SUSTAINABILITY UNCERTAINTY AND STOCK RETURN VOLATILITY: EVIDENCE FROM VIETNAM

Tran Nguyen Tram Anh*, Le Thi To Nguyen

The University of Danang - University of Economics, Vietnam

*Corresponding author: anhtnt@due.edu.vn

(Received: March 28, 2026; Revised: April 14, 2026; Accepted: April 29, 2026)

DOI: 10.31130/ud-jst.2026.24(6A).197E

Abstract - This study examines whether sustainability uncertainty impacts firm-level stock return volatility in an emerging market. The sample consists of 559 non-financial firms listed on the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) over the period from 2014 to 2024. Sustainability uncertainty is measured as the new ESG-based Sustainability Uncertainty Index (ESGUI). The results indicate that ESG-related uncertainty increases stock return volatility. The positive effect of ESG uncertainty is less pronounced among firms with higher profitability and lower leverage. Our results are robust to different measures of stock return volatility, alternative specifications, and remain unchanged after controlling for the COVID-19 crisis. Our study provides a novel evidence on the effect of ESG uncertainty on stock volatility in context of an emerging market. As such, we highlight the importance of intergration of ESG consideration in risk management and policy making.

Key words - Sustainability uncertainty; stock return volatility; emerging market

1. Introduction

Sustainable development has become a key driving force shaping the structure of the global economy and a focal point in financial decision-making. As reported, global ESG assets surpassed $30 trillion in 2022 and are predicted to reach $40 trillion by 2030 [1]. Moreover, global sustainable bond issuance exceeded $1 trillion in 2024, reaching a record high [2]. This rapid expansion of ESG assets and broader green finance market signifies a profound reorientation of investor preferences and capital allocation toward sustainability-linked objectives. This paradigm shift has simultaneously intensified the focus of both investors, firm managers, and policymakers on ESG uncertainty, given its potential impacts on market stability.

Despite its growing importance, ESG uncertainty remains a nascent concept compared to more traditional forms of market instability. Accordingly, we are motivated to investigate whether sustainability uncertainty affects stock return volatility to enhance our understanding of the potential effect of uncertainty arising from environmental, social, and governance (ESG) factors on macro aspects of the firm level. Existing literature provides inconsistent evidence regarding the impact of economic policy uncertainty (EPU) on stock volatility. On the one hand, most empirical studies find a positive relationship between EPU and both market-wide stock volatility [3 - 6] and firm-level stock volatility [7, 8]. On the other hand, several research indicates that EPU is negatively related to stock volatility since sampled firms tend to respond proactively to uncertainty through risk-avoidance strategies [9] or when policy signals lack clarity or are of low quality [10]. These inconclusive results suggest that the impact of uncertainty on stock volatility is highly context-dependent and creates an opportunity to explore how this relation manifests within the evolving realm of ESG.

In this paper, the ESG-related Uncertainty Index (ESGUI), a new index developed by [11], is chosen as a measure of sustainability uncertainty. This index captures the economic and financial consequences of environment, social, and governance-related uncertainties. Stock return volatility is measured based on daily stock prices. Our study focuses on the Vietnamese market, an emerging market characterized by a developing institutional framework, limited ESG information transparency, and a high concentration of unsophisticated retail investors. These attributes render Vietnam a distinct setting, which is expected to amplify capital market responses to the ESG-based sustainability uncertainty.

Our research provides novel empirical evidence that ESG-based uncertainty is positively related to firm-level stock return volatility within the context of the Vietnamese market. Stock returns of firms with stronger financial health (i.e., higher profitability and lower leverage) are less volatile in response to ESG-related uncertainty. Given the accelerating global transition toward sustainable development, our findings elucidate that the ESG-based uncertainty serves as a distinct risk factor during the sustainability transition. This allows us to fill a critical gap in the extant literature, which has mainly focused on the consequences of macroeconomic policy uncertainty on stock volatility. Our findings offer important implications for policymakers, firm managers, and investors to assess and manage risks associated with the transition toward sustainable development.

2. Literature review

Existing literature has examined the impact of uncertainty on stock market volatility. Baker et al. [3] and Liu and Zhang [4] document a positive association between uncertainty and stock market volatility since investors demand higher risk premia and firms delay investment decisions. In addition, Baker et al. [3] show that this positive effect is more pronounced for firms operating in policy-sensitive sectors. However, stock market volatility is not only driven by domestic uncertainty but also is

influenced by foreign and global sources of uncertainty, particularly during periods of crisis. This effect is particularly pronounced in emerging markets where stock market volatility is heavily driven by uncertainty originating from major trading partners [5, 6]. By contrast, using a sample of Chinese financial sector stocks, Wang et al. [9] find that domestic and international economic policy uncertainty is negatively related to stock volatility. This could be explained by the fact that the financial sector is highly sensitive to macroeconomic shocks generated by policy uncertainty. Therefore, financial institutions tend to respond proactively through risk-management strategies. Their risk-avoidance strategies, such as reducing exposure to risky activities, shifting toward safer assets or operational positions, help reduce both operational volatility and stock price fluctuations. In addition, Salisu et al.[10] indicate that the relationship between economic uncertainty and stock market volatility may become insignificant or even negative when policy signals lack clarity or are of low quality, depending significantly on the country-specific institutional settings.

However, Pástor and Veronesi [12] argue that different firms have different exposures to economic policy uncertainty (EPU) and thus are impacted differently by EPU. Their argument implies that the firm-level stock volatility could also differ enormously in reaction to the EPU change. Therefore, Yang and Yang [7] focus on how firm-level stock volatility responds to the COVID-19 pandemic through economic policy uncertainty. The results show a significant additional increase in the volatility of stocks with a higher degree of sensitivity to EPU after the announcement of the COVID-19 pandemic lockdown. However, this effect is most pronounced for consumer, less-profitable, and high-leverage stocks. In addition, Wu [8] documents that economic policy uncertainty diminishes stock price synchronisation by raising each stock's relative volatility in China. The results suggest that in emerging markets characterized by a low information quality environment and immature investor literacy, such as China, uncertainty amplifies firm-specific volatility due to investor herding behaviour and irrational trading. Lou and Zhang [13] show that uncertainty influences stock price crash risk through information asymmetry in the Chinese market. Managers may engage in bad news hoarding behaviour by delaying the disclosure of negative information, thereby increasing the propensity for future crashes. Furthermore, policy uncertainty is negatively associated with stock liquidity, implying that policy stabilization plays a crucial role in achieving market stability [14].

Against the backdrop of the global economic transition, the focus of uncertainty has gradually shifted from macroeconomic factors to specialized domains such as sustainable development. Prior research indicates that an increase in economic policy uncertainty reduces the level of corporate social responsibility performance measured by the ESG index [15]. This deterioration in corporate social responsibility performance, in turn, may shape how investors perceive and price ESG-related information, which may serve as a signal of ESG-related uncertainty. Evidence suggests that negative ESG news has a stronger impact on stock markets, particularly when it contains quantitative, economic, or legal information [16]. Chen et al. [17] report similar findings, showing that investors respond more strongly to ESG news from unofficial media sources. In contrast, Serafeim and Yoon [18] find that markets react more strongly to positive than negative news, with stock prices responding most to financially material and unexpected ESG news. Moreover, Avramov et al. [19] demonstrate that higher ESG uncertainty increases required risk premia, leading investors to reduce holdings, especially in green stocks.

Building on the empirical evidence discussed above, heightened ESG-related uncertainty is likely to influence stock return volatility. In the context of Vietnam, an emerging market characterized by a low information quality environment, opaque ESG disclosure, and a predominance of relatively individual investors, these institutional features create conditions conducive to irrational behaviours. Therefore, when ESG-based sustainability uncertainty increases, market participants are more likely to engage in herding and sentiment-based trading in the absence of high-quality firm-specific information, ultimately leading to greater stock return volatility. Accordingly, we propose the hypothesis as follows:

Hypothesis: *ESG-based sustainability uncertainty is positively associated with firm-level stock return volatility*.

3. Data and methodology

3.1. Data

Our sample includes firms listed on the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) from 2014 to 2024. The ESG-based Sustainability Uncertainty Index (ESGUI) developed by [11], which captures country-level uncertainty specifically related to ESG factors, is collected from the website policyuncertainty.com. The daily adjusted closing price and firm-level financial data are sourced from the FiinPro database. Financial firms are excluded due to their distinct balance sheet structures and regulatory environments. The final sample comprises 559 non-financial firms with 5,524 firm-year observations.

3.2. Variables

The independent variable is the country-level ESG-based sustainability uncertainty index developed by [11]. This index measures the economic and financial consequences of environmental, social, and governance-related uncertainty by combining ESG and the world uncertainty index (WUI).

Following [20], the dependent variable, annual stock return volatility, is constructed as follows:

$$VOL1_{i,t} = \sqrt{\frac{1}{n-1}\sum_{1}^{n}(return_{i,k} - MEAN_{i,t})^2}$$

and

$$VOL2_{i,t} = \frac{1}{n}\sum_{1}^{n}\ln(return_{i,k})^2$$

where, $return_{i,k}$ denotes the daily return of stock i on trading day k, n is the number of trading days for firm i in year t, and $MEAN_{i,t}$ represents the annual average daily return of firm i in year t. The higher VOL1 or VOL2, the greater stock return volatility.

Following previous studies, we also control for a set of firm-specific characteristics that may drive stock return volatility, including the market-to-book ratio, firm size, return on assets, and financial leverage. Firm size (SIZE) is computed as the natural logarithm of the book value of total assets. According to Cheung and Ng [21], small firms may experience higher stock price volatility than larger ones. This is due to their limited resources, narrow market based and lower diversification, which increases susceptibility to idiosyncratic shocks and unexpected events. As such, firm size is expected to influence stock return volatility. Financial leverage (LEV) is computed as the ratio of long-term liabilities to total assets. High-leverage firms is argued to face greater financial distress and limited resilience [7], which in turn heightens stock return volatility. Vo [22] provides evidence that leverage is positively associated with stock return volatility. Return on assets (ROA) reflects the firm's profitability and is measured as net income divided by the book value of total assets. Yang and Yang [7] find that less-profitable stocks exhibit a more significant volatility increase than profitable stocks since they suffer the disadvantages of a lack of resiliency when uncertainty increases. The market-to-book ratio (MB) is a proxy for firm growth opportunities. Lou and Zhang [13] reveal that growth firms are more sensitive to an increase in uncertainty, resulting in greater stock volatility.

3.3. Methodology

To examine the relationship between ESG-based uncertainty and stock return volatility, this study employs the following baseline regression model:

$$VOL_{i,t} = \alpha_i + \beta_1 * ESGUI_t + \beta_2 * Controls_{i,t} + \varepsilon_{i,t}$$

where, VOL represents the annual stock return volatility of firm i in year t. ESGUI denotes the ESG-based sustainability uncertainty. *Controls* refer to a set of firm-level control variables, including firm size (SIZE), market-to-book (MTB), return on assets (ROA), and firm leverage (LEV). The regressions include industry-fixed/firm-fixed and year-fixed effects, and are estimated using robust standard errors to reduce the potential impact of omitted variables and heteroskedasticity. In addition, all firm-specific variables are winsorized at the 1st and 99th percentiles to mitigate potential effects of outliers.

4. Empirical results

4.1. Descriptive statistics

Table 1 presents descriptive statistics for all variables used in our research. As reported, the mean of VOL1 is 0.028 and its standard deviation of 0.011, while VOL2 records a mean of –7.899 with a standard deviation of 1.275. The average of ESG-related uncertainty over the sample period is 16.633 with a range of 11.308 to 28.847. In addition, Table 2 reports that the variation of ESGUI within firms (5.429) is greater than that across firms (1.076), implying the considerable temporal variation in ESG-related uncertainty.

Table 1. *Descriptive statistics*

	Obs	Mean	Std. Dev	Min	Max
VOL1	5524	0.028	0.011	0.0002	0.127
VOL2	5524	-7.899	1.275	-10.600	-5.124
ESGUI	5524	16.633	5.477	11.308	28.847
SIZE	5524	27.463	1.570	24.007	33.045
ROA	5524	0.064	0.072	-0.123	0.352
LEV	5524	0.085	0.129	0.000	0.635
MB	5524	1.323	1.093	0.015	6.695

Table 2. *Between and within standard deviation of ESGUI*

	Standard deiviation		
	Overall	Between	Within
ESGUI	5.477	1.076	5.429

Table 3 reveals the Pearson correlations among variables in our regression. As shown, except for the high correlation coefficients between two alternative measures of stock return volatility, other correlation coefficients do not exceed the threshold of 0.6. These results suggest that our model is not significantly impacted by multicollinearity.

Table 3. *Correlation matrix*

	VOL1	VOL2	ESGUI	SIZE	ROA	LEV
VOL1	1					
VOL2	0.702***	1				
ESGUI	0.062***	0.051***	1			
SIZE	-0.296***	-0.512***	-0.014	1		
ROA	-0.173***	-0.269***	-0.019	-0.053***	1	
LEV	0.037***	0.095***	-0.028**	0.388***	-0.180***	1
MB	-0.124***	-0.202***	0.007	0.134***	0.436***	-0.025*

Asterisks indicate significance at 10% (*) 5% (**) and 1% (***).

4.2. The impact of ESGUI on stock return volatility

Table 4 presents the panel regression results when stock return volatility is alternatively measured as VOL1 and VOL2. Columns 1 and 3 report the estimates obtained from the Ordinary Least Squares (OLS). As shown, coefficients on ESGUI are positive and statistically significant at the 1% level across measures of stock return volatility. The results indicate that the ESG-based sustainability uncertainty increases stock return volatility. The findings lend support to our hypothesis and strengthen the argument that the heightened sustainability uncertainty exerts significant pressure on corporate behavior and risk management. Since ESG uncertainty rises, firms tend to delay capital investment and strategic decision-making. This, in turn, forces stock prices to adjust as market participants recalibrate their required returns. In addition, as investors face an increasingly opaque ESG environment, they continuously update their expectations in response to new information and demand higher risk premia to hold stocks. Our results are highly consistent with the institutional context of Vietnam, where ESG information transparency is limitted, and individual investors account for a substantial share of trading activity. The scarcity of high-quality non-financial information, coupled with a high proportion of individual trading, tends to exacerbate

herding behavior and sentiment-driven reactions, which ultimately increase stock return volatility. Our findings are also in line with other emerging markets (i.e., China and Pakistan), where uncertainty is found to increase stock volatility [5, 6, 7, 13].

Table 4. *The impact of ESG-based uncertainty on stock return volatility*

VARIABLES	VOL1		VOL2	
	OLS	FE	OLS	FE
	(1)	(2)	(3)	(4)
ESGUI	0.0013***	0.0015***	0.1254***	0.1316***
	(0.0001)	(0.0001)	(0.0123)	(0.0133)
SIZE	-0.0023***	-0.0012**	-0.4421***	-0.1973***
	(0.0002)	(0.0005)	(0.0203)	(0.0488)
ROA	-0.0282***	0.0031	-5.2116***	-1.5592***
	(0.0037)	(0.0037)	(0.4312)	(0.3316)
LEV	0.0059**	0.0069**	0.6304**	0.4082
	(0.0023)	(0.0027)	(0.2667)	(0.2536)
MB	0.0001	0.0009***	-0.0043	0.0540**
	(0.0002)	(0.0002)	(0.0273)	(0.0240)
Constant	0.0552***	0.0206	1.0759	-6.0871***
	(0.0063)	(0.0159)	(0.7204)	(1.5326)
Observations	5,524	5,524	5,524	5,524
R-squared	0.284	0.210	0.366	0.210
Industry-fixed effects	Yes	No	Yes	No
Year-fixed effects	Yes	Yes	Yes	Yes
Firm fixed-effects	No	Yes	No	Yes
F statistic	52.15	46.88	62.97	41.66

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

One may raise concern about the unobserved time-invariant firm heterogeneity impacting stock return volatility, we further employ the FE model to address this issue. As presented in Columns 2 and 4, Table 4, the coefficient on ESGUI remains positive and statistically significant at the 1% level. The consistent and positive relationship, even after controlling for firm-specific fixed effects, confirms the robustness of our finding that ESGUI increases stock return volatility.

In addition, the results show that firm size and return on assets are negatively related to stock volatility, meaning that larger and highly profitable firms tend to exhibit greater resilience to ESG uncertainty and possess more stable cash flows, which effectively reduces price fluctuations. These findings provide supportive evidence to [7, 21]. Meanwhile, consistent with [22], firm leverage is positively associated with stock return volatility. This is because the increase in financial obligations heightens firms' sensitivity and resilience to uncertainty and raises the perceived risk of financial distress among investors [7].

4.3. Additional analyses

In this section, we partition our firms into subsamples based on their financial health to see whether this characteristic matters in the effect of ESG uncertainty on stock return volatility. Specifically, firms with return on assets (ROA) greater than or equal to the sample median are classified into the high profitability group; otherwise, they are assigned to the low profitability group. In addition, firms with leverage (LEV) greater than or equal to the sample median are grouped as high leverage firms, while the remaining firms constitute the low leverage group.

Table 5. *ESG-based uncertainty and stock return volatility. Additional analyses*

	VOL1				VOL2			
	high profitability	low profitability	high leverage	Low leverage	high profitability	high profitability	high leverage	low leverage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ESGUI	0.0011***	0.0016***	0.0016***	0.0013***	0.1118***	0.1347***	0.1327***	0.1202***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0191)	(0.0191)	(0.0183)	(0.0206)
SIZE	-0.0024**	-0.0007	-0.0013**	-0.0011	-0.3493***	-0.1433**	-0.2256***	-0.1676**
	(0.0010)	(0.0006)	(0.0006)	(0.0007)	(0.0817)	(0.0641)	(0.0704)	(0.0759)
ROA	-0.0103*	0.0004	-0.0114**	-0.0066*	-0.5409	-1.0642	-2.1040***	-1.3635***
	(0.0055)	(0.0085)	(0.0053)	(0.0039)	(0.4310)	(0.9183)	(0.5885)	(0.3800)
LEV	0.0060*	0.0079**	0.0073**	0.0181	0.6406*	0.2686	0.7451**	0.0351
	(0.0035)	(0.0033)	(0.0033)	(0.0477)	(0.3289)	(0.3451)	(0.2970)	(4.8229)
MB	0.0013***	0.0003	0.0007	0.0010***	0.1126***	-0.0125	-0.0063	0.0731**
	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0223)	(0.0478)	(0.0369)	(0.0305)
Constant	0.0560*	0.0054	0.0197	0.0207	-1.8965	-7.2950***	-5.3697**	-6.5540***
	(0.0321)	(0.0186)	(0.0188)	(0.0225)	(2.6028)	(1.9638)	(2.2017)	(2.3530)
Obs	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762
R-squared	0.206	0.235	0.243	0.194	0.230	0.208	0.217	0.206
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F statistic	19.89	26.15	33.48	18.65	24.17	17.48	20.84	19.77

*Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 5 presents the results of these subsample analyses with the FE approach. The coefficients on ESGUI remain positive and statistically significant at the 1% level across all subsamples and various measures of stock return volatility. As can be seen from Columns 1 and 2, the coefficient on ESGUI for the higher profitable group (0.0011) is smaller than that for the lower profitable group (0.0016). This implies that the impact of ESG uncertainty on stock return volatility is less pronounced for high-profitability firms compared to their low-profitability counterparts. This is likely because highly profitable firms exhibit better financial health and achieve higher operational efficiency, allowing them to better adapt to the uncertainty related to ESG factors. Consequently, investors perceive them as more resilient, leading to more stable stock prices. Conversely, the coefficient on ESGUI for higher leverage firms (0.0016) is greater than that for lower leverage firms (0.0013), meaning that the effect of ESG uncertainty on stock return volatility appears to be stronger for firms exhibiting higher leverage (Columns 3 and 4). This could be explained by the fact that firms with heavy debt burdens are more likely to cope with tighter liquidity constraints and higher default risks. As a result, when faced with ESG uncertainty, these firms have less financial flexibility to respond to the uncertainty, which heightens investor anxiety and hence increases stock return fluctuations. The results remain unchanged when stock return volatility is measured as VOL2 (Columns 5-8). These results are consistent with [7] in that the positive effect of economic uncertainty on stock return volatility is most pronounced for less-profitable and high-leverage firms in the Chinese stock market.

To summarise, additional analyses indicate that the positive effect of ESG uncertainty on stock return volatility is less pronounced for firms with better financial conditions (ie, higher profitability and lower leverage).

4.4. Robustness checks

This section performs several robustness checks to evaluate the reliability of the empirical results. First, the study further addresses potential endogeneity possibly arising from reverse causality in the relationship between the ESG uncertainty and stock return volatility. In this analysis, we employ one-year lagged independent variables and re-estimate the regressions (1) by using the FE method. As shown in Table 6, coefficients on ESGUI are consistently positive and significant at 1 % for both measures of stock return volatility, confirming that our primary findings remain robust.

Our next analysis accounts for macroeconomic shocks precipitated by the COVID-19 pandemic, which may have exerted substantial influence on both the economic environment and financial market volatility. Consequently, firm-year observations spanning the 2020–2021 period are excluded from the sample. It can be seen from Table 7 that we continue to find a significant positive association between ESGUI and stock return volatility. Collectively, these robustness checks corroborate the consistency of the findings and reinforce the validity of the study's primary conclusions.

Table 6. *ESG-based uncertainty and stock return volatility: one-year lagged variables*

VARIABLES	VOL1	VOL2
	(1)	(2)
L.ESGUI	0.0006***	0.0941***
	(0.0001)	(0.0085)
L.SIZE	-0.0007	-0.1254**
	(0.0005)	(0.0492)
L.ROA	-0.0116***	-3.4532***
	(0.0030)	(0.2938)
L.LEV	0.0012	0.1462
	(0.0025)	(0.2525)
L.MB	0.0005*	-0.0048
	(0.0003)	(0.0212)
Constant	0.0277**	-6.7993***
	(0.0137)	(1.4575)
Observations	4,959	4,959
R-squared	0.227	0.254
Year fixed-effects	Yes	Yes
Firm fixed-effects	Yes	Yes
F statistic	44.97	52.29

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. *ESG-based uncertainty and stock return volatility: the COVID-19 pandemic controlling*

VARIABLES	VOL1	VOL2
	(1)	(2)
ESGUI	0.0015***	0.1269***
	(0.0001)	(0.0127)
SIZE	-0.0014***	-0.2144***
	(0.0005)	(0.0476)
ROA	-0.0004	-2.0032***
	(0.0043)	(0.3642)
LEV	0.0061**	0.4087
	(0.0029)	(0.2569)
MB	0.0009***	0.0656***
	(0.0003)	(0.0239)
Constant	0.0241	-5.4694***
	(0.0160)	(1.4972)
Observations	4,445	4,445
R-squared	0.218	0.222
Year dummies	Yes	Yes
Firm fixed-effects	Yes	Yes
F statistic	51.84	38.44

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5. Conclusion

This study investigates the relationship between sustainability uncertainty and stock return volatility. Using a sample of non-financial firms listed on the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) during the 2014–2024 period, we find that the uncertainty related to ESG factors increases the volatility of stock returns within the context of an emerging market. In addition, this effect is less pronounced for firms having higher profitability and lower leverage. Our findings remain robust to the alternative measures of stock return

volatility, different methods to control the endogeneity problems, and the potential effect of the COVID-19 pandemic.

Given the inconclusive evidence regarding the uncertainty-stock volatility relationship and the increasing concern about sustainable development, our study enriches the extant literature by providing novel evidence of the impacts of ESG-based sustainability uncertainty on stock return volatility. Based on the results, this study advocates for the proactive integration of ESG considerations into corporate risk management as well as investors' portfolio management. In addition, our findings underscore the critical importance of stability and transparency in ESG policy, particularly within economies undergoing sustainability transitions.

Despite the empirical contributions mentioned above, this study is subject to the following limitation. Since the new ESG-based sustainability uncertainty index is currently constructed at the country level, it may not fully account for individual variations at the firm level. However, measuring ESG-based sustainability uncertainty at the firm level requires detailed and frequent ESG data, which is currently limited and inconsistent for most Vietnamese listed firms. Therefore, this opens an important avenue for future research to provide a more comprehensive understanding of the impacts of ESG uncertainty on firms.

Acknowledgement: This research is part of a university-level research project funded by The University of Danang - University of Economics, under the grant number T2026-04-04.

REFERENCES

[1] Blomberg, "ESG AUM set to top $40 trillion by 2030, anchor capital markets", *bloomberg.com*, February 22, 2024. Available: https://www.bloomberg.com/professional/insights/sustainable-finance/esg-aum-set-to-top-40-trillion-by-2030-anchor-capital-markets/. [Accessed March 12, 2026]

[2] UNCTAD, "World Investment Report 2025: International investment in the digital economy", *unctad.org,* 2025. Available: https://unctad.org/publication/world-investment-report-2025. [Accessed March 12, 2026]

[3] S. R. Baker, N. Bloom, and S. J. Davis, "Measuring Economic Policy Uncertainty", *The Quarterly Journal of Economics*, vol. 131, no. 4, pp. 1593–1636, 2016. https://doi.org/10.1093/qje/qjw024

[4] L. Liu and T. Zhang, "Economic policy uncertainty and stock market volatility", *Finance Research Letters*, vol. 15, pp. 99–105, 2015 https://doi.org/10.1016/j.frl.2015.08.009

[5] M. Ghani and U. Ghani, "Economic Policy Uncertainty and Emerging Stock Market Volatility", *Asia-Pacific Financial Markets*, vol. 31, no. 1, pp. 165–181, 2024. https://doi.org/10.1007/s10690-023-09410-1

[6] P. T. H. Cao and D. H. Vo, "Market responses to geopolitical risk and economic policy uncertainty: Evidence from Vietnam", *Heliyon,* vol. 11, no. 4, 2025. https://doi.org/10.1016/j.heliyon.2025.e42703

[7] J, Yang and C. Yang, "Economic policy uncertainty, COVID-19 lockdown, and firm-level volatility: Evidence from China". *Pacific Basin Finance Journal*, vol. 68, 2021. https://doi.org/10.1016/j.pacfin.2021.101597

[8] J. Wu, "Economic Policy Uncertainty, Investor Sentiment. and Stock Price Synchronisation: Evidence from China". *Mathematical Problems in Engineering*, vol. 2022, no. 1, 2022. https://doi.org/10.1155/2022/7830668

[9] X. Wang, Y. Luo, Z. Wang, Y. Xu, and C. Wu, "The impact of economic policy uncertainty on volatility of China's financial stocks: An empirical analysis", *Finance Research Letters*, vol. 39, 2021. https://doi.org/10.1016/j.frl.2020.101650

[10] A. A. Salisu, R. Demirer, and R. Gupta, "Policy uncertainty and stock market volatility revisited: The predictive role of signal quality", *Journal of Forecasting*, vol. 42, no. 8, pp.2307–2321, 2023. https://doi.org/10.1002/for.3016

[11] S. Ongan, I. Gocer, and C. Işık, "Introducing the New ESG-Based Sustainability Uncertainty Index (ESGUI)", *Sustainable Development*, vol. 33, no. 3, pp. 4457–4467, 2025. https://doi.org/10.1002/sd.3351

[12] L'. Pástor and P. Veronesi, "Uncertainty about Government Policy and Stock Prices". *The Journal of Finance*, vol. 67, no.4, pp.1219–1264, 2012. https://doi.org/10.1111/j.1540-6261.2012.01746.x

[13] Y. Luo and C. Zhang, "Economic policy uncertainty and stock price crash risk", *Research in International Business and Finance*, vol. 51, 2020. https://doi.org/10.1016/j.ribaf.2019.101112

[14] D. H. Man and N. M. Toan, "The impact of policy uncertainty on stock liquidity in Vietnam's M&A market", *The University of Danang - Journal of Science and Technology*, vol. 21, no. 6.1, pp. 99–103, 2023. https://doi.org/10.31130/ud-jst.2023.117E

[15] N. T. Dat and L. T. P. Uyen, "The impact of economic policy uncertainty on corporate social responsibility: An empirical evidence from oil and gas firms in Asia", *The University of Danang - Journal of Science and Technology*, vol. 20, no. 4, pp. 21-25, 2022. https://jst-ud.vn/jst-ud/article/view/7690.

[16] G. Capelle-Blancard and A. Petit, "Every Little Helps? ESG News and Stock Market Reaction", *Journal of Business Ethics*, vol. 157, no. 2, pp. 543–565, 2019. https://doi.org/10.1007/s10551-017-3667-3

[17] Y. Chen, Y. Zheng, G. Lv, Y. Gu, and W. Zhang, "Quantifying the effect of ESG-related news on Chinese stock movements" *Journal of Environmental Management*, vol. 354, pp.120301, 2024. https://doi.org/10.1016/j.jenvman.2024.120301

[18] G. Serafeim and A. Yoon, "Which Corporate ESG News Does the Market React To?", *Financial Analysts Journal*, vol. 78, no. 1, pp.59–78, 2022. https://doi.org/10.1080/0015198X.2021.1973879

[19] D. Avramov, S. Cheng, A. Lioui, and A. Tarelli, "Sustainable investing with ESG rating uncertainty". *Journal of Financial Economics*, vol. 145, no. 2, pp. 642–664. 2022. https://doi.org/10.1016/j.jfineco.2021.09.009

[20] Z. Chen, J, Du, D, Li, and R. Ouyang, "Does foreign institutional ownership increase return volatility? Evidence from China", *Journal of Banking and Finance*, vol. 37, no. 2, pp. 660–669, 2013. https://doi.org/10.1016/j.jbankfin.2012.10.006.

[21] Y. W, Cheung and L.K, Ng, "Stock price dynamics and firm size: An empirical investigation", *The Journal of Finance*, vol. 47. no. 5, pp.1985-1997, 1992. https://doi.org/10.2307/2329006

[22] X. V, Vo, "Foreign ownership and stock return volatility - Evidence from Vietnam", *Journal of Multinational Financial Management*, vol. 30, pp. 101–109, 2015. https://doi.org/10.1016/j.mulfin.2015.03.004