FACTORS AFFECTING THE APPLICATION OF SOCIAL RESPONSIBILITY ACCOUNTING: EVIDENCE FROM PLASTIC MANUFACTURING COMPANIES

Nguyen Thi Thu Hang [*], Nguyen Thi Phuong Dung [**], Nguyen Thi Bach Tuyet [***]

* Faculty of Accounting and Auditing, Foreign Trade University, Hanoi, Vietnam
** *Corresponding author,* School of Economics and Management, Hanoi University of Science and Technology, Hanoi, Vietnam
Contact details: Hanoi University of Science and Technology, No. 1 Dai Co Viet, Hai Ba Trung, Hanoi, Vietnam
*** School of Information Technology and Digital Economics, National Economics University, Hanoi, Vietnam

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Abstract

Sustainable development goals (SDGs) issued by the United Nations (UN) have been recognized as the aims for sustainable development of the global economy and companies around the world. In realizing SDGs, social responsibility accounting (SRA) is gradually proving to be an effective quantification tool to enhance transparency and reliability in the social responsibility reports of companies. Therefore, this study aims to evaluate impact factors on SRA in Vietnamese plastics companies, an environmentally sensitive industry. We used a large-scale survey and collected 160 respondents from plastic manufacturing enterprises in the Hanoi area, Vietnam. It is found that three factors, namely, stakeholder pressure, awareness of business managers, and characteristics of plastic enterprises, have positive impacts on the application of SRA in plastic enterprises. Meanwhile, the environmental cost factor hinders the application of SRA. Thereby, the research makes recommendations for plastic manufacturing enterprises in an emerging country like Vietnam on how to best apply SRA to further the SDGs.

Keywords: Social Responsibility Accounting, Plastic Manufacturing Enterprises, Sustainable Development, Hanoi, Vietnam

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1. INTRODUCTION

Management accounting has become more complex and integrated with companies' sustainable development goals (SDGs). Recently management accounting systems in enterprises deal with sustainability-related issues including corporate social responsibility (CSR) quantification and reports. CSR is defined as a company's obligations to its stakeholders across all its activities in achieving sustainable development in the economic, social, and environmental aspects. Practicing CSR enhances long-term financial performance, increases market share, fosters a competitive advantage, improves the company's reputation, enhances the working climate, boosts employee productivity and motivation, fosters loyalty, and contributes to retaining high-quality staff (Nimani et al., 2022). CSR accounting, commonly known as social responsibility accounting (SRA), is designed to financially quantify the impacts of company activities on the three economic, social, and environmental aspects. SRA has been considered

an indispensable role in helping enterprises achieve their SDGs (Shahwan et al., 2023). There are many factors affecting the application of SRA in enterprises such as managers' views, qualifications, and awareness of accountants or environmental regulations. Therefore, identifying the factors affecting the application of SRA in enterprises would help them effectively deploy SRA.

The Vietnamese Government promulgated the National Action Plan to 2030 agenda for sustainable development (Prime Minister of Vietnam, 2017) with 17 SDGs and 169 specific goals suitable to the country's development conditions and priorities. The plastic industry is considered one of the environmentally sensitive industries (Kumar et al., 2020; Awasthi et al., 2022). The Vietnamese plastic industry is strongly affected by the provisions of environmental regulations such as Law on Environment Protection No. 72/2020/QH14; the Decision No. 1746/QD-TTg dated December 4, 2019, for the national action plan on ocean plastic waste management until 2030; and the new regulation is Directive No. 33/CT-TTg dated August 20, 2020, on strengthening management, reuse, recycling, treatment, and reduction of plastic wastes. Decision No. 687/QĐ-TTg dated June 7, 2022, approved the scheme for the development of the circular economy in Vietnam and Decision No. 1658/QD-TTg approved the national green growth strategy for 2021–2030, with a vision for 2050. Based on these regulations, Vietnam has specified the target that 85% of plastic waste must be reused, recycled, and treated, and 50% of the plastic waste in seas and oceans must be reduced by 2025. Therefore, Vietnamese plastic firms have implemented CSR and SRA in response to these regulations.

The Hanoi capital area has approximately 1,400 plastic enterprises (Vietnam General Statistics Office, 2021) with most small and medium enterprises, accounting for 27.7% of the Vietnamese plastic industry. In general, the plastic industry in Hanoi has been in a good growth period and the enterprises have undertaken many efforts in changing technology to meet International Organization for Standardization (ISO) standards for production processes and products, namely: ISO 26000 on social responsibility and ISO 14001 on environmental protection. Large enterprises also have prepared annual reports that provide information to stakeholders on how their business activities impact the environment and society. Therefore, we selected the Hanoi area to conduct a large-scale survey for this research. The objective of this study is to identify the factors impacting the application of SRA in plastic manufacturing enterprises in Hanoi, Vietnam. We employed a questionnaire survey and a statistical regression model to examine the factors. The findings shed light on what factors affect the application of SRA and give recommendations for developing SRA in the plastic industry of an emerging country like Vietnam.

The remainder of this paper is as follows. Section 2 reviews the relevant literature and designs hypotheses on SRA and impact factors on SRA in companies. Section 3 analyses the research methodology used to collect and analyze the data. Sections 4 and 5 present the results and discussions for the findings. The last, Section 6, concludes key research results and makes implications for practice and recommendations for the plastics manufacturing companies and the authority.

2. LITERATURE REVIEW AND HYPOTHESES DESIGN

2.1. Literature review

The concept of SRA was born as an accounting tool that helps companies record and reflect environmental and economic changes taking place in the life of businesses (Shahwan et al., 2023). SRA works from a monetary perspective to identify and measure activities related to planning, implementing, monitoring, and managing social responsibility activities of the company such as increasing income through improving working conditions and taking care of the health and spiritual life of employees, supporting community development, and customer care. Research shows that implementing SRA will help businesses improve their financial performance and competitiveness (Wildowicz-Giegiel, 2014). European countries encourage businesses to record social income and social costs and then prepare sustainability reports (Bennett & James, 1998; Owen et al., 2000). Shahwan et al. (2023) found the impact of SRA on the financial performance and return on assets (ROA) of listed companies in Jordan. They confirm the significant impact of SRA on financial performance represented by ROA for Amman Stock Exchange-listed public joint stock companies during the COVID-19 pandemic. They recommend that public companies adopt SRA-related activities in various aspects (employees, environment, society, and products) to meet societal expectations, which will increase community trust in the company, and this will reflect positively on their financial performance.

Institutional theory suggests that the establishment of a company's structure and operations is influenced by three factors: imitative pressure, coercive pressure, and normative pressure. Therefore, the application of SRA in enterprises is also affected by factors from outside the enterprise such as laws (Jamil et al., 2015); mandatory requirements for preparing SRA reports (Thomson & Bebbington, 2005; Nguyen, 2020; Hamed et al., 2022).

Moreover, stakeholder theory (Freeman, 1984) indicates that businesses must treat all stakeholders fairly, including external stakeholders such as suppliers, society, governments, lenders, shareholders, and customers as well as internal stakeholders such as employees, managers, and business owners. This puts pressure on the companies to recognize social revenues and costs (Bennett & James, 1998; Owen et al., 2000). Failure to meet social expectations can lead to closure due to license revocation and that affects the development of companies in the long run (Jamil et al. (2015) have identified that stakeholder pressure positively impacted the implementation of environmental and social accounting systems. It is found that four factors: awareness, finance, information, and management affect the adoption of environmental management accounting (Jamil et al., 2015; Tai, 2022). Business sustainability can be ensured by creating a close link between business and society, therefore, investing in

CSR activities helps enhance and benefit from brand image and attraction of more investors. Institutional pressure suggests that without pressure from the government, such as issuing guidelines requiring organizations on accounting procedures and practices related to environmental management, organizations will have little ability to apply environmental management accounting. Institutional theory where information disclosure is required as part of government control (Campbell, 2006). On the contrary, if there is no mandatory requirement to disclose social responsibility information, a business is still capable of providing this information to meet the expectations of stakeholders. One of the reasons that push businesses to expand information disclosure on sustainable development reports is governmental regulations (Buallay & Hamdan, 2023). Research by Al Amosh and Khatib (2022) suggests that the challenge to publishing sustainability reports is the lack of mandatory disclosure laws, which exposes the gap between what businesses have the right to do and what they do in fact. Krambia-Kapardis et al. (2023) businesses will not carry out activities related to social responsibility because they consider it a costly activity unless they are forced to do so.

Based on the contingency theory, numerous researchers figured out solutions that are suitable to the characteristics of that organization (Iredele et al., 2020). Therefore, the application of SRA in enterprises will depend on the compatibility with the characteristics of the enterprise, as the internal factor of the enterprise. The characteristics of an enterprise including size, infrastructure, technology as well as organizational model affect the implementation of the SRA system (Nguyen, 2017). Cognitive pressure (Tai, 2022) impacts calculating environmental costs and the adaptability of accountants (Jamil et al., 2015; Tai, 2022). Also, van der Poll (2022) found that contingency factors greatly affect the application of environmental management accounting practices in developed countries, but for developing countries, they are less significant.

2.2. Hypotheses design

2.2.1. Stakeholders pressure

Wilmshurst and Frost (2000) showed that stakeholders' demands are the most significant factor influencing the disclosure of environmental reports. Such information is extremely important in helping shareholders or investors make relevant and effective business decisions. Especially with the increasing awareness of green consumption and environmental protection, environmental organizations or customers can create huge pressure on enterprises (Jamil et al., 2015). Hamed et al. (2022) suggested that adopting new mandatory regulations plays an important role in increasing high-quality CSR reports and reducing low-quality CSR reports. Al Amosh and Khatib (2022) found that compulsory rules affect the production of high-quality CSR reports, specifically smaller firms, and older firms. Also, it is pointed out that competitive pressure also greatly affects the implementation of SRA. The fact that competitors use strategies to hit the consumer's psychology also pressures businesses to implement CSR, better management, and protection of the environment through SRA implementation. Therefore, if the government, local agencies, customers, and competitors put severe pressure on environmental issues and social responsibility, the more suppliers, investors, and employees pay attention to these issues in the plastic enterprises, the more plastic enterprises will promote the application of SRA. Therefore, we propose the following hypothesis:

H1: Stakeholders' pressure positively impacts the application of social responsibility accounting in plastic manufacturing companies.

2.2.2. Environmental costs

Financial difficulties make managers focus more frequently on increasing profits (Hussain & Hoque, 2002). The pressure of paying environmental costs is also a pressure for managers. Besides, the product price will also increase, this has a great impact on the increasingly fierce competition in the market today because of the trend of buying and utilizing eco-friendly products instead of plastic and/or non-biodegradable items. If financial efficiency is increased, managers will ensure the implementation of SRA (Gadenne et al., 2009). Nguyen et al. (2023) supposed that a lack of financial resources negatively affects environmental costs and green accounting applications in construction companies in Vietnam. Iredele and Ogunleye (2018) found that environmental management accounting practices in South Africa are prevented mainly by financial barriers. Therefore, the pressure on environmental costs may positively impact the implementation of SRA in plastic enterprises in Hanoi. We propose the following hypothesis:

H2: Environmental costs positively impact the application of social responsibility accounting in plastic manufacturing companies.

2.2.3. Awareness of business managers

Research by Kokubu and Nashioka (2005) has acknowledged that business managers have an extremely important role in shaping the environmental and social responsibility of enterprises. Aerts et al. (2006) found a positive relationship between the social disclosure of the companies and the managers' awareness. This research supposes that if the awareness level of the leaders increases, the social disclosure level will also increase. If a leader is not aware of the benefits brought by the implementation of SRA, the implementation will be less likely to be applied to the development goals of the enterprise. Also, there is an impact of corporate governance principles on SRA, according to Shahwan et al. (2022). This study found that there is an impact on the rights of shareholders and the role of stakeholders in SRA. Nguyen (2022) found the awareness of leaders on the environment has a positive and statistically significant effect on environmental accounting in the textile and garment companies in Vietnam. The plastic enterprises in Hanoi are mainly small and medium, so managers will have various concerns about financial efficiency if applying SRA

which is a new type and may lead to no achievements for their enterprises. Therefore, the following hypothesis would be examined:

H3: Awareness of business managers positively impacts the application of social responsibility accounting in plastic manufacturing companies.

2.2.4. Characteristics of enterprises

The studies by van de Burgwal and Oliveira Vieira (2014), Christ and Burritt (2017), Nguyen (2022), and Hamed et al. (2022) have also shown that enterprise size positively influences the adoption of SRA. Also, Kengatharan and Sivakaran (2019) found that in Sri Lanka, firm size has significantly positively influenced CSR at listed banks, financial organizations, as well as insurance companies. The current reality in Vietnam is that sustainability reports are implemented in large enterprises. This partly indicates that the enterprise size has a significant and positive influence on the implementation level of SRA. The larger the enterprises are, the more production and business activities will have more impact on the natural environment and will also be under more pressure from public opinion. Moreover, the organization of the accounting department also has a significant influence in building a coordinated system, to grasp enough environmental information to record, measure, and disclose fully and accurately (Nguyen et al., 2023). To ensure their prestige, reputation, and position, the plastic manufacturing enterprises in Hanoi will be more likely to implement SRA. Therefore, the following hypothesis would be examined:

H4: Characteristics of enterprises have a positive impact on the application of social responsibility accounting in plastic manufacturing companies.

2.2.5. Qualifications of accountants

Professional accountants have a significant role in minimizing environmental damage and putting social responsibility at the heart of the sustainable development strategy of the enterprises. Nguyen et al. (2019) found that the qualifications of accountants positively affect the development levels of management accounting systems in Vietnamese enterprises. Studies by Kokubu and Nashioka (2005), and Nguyen (2022) pointed out the close relationship between the knowledge and awareness of accountants in the implementation of SRA or environmental accounting. If accountants do not have sufficient knowledge and skills, it is very difficult to apply SRA in businesses because they are the people who directly record and complete data accounts, books, and accounting reports daily. There are currently no regulations and documents guiding the implementation of SRA. That also causes obstacles for accountants to apply SRA in enterprises. Therefore, we propose the following hypothesis:

H5: Qualification of accountants positively impacts the application of social responsibility accounting in plastic manufacturing companies.

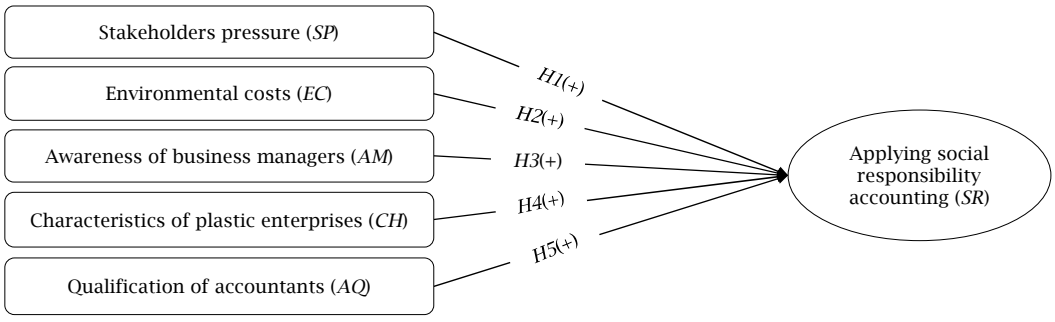
3. RESEARCH METHODOLOGY

The quantitative research method is suitable for studies whose goal is to measure and evaluate the relationship between variations and identify factors that influence certain outcomes. Therefore, this study uses a quantitative method to quantify the factors affecting SRA in the plastic industry in Vietnam. In the survey, the scales are adjusted and supplemented based on the above theories and previous studies to suit the plastic industry and are based on qualitative research results, and in-depth interview methods from managers and accountants. The questionnaire consists of 3 main parts:

- Part A provides important information about SRA and questions to screen respondents according to research objectives;
- Part B includes 24 questions equivalent to the observed variables;
- Part C includes questions on general information about companies.

Based on the hypothesis design process, we propose five factors affecting the application of SRA in plastic enterprises, which are: stakeholder pressure, environmental costs, awareness of business managers, characteristics of plastic enterprises, and qualifications of accountants for the application of SRA. We proposed the research model in Figure 1.

Figure 1. Proposed research model



We conducted a large-scale survey of 210 involved enterprises through email, social networking platforms, and direct phone contact with the plastic manufacturing enterprises in Hanoi. The number of respondents collected is 168, of which 8 are invalid answers. Therefore, 160 valid answers for data analysis are equivalent to a 76.2% response rate. To verify the scales of variables and evaluate the relevance of the research model, we use exploratory factor analysis (EFA) and regression analysis by Statistical Package for the Social Sciences version 22 (SPSS 22) software as the following steps:

1) analyzing the reliability of the scales by Cronbach's alpha coefficient;

2) EFA and correlation analysis;
3) regression analysis.
We propose the regression model as follows:

$$SR = \beta_1 SP + \beta_2 EC + \beta_3 AM + \beta_4 CH + \beta_5 AQ + \beta_6 \quad (1)$$

where, *SP* is the stakeholders' pressure, *EC* is the environmental costs, *AM* is the awareness of business managers, *CH* is the characteristics of plastic enterprises, *AQ* is the qualification of accountants, and the dependent variable is *SR* — applying social responsibility accounting.

The scale for variables is a five-point Likert scale from 1 — "Strongly disagree" to 5 — "Strongly agree", with the detailed content shown in the Appendix.

4. RESEARCH RESULTS

4.1. The overview of the sample

As shown in Table 1, nearly 90% of respondents are accountants, the rest are business managers. Limited liability companies account for 65.63%, and joint stock companies account for 33.13% in the sample. Most of the companies are medium and small companies (90%). The number of accountants in the accounting department is less than five in 92.5% of the enterprises.

Table 1. Overview of the sample

Items		*Quantity*	*Quantity*
Working position	Accountant	Ratio	Ratio
	Business manager	142	142
Total		**88.75%**	**88.75%**
Type of business	Joint stock company	18	18
	Limited liability company	11.25%	11.25%
	Private enterprise	160	160
Total		**100.00%**	**100.00%**
Company's personnel	Less than 100 people	53	53
	From 100 to 200 people	33.13%	33.13%
	More than 200 people	105	105
Total		**65.63%**	**65.63%**
Accountants in the accounting department	Less than 5 people	3	3
	About 5–10 people	1.88%	1.88%
	More than 10 people	160	160
Total		**100.00%**	**100.00%**

Source: Authors' elaboration.

The results of descriptive statistics show that the average value of the observed independent and dependent variables in the factor groups has a relative range of 2.74 to 4.03. The minimum value is equal to 1.00, and the maximum value is equal to 5.0. The average value of all *SP* variables is the highest and over 3.5 (*SP1* = 3.98; *SP2* = 3.83; *SP3* = 3.56; *SP4* = 3.49; *SP5* = 3.75; *SP6* = 4.03). Meanwhile, the average value of *EC* variables is the smallest (*EC1* = 2.97; *EC2* = 2.94; *EC3* = 3.04; *EC4* = 2.74), but all are higher than 2.5.

4.2. Cronbach's alpha results

Based on the factors identified in the hypothesis design section, six-factor groups are analyzed to determine if the hypothesis can be confirmed. All the identified factor groups have multiple factors. To ensure the accuracy in factor grouping, the representativeness and appropriateness of the factors must be confirmed. The standard process for confirming this is reliability testing. As shown in Table 2, based on Cronbach's alpha for each of the six-factor groups, group *SP, EC, AM, CH, AQ* and *SR*, respectively, are 0.901, 0.903, 0.856, 0.790, 0.692 and 0.639, all more than 0.6 (Nunnally, 1967). The corrected item-total correlation coefficients of all factors is 0.52 more than 0.3, which is satisfactory for the criteria of inspection. The Cronbach's alpha coefficient of two-factor groups *SP, EC*, and *EC* is greater than 0.9 so the measurement scale of these two-factor groups is excellent. The Cronbach's alpha coefficient of factor group *AM* is greater than 0.8 (but less than 0.9) so the measurement scale of this factor group is good, and the Cronbach's alpha coefficient of three-factor groups *CH, AQ,* and *SR* are greater than 0.6 but less than 0.8, so the measurement scale of these factors is acceptable.

The Cronbach's alpha if the item is deleted: *SP3* (0.911 > 0.901); *AM3* (0.927 > 0.856); *AM4* (0.903 > 0.856); *CH1* (0.923 > 0.790); *CH4* (0.795 > 0.790); *SR3* (0.693 > 0.639); *AQ1* (0.758 > 0.692); *AQ3* (0.882 > 0.692); therefore, the factors namely, *SP3, AM3, AM4, CH1, CH4, AQ1, AQ3*, and *SR3* should be removed to increase the reliability of the factor groups because the Cronbach's alpha of these factors is more than total Cronbach's alpha. The smaller the Cronbach's alpha coefficient if an item is deleted, the better the quality of the observed variable. Cronbach's alpha coefficient if item deleted of *AQ2* is smallest (0.435), therefore variable *AQ2* is the best quality.

Table 2. Cronbach's alpha results

Code	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted	Scale means if item deleted
Stakeholders pressure (SP), α = 0.901				
SP1	18.660	19.986	0.791	0.874
SP2	18.810	19.553	0.782	0.875
SP3	19.080	22.830	0.911	0.813
SP4	19.140	19.633	0.698	0.889
SP5	18.890	19.144	0.781	0.875
SP6	18.610	19.838	0.819	0.870
Environmental costs (EC), α = 0.903				
EC1	8.730	8.389	0.846	0.850
EC2	8.750	9.321	0.748	0.886
EC3	8.650	9.411	0.780	0.876
EC4	8.960	8.558	0.763	0.883
Awareness of business managers (AM), α = 0.856				
AM1	9.630	5.844	0.842	0.756
AM2	9.660	5.497	0.844	0.751
AM3	9.660	5.445	0.927	0.816
AM4	9.820	8.497	0.903	0.803
Characteristics of plastic enterprises (CH), α = 0.790				
CH1	7.240	3.028	0.923	0.734
CH2	7.943	2.522	0.745	0.596
CH3	7.260	2.292	0.757	0.619
CH4	8.602	2.821	0.795	0.703
Qualification of accountants (AQ), α = 0.692				
AQ1	6.760	1.808	0.758	0.565
AQ2	6.890	3.039	0.435	0.691
AQ3	7.000	2.478	0.882	0.515
Applying social responsibility accounting (SR), α = 0.639				
SR1	6.810	2.241	0.573	0.344
SR2	7.090	2.714	0.475	0.502
SR3	6.820	3.608	0.693	0.438

Source: Authors' elaboration.

4.3. Exploratory factor analysis

Exploratory factor analysis is used to determine the factor groups with the independent variables more exactly. In our sample, EFA has 20 observed constructs for 5 independent group variables and 3 observed constructs for 1 dependent variable. The observed constructs are extracted into groups to ensure representativeness and explanation for the scales that were originally proposed. Table 3 provides the results for the Kaiser-Meyer-Olkin (KMO) coefficients and Bartlett's test. The KMO coefficient is 0.822, between 0.5 and 1.0, and Sig. = 0.000 < 0.05. Table 4 provides the result for the extraction sums of squared loadings cumulative, 77.336% > 50% are accepted (Kaiser, 1970, 1974). This indicates the appropriateness of the utilization of factor analysis. Bartlett's test also demonstrated the hypothesis that the observed variables have a significant overall correlation, with a significance level less than 0.05.

Table 3. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.822
Bartlett's test of sphericity	Approx. Chi-square	1589.417
	df	91
	Sig.	0.000

Source: Authors' elaboration.

Table 4. Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		Rotation sums of squared loadings	
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total
1	5.827	41.621	41.621	5.827	41.621	41.621	4.955
2	2.231	15.938	57.558	2.231	15.938	57.558	4.145
3	1.666	11.898	69.456	1.666	11.898	69.456	2.110
4	1.103	7.880	77.336	1.103	7.880	77.336	3.404
5	0.879	6.277	83.613				

Note: Extraction method: Principal component analysis.
Source: Authors' elaboration.

Table 5. Rotated component matrix

Item	Component			
	1	2	3	4
SP6	0.860			
SP5	0.808			
SP1	0.804			
SP2	0.795			
SP4	0.671			
AQ2	0.328			
EC1		0.881		
EC2		0.854		
EC3		0.830		
EC4		0.824		
CH3			0.961	
CH2			0.951	
AM1				0.919
AM2				0.862

Source: Authors' elaboration.

As shown in Table 5, based on statistical analysis for the original five-factor groups of independent variables, we can determine four-factor groups as follows.

• Group 1: Stakeholders pressure (*SP*) includes 6 independent constructs: *SP1, SP2, SP4, SP5, SP6*, and *AQ2*. The *AQ2* is an exciting point since originally *AQ2* belonged to the *AQ* group but now is put into the *SP* group.

• Group 2: Environmental costs (*EC*). This group still includes 4 independent constructs: *EC1, EC2, EC3*, and *EC4* the same as the proposed model. This indicates the environmental costs are evaluated equally in the plastic manufacturing enterprises.

• Group 3: Characteristics of plastic enterprises (*CH*) includes 2 independent constructs *CH2* and *CH3*. The two independent constructs *CH1* and *CH4* are excluded from the group, indicating that "Size of enterprises" and "Infrastructure" are not considered as the factors influencing SRA by the respondents.

• Group 4: Awareness of business managers (*AM*) includes 2 independent constructs *AM1* and *AM2*. The two independent constructs *AM3* and *AM4* are excluded from the group, showing that "*AM3*: SRA helps to come up with internationalization trends to enhance the global integration ability of enterprises", "*AM4*: Managers use reports with data from SRA in making decisions" (see Appendix) are not considered as important to the application of SRA in enterprises.

Interestingly, the factor group Qualifications of accountants (*AQ*) is excluded from the model, indicating that the respondents did not evaluate the qualification of accountants as the factor influencing the application of SRA.

4.4. Regression model

As shown in Table 6, the regression model has significant statistical results. Correlation analysis shows that the Pearson correlation coefficients respectively are 0.723, -0.646, 0.183, 0.838, and Sig. = 0 < 0.05 so the four-factor groups have significant coefficients (Coakes, 2008). However, the three-factor groups *SP, CH*, and *AM* have positive impacts, the *EC* factor group has a negative impact (Pearson = -0.646 < 0). The coefficients between *AM* and *SR* are the highest, with = 0.838. The coefficient of adjusted R-square = 0.869 > 50% and Sig. = 0 <0.05 indicating the relevancy of the regression model. The collinearity statistics variance inflation factor (VIF) for each independent variable is less than 2 and tolerance > 0.0001. This result confirmed that the regression model is unaffected by multicollinearity, autocorrelation, and heteroskedasticity. We accept the following regression model:

$$SR = 0.340SP - 0.277EC + 0.076CH + 0.550AM + 0.861 \quad (2)$$

Table 6. Model summary

Panel A: Model summary								
Model		*R*	*R-square*	*Adjusted R-square*	*Std. error of the estimate*		*Durbin-Watson*	
1		0.934	0.872	0.869	0.34349		1.849	
Panel B: Coefficients								
Model		*Unstandardized coefficients*		*Standardized coefficients*	*T*	*Sig.*	*Collinearity statistics*	
		β	*Std. error*	*β*			*Tolerance*	*VIF*
1	(Constant)	0.861	0.232		3.705	0.000		
	SP	0.340	0.044	0.280	7.778	0.000	0.635	1.576
	EC	-0.277	0.032	-0.286	-8.641	0.000	0.750	1.333
	CH	0.076	0.032	0.069	2.382	0.018	0.972	1.029
	AM	0.550	0.034	0.564	16.180	0.000	0.678	1.475

Source: Authors' elaboration.

5. DISCUSSION

The *H1* proposed that stakeholder pressure has a positive impact on the application of SRA in the sampled companies. The model confirmed this relationship because the p-value for the *SP* variable was significant (Sig. = 0.000 < 0.05). This finding is consistent with Branco and Rodrigues (2008), Jamil et al. (2015), and Hamed et al. (2022) who found that stakeholder pressures positively impact the application of CSR and SRA. The pressure from state agencies on regulations related to SRA and the pressure from shareholders such as investors, suppliers, competitors, environmental organizations, and consumers on environmental issues and social responsibility positively impact the usage of SRA in plastic manufacturing companies.

The *H2* proposed that environmental costs have a positive impact on the application of SRA in plastic enterprises. However, the model confirmed this relationship as negative with the p-value for the *EC* variable being significant. The *H2* cannot be confirmed. According to this statistical result, the greater the environmental cost pressures, the lower the application of SRA in plastic manufacturing enterprises in Hanoi. This result is in contrast with the studies of Gadenne et al. (2009) and Nguyen et al. (2023). The plastic manufacturing

enterprises in Hanoi have not evaluated the positive impact of SRA on controlling the environmental costs such as costs for treatment and control of odor pollution or cost of treating wastes before discharging into the environment, cost of fines, waste fees, environmental compensation, or toxic costs for employees. Probably, the reason comes from no specific official regulations and documents guiding the environmental costs for the plastic industry, so the plastic manufacturing enterprises have not identified comprehensively the environmental cost pressures. This result also can be explained by the findings of Mukwarami et al. (2023) that a lack of managing environmental costs and failure to account for negative environmental management are the barriers to environmental management accounting implementation.

The *H3* proposed that awareness of business managers has a positive impact on the application of SRA in plastic enterprises. The model confirmed this relationship because the p-value for the *AM* variable was significant (Sig. = 0.000 < 0.05). This finding is consistent with Kokubu and Nashioka (2005), Aerts et al. (2006), Nguyen et al. (2019), Thu (2023), and Shahwan et al. (2023) who found that the demand of managers for information has a positive impact on the adoption of modern managerial accounting practices. According to the respondents, if managers of enterprises have an understanding and awareness of SRA and its benefits in improving business CSR performance, the enterprises will apply SRA more widely.

The *H4* proposed that the characteristics of plastic enterprises positively affect the application of SRA in companies. The model confirmed this relationship because the p-value for the *CH* variable was significant (Sig. = 0.018 < 0.05). This result is by the studies of van de Burgwal and Oliveira Vieira (2014), Christ and Burritt (2017), Kengatharan and Sivakaran (2019), Hamed et al. (2022), and Nguyen et al. (2023). The infrastructure and the information technology system would increase the implementation of SRA, and changes in the internal organizational system and technology are necessary for the enterprises. That is a challenge for plastic enterprises in Hanoi because of the characteristics of small and medium enterprises, which will need the allocation of limited financial resources for the implementation of SRA. Profit maximization is still the top goal, innovation compared to traditional operations requires more time, effort, and costs, which likely are the main obstacles for the plastic enterprises in Hanoi in applying SRA. However, the respondents did not consider that the larger size of enterprises, the more probability of applying SRA, which is in contrast with the findings by Nguyen et al. (2019) that large firms have the intention to adopt modern management accounting practices more than small and medium enterprises. Also, the respondents supposed that the organization of the accounting department is not the factor that will positively affect the application of SRA.

The *H5* proposed that the qualification of accountants would have a positive impact on the application of SRA in plastic enterprises. Since the statistical results eliminated this variable from the model except *AQ2*, this hypothesis cannot be confirmed. Only the construct "*AQ2*: Accountants with international professional certificates such as CMA, ACCA, ICAEW, etc." (see Appendix) is supposed to positively impact the adoption of SRA in the plastic manufacturing enterprises. The respondents considered that internationally qualified accountants would be a positive factor in promoting the adoption of SRA in enterprises. This result was confirmed in previous research (Zainuddin & Sulaiman, 2016; Nguyen et al., 2019; Nguyen, 2022) which found that the quality of accountants is one of the main factors positively influencing the developmental level of management accounting in enterprises.

6. CONCLUSION

This research has identified factors that impact the application of SRA in plastic manufacturing companies. We found three factors with a positive impact and one factor with a negative impact. First, the pressure from governmental agencies, the pressure from shareholders, investors, suppliers, competitors, environmental organizations, public opinions, and consumers has a positive impact on the application of SRA in plastic manufacturing enterprises. Second, the more managers understand SRA and SRA benefits in improving business performance, the more likely the enterprises will apply SRA. Third, the infrastructure of enterprises and the information technology system would increase the application of SRA in plastic manufacturing enterprises. Fourth, environmental costs would negatively affect the application of SRA in plastic manufacturing enterprises. The research findings give suggestions for developing SRA in plastic manufacturing enterprises not only in Vietnam but also in emerging countries where plastic products are widely manufactured. SRA benefits can help plastic enterprises summarize and disclose CSR results to improve their performance and achieve SDGs.

First, leaders of plastic enterprises need to change the perceptions of the CSR activities which should be embedded in the role of SRA. They should consider environmental benefits and community benefits in the decision-making process. The top managers should establish a section of SRA to provide enough information on CSR for making decisions and ensuring coherence between departments. The SRA system helps managers understand the impacts of the company activities on the environment and society, building strategies based on SDGs. Especially, plastic manufacturing enterprises should put more effort into renewing technology and improving infrastructure to improve the waste and odor treatment system. The information system infrastructure such as accounting software in the plastic companies should be improved by adding environmental and social accounts, books, and reports by the new manufacturing technology, social benefits, and social costs information needs. To minimize the pressure of environmental costs, enterprises can establish criteria for classifying environmental costs, such as classification according to economic content and functions in the SRA system. It is necessary to set norms for each type of cost to minimize unnecessary costs or types of costs that can be saved to avoid loss or waste of money for useless purposes. Also, the CSR reports prepared by the SRA system are very important to help the stakeholders and consumers understand

the CSR activities of the enterprises. Customers and suppliers of plastic products should be aware of green products provided by green companies. The banks and investors can put pressure on companies that want to receive the loan or capital to provide SRA reports. The companies should take advantage of stakeholder pressure to make them imagine and products green in the CSR report. Enterprises should disclose CSR data to conserve and/or to increase their conformity to the laws and regulations (Hummel & Schlick, 2016). Also, enterprises provide CSR reports to strengthen mutually beneficial connections with stakeholders (Al Amosh & Khatib, 2022).

Second, the research by Nguyen (2017) has gone from the experiences of implementing SRA in several countries around the world to suggest similarities between countries and Vietnam to assist the adoption of SRA in Vietnam more and more rapidly. It is emphasized that the government needs to promulgate standards for SRA so that businesses can apply it methodically and consistently. The plastic industry has a close relationship with the environment, using plastic materials to create plastic products, which has caused negative impacts on the environment and human health. To control those negative impacts as well as to be able to be proactive in providing timely prevention and handling policies, it is necessary to establish a mandatory regulation system of measurement, analysis, and evaluation through numbers in each enterprise. The Government should play a frontier role in promulgating policies and standards for each industry. Specifically, the Ministry of Finance, Vietnam should promulgate the guidelines related to the SRA based on international requirements. The association of accountants, auditors, and related organizations in Vietnam needs to organize more programs, sharing, and consulting sessions on SRA so that SRA knowledge would be widely informed to enterprises.

Third, it is necessary to include CSR and SRA in the curriculum of professional training programs so that learners or individuals who are interested in improving their qualifications and skills have the opportunity to get close to the knowledge of SRA and CSR. Nguyen (2017) recommended promoting CSR knowledge in teaching both undergraduate and graduate programs.

This research shed light on the SRA application and the factors that have impacts on the application of SRA in the plastic industry. The results fill in the severe lack of practices of SRA in one of the most sensitive industries on the aspect of environmental and social impacts. However, due to the COVID-19 pandemic pressure and resource limitations, this study could not study the implementation of SRA in plastic enterprises in other areas of Vietnam, so the sample size is rather limited. SRA and the actual application situation of SRA are new in most enterprises in Vietnam; hence, the survey results may not be enough to reflect fully the reality of the implementation of SRA in the plastic industry of Vietnam. The authors would like to propose further research directions with the hope of having more objective and comprehensive studies on this vital topic such as in-depth research on each factor affecting the application of SRA in plastic companies, expanding the sample to other areas in Vietnam to have more empirical evidence on the application of SRA in an emerging economy like Vietnam for the sustainable development in the future.

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APPENDIX. THE SCALES OF VARIABLES

Observable variables	*Scales*	*Sources*
Stakeholders pressure (*SP*)	*SP1*: Pressure from state agencies on regulations related to SRA. *SP2*: Pressure from shareholders and investors. *SP3*: Pressure from suppliers on CSR information and reports. *SP4*: Pressure from competitors on CSR information and reports. *SP5*: Pressure from environmental organizations. *SP6*: Pressure from public opinions and consumers on CSR information and reports.	Owen et al. (2000), Jamil et al. (2015), Al Amosh and Khatib (2022), Hamed et al. (2022)
Environmental costs (*EC*)	*EC1*: Costs for treatment and control of odor pollution. *EC2*: Cost of treating wastes before discharging into the environment. *EC3:* Cost of fines, waste fees, environmental compensation. *EC4:* Toxic costs for employees.	Gadenne et al. (2009), Iredele and Ogunleye (2018), Nguyen et al. (2023)
Awareness of business managers (*AM*)	*AM1*: Managers have a deep understanding of SRA. *AM2*: Managers' awareness of SRA benefits in improving business performance. *AM3*: SRA helps to come up with internationalization trends to enhance the global integration ability of enterprises. *AM4*: Managers use SRA reports in making decisions.	Aerts et al. (2006), Kokubu and Nashioka (2005), Nguyen et al. (2019), Shahwan et al. (2022), Thu (2023)
Characteristics of plastic enterprises (*CH*)	*CH1*: The large size of enterprises. *CH2*: Infrastructure to implement SRA. *CH3*: Plastic enterprises apply information technology in SRA. *CH4*: Organization of the accounting department.	van de Burgwal and Oliveira Vieira (2014), Christ and Burritt (2017), Kengatharan and Sivakaran (2019), Nguyen (2022), Hamed et al. (2022), Nguyen et al. (2023)
Qualification of accountants (*AQ*)	*AQ1*: Knowledge and skills of the company's chief accountant. *AQ2*: Accountants with international professional certificates such as CMA, ACCA, ICAEW, etc. *AQ3*: Experienced accountant, skilled in handling many different situations.	Kokubu and Nashioka (2005), Nguyen et al. (2019), Nguyen (2022)
Applying social responsibility accounting (*SR*)	*SR1*: The enterprise applies SRA based on the governmental regulations related to environmental issues, social issues, and SRA. *SR2:* The enterprise accounting department uses SRA accounts, documents, and reports. *SR3*: The enterprise has a specialized part to provide SRA information for an internal purpose.	Shahwan et al. (2023)