condition greater than 50%) at the

Eigenvalues value is 1.752 (greater than 1), so it is satisfactory (Anderson & Gerbing, 1988). The observed variables in the group of factors all have factor loading coefficients greater than 0.5, satisfying the requirements (Hair et al., 1998). Thus, after conducting EFA analysis, the extracted factors are reliable and valid.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.738
	Approx. Chi-Square	2854.817
Bartlett's Test of Sphericity	df	253
	Sig.	0.000

Source: Research data analysis results

Table 4: Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.117	17.902	17.902	4.117	17.902	17.902	3.036	13.198	13.198
2	2.902	12.617	30.520	2.902	12.617	30.520	2.817	12.247	25.446
3	2.733	11.881	42.400	2.733	11.881	42.400	2.756	11.983	37.429
4	2.296	9.983	52.384	2.296	9.983	52.384	2.589	11.258	48.686
5	2.163	9.404	61.788	2.163	9.404	61.788	2.424	10.537	59.224
6	1.752	7.619	69.407	1.752	7.619	69.407	2.342	10.184	69.407

Extraction Method: Principal Component Analysis.

Source: Research data analysis results

Table 5: Component Matrix^a

	Component					
	1	2	3	4	5	6
AL2	0.861					
AL4	0.792					
AL5	0.781					
AL3	0.727					
AL1	0.629					
LI2		0.860				
LI4		0.851				
LI1		0.848				
LI3		0.731				
TC1			0.838			
TC2			0.831			
TC4			0.825			
TC3			0.793			
PL2				0.812		
PL4				0.811		
PL1				0.764		
PL3				0.731		
QM2					0.948	
QM3					0.897	
QM1					0.803	
TD2						0.892
TD1						0.878
TD3						0.855

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Source: Research data analysis results

Analysis of the Applicable Scale EA

The test results in Table 6 and Table 7 show that the KMO coefficient is 0.860 (satisfying the condition $0.5 \leq KMO \leq 1$), and the Sig value of the bartlett's test is 0.000 (less than 0.05), so the observed variables are correlated in the population. Therefore, the total variance extracted is 60.681% (greater than 50%); at Eigenvalues of 3,641 (greater than 1), the model is eligible to conduct EFA analysis.

Table 6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.860
	Approx. Chi-Square	738.567
Bartlett's Test of Sphericity	df	15
	Sig.	0.000

Source: Research data analysis results

Table 7: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.641	60.681	60.681	3.641	60.681	60.681
2	0.652	10.873	71.555			
3	0.588	9.803	81.357			
4	0.522	8.693	90.050			
5	0.388	6.461	96.511			
6	0.209	3.489	100.000			

Extraction Method: Principal Component Analysis.

Source: Research data analysis results

Table 8: Component Matrix^a

	Component
	1
MT6	0.880
MT3	0.822
MT5	0.820
MT1	0.740
MT2	0.700
MT4	0.692

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Source: Research data analysis results

The results of Table 8 show that the observed variables of the dependent variable MT all satisfy the factor loading greater than 0.5. Therefore, after EFA analysis, the six observed variables of the dependent variable MT (from MT1 to MT6) remain the same.

Multiple Linear Regression Analysis

Spearman's correlation test tests the relationship between independent and dependent variables. The results in Table 9 show that the independent variables QM, AL, LI, PL, TC, TD, and the dependent variable MT all have Sig less than 5%, so these independent variables are correlated with the dependent variable and will be included in the model to account for the dependent variable.

Table 9: Correlation Coefficient

	QM	TD	AL	LI	PL	TC	MT
QM	1.000	0.023	0.064	0.045	0.065	-0.045	0.510**
TD	0.023	1.000	-0.037	0.165**	-0.002	0.006	0.189**
AL	0.064	-0.037	1.000	0.066	0.355**	0.131*	0.500**
LI	0.045	0.165**	0.066	1.000	0.086	0.050	0.317**
PL	0.065	-0.002	0.355**	0.086	1.000	0.065	0.398**
TC	-0.045	0.006	0.131*	0.050	0.065	1.000	0.138*
MT	0.510**	0.189**	0.500**	0.317**	0.398**	0.138*	1.000

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: Research data analysis results

This study uses multivariable regression analysis to test the research hypotheses by examining the relationship between the independent variables and the dependent variable. The results of multivariable regression analysis are presented in Table 10, and Table 11 shows that the Adjusted R Square value is 65.8%, which means that the independent variables explain 65.8% of the variation of the dependent variable. In addition, the ANOVA test results have a Sig value of 0.000 (less than 0.05), so the regression model is suitable and statistically significant. This shows that at least one independent variable in the regression model affects the dependent variable.

Table 10: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.816 ^a	0.665	0.658	0.29665	2.185

a. Predictors: (Constant), TC, TD, QM, PL, LI, AL

b. Dependent Variable: MT

Source: Research data analysis results

Table 11: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.138	6	7.523	85.486	0.000 ^b
	Residual	22.705	258	0.088		
	Total	67.843	264			

a. Dependent Variable: MT

b. Predictors: (Constant), TC, TD, QM, PL, LI, AL

Source: Research data analysis results

The results of multivariable regression analysis in Table 12 show that the variables QM, AL, LI, PL, TC, and TD all have Sig values less than 0.05, so the regression model is statistically significant and suitable with the data set included in the study, i.e. independent variables QM, AL, LI, PL, TC, and TD have an impact on the dependent variable MT. The variance inflation factor is less than 2.20, so multicollinearity does not occur (Nguyen, 2011).

Table 12: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-0.922	0.262		-3.519	0.001		
QM	0.285	0.020	0.520	14.403	0.000	0.993	1.007
TD	0.139	0.027	0.185	5.089	0.000	0.983	1.018
1 AL	0.346	0.040	0.340	8.747	0.000	0.858	1.165
LI	0.195	0.030	0.235	6.402	0.000	0.962	1.040
PL	0.242	0.038	0.248	6.376	0.000	0.861	1.162
TC	0.101	0.038	0.096	2.631	0.009	0.969	1.032

a. Dependent Variable: MT

Source: Research data analysis results

In general, after testing the research hypotheses by multiple linear regression model, the hypotheses H1, H2, H3, H4, H5 and H6 are accepted at the 1% statistical significance level. The found regression coefficients are statistically significant and the independent variables affect the dependent variable from high to low, respectively: variable AL (B = 0.346), variable QM (B = 0.285), variable PL (B = 0.242), variable LI

(B = 0.195), variable TD (B = 0.139), variable TC (B = 0.101).

Thus, based on the results of multivariable regression analysis, the authors build the unstandardized regression equation of this study as follows:

$$MT = - 0.922 + 0.285*QM + 0.346*AL + 0.195*LI + 0.242*PL + 0.101*TC + 0.139*TD$$

Discussing Research Results

Firm Size

The regression results show that firm size is an important factor, positively affecting the application of EA in manufacturing enterprises (B1 = 0.285). This finding proves that when the firm's size increases by 1 unit, the application of EA in the enterprise increases by 0.285 units. This implies that the larger the enterprises, the higher the likelihood of EA adoption. The results of this study are consistent with the findings of Christ & Burritt (2013), and Ofoegbu & Megbuluba (2016). When the firm size is not large, business managers often give priority to the performance of accounting work to provide accounting and economic information related to financial accounting to meet the needs of customers compliance with the regulations of the authorities (especially the tax authorities) rather than the transparency of the data, the information provided, including environmental information; therefore the application of EA at these enterprises is also of little interest.

The Pressure of Stakeholders

The research results show that stakeholders' pressure is an important factor, having the strongest effect on the application of EA in manufacturing enterprises (B2 = 0.346). This result proves that if stakeholders' pressure increases by 1 unit, the application of EA in enterprises increases by 0.346 units. In other words, the greater the stakeholder's pressure, the higher the application of EA in enterprises. This finding is entirely consistent with the research results of AlKisher (2013), Jamil et al. (2015) and Tran et al. (2021). In Vietnam, many guidelines and policies on environmental protection and response to climate change are being paid special attention by the government; the legal system on the environment is increasingly perfected with the

goal of protecting the environment. Agencies often require enterprises to report and assess their environmental and social impacts when preparing their annual reports, which forces enterprises to have systems in place to manage financial, environmental, and performance society.

Perception of the Benefits of Implementing EA

The research results show that the perception of the benefits of implementing EA positively affects the application of EA in manufacturing enterprises ($B3 = 0.195$). This result proves that if the perception of the benefits of implementing EA increases by 1 unit, the application of EA increases by 0.195 units. This explains that if enterprises are aware of the benefits of implementing EA, it will motivate them to actively apply EA in the business. This result is consistent with the results of Burritt et al. (2002) and Ferreira et al. (2010). However, Vietnam does not have many manuals as well as in-depth teaching programs on EA, so it is difficult for enterprises to monitor, record and analyze environmental information. Therefore, the perception of the benefits of implementing EA in the business community still has certain limitations.

Legal Regulations

The research results show that legal regulations play an important role and positively impact the application of EA in manufacturing enterprises ($B4 = 0.242$). In other words, when legal regulations increase by 1 unit, the adoption of EA in enterprises increases by 0.242 units. This indicates that the lack of mandatory regulations or implementation guidelines will make it difficult to apply EA in enterprises. This issue also shows that EA depends greatly on whether the authorities have issued legal documents related to EA. Thus, it can be affirmed that to promote the application of EA in enterprises; the most important thing is the element of "legal regulations" only when there are regulations under pressure will enterprises perform. The findings of this study are consistent with those of Chang (2007), Jamil et al. (2015) and Nguyen et al. (2020).

Financial Resources

Financial resources continue to be a factor that positively impacts the application of EA in manufacturing enterprises ($B5 = 0.101$). Research results imply that when financial resources increase by 1 unit, the application of EA in enterprises increases by 0.101 units. Normally, to apply EA, enterprises need to invest in infrastructure for EA application, such as information technology systems, information processing processes, etc., and businesses must train human resources teams with professional qualifications and skills in handling information related to EA. Therefore, to apply EA, enterprises need to invest a large amount of money to have a good infrastructure system and the expenses to train staff to serve the implementation of EA. Thus, it can be seen that financial resources are an obstacle to the application of EA in enterprises; enterprises with restricted financial resources will find it tricky to apply EA. This result is consistent with the study of Gadenne et al. (2009), Wachira (2014), Jamil et al. (2015) and Nurul Huda (2015).

Staff Qualifications

The research results show that staff qualifications positively impact the application of EA in manufacturing enterprises ($B6 = 0.139$). This shows that when the staff qualifications increase by 1 unit, the ability to apply EA in enterprises increases by 0.139 units. Indeed, the team of accountants in an enterprise greatly influences the organization of accounting work; it affects the process of receiving and processing accounting information to provide managers with accurate and timely decision-making. Therefore, enterprises with a team of trained, qualified, knowledgeable, and experienced accountants will help apply EA more smoothly. This result is similar to that of Alkisher (2013), Jamil et al. (2015) and Tran et al. (2021). However, in Vietnam, most accounting training programs have not focused on EA training, so many accountants in enterprises lack knowledge and expertise in EA, leading to the application of EA in Vietnamese enterprises being limited.

Conclusions

As a developing country, Vietnam is strongly affected by climate change, pollution, and environmental degradation, which has affected the economy as well as people's quality of life. The main object of environmental degradation is enterprises; most enterprises in developing countries often put profit first instead of growth associated with environmental protection activities. Therefore, starting from the goal of developing a green economy associated with sustainable development in Vietnam, this study uses multiple linear regression analysis to test the influence of factors on the application of EA application in manufacturing enterprises under practical conditions in Vietnam. The research results show that out of the 06 factors included in the research model, the pressure of stakeholders is the one that has the strongest impact on the application of EA, followed by the factors of firm size, legal regulations, perception of the benefits of implementing EA, staff qualifications, and remaining financial resources are the weakest influencing factors on EA implementation. In addition, this study provides evidence relatively important evidence about the influence of factors affecting the application of EA. This evidence can be used as a reference source for future researchers on similar issues. This study can help state management agencies, professional associations, and business managers better understand the level of impact of each factor on the application of EA, thereby offering appropriate solutions to promote the application of EA in enterprises. For state management agencies, it is necessary to complete and synchronize the legal system on accounting and environment, promulgating EA standards and guiding documents detailing the content and implementation methods to create a legal basis and corridor for the implementation of EA. At the same time, it is necessary to have a policy to encourage enterprises to research and apply EA in their activities to simultaneously ensure the benefits of enterprises and the environment. For professional and business associations, it is necessary to promote training and propaganda to raise awareness and qualifications of managers in enterprises about EA. In addition, it is necessary to study and survey international experiences on EA standards to recommend authorities to soon supplement and complete the policy

system on this content. For businesses, it is necessary to change awareness and social responsibility for environmental issues; and develop a long-term business strategy that considers the impacts of product environmental standards and regulations. At the same time, business administrators must regularly update and implement EA. Finally, training institutions must continue to supplement, edit and revise to improve the quality of teaching curricula on EA; put EA into teaching as an intensive course, organized into topics for students to exchange, discuss and draw experience.

Although specific results have been achieved, this study still has some limitations that future studies need to consider and expand the research. First, the data used in the study is collected through surveys in many types of enterprises (different sizes, industries, etc.), so it is not representative of each type of business. Secondly, many other factors can affect the application of EA, such as environmental strategy, business lines, audit, etc. but have not been considered in this study. Finally, the study used analytical and synthesis methods from published studies for a long time, and the sample size was small, so the generalizability was not high, affecting the quality of the study.

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