ASSESSING ESG COMPLIANCE: AN IN-DEPTH STUDY OF VIETNAM'S LISTED TEXTILE AND APPAREL FIRMS

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Abstract: This study investigates the impact of ESG compliance on the financial performance of Vietnam's listed textile and apparel firms. The dataset includes 30 listed textile and apparel firms on the Vietnam Stock Exchange from 2019 to 2023. The results indicate that firms with higher ESG compliance demonstrate improved financial performance. However, smaller firms encounter difficulties in ESG adoption due to financial constraints and regulatory challenges.

1. Introduction

Environmental, Social, and Governance (ESG) compliance has become a crucial aspect of corporate sustainability worldwide. As businesses integrate ESG principles into their operations, they not only mitigate risks but also enhance financial performance, strengthen reputational standing, and secure long-term competitiveness (Chen, Song, & Gao, 2023). As a result, investors, consumers, and regulators now demand greater transparency and accountability, shifting ESG compliance from a voluntary commitment to a strategic necessity (Kandpal et al., 2024; Ali, Frynas, & Mahmood, 2017). In particular, the tightening of global regulations aimed at fostering a green economy such as the European Union's Corporate Sustainability Due Diligence Directive, set to take full effect by 2027 has increased accountability demands on supply chain participants (Butt & Kousar, 2024). As Vietnam deepens its integration into the global economy, enhancing ESG compliance will be crucial for maintaining its competitive edge in international trade.

On a national level, Vietnam has demonstrated strong commitments to sustainability, including Vietnam ESG Initiative 2025 , a pledge to achieve net-zero emissions by 2050 and the implementation of a National Green Growth Strategy (Ministry of Planning and Investment, 2024). Concurrently, international trade agreements, such as the EU-Vietnam Free Trade Agreement (EVFTA), now incorporate stricter sustainability-related provisions, compelling local firms to adopt responsible practices to retain market access (Nguyen, 2023).

In order to contribute to this green movement, Vietnam has to re-evaluate the operations of its key economic sector, and the textile and apparel sector being one. As of 2024, the industry employed approximately 2.5 million workers, accounting for nearly 4.8% of the national labor force, and contributed $44 billion in export revenue

(VITAS, 2024). Despite its importance, ESG compliance among the textile and apparel industry, remains underdeveloped and is now facing with many hurdles (PwC, 2022). While the country's rapid industrialization has spurred economic growth, this sector grapple with persistent environmental degradation including wastewater pollution and high carbon emissions coupled with labor rights gaps and weak corporate governance. Moreover, structural challenges further impede progress: SMEs, which constitute over 80% of this fragmented market, lack resources and expertise to prioritize ESG. This is even more exarcebated by stringent international supply chain requirements (e.g., EU CSRD), technological gaps in monitoring ESG metrics, and risks of greenwashing. According to Mitra and Bui (2024), only 30% of surveyed SMEs have implemented formal ESG strategies, with smaller enterprises often lagging behind due to limited financial and human resources as well as a lack of awareness or understanding of ESG principles. Firms that neglect ESG alignment may face increased financing constraints and elevated corporate risk, potentially leading to diminished investor confidence and market penalties (Zhang et al., 2024).

While extensive research has explored ESG compliance in developed economies, there is a notable gap in the literature regarding its adoption and financial impact in developing markets like Vietnam. Existing ESG studies in Vietnam have predominantly focused on sectors such as banking and manufacturing, leaving the textile and apparel industry under-researched. Given the sector's pivotal role in Vietnam's economic development and the increasing global emphasis on sustainability, this study seeks to address this gap by providing a comprehensive assessment of ESG compliance among Vietnam's listed textile and apparel firms.

This research investigates the relationship between

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ESG compliance and financial performance, testing the hypothesis that firms adhering to ESG principles exhibit stronger financial outcomes. Additionally, the study also investigate the current situation of ESG adoption in the textile sector. The findings aim to provide actionable insights for policymakers, investors, and industry leaders to develop strategies that enhance ESG compliance while ensuring long-term business sustainability.

The structure of the paper is as follows: Section 2 disscusses the existing literature and employed framework on the relationship between ESG performance and firm's financial situation. Section 3 describes the methodology employed in the model. Section 4 reports and analyzes the empirical findings. Lastly, Section 5 provides the study's conclusion.

2. Literature reviews

Empirical research has shown that ESG compliance has a significant influence on the financial performance of textile and apparel firms in Vietnam.

Phan et al. (2020) explored the link between sustainable development practices and financial outcomes in Vietnam's textile industry. Using a mixed-method survey and structural equation modeling (PLS-SEM), the study found that environmental and social initiatives within workplaces and communities positively impact profitability and business growth. Factors such as customer loyalty, employee satisfaction, and corporate reputation act as mediators, strengthening the relationship between sustainable development practices and financial performance. Additionally, the study highlights that entrepreneurial orientation enhances the financial benefits of sustainability efforts.

Pham et al. (2023) assessed the financial performance of Vietnam's textile industry using the entropy-TOPSIS method to rank firms based on key financial indicators like liquidity, solvency, and profitability. The results show that firms with strong ESG integration consistently outperform others in financial stability and operational efficiency. A clear positive correlation exists between ESG adherence and financial metrics such as return on assets and debt management. Moreover, ESG-compliant firms are better equipped to handle financial risks, particularly during economic downturns. Despite the study's valuable insights, its relatively small sample size limits the broader applicability of the findings.

Research by Tasneem Usmani (2024) offers empirical evidence on the positive relationship between ESG performance and financial outcomes in the global textile and apparel industry. The study finds that firms with higher ESG scores demonstrate stronger ROE and ROA, emphasizing ESG's role as a strategic driver of financial performance. It also highlights increasing investor pressure for sustainable practices, reinforcing the need to integrate ESG into core business strategies, particularly in environmentally sensitive industries. This reinforces

the view that ESG is not merely a matter of ethics or social responsibility, but a strategic tool that contributes to long-term financial performance and corporate value.

Building on the insights from the literature, this study investigates whether the overall disclosure of ESG practices correlates positively with financial performance. The hypothesis is therefore structured as follows:

H1: There is a positive relationship between overall ESG compliance and the financial performance of Vietnam's textile and apparel firms.

3. Research methods

3.1. Empirical model

To evaluate the primary hypothesis regarding the impact of ESG compliance on financial performance, this study proposes three distinct regression models.

The first proposed model evaluates the impact of ESG compliance on ROA, determine whether there exists a positive relationship between a firm's ESG score and its asset utilization. The model is specified as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 * ESG_{i,t} + \beta 2 * Size_{i,t} + \beta 3 * Lev_{i,t} + \beta 4 * FX_{i,t} + u_{i,t} \quad (1)$$

The second model examines the relationship between ESG compliance and ROE, measuring the profitability relative to shareholders' equity. The model is specified as:

$$ROE_{i,t} = \beta_0 + \beta_1 * ESG_{i,t} + \beta 2 * Size_{i,t} + \beta 3 * Lev_{i,t} + \beta 4 * FX_{i,t} + u_{i,t} \quad (2)$$

The third model focuses on whether ESG compliance positively affects profitability margins. The model is specified as follows:

$$NPM_{i,t} = \beta_0 + \beta_1 * ESG_{i,t} + \beta 2 * Size_{i,t} + \beta 3 * Lev_{i,t} + \beta 4 * FX_{i,t} + u_{i,t} \quad (3)$$

In this study, the author employed return on assets, return on equity, net profit margin as the dependent variables, ESG score as the independent variable, and firm size, leverage, exchange rate as the controllable variables.

Return on Assets (ROA). ROA is a fundamental financial metric that evaluates a firm's efficiency in generating profits relative to its total assets. It serves as a critical indicator of operational effectiveness and managerial competency in resource utilization. Previous studies (McGuire, Sundgren, & Schneeweis, 1988; Orlitzky, Schmidt, & Rynes, 2003) have identified ROA as a key measure in analyzing the financial implications of corporate social performance.

Return on Equity (ROE). ROE quantifies a firm's ability to generate profit from shareholders' equity, which is reflected in the efficiency of capital utilization. This metric is particularly significant for investors as it highlights the effectiveness of management in delivering shareholder value. Empirical research (Waddock & Graves, 1997; Barnett & Salomon, 2012) suggests a positive correlation between corporate social responsibility (CSR) and ROE, demonstrating the financial benefits of ethical and sustainable business practices.

Net Profit Margin (NPM). Net Profit Margin (NPM) assesses a firm's ability to convert revenue into net profit after accounting for all expenses, serving as a critical indicator of cost management and operational efficiency. Higher NPM values reflect stronger financial performance and strategic cost control. Prior research indicates a generally positive relationship between sustainability practices and improved financial performance metrics, including profitability (Alshehhi et al., 2018).

ESG Score (ESG). ESG score is primary independent variable in this study, which is assessed by the author according to the GRI framework. The GRI framework provides a standardized methodology for evaluating corporate ESG performance, ensuring consistency and comparability across industries and geographical regions (Brown, de Jong, & Levy, 2009; Joseph, 2012). Empirical evidence (Buallay, 2019; García, Mendes-Da-Silva, & Orsato, 2017) has established a strong association between ESG performance and financial outcomes. While not all studies explicitly adopt the GRI framework, their findings support the relevance of structured ESG metrics in financial analysis.

Firm Size (Sizen). Firm size is incorporated as a control variable, as larger firms typically possess greater financial resources and face greater regulatory scrutiny, thereby increasing their capacity and incentives to implement ESG initiatives (Brammer & Pavelin, 2008).

Leverage (Lev). Leverage is included to account for financial risk and capital structure, as firms with high debt obligations may have limited flexibility in allocating resources to ESG initiatives (Ortiz-de-Mandojana & Bansal, 2016). High financial leverage can constrain a firm's strategic options and discourage long-term investments in sustainability due to increased risk aversion and liquidity concerns.

Exchange Rate (FX). Exchange rate fluctuations, particularly between the USD and VND, are controlled for due to their impact on firms' cash flows and profitability. Firms involved in international trade face significant exchange rate exposure (Muller & Verschoor, 2006).

3.2. Data collection

The data collection process integrates both quantitative and qualitative approaches to assess ESG compliance in Vietnam's textile and apparel industry. Quantitative data, spanning 2019–2023, is sourced from publicly available financial reports, ESG disclosures, and corporate websites. Key metrics include ESG scores, financial indicators such as return on assets, return on equity, net profit margin, along with control variables like firm size, financial leverage, and the USD/VND exchange rate. Given the limited transparency of ESG practices within the sector, the author developed a scoring framework to evaluate compliance based on available data, including corporate disclosures, third-party sustainability ratings, regulatory filings, and independent reports. This comprehensive assessment yielded 150 observations. To complement the quantitative analysis, qualitative data is gathered through secondary sources such as industry reports, government publications, and media articles, as well as existed interviews with key stakeholders, including corporate executives, ESG officers, and industry experts.

4. Results and dissussion

4.1. The Current State of ESG Practices in Vietnam's Textile & Apparel Firms

Vietnam's textile and apparel industry plays a pivotal role in the country's economic landscape, serving as one of its core export-driven sectors (Nguyet A. Vu (2014). The sector is projected to reach $47–48 billion in exports by 2025, driven by improved global market positioning, domestic policy support, and enhanced sustainability practices. The sector employs over 2.5 million workers, mainly from rural areas, supporting poverty reduction and industrial expansion (Vietnam Ministry of Industry and Trade, 2023). However, despite its significant contribution to employment and trade, the industry's reliance on low-wage labor and external supply chains raises concerns about long-term sustainability (Phan, Doan, & Nguyen (2020).

Vietnam is the fifth-largest garment exporter globally, with over 13,000 textile and garment enterprises, including major clusters in Ho Chi Minh City, Binh Duong, Thai Binh, Hung Yen, and Bac Giang (VIRAC, 2023). The industry structure comprises three primary segments: yarn, fabric, and garment production, with the garment sub-sectorcontributing the largest share of revenue.

Vietnam's textile exports are highly dependent on international markets, with over 80% of production exported to countries like the U.S., EU, Japan, and South Korea (Statista, 2023). This export-driven structure exposes the sector to global demand fluctuations, regulatory pressures, and ESG compliance requirements. Particularly, the EU's Green Deal and other trade policies increasingly demand sustainable manufacturing. Free Trade Agreements (FTAs) such as CPTPP and EVFTA provide market advantages but also push firms toward higher ESG standards to maintain access to global markets (WTO Center, 2023).

4.2. Descriptive statistics

Table 1 presents the descriptive statistics of the main variables used in the study. The return on assets (ROA) ranges from [-0.670;4.578], with a mean of 0.071, suggesting that firms generally achieve modest profitability relative to their assets. The relatively high maximum value indicates the presence of potential outliers or firms with exceptionally high asset efficiency. Similarly, the return on equity (ROE) varies between

[-1.344; 9.157], with an average of 0.091. While most firms generate positive shareholder returns, a minority exhibit significantly negative ROE, which may reflect financial distress or poor managerial performance. The ESG score ranges from [0.057;0.942], with a mean of 0.340, indicating moderate to low levels of ESG compliance among the firms in the sample.

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	150	0.071	0.380	-0.670	4.578
ROE	150	0.091	0.408	-1.344	9.157
NPM	150	0.028	0.651	-6.260	4.808
ESG	150	0.340	0.254	0.057	0.942
LEV	150	2.784	1.404	0.027	6.876
SIZE	150	6.904	1.446	1.981	9.920
FX	150	23295.39	257.232	23050.24	23787.32

Source: Authors' calculation

Table 2 presents the correlation analysis among the variables. ROE exhibits the strongest positive correlation with ROA (0.99), indicating that firms with higher asset efficiency also achieve greater shareholder returns. Similarly, NPM is positively correlated with ROA (0.63), suggesting that firms with higher net profit margins tend to generate greater returns on assets. ESG scores show a weak but positive relationship with both ROA (0.19) and ROE (0.22), implying that firms with stronger ESG compliance may experience slightly improved financial performance. FX shows a weak positive correlation with ROA (0.13), suggesting that exchange rate movements may have a minor effect on firm profitability. In contrast, leverage (LEV) and firm size (SIZEN) exhibit weak negative correlations with ROA and ROE, hinting at potential trade-offs between financial structure, firm scale, and profitability.

Table 2. Correlation matrix

Variable	ROA	ROE	NPM	ESG	LEV	SIZEN	FX
ROA	1						
ROE	0.99**	1					
NPM	0.63**	0.63**	1				
ESG	0.19**	0.22**	0.14**	1			
LEV	-0.16**	-0.16**	-0.03**	-0.35**	1		
SIZEN	-0.17**	-0.15**	-0.08**	0.174*	0.22**	1	
FX	0.13**	0.11**	-0.03**	-0.10**	-0.04**	0.01**	1

*|r| < 0,1, **|r|<0,05, ***|r|<0,01*

Source: Authors' calculation

4.3. Estimation result

Table 3. Regression results of Model (1)

	POLS	FEM	REM
	ROA	ROA	ROA
ESG	0.0319***	0.128**	0.0319*
	(0.0048)	(0.0092)	(0.0048)
LEV	-0.0075	0.783***	-0.0075
	(-1.71)	(0.43)	(-1.71)
SIZEN	-0.1076	0,0009	-0,1076
	(-1.81)	(0.83)	(-1.76)
FY	0.0004***	0.0005***	0.0004***
	(0,062)	(0,043)	(0,062)
_cons	0.7063***	-0.5494***	0.7063***
	(0.0346)	(0.0751)	(0.0346)
N	150	150	150
R-squared	53.14%	76.55%	74.98%

Source: Authors' calculation

Table 4. Regression results of Model (2)

	POLS	FEM	REM
	ROE	ROE	ROE
ESG	0.8043***	1.3304***	0.8043***
	(0.02)	(0.01)	(0.02)
LEV	-0.0075**	0.1783	-0.0075*
	(-0.872)	(0.325)	(-0.872)
SIZEN	-0.1076	0.0079*	-0.1076
	(-0.015)	(0.21)	(-0.015)
FY	0.0004***	0.0005***	0.0004***
	(0,064)	(0,045)	(0,064)
_cons	-0.33	0.5494	-0.7985
	(-0.0387)	(0.0951)	(0.0021)
N	150	150	150
R-squared	51.27%	77.13%	75.64%

Source: Authors' calculation

Table 5. Regression results of Model (3)

	POLS	FEM	REM
	NPM	NPM	NPM
ESG	0.4709**	0.5551**	0.4709*
	(0.047)	(0.101)	(0.047)
LEV	0.0255**	0.0492	0.0255
	(0.053)	(0.074)	(0.053)
SIZEN	-0.0570	0.7428*	-0.0570**
	(-0.015)	0.014	(-0.015)
FY	-0.0004	-0.0001*	-0.0002*
	(0.064)	(0.045)	(0.064)
_cons	0.4942	0.4461	0.4942
	(0.0387)	(0.0811)	(0.0387)
N	150	150	150
R-squared	41.35%	76.41%	33.61%

Source: Authors' calculation

Table 6. F-Test Results

Model	F	Prob > F	Model Selection
ROA	4.44	0.0000	FEM
ROE	4.56	0.0000	FEM
NPM	1.31	0.0000	FEM

Source: Authors' calculation

Table 6 reports the F-test results, showing that FEM is preferred for all models (ROA, ROE, and NPM), as all p-values are 0.0000. This indicates significant individual effects, justifying the use of Fixed Effects Models over Pooled OLS.

The Breusch-Pagan test results reject the null hypothesis at the 1% level, confirming that REM is appropriate for all dependent variables due to the presence of unobserved heterogeneity. The Hausman test results support REM for ROA and ROE as the p-values exceed 5%, indicating no correlation between individual effects and explanatory variables. For NPM, the p-value below 5% suggests FEM is more suitable. All VIF values remain below 10, indicating no significant multicollinearity among independent variables. Autocorrelation is detected in ROE and NPM, requiring FGLS estimation for robust results.

Based on the FGLS results, the author came to the results of the model as follows:

$$ROA_{i,t} = 2.490 + 0.39699 * ESG_{i,t} + 0.08191 * Size_{i,t} + 0.00548 * Lev_{i,t} + 0.00027 * FX_{i,t} + u_{i,t} \quad (1)$$

$$ROE_{i,t} = 2.754 + 0.87685 * ESG_{i,t} + 0.15841 * Size_{i,t} + 0.01281 * Lev_{i,t} + 0.00050 * FX_{i,t} + u_{i,t} \quad (2)$$

$$NPM_{i,t} = 0.4606 + 0.01523 * ESG_{i,t} + 0.00472 * Size_{i,t} + 0.00466 * Lev_{i,t} - 0.00017 * FX_{i,t} + u_{i,t} \quad (3)$$

4.4. Discussion

The results of this study yield several key insights:

First, ESG practices demonstrate a positive and statistically significant relationship with firm profitability. The FGLS estimates reveal that ESG has a strong effect on both ROA (0.39699, p = 0.005) and ROE (0.87685, p = 0.002), affirming that firms with higher ESG engagement tend to achieve better asset utilization and equity efficiency. For NPM, the relationship is positive but only marginally significant (0.01523, p = 0.078), indicating a weaker link between ESG initiatives and operating margins. These findings reinforce prior empirical evidence (Pham & Le, 2021; Nguyen et al., 2020; Nguyen et al., 2023), which highlight ESG as a mechanism for enhancing corporate sustainability, risk mitigation, and long-term value creation.

Second, financial leverage (LEV) appears to have no significant influence on ROA (p = 0.892) or ROE (p = 0.876), suggesting that the capital structure does not substantially affect asset or equity returns in this context. Interestingly, leverage exerts a significant positive effect on NPM (0.00466, p = 0.048), implying that debt financing when effectively managed can support operational profitability through resource allocation and cost control. This nuance aligns with earlier findings by Friedlan (1994) and Teoh et al. (1998), emphasizing the strategic role of debt in enhancing reported earnings.

Third, firm size (SIZEN) contributes positively to both ROA (p = 0.042) and NPM (p = 0.042), likely due to economies of scale, improved bargaining power, and operational efficiencies in larger firms. However, its effect on ROE is marginal (p = 0.056), suggesting that while size enhances profitability, it does not directly translate into shareholder returns. These results are consistent with prior studies (Robin & Wu, 2015; Skinner & Sloan, 1999) that acknowledge firm size as a partial determinant of financial performance, mediated by strategic resource deployment.

Fourth, foreign exchange fluctuations (FY) have mixed effects. FY positively influences ROA (p = 0.028) and ROE (p = 0.044), supporting the view that currency depreciation improves export competitiveness and revenue inflows. Conversely, the negative and significant effect on NPM (–0.000017, p = 0.024) indicates that margin volatility arises from exchange rate-induced cost pressures. This dual effect underscores the trade-off between top-line growth and bottom-line stability in export-oriented sectors, echoing insights from Nguyen et al. (2023).

Fifth, the theoretical implications reinforce multiple strategic perspectives. From an agency theory lens, ESG's positive effect suggests that responsible governance reduces principal-agent conflicts, aligning managerial decisions with shareholder interests. Under resource-based theory, ESG is positioned as a strategic asset strengthening brand equity, stakeholder trust, and operational capabilities. The stakeholder theory view is also validated, as firms prioritizing stakeholder needs through ESG demonstrate superior financial outcomes. Finally, within institutional theory, ESG adoption signals legitimacy and regulatory alignment, enhancing investor confidence and long-term resilience.

Overall, these findings underscore that ESG integration is not merely a symbolic or regulatory act, but a strategic imperative. In Vietnam's textile industry, ESG-oriented firms outperform peers in key financial metrics yet the realization of long-term benefits depends on complementary institutional support, improved corporate governance, and deeper stakeholder engagement.

5. Conclusion

This study examines the impact of ESG compliance on financial performance among Vietnam's listed textile and apparel firms. Using a dataset of 30 firms from 2019 to 2023, the study employs econometric models, including OLS, Fixed Effects, and FGLS, to analyze the relationship between ESG and financial metrics. The results indicate that firms with stronger ESG commitments experience improved profitability, particularly in ROA and ROE, though the effect on NPM is weaker. The findings reinforce theories such as agency, resource-based, and stakeholder theory, emphasizing ESG's role in enhancing firm competitiveness and investor confidence. Despite the benefits, challenges remain, especially for SMEs, due to resource constraints and regulatory gaps.

To improve ESG adoption, policymakers should implement clear regulatory frameworks, financial incentives, and industry collaborations. Firms should integrate ESG into business strategies, enhance corporate governance, and prioritize sustainability efforts. Investors must support capacity building and innovation to ensure long-term market positioning. This study contributes to the literature on ESG in emerging economies, offering insights for stakeholders to balance sustainability with financial performance and competitiveness in the evolving global market.

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