

Drivers of social responsibility accounting adoption in Vietnam's coal industry: Empirical evidence from 23 enterprises amid the energy transition

  Pham Thi Thu Hoai¹,  Nguyen Thanh Vu^{2*}

¹Institute of Accounting and Auditing, Thuongmai University, Hanoi, Vietnam; hoai.phamtkpt@tmu.edu.vn (P.T.T.H.).

²Thai Nguyen University of Economics and Business Administration, Thai Nguyen, Vietnam; nguyenthanhvu@tueba.edu.vn (N.T.V.).

Abstract: Amid accelerating global commitments to the green transition and sustainable corporate governance, coal mining enterprises, one of the most environmentally intensive sectors, face increasing pressure to internalize socio-environmental responsibilities. Social Responsibility Accounting (SRA), defined as an accounting approach that identifies, measures, and reports social and environmental impacts, has become a key mechanism supporting transparency and accountability in such industries. This study examines the determinants influencing SRA adoption in 23 Vietnamese coal mining enterprises using a quantitative research design with 194 respondents. Drawing upon Institutional Theory, Stakeholder Theory, and Contingency Theory, the analysis tests the effects of five determinants: legal framework, environmental cost management, managerial perceptions, business characteristics, and accountants' qualifications. Multiple regression results reveal that all five determinants significantly predict SRA adoption, with the legal framework exerting the strongest influence. The findings suggest that Vietnam's evolving regulatory environment and its national green growth agenda are reshaping accounting practices in heavy industries, positioning SRA as both a compliance requirement and a strategic tool. The study contributes sector-specific empirical evidence from a carbon-intensive industry and provides practical insights for policymakers, enterprise managers, and professional bodies regarding the development of legal guidelines, capacity-building programs, and mechanisms to enhance the effectiveness of SRA implementation.

Keywords: Coal mining, Environmental cost management, Institutional theory, Social responsibility accounting, Sustainability accounting, Vietnam.

1. Introduction

In the era of globalization, enterprises are increasingly expected to pursue green economic growth and sustainable socio-economic development. Implementing corporate social responsibility (CSR) plays a vital role and is regarded as one of the foremost missions for businesses as they strive to align their business strategies with broader community-oriented goals.

The coal industry occupies a pivotal position in ensuring Vietnam's energy security. As the national economy continues to recover strongly, energy demand, particularly electricity, has been rising sharply. To meet this growing demand, the coal sector has made continuous efforts to maintain stable production and supply. However, international commitments to carbon emission reduction and the global trend toward energy transition are exerting mounting pressure on the industry to adopt long-term strategies for technological innovation. Environmental and social issues such as dust pollution, wastewater discharge, and the negative impacts on surrounding communities near mining areas and thermal power plants compel coal enterprises to strengthen environmental protection and social responsibility measures. Enterprises must recognize that environmental protection and the prevention of adverse ecological impacts are fundamental elements of their social responsibility. Nevertheless, some

companies still underestimate or inadequately address this issue, leading to ineffective implementation of social responsibility practices among Vietnam's coal mining enterprises.

Social Responsibility Accounting (SRA) has emerged as an essential economic management tool within the framework of sustainable development. It enables the quantification and transparent reporting of CSR-related activities, thereby illustrating the relationship between social responsibility and business performance. Although SRA has been adopted in many countries around the world, it remains a relatively new concept in Vietnam. Both domestic enterprises in general and coal mining enterprises in particular are gradually integrating SRA into their business operations. Therefore, in pursuit of sustainable development goals amid the global integration trend, especially for the coal sector, which has a significant environmental footprint, the adoption of Social Responsibility Accounting is an urgent and necessary requirement deserving special attention.

2. Literature Review and Hypothesis Design

2.1. Literature Review

According to Sadeghzadeh [1] from the University of Wollongong, Australia, Social Responsibility Accounting (SRA) began to emerge and attract significant attention as the world confronted pressing environmental issues such as the greenhouse effect, global warming, ozone layer depletion, acid rain, and species extinction. His study sought to explore how accounting could contribute to addressing these global challenges that threaten human welfare and sustainability.

Gholami et al. [2] emphasized that, beyond profit objectives, businesses must also prioritize Corporate Social Responsibility (CSR) since unethical behaviors can severely affect business operations. Accordingly, SRA is recognized as the disclosure of information to stakeholders regarding the social and environmental impacts of a firm's activities.

O'Dwyer [3] asserted that SRA represents one of the key obligations of companies toward stakeholders, serving as a means of accountability for addressing social, environmental, and ethical issues that go beyond purely economic concerns. The author argued that SRA functions as a tool to observe, measure, record, process, and analyze information related to a company's responsibilities, such as environmental protection, safeguarding consumer and employee welfare, and contributing to the organization's broader social objectives.

Thomson and Bebbington [4] examined the extent to which Social and Environmental Accounting, Auditing, and Reporting (SEAAR) practices create opportunities to identify, communicate, and manage social and environmental risks. They suggested that participants in SEAAR can play a crucial role in recognizing such risks and that the contribution of SEAAR to risk governance largely depends on how effectively the rationality of accounting is embedded in practice.

Gray et al. [5] proposed redefining the relationship between traditional accounting and social responsibility accounting as significant, as social accounting should meet the growing demand for diverse information on environmental factors such as water, air, and waste. This approach aims to better serve the needs of multiple social stakeholders and contribute to sustainable development objectives.

In Vietnam, Nguyen et al. [6] found that although major construction corporations have shown interest in social responsibility accounting, it has not yet been effectively implemented in their business operations. Similarly, Phuong [7] noted that accountants', auditors', and financial managers' awareness of SRA's usefulness significantly influences their understanding and practical application of it, with managerial willpower being the most critical factor.

Phuong [8] proposed several measures to improve responsibility accounting at Bitexco Nam Long Joint Stock Company, including the establishment of responsibility centers, budget systems, performance evaluation criteria comparing budgets with actual results, and managerial accounting reporting systems.

Hang [9] analyzed the experiences of countries such as the UK, the US, and Australia in applying SRA and recommended that Vietnamese enterprises adopt sustainability reporting guidelines from the Global Reporting Initiative (GRI) and the International Integrated Reporting Council (IIRC). She

emphasized integrating sustainable development goals into corporate strategies and aligning social, human, and environmental outcomes with financial performance.

More recently, Hung and Hanh [10] employed qualitative methods to examine the current status and barriers to implementing SRA in Vietnamese enterprises. Their study proposed solutions to improve the quality of social responsibility accounting information and enhance its applicability within domestic businesses.

Based on Institutional Theory, Stakeholder Theory, and Contingency Theory, this study develops a conceptual framework that explains the determinants influencing the adoption of Social Responsibility Accounting (ASRA) in coal mining enterprises. The framework integrates five key factors frequently highlighted in prior sustainability accounting research: legal framework, environmental cost management, managerial perceptions, business characteristics, and accountants' qualifications, as predictors of ASRA implementation. These determinants are theorized to exert both regulatory and operational pressures that shape enterprise behavior within high-impact industries. Accordingly, the conceptual framework illustrates the expected relationships between the independent variables and ASRA adoption, serving as the basis for hypothesis development and subsequent empirical examination.

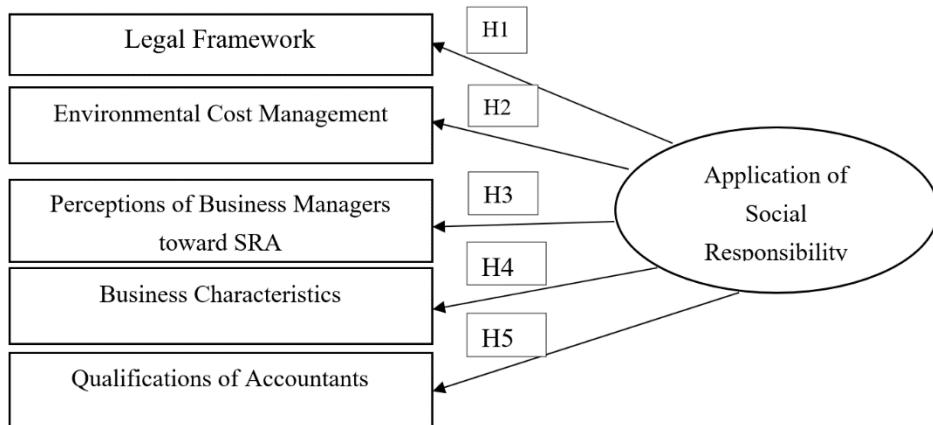


Figure 1.
Conceptual framework.

2.2. Hypothesis Design

2.2.1. Legal Framework

Legal regulations are among the key factors influencing the adoption of Social Responsibility Accounting (SRA) by enterprises, particularly in matters related to human resources and the environment. In the context of globalization, governments around the world have enacted legal frameworks requiring businesses to disclose information regarding their environmental, labor, and community-related activities.

Liu and Anbumozhi [11] in their survey of 175 companies listed on the Chinese stock market found that governmental pressure had a significant impact on environmental disclosure practices. More than 35% of the surveyed firms reported their environmental protection efforts, such as obtaining ISO 14001 certification and conducting clean production audits.

Lauwo et al. [12] examined corporate accountability and social responsibility in the mining sector in Tanzania. The authors assessed the role of local government regulations and awareness campaigns by national non-governmental organizations (NGOs) in promoting corporate social reporting. Their findings revealed the limited effectiveness of existing legal frameworks and the relatively weak influence of NGOs and advocacy groups in fostering more socially and environmentally responsible business practices. The study also highlighted the importance of strengthening these frameworks to ensure

compliance with both local and international standards, thereby improving the living conditions of impoverished populations in developing countries, particularly in Tanzania.

Similarly, Mukherjee et al. [13] found that legal requirements in India significantly affected the use of corporate funds for social responsibility activities and the corresponding CSR reporting practices. In Bangladesh, Hossain et al. [14] analyzed the environmental and social responsibility reports of listed companies and discovered that the lack of comprehensive legal provisions and socio-cultural barriers hindered corporate disclosure of social and environmental issues.

In Vietnam, Phuorong [7] identified that legal regulations exert a positive influence on the implementation of SRA among domestic enterprises. Nguyen et al. [15] further concluded that legal regulations are the most influential factor affecting SRA adoption among companies listed on Vietnam's stock market. They emphasized that SRA should be effectively implemented to collect, process, and provide CSR-related information for corporate disclosures. Supporting this view, Hung et al. [16], based on surveys of business managers, accounting experts, and university lecturers in Vietnam, have confirmed that legal regulations significantly influence the adoption of SRA.

Additionally, Shahwan et al. [17] demonstrated that shareholder rights and stakeholder involvement also have a measurable impact on the practice of SRA.

Based on the findings of these studies, it can be concluded that legal regulations play a crucial role in shaping the implementation of Social Responsibility Accounting within enterprises. A more robust legal and administrative framework is likely to enhance the extent and effectiveness of SRA adoption.

H₁: The legal framework positively impacts the application of social responsibility accounting in coal mining enterprises.

2.2.2. Environmental Cost Management

To effectively implement Social Responsibility Accounting (SRA), enterprises must incur certain costs related to their social responsibilities toward the environment, local communities, and employees. Environmental cost management thus becomes a significant challenge for business managers. For manufacturing and production enterprises, cost control has become a top priority to ensure survival and sustainable growth. In extractive industries such as mining, environmental costs are inevitable byproducts of production activities.

Production and business operations in these sectors have substantial impacts on the natural environment and landscape, generating solid, gaseous, and liquid waste. Consequently, enterprises must allocate considerable resources to mitigate environmental pollution, protect ecosystems, and properly treat waste. Therefore, the ability to effectively monitor and manage environmental costs is essential for business sustainability.

This discussion is consistent with previous studies by Burritt and Christ [18] and Loan [19], which highlight the importance of environmental cost management in supporting sustainable business practices is significant. Nguyen et al. [20] further argued that a lack of financial resources negatively affects environmental cost management and the adoption of green accounting practices in construction companies in Vietnam.

Effective management of environmental costs contributes to improved financial performance. When financial efficiency increases, managers are more likely to ensure the implementation of Social Responsibility Accounting [21]. Hence, sound environmental cost management can exert a positive influence on the adoption and practice of SRA in coal mining enterprises in Vietnam [18, 22, 23].

H₂: Environmental costs positively impact the application of social responsibility accounting in coal mining enterprises.

2.2.3. Perspectives of business managers

Kokubu and Nishioka [24] emphasized that corporate managers play an extremely important role in shaping a company's environmental and social responsibilities. Nyakuwanika et al. [25] found that the educational background and awareness level of managers have a direct impact on the effectiveness

and quality of Social Responsibility Accounting (SRA) practices within enterprises, a view further supported by Koske [26].

Similarly, studies by Ngô and Vũ [27] and Hung et al. [16] all confirmed that managerial knowledge and awareness significantly influence the implementation of SRA in businesses. When managers possess sufficient knowledge, understanding, and appreciation of the usefulness of SRA, they tend to exhibit a stronger demand for its application within their organizations [28].

In contrast, if managers lack awareness of the significance of SRA, it is unlikely to be incorporated into corporate development objectives [29]. Indeed, the higher the level of managerial awareness, the more likely it is that enterprises will disclose comprehensive social and environmental information.

Hossain et al. [14] in their study on environmental and social responsibility reporting among companies listed on the Dhaka Stock Exchange, found that managers demonstrated a strong concern for socially and environmentally responsible practices, viewing sustainability reporting as a necessary task that contributes to enhancing corporate benefits and reputation.

In Vietnam, Nguyen et al. [15] argued that for SRA to be successfully and effectively implemented, senior managers must clearly understand their roles and commit to executing sustainable development strategies. In line with this perspective, Hang et al. [30] also confirmed that managerial awareness has a positive impact on the adoption of SRA in plastic manufacturing enterprises. This conclusion is consistent with the findings of Thu [31], who similarly emphasized the crucial role of managerial perception and commitment in promoting SRA practices.

H₈: Perspectives of business managers positively impact the application of social responsibility accounting in coal mining enterprises in Vietnam.

2.2.4. Business Characteristics

Organizations operating in sectors that heavily rely on natural resources must place greater emphasis on Social Responsibility Accounting (SRA) to protect the environment and improve the quality of life. To successfully implement SRA, it is essential to understand the specific characteristics of each enterprise, as these factors significantly affect the level and manner of SRA adoption [32].

Lončar et al. [33] suggested that an organization's size can greatly influence its ability to offer environmentally friendly products. Larger enterprises often possess more resources and capabilities to apply advanced management accounting techniques compared to smaller firms [34]. Therefore, it is reasonable to assume that social and environmental accounting practices vary according to organizational size.

Moreover, enterprises operating in environmentally sensitive industries such as coal mining tend to disclose more information about their social responsibility activities, particularly those related to environmental and human factors. The research group of Nguyen et al. [15] found that a company's characteristics significantly influence the implementation of SRA among firms listed on the Vietnam Stock Exchange.

In agreement, Hang et al. [30] asserted that larger enterprises, due to the greater environmental impact of their production and business operations, are more likely to adopt and implement SRA. For these firms, especially manufacturing companies such as plastic producers in Hanoi, enhancing social and environmental accountability not only mitigates environmental risks but also helps safeguard corporate reputation, credibility, and market position.

H₉: Characteristics of enterprises have a positive impact on the application of social responsibility accounting in coal mining enterprises in Vietnam.

2.2.5. Qualifications of Accountants

Within enterprises, human resources in general, and accounting personnel in particular, play a critical role in business development and sustainability. The higher the professional qualifications of accounting staff, the more effectively Social Responsibility Accounting (SRA) can be implemented [35].

Conversely, if accountants lack sufficient professional expertise, the adoption of SRA in enterprises may be either infeasible or ineffective [36, 37].

Zulkifli et al. [38] emphasized the need for reforming the legal framework, accounting guidelines, and enhancing accountants' awareness to improve measurement and valuation practices in social and environmental accounting in Malaysia. Similarly, Kokubu and Nishioka [24] and Nguyen et al. [15] highlight the strong relationship between accountants' knowledge and awareness in the successful implementation of SRA or environmental accounting.

Empirical evidence from Nguyen et al. [15] also demonstrated that to implement SRA successfully, listed companies must invest in and create favorable conditions for improving the qualifications, knowledge, and skills of their accountants in both SRA and CSR reporting. This perspective is further supported by Hang et al. [30], who affirmed that enhancing the professional competence of accounting personnel is a key determinant in the effective application of Social Responsibility Accounting across enterprises.

H5: The qualification of accountants positively impacts the application of social responsibility accounting in coal mining enterprises in Vietnam.

3. Research Methodology

3.1. Research Design

This study adopts a quantitative research design to empirically examine the determinants influencing Social Responsibility Accounting (SRA) adoption in Vietnam's coal mining enterprises. A structured survey instrument was developed based on prior validated scales in sustainability accounting, environmental management, and organizational behavior. Quantitative inquiry enables the identification of systematic relationships between organizational determinants and SRA adoption, ensuring reliability, replicability, and statistical robustness.

The research design aligns with the study's theoretical foundation, which integrates Institutional Theory, Stakeholder Theory, and Contingency Theory. These frameworks posit that external pressure, internal cognition, and organizational capacity collectively shape SRA adoption. The quantitative approach allows these constructs to be operationalized into measurable variables, facilitating hypothesis testing through multivariate analysis.

3.2. Sampling and Data Collection

The empirical context is the coal mining industry managed under the Vietnam National Coal and Mineral Industries Group (VINACOMIN) and its associated subsidiaries. This sector is characterized by state ownership, centralized governance, heavy environmental exposure, and increasing regulatory scrutiny, making it an ideal context to study SRA adoption.

3.3. Survey Distribution

A total of 350 questionnaires were distributed across coal mining enterprises, and 194 valid responses were obtained, resulting in a response rate of 55.4 percent. The respondents included financial managers (18.6 percent), chief accountants (22.7 percent), senior accountants (41.2 percent), and operational managers (17.5 percent). These groups were intentionally targeted because of their direct involvement in accounting, compliance, and sustainability-related activities, ensuring that the data were collected from individuals with substantial knowledge of both financial and socio-environmental practices within their organizations.

3.4. Sampling Technique

Purposive sampling was applied to target individuals knowledgeable about the accounting system and operations of the enterprise. This approach is justified given the specialized nature of SRA and the requirement for respondents with a technical understanding of environmental and social responsibilities.

3.5. Measurement of Variables

All constructs were measured using Likert scales (1 = strongly disagree to 5 = strongly agree). The scales draw on validated items from prior research in SRA, environmental accounting, and sustainability management.

Table 1.

Measurement Constructs, Symbols, Number of Items, and Theoretical Sources

Construct	Symbol	No. of Items	Source
Legal Framework	LF	4	Adapted from institutional pressure scales
Environmental Cost Management	ECM	4	Based on environmental cost accounting literature
Managerial Perceptions	PB	4	Based on managerial cognition & stakeholder orientation
Business Characteristics	BC	3	Derived from contingency theory literature
Accountants' Qualifications	QA	4	Sustainability accounting competency literature
SRA Adoption	ASRA	4	Derived from responsibility accounting frameworks

Measurement items were refined to match the context of Vietnam's mining industry while preserving construct validity.

3.6. Reliability and Validity Assessment

3.6.1. Reliability

Cronbach's Alpha coefficients for all constructs exceeded the recommended threshold of 0.70, confirming strong internal consistency across the measurement scales. Specifically, the reliability coefficients were 0.770 for Legal Framework (LF), 0.752 for Environmental Cost Management (ECM), 0.750 for Managerial Perceptions (PB), 0.746 for Business Characteristics (BC), 0.741 for Accountants' Qualifications (QA), and 0.726 for SRA Adoption (ASRA). These results demonstrate that all multi-item constructs exhibit satisfactory internal reliability and are statistically appropriate for subsequent analyses.

3.6.2. Construct Validity

The Kaiser–Meyer–Olkin (KMO) value of 0.754 and the significant result of Bartlett's Test of Sphericity ($\chi^2 = 1278.146$, $p < 0.001$) confirm that the sample is adequate and statistically suitable for factor analysis. Convergent validity was established as all factor loadings exceeded the threshold of 0.50, while discriminant validity was ensured through relatively low inter-factor correlations, all remaining below 0.70. These results collectively demonstrate that the measurement model possesses sound construct validity for subsequent analyses.

3.7. Data Analysis Techniques

Data were analyzed using SPSS through a series of statistical procedures designed to ensure analytical rigor. Descriptive statistics were first employed to summarize respondents' demographic characteristics and the mean scores of all constructs. Reliability analysis using Cronbach's Alpha was then conducted to assess the internal consistency of the measurement scales. Exploratory factor analysis was used to verify the underlying dimensional structure of the constructs, after which correlation analysis was performed to examine the associations among key variables. Multiple linear regression was subsequently used to test hypotheses H1–H5 and to evaluate the relative influence of each determinant on SRA adoption. To ensure the robustness of the model, regression diagnostics, including the Variance Inflation Factor (VIF) and the Durbin–Watson statistic, were conducted to detect potential multicollinearity and autocorrelation issues.

4. Results Discussion

4.1. Descriptive Findings

4.1.1. Reliability Testing of Measurement Scales

After the survey data were entered into SPSS version 22, the reliability of the measurement scales was assessed using two primary statistical indicators. First, Cronbach's Alpha was employed to evaluate the internal consistency of each construct, ensuring that the items within a scale measured the same underlying concept. Second, the Corrected Item–Total Correlation coefficient was used to examine the degree to which each observed variable correlated with the total score of its corresponding scale. These procedures were essential for confirming that the questionnaire items reliably captured the latent constructs under investigation.

The reliability testing process adhered to established criteria to determine whether individual items or entire scales should be retained. Variables with a Corrected Item–Total Correlation value below 0.30 were considered for removal, as such items contribute insufficiently to the overall coherence of the construct. Similarly, Cronbach's Alpha coefficients of 0.70 or higher were regarded as strong indicators of reliability, while coefficients between 0.60 and 0.70 were accepted for exploratory studies. This systematic approach ensured that only statistically robust items and constructs were used in subsequent analyses.

The outcomes of these reliability evaluations for the six key constructs, Legal Regulations, Environmental Cost Management, Managers' Perceptions, Business Characteristics, Accountants' Qualifications, and the Application of SRA, are presented in the following tables, providing detailed evidence of the internal validity and suitability of the measurement scales.

Table 2.
Summary of Reliability Assessment for Measurement Scales.

Scale	Cronbach's Alpha coefficient	Observed variables	Corrected Item–Total Correlation	Conclusion
LF	0.770	SP1	0.525	Qualified
		SP2	0.540	Qualified
		SP3	0.649	Qualified
		SP4	0.593	Qualified
ECM	0.752	ECM1	0.389	Qualified
		ECM2	0.609	Qualified
		ECM3	0.503	Qualified
		ECM4	0.727	Qualified
PB	0.750	PB1	0.524	Qualified
		PB2	0.518	Qualified
		PB3	0.552	Qualified
		PB4	0.588	Qualified
BC	0.746	BC1	0.548	Qualified
		BC2	0.552	Qualified
		BC3	0.616	Qualified
QA	0.741	QA1	0.442	Qualified
		QA2	0.666	Qualified
		QA3	0.551	Qualified
		QA4	0.490	Qualified
ASRA	0.726	ASRA1	0.635	Qualified
		ASRA2	0.381	Qualified
		ASRA3	0.592	Qualified
		ASRA4	0.502	Qualified

Based on the above table, it can be seen that the Cronbach's Alpha coefficient of all factors is > 0.6 , and the correlation coefficient of the sum of all the scales is greater than 0.3. All remaining scales in the research model are reliable and satisfactory for further in-depth analysis.

4.1.2. Exploratory Factor Analysis (EFA)

After testing the reliability of the measurement scales, the author found that all observed variables met the required reliability standards and were suitable for measuring their respective factors. The author then evaluated the correlations among variables in explaining the underlying constructs by using the Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity.

After running the data analysis, the results were presented in the following tables:

Table 3.

KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.754
Bartlett's Test of Sphericity	Approx. Chi-Square	1278.146
	df	171
	Sig.	0.000

Based on the results shown in the table above, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy value is 0.754, which satisfies the condition $0.5 \leq \text{KMO} \leq 1.0$. This indicates that the dataset is entirely suitable for Exploratory Factor Analysis (EFA).

The significance value of Bartlett's Test of Sphericity is 0.000, which is less than or equal to 0.05, confirming that the factor analysis results are statistically significant. Therefore, the observed variables are correlated and appropriately converge to explain the underlying factors.

Table 4.

Pearson's Linear Correlation Analysis.

		LF	ECM	PB	BC	QA	ASRA
LF	Pearson Correlation	1	0.198**	0.389**	0.232**	0.235**	0.552**
	Sig. (2-tailed)		0.006	0.000	0.001	0.001	0.000
	N	194	194	194	194	194	194
ECM	Pearson Correlation	0.198**	1	0.259**	0.244**	0.419**	0.490**
	Sig. (2-tailed)	0.006		0.000	0.001	0.000	0.000
	N	194	194	194	194	194	194
PB	Pearson Correlation	0.389**	0.259**	1	0.264**	0.338**	0.492**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000
	N	194	194	194	194	194	194
BC	Pearson Correlation	0.232**	0.244**	0.264**	1	0.339**	0.445**
	Sig. (2-tailed)	0.001	0.001	0.000		0.000	0.000
	N	194	194	194	194	194	194
QA	Pearson Correlation	0.235**	0.419**	0.338**	0.339**	1	0.455**
	Sig. (2-tailed)	0.001	0.000	0.000	0.000		0.000
	N	194	194	194	194	194	194
ASRA	Pearson Correlation	0.552**	0.490**	0.492**	0.445**	0.455**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	194	194	194	194	194	194

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

Source: Authors' computation

Based on the results in Table 3, all significance (Sig.) values of the Pearson correlation between the independent variables and the dependent variable are less than 0.05, indicating statistically significant relationships. There is no evidence of multicollinearity among the variables. Therefore, all variables are retained for the regression testing and further examined using the Variance Inflation Factor (VIF).

4.1.3. Regression Coefficient Testing

The author conducted a multiple linear regression analysis to examine the linear relationship between the dependent variable (ASRA) and the independent variables (LF, ECM, PB, BC, and QA) to determine whether the regression model is appropriate for the study.

The results are presented as follows:

Table 5.

Results of the regression coefficient test.

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
1	(Constant)	0.055	0.189		0.293	0.770		
	LF	0.285	0.044	0.347	6.552	0.000	0.822	1.217
	ECM	0.246	0.049	0.269	5.001	0.000	0.798	1.253
	PB	0.143	0.041	0.190	3.456	0.001	0.766	1.306
	BC	0.162	0.041	0.205	3.915	0.000	0.841	1.189
	QA	0.121	0.054	0.127	2.247	0.026	0.726	1.377

Note: a. Dependent Variable: ASRA

The results presented in Table 4 indicate that all five factors, LF (Legal Regulations), ECM (Environmental Cost Management), PB (Perceptions of Business Managers), BC (Business Characteristics), and QA (Qualifications of Accountants), are statistically significant in the regression model, with *Sig.* < 0.05. These findings confirm that all five factors have a meaningful influence on the application of Social Responsibility Accounting (SRA) in coal mining enterprises.

Additionally, all VIF (Variance Inflation Factor) values were below 2, and there was no multicollinearity among the independent variables. The multiple linear regression model assessing the influence of these factors on the adoption of SRA in Vietnam's coal mining enterprises is expressed as follows:

$$\text{ASRA} = 0.055 + 0.285 * \text{LF} + 0.246 * \text{ECM} + 0.143 * \text{PB} + 0.162 * \text{BC} + 0.121 * \text{QA}$$

The results of the multiple linear regression analysis reveal that all five factors have positive and direct effects on the adoption of Social Responsibility Accounting in Vietnam's coal mining enterprises, as indicated by the positive unstandardized regression coefficients.

Based on the model summary table, the results show that the R-squared (R^2) value is 0.566, and the adjusted R-squared is 0.554. This indicates that the independent variables in the research model explain 56.6% of the variation in the dependent variable, while the remaining 43.4% is attributed to factors outside the model and random errors.

Table 6.

Assessment of the Model's Goodness of Fit.

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.752 ^a	0.566	0.554	0.28206	2.151

Note: a. Predictors: (Constant), QA, LF, BC, ECM, PB

b. Dependent Variable: ASRA.

4.2. Interpretation of Findings

The regression results show that the legal framework is the strongest determinant of SRA adoption, indicating that enterprises respond most directly to regulatory requirements and enforcement intensity. This suggests that stricter laws, detailed guidelines, and more frequent inspections increase the likelihood that coal mining enterprises substantively apply SRA.

Environmental cost management also exhibits a significant positive effect, implying that enterprises with established systems for identifying and tracking environmental costs are more prepared to implement SRA. This reflects that technical readiness supports the transition toward sustainability-oriented accounting.

Managerial perception is another important predictor. Enterprises where managers view SRA positively are more likely to integrate it into their reporting and decision-making processes. Conversely, negative or neutral managerial attitudes may limit SRA adoption even under regulatory pressure.

Business characteristics, including size, operational complexity, and resource capacity, also influence SRA adoption. Larger enterprises tend to allocate more resources toward compliance and sustainability practices, which support higher levels of SRA implementation.

Finally, accountants' qualifications significantly predict SRA adoption. Competent accounting personnel are better able to apply responsibility accounting techniques, prepare reports, and ensure the accuracy of socio-environmental data. This reinforces the role of human resources in shaping the effectiveness of SRA practices.

5. Discussion

The findings of this study offer important insights into how SRA is adopted within Vietnam's coal mining sector and how these insights align with or diverge from existing theories and international evidence. By integrating Institutional Theory, Stakeholder Theory, and Contingency Theory, the study advances understanding of sustainability accounting practices in a sector facing high regulatory scrutiny and environmental risks.

5.1. Legal Frameworks as the Dominant Institutional Force

The prominence of the legal framework strongly reflects the coercive dimension of Institutional Theory. In Vietnam's coal industry, characterized by state ownership, environmental sensitivity, and strategic national importance, regulatory requirements serve as the primary mechanism driving SRA adoption. This differs from studies in market-oriented economies, where legitimacy and competitive positioning are more influential motivators.

Vietnam's evolving policy environment, marked by the 2020 Law on Environmental Protection, the National Green Growth Strategy (2021–2030), and the 2050 net-zero commitment, has intensified compliance obligations. These reforms create a context in which SRA becomes a mandated institutional response rather than a voluntary managerial choice. Thus, this study demonstrates how the institutional context shapes the nature and intensity of sustainability practices in state-influenced sectors.

5.2. Environmental Cost Management as a Technical and Strategic Enabler

The significant role of ECM highlights its dual function in SRA adoption. Technically, ECM provides the measurement systems required to quantify environmental impacts and allocate associated costs. Strategically, ECM reduces information asymmetry and uncertainty, enabling managers to justify investments in sustainability initiatives and respond more effectively to regulatory expectations.

This finding expands existing literature by demonstrating that, in extractive industries, ECM is not merely a tool for cost calculation but a foundational component of organizational readiness for SRA. It offers empirical support for the argument that environmental accounting infrastructure mediates the link between institutional pressure and sustainability adoption.

5.3. Managerial Cognition as the Interpretive Mechanism of Stakeholder Pressure

The influence of managerial perception emphasizes the cognitive dimension of SRA adoption. Even under strong legal pressure, the depth and quality of SRA implementation depend on how managers interpret its strategic value. This reinforces Stakeholder Theory's proposition that managerial judgment mediates external stakeholder demands.

In the case of Vietnam's coal enterprises, managers who associate SRA with improved legitimacy, reduced environmental risk, and greater investor confidence adopt SRA more substantively. This insight suggests that regulatory pressure alone cannot ensure meaningful sustainability practices unless accompanied by a positive managerial orientation.

5.4. Business Characteristics and the Contingency Fit of SRA Systems

The effect of business characteristics aligns with Contingency Theory, demonstrating that larger and more complex enterprises are better positioned to adopt SRA. Such enterprises typically possess stronger administrative capacity, more diversified operations, and broader stakeholder exposure, all of which facilitate the integration of sustainability-oriented accounting practices.

This study adds to the literature by showing that, in extractive industries, organizational maturity and resource availability may determine how effectively enterprises respond to regulatory and stakeholder pressures. Thus, structural characteristics shape the permeability of institutional and cognitive influences on SRA adoption.

5.5. The Human Infrastructure: Accountant Qualifications

The significance of accountants' qualifications highlights that human resource capability remains a critical foundation for SRA implementation. Sustainability accounting requires specialized knowledge, such as environmental cost allocation, impact measurement, and integrated reporting, which traditional accounting programs in Vietnam do not always provide.

The findings imply that reforms in professional education and continuous training are necessary to support SRA adoption. Even strong regulations and managerial support cannot translate into high-quality SRA systems without competent technical personnel. This highlights a practical gap that must be addressed for SRA to contribute meaningfully to sustainable development goals.

6. Implications

6.1. Theoretical Implications

This study offers several theoretical contributions that enrich contemporary debates on sustainability accounting. First, by integrating Institutional Theory, Stakeholder Theory, and Contingency Theory, the research provides a comprehensive explanatory framework illustrating how coercive regulatory pressures, managerial cognition, and organizational characteristics collectively shape SRA adoption. Rather than examining determinants in isolation, the study demonstrates how external mandates interact with internal readiness to influence accounting reform in environmentally intensive industries.

Second, the results contribute sector-specific insights to a literature base that remains largely focused on manufacturing and service firms. The coal mining context, characterized by high ecological exposure and strong state oversight, provides a unique testing ground that reveals how SRA functions under conditions of heightened regulatory scrutiny. This extends the theoretical understanding of sustainability accounting within extractive industries, a comparatively understudied sector.

Third, the study deepens contextual understanding of emerging markets by showing how Vietnam's institutional transition toward green growth alters the drivers of SRA adoption. As environmental governance strengthens, the relative importance of coercive pressure, managerial interpretation, and technical capabilities shifts, illustrating the dynamic interplay between institutional evolution and organizational behavior.

Finally, the empirical validation of managerial perception and accountant qualifications as significant predictors adds depth to behavioral and human capital perspectives within sustainability accounting research. These findings highlight that SRA implementation is shaped not only by regulations and structures but also by cognitive orientations and technical competencies.

6.2. Practical Implications for Enterprise Managers

The findings carry important lessons for enterprise managers operating in environmentally sensitive industries. SRA should be regarded not solely as a compliance requirement but as a strategic instrument capable of enhancing risk management, operational efficiency, and stakeholder credibility. Integrating SRA into routine planning and performance evaluation can strengthen an enterprise's

adaptive capacity, particularly as global supply chains and financial markets place increasing emphasis on ESG performance.

To support this strategic shift, managers should invest in robust environmental cost management systems that improve visibility into environmental impacts and generate more reliable information for decision-making. Enhancing managerial awareness through targeted training can also shift perceptions of SRA from a regulatory burden to an opportunity for value creation. Furthermore, improving collaboration among accounting, environmental, and operational departments can facilitate an institutionalized approach to sustainability practices within the organization.

6.3. Implications for Policymakers and Regulators

The decisive influence of the legal framework underscores the critical role of government in driving SRA adoption in state-influenced sectors. Policymakers should continue strengthening and harmonizing environmental reporting, responsibility accounting, and sustainability disclosure regulations to provide clearer and more enforceable expectations for enterprises. Developing sector-specific guidelines for extractive industries would further support more consistent and meaningful SRA practices.

In addition, enhancing enforcement mechanisms through inspections, audits, and compliance monitoring can reinforce the credibility of regulatory requirements. Policymakers may also consider introducing incentive mechanisms such as tax privileges, sustainability recognition programs, and preferential access to green financing to encourage enterprises to adopt and maintain high-quality SRA practices. These interventions collectively contribute to more accountable and sustainable industrial governance.

6.4. Implications for Professional Accounting Bodies

The significant role of accountant qualifications highlights the need for professional bodies, including universities, accounting associations, and training organizations, to modernize curricula and upgrade competencies in sustainability accounting. Incorporating SRA, environmental accounting, and sustainability reporting standards into academic programs is essential for preparing future professionals to meet emerging industry expectations.

Developing specialized certification programs and executive training tailored to high-impact sectors such as mining can further strengthen technical capacity. Encouraging collaboration between academia, regulators, and industry can also facilitate knowledge exchange and accelerate the dissemination of best practices. These efforts collectively help build the human capital foundation required for transformative sustainability practices across the economy.

7. Conclusion

This study provides an empirical investigation into the determinants of Social Responsibility Accounting adoption in Vietnam's coal mining enterprises, offering one of the first sector-specific analyses within an extractive industry in a developing economy. Using an integrated theoretical approach and rigorous quantitative methods, the study identifies five significant predictors of SRA adoption: the legal framework, environmental cost management, managerial perceptions, business characteristics, and accountant qualifications.

Among these, regulatory pressure exerts the strongest influence, underscoring the central role of the institutional environment in shaping organizational behavior in state-linked industries. Environmental cost management and managerial cognition act as strategic enablers that support substantive adoption, while enterprise characteristics and human capital determine the capacity for effective implementation.

The study advances the literature by expanding theoretical applications to the extractive sector, providing empirical depth in a high-impact industry, and demonstrating how evolving institutional contexts shape sustainability accounting in emerging markets. Future research could explore

moderating variables such as digital transformation, corporate governance quality, or political connections, as well as employ longitudinal or mixed-method designs to capture changes over time.

Overall, SRA adoption in Vietnam's coal sector represents more than a regulatory requirement; it signifies an essential step toward responsible resource management, environmental stewardship, and alignment with global sustainability expectations.

Abbreviations:

Abbreviation	Full term
ASRA	Application/Adoption of Social Responsibility Accounting
BC	Business Characteristics
CSR	Corporate Social Responsibility
ECM	Environmental Cost Management
EFA	Exploratory Factor Analysis
ESG	Environmental – Social – Governance
KMO	Kaiser–Meyer–Olkin Measure of Sampling Adequacy
LF	Legal Framework
PB	Perceptions of Business Managers
QA	Qualifications of Accountants
SEAAR	Social and Environmental Accounting, Auditing and Reporting
SPSS	Statistical Package for the Social Sciences
SRA	Social Responsibility Accounting
VIF	Variance Inflation Factor
VINACOMIN	Vietnam National Coal and Mineral Industries Group

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Acknowledgments:

The authors would like to express their sincere appreciation to the coal mining enterprises under the Vietnam National Coal and Mineral Industries Group (VINACOMIN) for their cooperation and support during the data collection process. The authors are also grateful to the managers, accountants, and specialists who participated in the survey and provided valuable insights for this research. In addition, the authors wish to acknowledge the constructive comments and academic guidance received from colleagues and experts in the fields of sustainability accounting and environmental management. Their contributions have significantly enhanced the quality of this study.

The authors confirm that this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. All analyses, interpretations, and conclusions presented in this article are solely those of the authors.

Copyright:

© 2026 by the authors. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

References

- [1] A. Sadeghzadeh, "Social responsibility accounting, sustainability accounting and Islam," Thesis, University of Wollongong Theses on Research, 1995.
- [2] S. Gholami, M. Parvizi, A. TamriNeia, S. Nemati, M. Abgineh, and M. Emami, "Social responsibility accounting: From theory to practice," *Journal of Basic and Applied Scientific Research*, vol. 2, no. 10, pp. 10111-10117, 2012.

[3] B. O'Dwyer, "Theoretical and practical contributions of social accounting to corporate social responsibility," *Corporate Social Responsibility*, vol. 1, pp. 219-239, 2006.

[4] I. Thomson and J. Bebbington, "Social and environmental reporting in the UK: a pedagogic evaluation," *Critical Perspectives on Accounting*, vol. 16, no. 5, pp. 507-533, 2005. <https://doi.org/10.1016/j.cpa.2003.06.003>

[5] R. Gray, R. Kouhy, and S. Lavers, "Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure," *Accounting, Auditing & Accountability Journal*, vol. 8, no. 2, pp. 47-77, 1995. <https://doi.org/10.1108/09513579510146996>

[6] P. Nguyen, T. Quynh, N. Thị, D. Trang, H. Thi, and P. Yen, "Organizing responsibility accounting in construction corporations towards sustainable development," *Journal of Science and Technology*, vol. 2, no. 19, pp. 125-129, 2016.

[7] T. M. Phuông, "Factors affecting the implementation of corporate social responsibility accounting in Vietnam," Master's Thesis, University of Economics Ho Chi Minh City, Ho Chi Minh City, Vietnam, 2017.

[8] N. T. Phuong, "Responsible accountant at Bitexco Nam Long joint stock company," Master's Thesis, 2017.

[9] N. T. T. Hang, "Applying social responsibility accounting: International experience for Vietnam," *Journal of Economic-Financial*, 2017.

[10] T. N. Hung and N. T. T. Hanh, "Factors impacting on social and corporate governance and corporate financial performance: Evidence from listed Vietnamese enterprises," *The Journal of Asian Finance, Economics and Business*, vol. 8, no. 6, pp. 41-49, 2021. <https://doi.org/13106/jafeb.2021.vol8.no6.0041>

[11] X. Liu and V. Anbumozhi, "Determinant factors of corporate environmental information disclosure: an empirical study of Chinese listed companies," *Journal of Cleaner Production*, vol. 17, no. 6, pp. 593-600, 2009. <https://doi.org/10.1016/j.jclepro.2008.10.001>

[12] S. G. Lauwo, O. J. Otusanya, and O. Bakre, "Corporate social responsibility reporting in the mining sector of Tanzania: (Lack of) government regulatory controls and NGO activism," *Accounting, Auditing & Accountability Journal*, vol. 29, no. 6, pp. 1038-1074, 2016. <https://doi.org/10.1108/AAAJ-06-2013-1380>

[13] A. Mukherjee, R. Bird, and G. Duppatti, "Mandatory corporate social responsibility: The Indian experience," *Journal of Contemporary Accounting & Economics*, vol. 14, no. 3, pp. 254-265, 2018.

[14] M. M. Hossain, M. Alam, M. A. Islam, and A. Hecimovic, "Do stakeholders or social obligations drive corporate social and environmental responsibility reporting? Managerial views from a developing country," *Qualitative Research in Accounting & Management*, vol. 12, no. 3, pp. 287-314, 2015. <https://doi.org/10.1108/QRAM-10-2014-0061>

[15] H. T. Nguyen, T. Vu Quang, and M. T. Đỗ, "Factors affect social responsibility accounting implementation in listed companies on Vietnam stock exchange," *Vietnam Journal of Economics and Business*, vol. 17, pp. 649-667, 2022. <https://doi.org/10.5281/zenodo.7080857>

[16] D. Hung, T. Tuan, and N. Anh, "Factors affecting the application of social responsibility accounting," *Accounting*, vol. 6, pp. 597-604, 2020. <https://doi.org/10.5267/j.ac.2020.3.008>

[17] Y. Shahwan, M. Hamza, F. Al-Fasfus, N. Al-Ramahi, and T. H. Almubaydeen, "Social responsibility accounting, disclosure and real practice: Evidence from Jordan," *Asian Economic and Financial Review*, vol. 12, no. 3, pp. 164-182, 2022. <https://doi.org/10.55493/5002.v12i3.4441>

[18] R. Burritt and K. Christ, "Industry 4.0 and environmental accounting: A new revolution?," *Asian Journal of Sustainability and Social Responsibility*, vol. 1, pp. 23-38, 2016. <https://doi.org/10.1186/s41180-016-0007-y>

[19] Loan, N. T. D., "Factors influencing the application of cost management accounting in construction stone mining, processing, and trading enterprises in the Southeastern provinces of Vietnam," Doctoral Thesis, University of Economics Ho Chi Minh City, 2019.

[20] T. M. P. Nguyen, H. H. Ha, and M. D. Tran, "Determinants influencing the application of green accounting: The case of Vietnamese construction firms," *Corporate Governance and Organizational Behavior Review*, vol. 7, no. 2, Special Issue, pp. 282-292, 2023.

[21] D. L. Gadenne, J. Kennedy, and C. McKeiver, "An empirical study of environmental awareness and practices in SMEs," *Journal of Business Ethics*, vol. 84, pp. 45-63, 2009. <https://doi.org/10.1007/s10551-008-9672-9>

[22] N. T. D. Loan, "Factors influencing the application of cost management accounting in enterprises exploiting, processing, and trading construction stone in the Southeastern provinces of Vietnam," Doctoral Thesis, University of Economics Ho Chi Minh City, 2019.

[23] P. T. T. Hoai, "Factors affecting managerial accounting of production and business costs in coal mining enterprises in Vietnam," *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, vol. 12, no. 14, pp. 5687-5697, 2021.

[24] K. Kokubu and E. Nishioka, *Environmental management accounting practices in Japan*. In P. M. Rikhardsson, M. Bennett, J. J. Bouma, & S. Schaltegger (Eds.), *Implementing environmental management accounting: Status and challenges*. Dordrecht, The Netherlands: Springer, 2005.

[25] M. Nyakuwanika, G. J. Gutu, S. Zhou, F. Tagwireyi, and C. Chidoko, "An analysis of effective responsibility accounting system strategies in the Zimbabwean health sector (2003-2011)," *Research Journal of Finance and Accounting*, vol. 3, no. 8, pp. 86-92, 2012.

[26] C. C. Koske, "Factors affecting application of balanced score card: A case study of nongovernmental organizations in Eldoret, Kenya," *Strategic Journal of Business & Change Management*, vol. 2, no. 2, pp. 1868-1898, 2015. <https://doi.org/10.61426/sjbcn.v2i2.193>

[27] V. L. Ngô and T. H. N. Vũ, "The impact of factors affecting the level of responsibility accounting application in import-export enterprises," *Journal of Financial and Accounting Research*, vol. 12, no. 173, pp. 54–58, 2017.

[28] T. T. Tuan, "Responsibility accounting in Vietnamese cement manufacturing enterprises," Doctoral Thesis, National Economics University, 2015.

[29] W. Aerts, D. Cormier, I. M. Gordon, and M. Magnan, "Performance disclosure on the web: An exploration of the impact of managers' perceptions of stakeholder concerns," *The International Journal of Digital Accounting Research*, vol. 6, no. 12, pp. 159-194, 2006. https://doi.org/10.4192/1577-8517-v6_6

[30] N. T. T. Hang, N. T. P. Dung, and N. T. B. Tuyet, "Factors affecting the application of social responsibility accounting: Evidence from plastic manufacturing companies," *Corporate Governance and Organizational Behavior Review*, vol. 8, no. 2, pp. 39-49, 2024.

[31] P. T. B. Thu, "A study on factors affecting the application of social responsibility accounting in manufacturing enterprises of Vietnam," *Journal of Organizational Behavior Research*, vol. 8, no. 1-2023, pp. 319-332, 2023. <https://doi.org/10.51847/2JxCy13eOU>

[32] B. T. X. Ha, "Research on factors affecting responsibility accounting at Quy Nhon University," *Quy Nhon University Science Journal*, vol. 4, pp. 59–71, 2019.

[33] D. Lončar, J. Paunković, V. Jovanović, and V. Krstić, "Environmental and social responsibility of companies cross EU countries—Panel data analysis," *Science of the Total Environment*, vol. 657, pp. 287-296, 2019. <https://doi.org/10.1016/j.scitotenv.2018.11.482>

[34] S. Cadez and C. Guilding, "An exploratory investigation of an integrated contingency model of strategic management accounting," *Accounting, Organizations and Society*, vol. 33, no. 7-8, pp. 836-863, 2008. <https://doi.org/10.1016/j.aos.2008.01.003>

[35] S. Y. Ern, A. Abdullah, and S. Y. FOONG, "Contingency factors influencing MAS design of manufacturing firms in Malaysia," *Asian Journal of Accounting & Governance*, vol. 7, pp. 1-9, 2016. <https://doi.org/10.17576/AJAG-2016-07-01>

[36] N. N. Giau, N. T. K. Phuong, and T. P. My, "Factors affecting the application of responsibility accounting in manufacturing enterprises in Binh Duong," *Journal of Economics and Forecast*, vol. 33, pp. 18–21, 2023.

[37] M. EbrahimNawaiseh, A.-r. Zeidan, M. Falahat, and A. Qtish, "An empirical assessment of measuring the extent of implementing responsibility accounting rudiments in Jordanian industrial companies listed at Amman stock exchange," *Advances in Management and Applied Economics*, vol. 4, no. 3, pp. 1-9, 2014.

[38] N. Zulkifli, B. Telford, and N. Marriott, *Social and environmental accounting in Malaysia: Practitioners' views*. Bingley, UK: Emerald Group Publishing Limited, 2009.