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Factors Affecting the Level of Social and Enviromental Accounting Information Disclosure in Listed Companies on the Hanoi Stock Exchange

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Abstract
This paper aims to investigate the determinants influencing the level of Social and Environmental Accounting (SEA) disclosure of non-financial companies listed on the Hanoi Stock Exchange (HNX). The analysis is based on secondary data collected from the financial statements and annual reports of these companies, disclosed during the five-year period from 2020 to 2024. Using the Fixed Effects Model (FEM) for regression analysis, the results indicate that the level of SEA disclosure is significantly influenced by the following factors: Companies audited by the Big Four, Company size, Financial leverage, Board size, and Listing duration. Based on these empirical findings, the study proposes a set of recommendations to enhance the transparency and comprehensiveness of SEA disclosure among publicly listed companies on the HNX.

Keywords: Disclosure level, Information disclosure; Listed companies, Social and Environmental Accounting*;*

1. Introduction

The objective of this study is to assess the influence of various factors on the extent of Social and Environmental Accounting (SEA) information disclosure by non-financial enterprises listed on the Hanoi Stock Exchange (HNX). The research team examined six potential factors influencing the level of social and environmental accounting disclosure: Firm size, Board size, Companies audited by the Big 4, Listing period, Financial leverage, and Return on Asset (ROA).

The findings indicate that four factors - Firm size, Board size, Companies audited by the Big 4, and Listing period - have a positive influence on the level of SEA disclosure. Conversely, Financial leverage demonstrates a negative relationship with SEA disclosure. Furthermore, the

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results reveal no statistically significant relationship between ROA and the level of SEA disclosure. Based on these research findings, the authors provide policy implications for business managers, investors, and regulatory authorities.

2. Literature Review and Theoretical Framework

2.1. Literature Review

Setyorini et al. (2012) similarly found that companies with greater transparency tend to disclose more to reduce political costs, although no correlation was found between financial leverage and SEA information disclosure. These studies primarily focus on firm-level factors such as profitability, size, and board composition, but they do not consider external factors such as industry-specific influences, stakeholder pressures, or the role of governmental and non-governmental bodies in shaping SEA practices. These external influences could offer a broader understanding of SEA information disclosure. In contrast, Juhmani (2014), in a study involving 33 firms, found a positive association between financial leverage and audit firm size with the level of SEA information disclosure, particularly in the banking and insurance sectors, indicating industry-specific differences. The study revealed that 57.57% of listed companies in Bahrain included SEA information in their 2012 annual reports and on their websites. Qiu et al. (2014) conducted a literature review and found that factors such as company size and listing period are generally positively correlated with SEA information disclosure. Other factors, including board size, composition, and the presence of an audit committee, play a role in voluntary disclosure, though these relationships are not always significant. Additionally, ownership structure - particularly foreign and government ownership - positively affects SEA information disclosure, whereas the influence of majority shareholder ownership is mixed. Overall, international research suggests that SEA information disclosure is shaped by multiple factors that vary by socio-economic context and warrants further investigation.

Dang Ngoc Hung et al. (2018) reported an insignificant relationship between board size and disclosure level. However, subsequent research by Dang Thu Ha (2018) emphasized the importance of contextualizing board size in relation to firm scale and operational complexity. Specifically, smaller enterprises may benefit from more streamlined decision-making with fewer board members, whereas larger corporations may require more diverse and experienced boards to effectively manage disclosure responsibilities.

Nguyen La Soa et al. (2019) identified that variables such as return on equity (ROE), firm size, listing period, and Companies audited by Big4 positively affect the extent of disclosure, while financial leverage exerts a negative influence.

Further investigation into the effect of listing duration has been conducted by Nguyen Thi Thu Hang and Tran Thi Thanh Tam (2020), whose results suggest that a longer listing period may enhance disclosure practices, although the empirical evidence remains inconclusive across studies. Regarding board characteristics,

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Chand et al. (2022) isnvestigated a sample of 50 leading New Zealand firms using probit and logarithmic regression models to explore the relationship between various factors and the extent of SEA information disclosure. The findings revealed that variables such as profit, company size, and board characteristics significantly impact disclosure levels, with larger and more profitable companies being more likely to disclose SEA information, while female directors were linked to enhanced transparency.

Nguyen Thuy Anh (2023) and Nguyen Thi Ai Lien (2023) argued that higher financial leverage may incentivize firms to enhance disclosure levels, aiming to reduce agency costs and improve transparency. This finding aligns with the prevailing context in Vietnam, where many joint-stock companies rely heavily on external financing, necessitating transparent and legally compliant financial reporting to maintain stakeholder confidence.

This study explores the factors influencing the level of SEA information disclosure, focusing on variables including Companies audited by Big 4, Firm size, Financial leverage, Board size, Listing period and ROA.

2.2. Theoretical framework

This study establishes a theoretical foundation for the disclosure of SEA information by presenting a comprehensive framework that supports its application. It clarifies key concepts related to information disclosure, distinguishing between mandatory and voluntary disclosure practices. Additionally, the study outlines the theoretical background concerning listed companies on the stock exchange, including definitions of enterprises and publicly listed firms. Furthermore, it explores core theoretical approaches and examines the relationships between various influencing factors and the extent of SEA information disclosure.

2.2.1. Agency Theory

Agency Theory, introduced by Ross in 1973, addresses the conflict of interest between shareholders (principals) and managers (agents). While shareholders aim to maximize returns on their investment, managers may prioritize personal objectives - such as job security, reduced accountability, or risk aversion - which can result in decisions that diverge from the best interests of the firm. This separation between ownership and control gives rise to agency problems, including inefficiencies and moral hazard. Such misalignments present significant challenges for corporate governance, as they can undermine organizational performance and stakeholder trust.

2.2.2. Stakeholders Theory

Stakeholder Theory, proposed by Freeman in 1984, asserts that organizations are accountable not only to shareholders but also to a wide range of stakeholders, including governmental bodies, labor unions, local communities, and consumers. This theory advocates for a broader understanding of corporate responsibility, emphasizing the importance of addressing the interests of all parties affected by business activities. Overall, Stakeholder Theory promotes the

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integration of social responsibility, active community involvement, and the pursuit of sustainable development objectives into corporate strategy.

2.2.3. Legitimacy Theory

Legitimacy Theory originates from the notion of organizational legitimacy, which suggests that an organization's survival depends on the alignment between its values and those of the broader society. The theory highlights the importance of conforming to societal expectations in order to secure ongoing public approval and support. It further emphasizes that modern enterprises are expected to go beyond profit maximization by actively contributing to the preservation and advancement of social and environmental values.

3. Research methodology

3.1. Research hypothesis

• Firm size (SIZE)

Firm size positively influences sustainability reporting because larger firms, enjoy more financial resources, have specialized staff due to more evolved administrative processes, and possess sophisticated internal control and reporting procedures to achieve scale effects (Brammer et al., 2006). Moreover, large firms face heightened stakeholder expectations from groups such as shareholders, customers, and communities, which incentivizes consistent and transparent disclosure of social and environmental performance. This positive relationship is further explained by Agency Theory and Legitimacy Theory. Larger firms are likely to undertake more (bigger) projects and investment activities which are clearly recognized in the community due to their impacts on society and natural environment. Hence, managers can show concern for the environment and communicate their position and influence by reporting this in the annual report (Cowen et al., 1987). Lastly, large enterprises are subject to stringent regulatory and disclosure obligations from government authorities, which bolsters their reputation and reinforces their responsibility toward stakeholders.

Hypothesis H1: Firm size has a positive impact on the level of SEA Information Disclosure.

- Companies audited by Big4 (BIG4)

The Big4 auditing firms are known for enforcing stringent disclosure standards among their clients. While managers are primarily responsible for preparing annual reports, external auditors play a vital role in verifying the accuracy of financial data as well as the nature and extent of both financial and non-financial disclosures. Perego (2009) suggests that the Big 4 auditing firms positively affect assurance quality of sustainability reporting. Similarly, Clarkson et al. (2011) found that firms audited by Big4 companies are more likely to disclose extensive social and environmental information compared to those audited by non-Big4 firms. From the perspective of Stakeholder Theory, which posits that businesses are accountable to a broad range of stakeholders, the involvement of Big4 auditors aligns with the principle of stakeholder accountability. These auditors help ensure that corporate disclosures, particularly those

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concerning environmental and social matters, are both reliable and tailored to the expectations of stakeholder groups. Supporting this view, García-Sánchez et al. (2016) provide evidence that companies audited by Big4 firms exhibit a stronger dedication to corporate social responsibility and environmental initiatives. In summary, partnering with well-established audit firms not only strengthens the transparency and credibility of corporate disclosures but also signals a firm's strategic commitment to accountability, stakeholder trust, and sustainable business practices.

Hypothesis H2: Companies audited by Big4 have a positive impact on the level of SEA Information Disclosure.

- Financial leverage (LEV)

An increase in financial leverage, characterized by a higher reliance on debt relative to equity, elevates a firm's financial risk exposure. To mitigate such risk and maintain investor confidence, firms are incentivized to enhance the transparency of their disclosures. Financial institutions, in particular, often impose rigorous standards regarding corporate accountability, sustainability, and ethical governance. Therefore, highly leveraged firms frequently engage in more extensive disclosure of SEA information to meet the expectations of these demanding stakeholder groups. According to Agency Theory (Jensen & Meckling, 1976), the extent of information disclosure is positively associated with the level of financial leverage, as firms seek to reduce agency conflicts and alleviate concerns from debt holders. Moreover, Legitimacy Theory emphasizes the alignment between corporate social disclosures and societal expectations, suggesting that organizations must respond adaptively to evolving community concerns. Stakeholder Theory further supports the notion that highly leveraged firms are under increased pressure to disclose SEA information, as they must reconcile financial obligations with broader stakeholder interests. Empirical evidence by Roberts (1992) reinforces this argument, demonstrating that companies with significant debt dependency are more likely to engage in social initiatives and disclose environmental information to align with creditor expectations. In sum, financial leverage serves as a key determinant in motivating enhanced SEA information disclosures, enabling firms to mitigate external risks and reinforce stakeholder confidence.

Hypothesis H3: Financial leverage has a positive impact on the level of SEA Information Disclosure.

- Board size (BS)

According to Agency Theory, a larger board offers more comprehensive oversight by incorporating a wider range of skills, expertise, and perspectives, which enhances the quality of information disclosed. The presence of more members often leads to increased pressure within the board to prioritize corporate transparency and responsibility in SEA information disclosure. Furthermore, Legitimacy Theory suggests that larger boards are more responsive to external pressures and stakeholder expectations, which can drive broader and more detailed disclosures, particularly related to social and environmental practices. As the number of decision-makers increases, companies are more likely to focus on maintaining their public image, thereby raising

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the level of SEA information disclosure to demonstrate their commitment to social and environmental concerns. Additionally, Stakeholder Theory emphasizes that a larger board better reflects the interests of diverse stakeholder groups, which significantly impacts the extent of SEA information disclosed. Several studies have examined the relationship between Board size and SEA information disclosure. Cheng et al. (2006) found that boards with more members tend to diversify opinions and perspectives, thereby improving corporate oversight and governance. Similarly, Prado-Lorenzo et al. (2010) indicated that companies with larger boards often exhibit higher-quality corporate social responsibility (CSR) reporting. Research by Jamel Chouaibi et al. (2022) reached a similar conclusion, showing that both board size and independence have a statistically significant positive impact on the level of environmental disclosure.

Hypothesis H4: Board size has a positive impact on the level of SEA Information Disclosure.

• Listing Period (LP)

Previous research, including those by Clarkson et al. (2008) and Chih et al. (2010), suggest that firms with longer listing durations are more inclined to provide clear and comprehensive Social and Environmental disclosures. This tendency arises from the need to respond to increasing stakeholder expectations and to cultivate a positive corporate image. From the perspective of Legitimacy Theory, prolonged exposure in the public market heightens social scrutiny, thereby compelling companies to enhance the transparency of their SEA disclosures. Similarly, Stakeholder Theory posits that firms with extended listing histories are perceived as more accountable and are thus expected to uphold higher standards of disclosure. Consequently, a longer listing period is often associated with more extensive and higher-quality SEA reporting, reflecting a firm's broader commitment to social responsibility and the pursuit of sustainable development goals.

Hypothesis H5: Listing Period has a positive impact on the level of SEA Information Disclosure.

- Return on Asset (ROA)

Companies with high ROA often have strong motivation to uphold a positive corporate image, which in turn encourages more extensive SEA disclosures to enhance transparency and reinforce stakeholder trust. From the perspective of Legitimacy Theory, superior financial performance elevates a company's public standing, prompting greater engagement in social responsibility activities through SEA reporting as a means to sustain legitimacy and stakeholder approval. Moreover, high - ROA firms typically possess stronger financial capacity, enabling them to invest in advanced management and disclosure systems that facilitate compliance with SEA requirements. Stakeholder Theory further suggests that firms with higher ROA are subject to heightened stakeholder expectations and are better positioned to allocate resources toward sustainability efforts. According to Choi et al. (2013), companies with higher ROA tend to have the motivation and resources to invest in SEA disclosures, which are positively recognized by the market.

Hypothesis H6: ROA has a positive impact on the level of SEA Information Disclosure.

3.2. Research model

Based on fundamental theories from previous studies, the factors affecting the level of SEA information disclosure include: Companies audited by Big4 (BIG4), Firm size (SIZE), Financial leverage (LEV), Board size (BS), Listed period (LP) and ROA. The main model for the study is shown as follows:

SEA = ß1 + ß2*SIZE + ß3*BIG4 + ß4*LEV + ß5*BS + ß6*LP + ß7*ROA

3.3. Variable description

Table 1. Variables description

N	Variable	Measure	Meaning	Reference
1	**Dependent variable**			
	SEA	$SEA_{i,t} = \frac{GRI\ total\ score_{i,t}}{71\ (maximum\ score)}$	The level of disclosure of SEA information	Nguyen, C. T. et al. (2022)
2.	**Independent variables**			
	BIG4	$BIG4_{i,t} = 1\ if\ audited\ Big\ 4,$ $= 0\ otherwise$	Companies audited by Big4 (EY, Deloitte, KPMG, PwC)	Chand et al. (2022) Nguyen La Soa et al. (2019)
	SIZE	$SIZE_{i,t} = \ln(assets_{i,t})$	Firm Size	Chand et al. (2022) Nguyen La Soa et al. (2019)
	LEV	$LEV_{i,t} = \frac{Total\ Debt_{i,t}}{Total\ Asset_{i,t}}$	Financial Leverage	Setyorini et al. (2012) Nguyen La Soa et al. (2019)
	BS	$BS_{i,t} = number\ of\ board\ members_{i,t}$	The number of board members	Htay et al. (2012)
	LP	$LP_{i,t} =$ (2024-Year of initial listing)	Listed duration	Nguyen La Soa et al. (2019)
	ROA	ROA = (Net Income/ Average Total Assets)	Return on Asset	Prihatiningtias et al. (2014) Agyemang et al. (2023)

Source: Author compilation

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3.4. Data collection

Data for the variables are collected from the listed companies' publicly disclosed annual and financial reports. After excluding companies with missing data, the final sample comprises 135 non-financial companies listed on the HNX for the period from 2020 - 2024. The companies in this sample fall into 9 industry groups: Real Estate, Industrials, Consumer Staples, Materials, Utilities, Consumer Discretionary, Information Technology, Energy, and Healthcare.

3.5. Data analysis method

The data were analyzed using Stata 17 software through a quantitative approach, including descriptive statistical analysis, correlation testing between independent factors and the dependent variable, followed by regression analysis using the Pooled OLS model. However, the results from the OLS model assume homogeneity across firms and do not account for individual-specific effects, which may lead to biased estimations. Therefore, the authors further conducted regressions using both the Fixed Effects Model (FEM) and the Random Effects Model (REM). Subsequently, the F-test and Hausman test were employed to determine the most appropriate model. Model diagnostics were also conducted, including multicollinearity testing via the Variance Inflation Factor (VIF), heteroskedasticity testing using the Wald test, and autocorrelation testing via the Wooldridge test. To address the identified model deficiencies, the Feasible Generalized Least Squares (FGLS) method was applied. The regression results were then compared with the initial hypotheses to draw conclusions on the impact of various factors on the level of SEA disclosures.

4. Results and Discussion

4.1. Descriptive statistics

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
SEA	675	0.3695	0.1070	0.0282	0.6197
BIG4	675	0.5450	0.4974	0	1
SIZE	675	12.0595	1.7375	11.2236	20.3193
LEV	675	0.6058	0.1992	0.0245	1.3949
BS	675	6.1083	1.6950	3	11
LP	675	10.2433	5.2741	0	24
ROA	675	0.0659	1.0928	-22.3318	1.0151

Source: STATA 17 results

The dependent variable SEA represents the level of Corporate SEA Disclosure, with a mean value of 0.3695 and a standard deviation of 0.1070, indicating relatively low variability across firms during the study period.

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The variable BIG4 is a binary indicator, equal to 1 if a firm is audited by one of the Big 4 accounting firms (Deloitte, PwC, EY, KPMG), and 0 otherwise; the mean value of 0.5450 suggests that approximately 54.5% of the sample firms are audited by Big 4 auditors.

The variable SIZE measured as the natural logarithm of total assets, has a mean of 12.0595 and a standard deviation of 1.7375, reflecting considerable variation in firm size.

The variable LEV defined as the ratio of total liabilities to total assets, ranges from 0.0245 to 1.3949, with a standard deviation of 0.1992, indicating heterogeneity in financial leverage strategies -from highly leveraged firms with elevated financial risk to conservatively financed firms maintaining long-term stability.

The variable BS, representing board size, varies between 3 and 11 members, showing differences in corporate governance structures across firms.

The variable LP, denoting listing period (in years), has a mean of 10.2433 and a standard deviation of 5.2741, highlighting a wide range in the duration of market presence, from newly listed firms to those established since the early days of Vietnam's stock market.

Finally, the variable ROA ranges from -22.3318 to 1.0151, illustrating a substantial disparity in financial performance and capital utilization efficiency among firms in the sample - some experiencing significant losses, while others demonstrate superior profitability and effective equity management.

4.2. Correlation analysis

Table 3. Correlation Matrix

	SEA	**BIG4**	**SIZE**	**LEV**	**BS**	**LP**	**ROA**
SEA	1.0000						
BIG4	0.2248	1.0000					
SIZE	0.0984	0.4698	1.0000				
LEV	-0.0375	-0.0839	0.2161	1.0000			
BS	0.1522	0.2491	0.3941	-0.0284	1.0000		
LP	0.0538	0.1112	-0.0836	-0.1267	0.0394	1.0000	
ROA	0.0444	-0.0229	-0.0541	-0.1270	-0.0212	0.0341	1.0000

Source: STATA 17 results

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According to Gujarati and Porter (2009), if the correlation coefficient between two variables exceeds 0.8, multicollinearity may arise, potentially distorting regression results. Referring to the data in Table 3, the highest correlation coefficient is 0.4698 between SIZE and BIG4; this is significantly lower than the 0.8 threshold. The remaining correlation coefficients range from -0.1270 to 0.3941, indicating that no variable pairs exhibit excessively high correlation. Therefore, the authors initially conclude that there is no indication of multicollinearity in the model; however, to confirm this conclusion, a VIF test will be conducted in the subsequent section of the chapter.

Table 4. Multicollinearity test

Variable	VIF	1/VIF
BIG4	1.38	0.7238
SIZE	1.62	0.6186
LEV	1.14	0.8805
BS	1.21	0.8257
LP	1.05	0.9545
ROA	1.02	0.9819
Mean VIF	1.24	

Source: STATA 17 results

To further validate the conclusion that multicollinearity does not occur in the model, the authors calculated the VIF. The results show that all variables have VIF values below 2; the average VIF is also significantly lower than the threshold of 10 proposed by Hair et al. (2009). This indicates a low level of correlation among the independent variables in the model, with no evidence of multicollinearity. Therefore, the authors conclude that the regression model is stable and not affected by multicollinearity issues.

Research finding and discussions

To test the impact of various factors on SEA information disclosure, the authors conducted regressions using the following models: the OLS model, the FEM, and the REM. Two tests were applied to identify the most appropriate regression model.

- Firstly, the F-test was used to compare the OLS model with the FEM, and the F-test result with a Prob > F value of 0.0000 indicates that the FEM is more suitable than the OLS model.
- Secondly, the Hausman test was applied to compare the FEM with the REM, and the p-value of 0.0020 < 0.05 suggests that the FEM is the optimal choice over the REM.

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After selecting the FEM, tests for heteroskedasticity and autocorrelation were conducted. The authors used the Wald test to examine heteroskedasticity in the FEM. The result, with a p-value of 0.0000 < 0.05, indicates the presence of heteroskedasticity in the model.

Next, the Wooldridge test was used to detect autocorrelation and the result showed a p-value of 0.0000 > 0.05, suggesting the presence of autocorrelation in the model. To address these econometric issues, the authors proceeded with analysis and correction using the GLS estimation method. The regression results for the various models are presented in Table 5.

Table 5: Comparison Results of Models

SEA	**Pooled OLS**		**FEM**		**REM**		**GLS**	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|z|	Coef.	P>|z|
BIG4	0,0465	0,000	-0,0015	0,905	0,0074	0,500	0,0289228	0,000
SIZE	-0,0028	0,360	0,0052	0,556	0,0092	0,046	0,0065678	0,000
LEV	0,0015	0,948	-0,0158	0,579	-0,0269	0,274	-0,0279812	0,011
BS	0,0077	0,007	-0,0019	0,383	-0,0007	0,743	0,0013565	0,059
LP	0,0004	0,624	0,0077	0,000	0,0052	0,000	0,0011801	0,013
ROA	0,0048	0,221	-0,0007	0,677	-0,0006	0,729	0,0000692	0,964
_cons	0,240	0,000	0,1209	0,270	0,0925	0,158	0,1484215	0,000
F-test	Prob > F = 0.0000							
Hausman	Prob > chi2 = 0.0020							
Hausman	Prob > chi2 = 0.0020							

Source: STATA 17 results

Regression results

The GLS model, after addressing model deficiencies, has a p-value of 0.000, which is statistically significant at the 5% level indicating a strong correlation between the dependent variable and the independent variables. Therefore, the research team found the GLS model to be the most suitable and reliable.

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Table 6. Regression Results of the GLS Model

Cross - sectional time-series FGLS regression	Obs = 675
Coefficient: GLS	Groups = 135
Panels: heteroskedastic	Time Periods = 5
Correlation: common AR (1) coefficient for all panels (0.7586)	Wald chi2 (6) = 104.16
	Prob > chi2 = 0.0000

SEA	Coefficient	Std. Err.	z	P>|z|	[95% Conf.	Interval]
BIG4	0,02892	0,00460	6,28	0,000	0,01990	0,03794
SIZE	0,00656	0,00176	3,74	0,000	0,00313	0,01001
LEV	-0,02798	0,01106	-2,53	0,011	-0,04967	-0,00629
BS	0,00136	0,00072	1,88	0,059	-0,00005	0,00277
LP	0,00118	0,00047	2,49	0,013	0,00025	0,00211
ROA	0,00007	0,00154	0,04	0,964	-0,00295	0,00309
_cons	0,14842	0,02255	6,58	0,000	0,10422	0,19262

Source: FGLS model estimation results from STATA

The coefficient β1 = 0.14842 indicates that, when all other factors are held constant, the average level of SEA information disclosure is 0.14842, equivalent to 14.842% of the total 71 disclosure items.

SEA=0.14842 + 0,00656*SIZE + 0,02892*BIG4 - 0,02798*LEV + 0,00136*BS + 0,00118*LP

Hypothesis H1: The coefficient β2 = 0.00656 shows that a one-unit increase in SIZE leads to a 0.656% increase in average SEA information disclosure, assuming other factors remain unchanged. The authors conclude that firm size positively affects SEA information disclosure, supporting the findings of Reverte (2009), Rahman et al. (2011) and Chand et al. (2022). These studies argue that larger firms are more engaged in SEA information disclosure due to greater external pressures from stakeholders such as investors, government agencies, and the public, thereby encouraging more transparent reporting.

Hypothesis H2: The coefficient β3 = 0.02892 implies that ceteris paribus, when BIG4 increases by one unit, the average SEA information disclosure increases by 0.02892, or 2.892%. This confirms a positive relationship between BIG4 and SEA information disclosure. This finding is consistent with previous studies by Perego (2009), García-Sánchez et al. (2016) and Clarkson et

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al. (2011), which suggest that audit firms belonging to the Big 4 positively influence the quality of sustainability reporting.

Hypothesis H3: The coefficient β4 = -0.02798 indicates that an increase of one unit in LEV results in a 2.789% decrease in average SEA information disclosure, all else being equal. This negative relationship aligns with the findings of Brammer and Pavelin (2006), Setyorini et al. (2012), and Nguyen et al. (2019). Highly leveraged firms may prioritize financial obligations over SEA information disclosure due to resource constraints and may avoid additional scrutiny from stakeholders - particularly creditors. Setyorini et al. (2012) also noted that the impact of leverage on SEA information disclosure may vary depending on the industry and macroeconomic context.

Hypothesis H4: The coefficient β5 = 0.00136 suggests that a one-unit increase in board size (BS) results in a 0.136% increase in average SEA information disclosure, assuming other variables remain constant. The authors confirm the positive association between board size and SEA information disclosure, consistent with studies by Tarus (2020), Agnes (2023), De Villiers et al. (2011), and Siregar (2010). These researchers highlight that a larger board enhances monitoring capacity and encourages greater transparency in social and environmental disclosures (Esa & Ghazali, 2012).

Hypothesis H5: The coefficient β6 = 0.00118 indicates that for every one-year increase in listing period (LP), SEA information disclosure increases by 0.118%, holding other variables constant. This positive relationship is consistent with studies by Cormier & Magnan (2003), Clarkson et al. (2008), and Jiraporn and Withisuphakorn (2015). Firms with longer listing histories tend to be more compliant with disclosure regulations and are more motivated to disclose non-financial information to maintain reputation and investor trust. Thus, a longer listing period contributes to enhanced SEA information disclosure and reflects a stronger commitment to sustainable development.

Hypothesis H6: The coefficient β7 = 0.00007 with a p-value of 0.964 indicates that ROA has no statistically significant effect in the model. This result is not unprecedented and has been observed in prior studies. Stanny and Ely (2008) argued that profitability is not a primary driver of SEA information disclosure; instead, such practices are typically influenced by stakeholder pressure and regulatory compliance. Highly profitable firms may focus on short-term financial goals and shareholder returns rather than investing in non-financial disclosures. This suggests that high profitability does not necessarily equate to a strong commitment to SEA information disclosure (Juhmani, 2014).

Conclusions and policy implications

Policy implications

The research group has proposed some recommendations that may be helpful for improving the level of SEA information disclosure.

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With regard to government agencies, there should be more regulations that require businesses to clearly disclose SEA information suited to their specific type and size. This is due to the fact that in Vietnam, while certain guidelines related to the disclosure of SEA information do exist, the enforcement of detailed and specific disclosure requirements remains non-compulsory, not to mention that the extent of disclosure varies among companies, often shaped by variations in financial capacity, operational context, and firm size. In addition, it is necessary to introduce policies that support enterprises in disclosing SEA information, promote the adoption and dissemination of Sustainable Development Reporting standards within Vietnam. Furthermore, regulatory frameworks should emphasize the inclusion of qualitative disclosures, managerial approaches, and data-driven reports with specialized indicators, such as the quantity of raw materials consumed per unit of product and the proportion of recycled materials used per product.

For enterprises, prior to disclosing SEA information, conducting random surveys among consumers can help identify the types of information that are of greatest interest. Incorporating such insights into annual reports not only enhances the company's public image and reputation but also contributes to more efficient resource allocation by targeting relevant audiences effectively. Proactive disclosure of SEA information further supports external stakeholders in accessing reliable business data, thereby facilitating informed investment decisions. Additionally, internal governance, particularly the composition of the Board of Directors, also plays a crucial role in the quality of SEA information disclosures. While a larger board may offer diverse viewpoints, inadequate selection processes can result in information overload and a lack of strategic focus. Therefore, enhancing the quality rather than the quantity of board members is essential for maintaining organizational alignment and long-term value creation. To support this, businesses should cultivate an inclusive and collaborative work environment, ensuring equal opportunities for career advancement. Moreover, implementing fair and gender-sensitive reward systems can help eliminate workplace bias and foster a more equitable corporate culture.

Regarding stakeholders, PwC, a member of the Big 4 auditing firms, is currently offering "Sustainability Report and Assurance Services." These services not only involve evaluating the effectiveness of internal control mechanisms, but also include strategic consulting to align sustainability objectives with corporate operations. This trend underscores the expanding role of auditing firms in providing advisory services related to sustainability assurance. In response to the growing demand for SEA information disclosures, auditing firms are encouraged to intensify training programs for their auditors in international sustainability reporting frameworks, such as the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB). Such training equips auditors with the methodological and analytical competencies necessary to evaluate corporate sustainability practices comprehensively. Moreover, interdisciplinary collaboration is increasingly vital. Partnering with sociologists and environmental scientists can enrich the evaluation process by introducing broader and more objective insights into the societal and ecological impacts of business activities. Likewise, cooperation with technology specialists enables auditing firms to support clients in adopting advanced technologies aimed at reducing environmental footprints, optimizing sustainable production systems, and enhancing the quality of green products. Through such multi-sectoral

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collaboration, auditing firms can strengthen the depth and quality of their assurance services, not only in verifying compliance, but also in advising on process innovation and operational optimization. This integrated approach addresses enterprises' growing expectations for assurance that encompasses both financial and non-financial reportings related to social and environmental performance.

Conclusion and limitations

The disclosure level of SEA information by non-financial companies listed on the HNX is evaluated through the analysis of financial reports and annual reports, based on established standards for Environmental Disclosures (GRI 300) and Social Disclosures (GRI 400).

Empirical findings, derived from the application of the FEM, identify five key determinants influencing SEA information disclosure levels. Notably, four variables - auditing by Big 4 firms, firm size, board size, and listing tenure - exhibit a statistically significant and positive association with SEA information disclosure. In contrast, financial leverage demonstrates a negative relationship. Furthermore, the study observes no significant link between ROA and the level of SEA information disclosure.

Despite its contributions, the study still exhibits several limitations. It evaluates only the quantity, rather than the qualitative characteristics, of the disclosed information. Additionally, the scope is restricted to non-financial firms, thereby limiting the generalizability of the findings across the broader Vietnamese capital market. Future research could extend the analysis to include the qualitative attributes of SEA information disclosures and examine firms across different sectors to yield more robust and generalizable conclusions.

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