Cogent Business & Management

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/oabm20

Economic policy uncertainty and corporate social responsibility: evidence from emerging countries

Anh Hoang, Dat Thanh Nguyen & Phuong Uyen Le

To cite this article: Anh Hoang, Dat Thanh Nguyen & Phuong Uyen Le (2024) Economic policy uncertainty and corporate social responsibility: evidence from emerging countries, Cogent Business & Management, 11:1, 2375625, DOI: 10.1080/23311975.2024.2375625

To link to this article: https://doi.org/10.1080/23311975.2024.2375625

COGENT BUSINESS & MANAGEMENT
2024, VOL. 11, NO. 1, 2375625
https://doi.org/10.1080/23311975.2024.2375625

ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

OPEN ACCESS Check for updates

Economic policy uncertainty and corporate social responsibility: evidence from emerging countries

Anh Hoang[a], Dat Thanh Nguyen[a] and Phuong Uyen Le[a,b]

[a]Banking Department, The University of Da Nang, University of Economics, Da Nang, Vietnam; [b]Department of Accounting and Finance, Kent Business School, University of Kent, Canterbury, UK

ABSTRACT

This study examines the impact of economic policy uncertainty on corporate social responsibility (CSR) performance using a panel dataset spanning from 2004 to 2021 across six emerging countries within Southeast Asia. We find a negative association between country-level economic policy uncertainty and firms' CSR performance, particularly in terms of environmental and social indicators. Our findings remain robust across various robustness analyses and after addressing endogeneity concerns. Further, our study sheds light on how country-level policy uncertainty influences firms' sustainability investments across different sectors. Specifically, firms in the Consumer Discretionary, Basic Materials and Real Estate sectors experience adverse effects from increased economic uncertainty, whereas those in the Health Care sector demonstrate a positive correlation. The study suggests that policymakers and firm managers should address economic policy uncertainty to enhance CSR performance and sustainability investments across industries.

ARTICLE HISTORY
Received 7 February 2024
Revised 4 April 2024
Accepted 10 April 2024

KEYWORDS
Corporate social responsibility (CSR); World Uncertainty Index (WUI); ASEAN; environment, social and governance (ESG); industry level

JEL CLASSIFICATIONS
D80; G30; M10; M14

REVIEWING EDITOR
Collins Ntim, University of Southampton, United Kingdom of Great Britain and Northern Ireland

SUBJECTS
Corporate Governance; Corporate Social Responsibility & Business Ethics; Business, Management and Accounting

1. Introduction

Corporate social responsibility (CSR) has emerged as a critical aspect of contemporary business strategy, having significant influence on firms' decision-making processes and organizational outcomes (Li & Kong, 2024). As societal expectations change and stakeholders increasingly demand ethical and sustainable business practices, firms are compelled to integrate CSR into their operations to foster long-term sustainability and competitiveness (Zhu & Wagner, 2024). By actively engaging in CSR activities, firms not only fulfill their moral obligations to society but also gain tangible benefits that accrue from enhanced stakeholder trust, reputation and brand loyalty. Moreover, CSR initiatives can serve as strategic tools for risk management, helping firms navigate complex regulatory landscapes, mitigate reputational risks and prevent potential crises (Wang et al., 2024). Importantly, empirical evidence suggests a positive correlation between CSR performance and financial performance, with firms that prioritize CSR often outperforming their peers in terms of profitability, shareholder value and long-term sustainability (see Liang et al., 2024

CONTACT Phuong Uyen Le uyenltp@due.udn.vn Banking Department, The University of Da Nang, University of Economics, Danang, Vietnam; Department of Accounting and Finance, Kent Business school, University of Kent, Canterbury, United Kingdom.

for more details).[1] Furthermore, in an era characterized by increased transparency, CSR can serve as a potent driver of innovation and organizational resilience, enabling firms to adapt to changing societal expectations and emerging market trends. Hence, the importance of CSR for firms extends far beyond traditional motives, playing a central role in shaping strategic decision-making, organizational culture and long-term value creation in a dynamic business environment. In light of the establishment of the sustainable development goals (SDGs) by the United Nations, there has been a global push for firms to integrate CSR into their business activities (Phan et al., 2021). This emphasis on CSR has transformed it into a universal practice, considered integral to corporate operations worldwide (Fabrizi et al., 2014).

The contemporary literature in finance and economics also extensively examines the crucial role of policy uncertainty in shaping firm performance and strategic decision-making (see Gong et al., 2024; Zhang et al., 2024). Existing studies have increasingly recognized that fluctuations in policy environments, stemming from changes in government regulations, fiscal policies, trade agreements and geopolitical tensions, can intensely impact firms across various industries and geographical regions. Policy uncertainty introduces a layer of unpredictability and risk into business operations, influencing firms' investment decisions, capital allocation strategies and market behavior. Moreover, empirical studies have demonstrated the linkages between policy uncertainty and firm policies, encompassing areas such as innovation, capital expenditure and risk management strategies (Jo & Lee, 2024). Therefore, understanding the effects of policy uncertainty on firm behavior and investment has become a focal point of research, with implications for policymakers, investors and corporate decision-makers seeking to navigate uncertain economic landscapes and capitalize on emerging opportunities.

In this study, we draw upon several prominent theoretical perspectives to explain the mechanisms underlying the relationship between economic policy uncertainty and CSR practices. First, agency theory posits that economic policy uncertainty exacerbates agency conflicts between managers and shareholders (Jo & Lee, 2024), prompting firms to adjust their CSR strategies as a means of mitigating agency costs and aligning managerial incentives with shareholder interests (Wang et al., 2024). Second, stakeholder theory highlights how economic policy uncertainty influences firms' CSR practices by altering stakeholder expectations and pressures. According to Figueira et al. (2023), in uncertain economic environments, stakeholders may place greater emphasis on social and environmental concerns, convincing firms to enhance their CSR efforts to maintain legitimacy and social license to operate. Lastly, Kirste et al. (2024) find the role of institutional pressures in shaping firms' CSR responses to economic uncertainty and this supports the institutional theory.

We further ground our analysis within a robust theoretical framework that integrates insights from real option theory and strategic growth option theory to explain the relationship between economic policy uncertainty and firms' strategic decision-making processes. Real option theory, pioneered by scholars such as Bernanke (1983) and Dixit and Pindyck (1994), offers a valuable framework for examining how firms manage uncertainty and make investment decisions in dynamic environments. Within this framework, investments are conceptualized as real options, granting firms the flexibility to delay or forego investments in response to changing market conditions. Economic policy uncertainty introduces increased ambiguity, thereby influencing the perceived value and timing of investment opportunities for firms. Strategic growth option theory complements real option theory by emphasizing the strategic imperatives that drive firms to pursue growth opportunities amidst uncertainty. As argued by Kulatilaka and Perotti (1998) and Van Vo and Le (2017), uncertainty can create growth options, motivating firms to invest in strategic initiatives to capitalize on emerging market trends and competitive opportunities. Also, in non-monopolistic product markets, firms may leverage CSR activities as a strategic growth option to gain competitive advantages, convey stability to stakeholders and reinforce brand reputation in the face of economic policy uncertainty.

By integrating insights from these theoretical perspectives, our study aims to provide a comprehensive understanding of why and how economic policy uncertainty influences firms' CSR practices, thereby contributing to both theoretical advancement and practical insights for corporate decision-making and policy formulation. To achieve this, we investigate the relationship between economic policy uncertainty and firms' CSR practices within the context of Southeast Asia due to several key factors. First, Southeast Asia represents a region of growing economic importance, characterized by diverse political, social and economic landscapes. Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore,

Thailand and Vietnam are members of Association of Southeast Asian Nations (ASEAN), which was formed in 1967. ASEAN as a whole comprises a market of over 622 million people with a combined GDP of almost US$ 3.500 billion in 2022.[2] ASEAN would be the ninth largest economy in the world and the third Asian dragon in terms of emerging economy development if it were a country. Surprisingly, the countries in this region differ in terms of legal systems, economic growth, population size, religious affiliation and languages. As a result, ASEAN is an excellent place to look at the effect of cross-country factors on how businesses engage in CSR activities overtime (Gracia & Siregar, 2021). As such, studying CSR practices within this context offers insights into how firms navigate varying regulatory environments and stakeholder expectations across different Southeast Asian countries. Additionally, Southeast Asia is home to a rapidly expanding business landscape, with a growing middle class and increasing consumer demand for socially responsible products and services (Najam et al., 2022). Understanding how economic policy uncertainty influences firms' CSR strategies in this dynamic market environment is crucial for both corporate decision-makers and policymakers seeking to promote sustainable development and responsible business practices in the region. Furthermore, by providing cross-country evidence from Southeast Asia, this research contributes to filling a gap in the existing literature, which has predominantly focused on Western contexts.

In our study, we employ the World Uncertainty Index (WUI), developed by Ahir et al. (2022), as a metric to gauge economic and political uncertainty across a broad spectrum of developed and developing nations. The index, spanning from the first quarter of 1996 onward, quantifies the frequency of the term 'uncertainty' (and its derivatives) within national reports from the Economist Intelligence Unit (EIU) for 143 countries.[3]

Analyzing a dataset comprising 2166 firm-year observations and spanning the period from 2004 to 2021, encompassing six distinct ASEAN countries, our study reveals a significant negative impact of country policy uncertainty on firms' CSR performance, particularly concerning environmental and social aspects. Given the well-established link between firms' sustainability performance and their investment in sustainability initiatives (Li & Kong, 2024; Lys et al., 2015), our results indicate that increased national-level uncertainty discourages investments in sustainability endeavors. This aligns with the principles of our theoretical framework, which posits that uncertainty impedes long-term investments, including those in sustainability. Furthermore, our findings demonstrate robustness across various industry sub-samples, emphasizing on the consistency and reliability of our results.

This study constitutes an effort in exploring firms' CSR activities within the ASEAN countries, marking a significant contribution to the existing literature. Distinguishing itself from prior research, which predominantly investigates the impact of national-level uncertainty on firms' CSR performance (Jia & Li, 2020; Yuan et al., 2022), our study employs a novel proxy for country-specific uncertainty. Unlike previous measures of economic policy uncertainty, the WUI, developed by Ahir et al. (2022), offers distinct advantages by focusing exclusively on economic and political developments, thus enhancing its accuracy and comparability across nations.[4] Furthermore, our research extends beyond the examination of CSR performance alone, shedding light on the influence of country uncertainty on firms' sustainability investment across various sectors through industry heterogeneity analysis. Finally, drawing on recent works such as Li et al. (2024) study on charitable donations of Chinese listed companies and other relevant literature, we have highlighted the importance of critically examining the motives behind firms' CSR activities to mitigate the risk of greenwashing or reputational manipulation. By elaborating on the logic and implications of such abuses within the context of CSR practices, we aim to provide a more comprehensive perspective on the complexities and challenges inherent in evaluating the true impact and integrity of corporate sustainability efforts. Thus, this may better position our study within the literature by highlighting the unique contribution it makes in explaining the relationship between economic policy uncertainty and firms' CSR performance, while also acknowledging the broader discourse surrounding potential pitfalls and ethical considerations associated with CSR implementation.

Our research is structured into distinct sections to facilitate a comprehensive exploration of the topic. In Section 2, we review relevant literature to our research objective and outline our hypotheses regarding the influence of uncertainty on firms' investment in CSR activities. Section 3 explains the research design employed in our study. The empirical findings are detailed in Section 4, providing insights into

the relationship between uncertainty and firms' CSR investment. Finally, Section 5 offers the conclusion, summarizing key findings and implications drawn from our analysis.

2. Literature review

2.1. Theoretical background

Our study is built on different streams of theoretical backgrounds: (1) organizational behavior and decision-making and (2) real option-related theory. Agency theory provides a convincing lens through which to understand how economic policy uncertainty can drive strategic adjustments in CSR activities. In the context of increased uncertainty surrounding economic policies, firms may find themselves facing with worsened agency conflicts between managers and shareholders (Ghoul et al., 2024). This tension arises from the misalignment of interests between these two groups, with managers potentially prioritizing their own preferences or short-term objectives over the long-term interests of shareholders. However, agency theory suggests that managers may strategically leverage CSR initiatives as a mechanism to bridge this gap and mitigate agency conflicts. By investing in CSR activities that contribute to social and environmental goals, managers can signal their commitment to long-term value creation and stakeholder interests, thereby aligning their objectives with those of shareholders and reducing agency costs (Zhu & Wagner, 2024). Such signaling mechanisms serve to enhance transparency, build trust and strengthen the reputational capital of firms, fostering greater shareholder confidence and mitigating the risk of opportunistic behavior by managers.

In a similar vein, stakeholder theory supports another explanation that economic policy uncertainty can shape firms' CSR practices by influencing stakeholder expectations and pressures. Figueira et al. (2023) suggest that stakeholders may reassess their priorities, placing greater emphasis on social and environmental considerations and expect firms to demonstrate an increased commitment to addressing these issues, viewing CSR initiatives as essential components of corporate behavior. By aligning their CSR activities with stakeholder expectations and societal needs, firms can cultivate positive relationships with key stakeholders, encouraging trust and goodwill.

Institutional theory provides a robust framework for understanding how economic policy uncertainty intersects with firms' CSR responses through the lens of institutional pressures from various stakeholders, including regulators, industry peers and civil society organizations. These institutional pressures exert a profound influence on firms' CSR practices, compelling them to conform to prevailing norms and expectations regarding responsible business conduct (Kirste et al., 2024). Firms may face reputational risks and backlash from stakeholders if they fail to align with societal expectations or address pressing social and environmental concerns. As such, institutional theory suggests that economic policy uncertainty intensifies these institutional pressures, encouraging firms to prioritize CSR initiatives as strategic responses to mitigate risks, enhance legitimacy and navigate volatile socio-economic landscapes.

The contemporary finance literature has extensively examined the significance of both real options theory and strategic growth option theory in explaining the impact of policy uncertainty on firm investment strategies and decision-making processes. Real options theory, as articulated by Bernanke (1983) and Dixit and Pindyck (1994), offers valuable insights into long-term investments in the context of uncertainty. Within this framework, the option of waiting is particularly prized in uncertain environments, prompting firms to exercise prudence in their investment decisions. Particularly, investments in sustainability initiatives are regarded as long-term commitments, reflecting a managerial orientation toward enduring value creation (Flammer & Bansal, 2017; Wang & Bansal, 2012). As explained by Carroll (1999) and Carroll and Shabana (2010), sustainable practices necessitate significant operational adjustments, ranging from implementing environmental management systems to prioritizing workplace health and safety. Thus, decisions to invest in sustainability are inherently long-term in nature, driven by the aim of enhancing stakeholder relations and yielding both direct and social benefits. Building on insights from Wood (1991), Lys et al. (2015) and Trumpp et al. (2015), it is likely that the level of investment in sustainability is reflective of firms' sustainability performance, thereby establishing a correlation between country-level uncertainty and firms' sustainability practices.

On the other hand, the strategic growth option theory posits that under conditions of imperfect competition, uncertain environments may spur investments in growth options. As explained by Kulatilaka and Perotti (1998), Van Vo and Le (2017), Wu, Zhang, Wu, et al. (2020), Wu, Zhang, Zhang, et al. (2020) and Sha et al. (2020), uncertainty can create growth options, wherein delaying investments could allow competitors to seize opportunities, thereby potentially resulting in future competitive advantages. Basically, uncertain backgrounds may prompt firms to seize growth opportunities to preempt rivals and secure strategic positions in developing market landscapes. This strategic imperative highlights the dynamic relationship between uncertainty, competition and investment decisions, shaping firms' strategic responses and growth paths in competitive market environments.

2.2. Hypothesis development

Existing literature suggests that economic uncertainty exacerbates conflicts between managers and shareholders, leading firms to adopt a cautious investment approach. Consequently, managers may prioritize short-term goals over long-term value creation to mitigate agency costs, potentially resulting in reduced CSR investments. While stakeholders may indeed emphasize social and environmental concerns to maintain legitimacy and align with regulatory and societal pressures during periods of economic uncertainty, firms may face additional complexities and uncertainties in terms of compliance with evolving regulations and adapting to changing legal frameworks, which may require significant resources. Moreover, the immediate focus of firms often shifts toward survival and maintaining financial stability in such uncertain times, potentially decreasing the likelihood of engaging in CSR initiatives. Empirical studies also support the idea that firms tend to scale back investment levels during uncertain periods (Byeongju, 2002; Gulen and Ion, 2015; Julio & Yook, 2012; Rodrik, 1991). CSR activities, viewed as long-term investments with sunk costs, align with the principles of real options theory. Thus, firms may defer current CSR investments in anticipation of higher returns in the future. Integrating these theoretical perspectives, we posit the first hypothesis as follows:

H_{1a}. Firms are less likely to engage in CSR activities in times of high economic uncertainty.

In the framework of agency theory, economic uncertainty intensifies conflicts between managers and shareholders, potentially leading to reduced CSR investments as managers prioritize short-term objectives over long-term value creation to mitigate agency costs (Jensen & Meckling, 1976). However, stakeholder theory offers a contrasting perspective, suggesting that economic uncertainty may prompt firms to intensify their CSR efforts in response to heightened stakeholder expectations and pressures (Freeman, 1984). In uncertain economic climates, stakeholders tend to emphasize social and environmental concerns, compelling firms to bolster their CSR activities to maintain legitimacy and social license to operate. Also, firms often view CSR engagement as a means to secure long-term sustainable and competitive advantages by integrating stakeholders and leveraging CSR for broader organizational purposes (McWilliams & Siegel, 2000).

Strategic growth option theory further highlights the significance of economic policy uncertainty as a key risk factor, prompting firms to increase their CSR spending to gain competitive advantages and signal resilience to stakeholders (Kogut & Kulatilaka, 2001). Specifically, firms tend to ramp up CSR investments during periods of heightened economic policy uncertainty to mitigate unpredictability in market quality and economic outcomes (Baker et al., 2016; Julio & Yook, 2012). Further, Boyle and Guthrie (2003) highlight the inevitability of volatile future cash flows and asymmetric information during policy uncertainty, leading firms to utilize CSR initiatives as 'moral capital' to foster stakeholder confidence and collaboration (Sacconi and Antoni, 2011).

Empirical evidence suggests that CSR participation enhances a company's reputation and corporate culture (Wang & Chaudhri, 2009), addressing concerns about capacity to meet implicit contractual commitments amidst increasing informational asymmetry due to economic policy uncertainty. This risk management perspective is supported by research demonstrating that firms engage in more CSR during times of greater uncertainty to signal stability to stakeholders (Yuan et al., 2022). Moreover, recent findings suggest that an improved CSR strategy can effectively substitute for lobbying efforts in managing

policy uncertainty and reducing firms' exposure to uncertain regulatory environments (Peng et al., 2023). Overall, these insights indicate that firms strategically leverage CSR as a mechanism to navigate economic uncertainty, signal stability, manage risks and enhance stakeholder relationships, reinforcing the likelihood of increased CSR engagement during periods of high economic uncertainty. Based on this evidence, the following hypothesis is proposed:

H_{1b}. Firms are more likely to engage in CSR activities in times of high economic uncertainty.

3. Data

3.1. Data sample

This study employs three distinct datasets: economic uncertainty data, CSR data and firms' characteristic data. Data collection spans annually from 2004 to 2021, and comprehensive details of all variables employed in the analysis are provided in Table 1.

Regarding economic uncertainty data, we use the WUI developed by Ahir et al. (2022). This index is formulated at the country level and is derived from the frequency counts of terms related to "uncertainty" and its variants within quarterly reports provided by the EIU. In our study, we adapt the index to represent the percentage of counts of 'uncertainty' and its variants relative to the total number of words in each report.

The CSR data are represented by ESG scores obtained from Datastream. These scores consist of an overall score and three specific pillar scores: Environment, Society, and Governance. Each score is derived from 178 performance indicators within their respective domains. Specifically, the Environmental score relates to resource utilization, emissions and innovation. The Social pillar comprises indicators related to workforce, human rights, community engagement and product responsibility. Lastly, the Governance pillar is segmented into three categories: management, shareholders, and CSR strategy.

The final type of data pertains to the specific characteristics of firms. Drawing upon prior literature examining factors influencing CSR (Cai et al., 2016; Hong et al., 2012; Ioannou & Serafeim, 2012; Jia & Li, 2020; Miska et al., 2018), we incorporate firm size (*SIZE*), leverage (*LEV*), book-to-market ratio (*BM*), cash to total assets ratio (*CA*), dividend to total assets ratio (*DIV*) and ratio of operating income divided to total assets (*ROA*) as control variables in our econometric regressions. These firm-specific data are also sourced from Datastream.

A standard data filtering procedure is implemented, wherein only firms with available data for all variables are retained. Additionally, the 1st and 99th percentiles of variables are winsorized to mitigate the impact of outliers. Singleton groups are also excluded from the analysis. Thus, the dataset comprises 280 firms from six ASEAN countries: Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam. The final dataset encompasses 2166 firm-year observations.

3.2. Summary statistics

Table 2 presents a detailed summary of the descriptive statistics for the variables employed in the study. The WUI variable, based on 2166 observations, presents an insightful picture of economic uncertainty

Table 1. List of variables.

Variables	Description
WUI	World Uncertainty Index at country level ranging from 0 to 100
ESG	Aggregate ESG score ranging from 0 to 100
EN	Environmental pillar score ranging from 0 to 100
SO	Social pillar score ranging from 0 to 100
GO	Corporate governance pillar score ranging from 0 to 100
SIZE	Natural log of total assets
LEV	Ratio of total debts to total assets
CA	Ratio of cash to total assets
DIV	Ratio of dividend to total assets
ROA	Ratio of operating income divided to total assets
BM	Book to market ratio

This table presents the definitions of variables used in this study.

Table 2. Descriptive statistics.

Variable	Obs	Mean	Std. Dev	Min	Max
WUI	2166	0.775	0.830	0.231	2.722
ESG	2166	43.55	19.147	5.540	84.010
GO	2166	48.733	22.271	3.880	89.680
EN	2166	35.465	24.536	0.000	90.510
SO	2166	45.853	23.216	3.840	92.820
SIZE	2166	15.588	1.473	11.581	20.010
LEV	2166	0.264	0.172	0.000	1.552
CA	2166	0.059	0.081	0.000	0.826
DIV	2166	0.040	0.071	0.000	0.757
ROA	2166	0.077	0.101	−0.344	1.050
BM	2166	3.995	11.204	−41.08	246.460

This table presents the summary statistics of variables used in this study.

Table 3. ESG scores by industry.

Industry	*ESG*	*GO*	*EN*	*SO*
Consumer discretionary	39.986	42.717	35.116	41.774
Basic materials	58.244	57.393	56.697	61.628
Industrials	37.234	44.089	28.495	40.227
Financials	49.015	57.510	36.022	49.862
Real estate	44.095	46.691	36.763	48.427
Technology	29.816	31.429	15.454	35.516
Consumer staples	38.270	40.615	36.145	39.627
Telecommunications	51.188	60.462	36.983	53.024
Health Care	35.625	41.043	20.574	38.299
Utilities	44.495	51.872	38.944	46.303
Energy	45.826	50.878	40.659	48.349

This table presents the average CSR scores by industry.

levels within the dataset. With a mean value of 0.775, it indicates the average degree of economic uncertainty experienced during the study period. However, the relatively high standard deviation of 0.830 suggests considerable variability around this mean, signifying fluctuations in economic uncertainty across observations. The minimum WUI value of 0.231 and the maximum of 2.722 illustrate the wide range of economic uncertainty levels observed within the dataset, emphasizing the diversity of economic conditions experienced by firms. These descriptive statistics shed light on the dynamic nature of economic uncertainty and its potential impact on business decision-making and performance, highlighting the importance of understanding and managing economic risk in corporate strategies and policymaking endeavors.

The ESG variable has a mean score of 43.55. However, the relatively high standard deviation of 19.147 suggests disparities in sustainability efforts across the sample firms. The minimum score of 5.540 and the maximum of 84.010 demonstrate the broad range of sustainability performance observed in the dataset, with some firms exhibiting relatively low scores while others achieve remarkably higher levels of sustainability.

Table 3 provides valuable insights into the average ESG scores across different industries. The data reveals variations in CSR performance across sectors. Basic Materials and Financials emerge as the top-performing industries, with average ESG scores of 58.244 and 49.015, respectively, indicating relatively strong sustainability practices. Whereas, Technology exhibits the lowest average ESG score of 29.816, suggesting potential areas for improvement in environmental, social, and governance aspects within the sector. Moreover, while certain industries, such as Telecommunications and Utilities, demonstrate fairly high scores in the Governance (GO) dimension, others like Health Care and Technology lag behind, indicating disparities in governance practices across sectors. Also, the Environmental (EN) and Social (SO) scores vary significantly among industries, highlighting sector-specific challenges and opportunities in addressing environmental impact and social responsibility.

There are heterogeneities observed in the overall ESG score and its three pillars across 11 distinct industries, suggesting the need for an examination of the relationship between economic uncertainty and CSR at both aggregate and industry-specific levels. Basic materials emerge as the top-performing industry with an impressive ESG score of 58.244, while Technology exhibits the lowest performance with a score of only 29.816. Across the three pillars, the Technology sector demonstrates the weakest

performance, with low scores in Governance (31.429), Environmental (15.454) and Social (35.516) dimensions. Whereas, Telecommunications stands out with the highest Governance score, averaging 60.462. Further, Basic Materials firms excel in both the Environmental and Social pillars, boasting average scores of 56.697 and 61.628, respectively. These findings highlight the importance of considering industry-specific contexts when assessing CSR practices, as each sector faces unique challenges and opportunities in achieving sustainability objectives.

4. Empirical results

4.1. Baseline results

In order to explore the relationship between uncertainty and CSR, we use multivariate models to test our research hypothesis. The primary regression is as follows:

$$CSR_{i,t} = \alpha + \beta WUI_{i,t} + \gamma CONTROL_{i,t} + \varepsilon_t \quad (1)$$

where *i* and *t* represent the firm index and year index, respectively. $CSR_{i,t}$ denotes the CSR scores, encompassing ESG, GO, EN and SO dimensions. $WUI_{i,t}$ stands for the uncertainty index in the host country of firm *i* during year *t*. Consistent with prior research (Cai et al., 2016; Hong et al., 2012; Ioannou & Serafeim, 2012; Jia & Li, 2020; Miska et al., 2018), our model controls for various firm-level characteristics. These include firm size (*SIZE*), leverage (*LEV*), cash ratio (*CA*), dividend (*DIV*), ratio of operating income divided to total assets (*ROA*) and book-to-market ratio (*BM*). Also, our regression incorporates controls for year and firm effects as standard practice. The standard errors are clustered by firm to account for potential correlations within firms.

The regression outcomes at the aggregate level are detailed in Table 4. The first column displays the findings of using the ESG score as the independent variable, while the subsequent three columns examine the pillar scores, namely *GO*, *EN* and *SO*, respectively. We first find that the uncertainty index, *WUI*, demonstrates no statistical significance with the aggregate ESG score. However, when considering the three pillars of CSR, the coefficient of *WUI* shows statistically significant with both the Environment and Social scores, specifically at the 10% confidence level. Secondly, the significant negative coefficients of *WUI* in the third and fourth columns of Table 4 align with our hypothesis $\mathbf{H}_{1a}$, suggesting that firms are less inclined to engage in CSR activities when they face increased economic uncertainty. This finding is

Table 4. Aggregate results.

	(1)	(2)	(3)	(4)
VARIABLES	*ESG*	*GO*	*EN*	*SO*
WUI	−6.810	15.909	−18.284*	−20.267*
	[−0.733]	[1.610]	[−1.704]	[−1.744]
SIZE	5.375***	1.110	7.821**	6.367***
	[2.667]	[0.664]	[2.234]	[2.620]
LEV	−4.346	−12.918**	−0.250	2.071
	[−0.950]	[−2.003]	[−0.038]	[0.352]
CA	−9.840	−24.291**	−16.146	4.378
	[−1.454]	[−2.392]	[-1.416]	[0.519]
DIV	18.561**	4.698	28.923**	21.883**
	[2.476]	[0.324]	[2.252]	[2.054]
ROA	−1.958	−4.191	−11.404	0.617
	[−0.383]	[−0.502]	[−1.132]	[0.084]
BM	0.026	0.018	−0.002	0.039
	[0.984]	[0.466]	[−0.062]	[1.275]
Constant	−33.919	23.987	−71.533	−39.565
	[−1.031]	[0.889]	[−1.285]	[−1.008]
Year effect	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes
Observations	2166	2166	2166	2166
Adjusted R^2	0.836	0.722	0.778	0.831

This table presents the regression results of the impact of policy uncertainty on sub-dimension of corporate social responsibility. The standard errors in brackets are heteroskedasticity-robust and clustered at firm level. Variables are defined in Table 1. ***,** and * denote significance level at 1%,5% and 10%, respectively.

consistent with our theoretical framework, indicating that uncertainty tends to curb firms' long-term investments, including those in CSR. Furthermore, the magnitude of the *WUI* coefficient varies across pillar scores. Specifically, for every one percentage point increase in the economic uncertainty index, firms witness an 18.284-point decline in their environmental score and a 20.267-point decrease in their social score.

In terms of economic significance, on average, a one standard deviation increase in the economic uncertainty index results in substantial declines in firms' CSR practices, such as 42.791% and 36.686% reductions in Environment and Social scores, respectively. Concerning the control variables, most exhibit statistical significance in at least one of the four models, affirming the validity of our chosen control variables. Also, the adjusted R-squared ranges from 67.3% to 80.7% across the four models.

4.2. Industry heterogeneity

Having demonstrated the negative impact of economic uncertainty on CSR practices, it is reasonable to anticipate different reactions among firms in various sectors to changes in economic uncertainty. This divergence can be attributed to differences in targeted consumers, investors, operations and strategies across industries. Hence, it becomes imperative to examine the influence of economic uncertainty on firms' CSR practices at the industry level. In this section, we apply Equation (1) to regress industry-level data. Similar to the aggregate model, our regressions control for firm and year effects, with standard errors clustered by firm to account for potential correlations within firms.

The estimation outcomes of Equation (1) at the industry level are represented in Table 5,[5] revealing several remarkable findings. Among the 11 industries listed, economic uncertainty impacts five sectors: Consumer Discretionary, Basic Materials, Real Estate, Consumer Staples and Health Care. Particularly, the effects of economic uncertainty on CSR vary significantly across industries. This disparity can be attributed to the differing contexts within which firms operate, particularly in competitive industries where the cost of delaying options is substantial (Grenadier, 2002), rendering CSR investments more valuable for survival and prosperity (Flammer, 2015). This finding aligns with prior research by Bonaime et al. (2018), and Jia and Li (2020), which suggests that firms with limited postponement options tend to continue investing in uncertain environments. Specifically, our analysis reveals that firms in the Consumer Discretionary, Basic Materials and Real Estate sectors exhibit negative reactions to an increase in economic uncertainty, consistent with real options theory. However, in contrast, the CSR scores of firms in the Health Care sector experience a positive impact from economic uncertainty. According to the Global Industry Classification Standard (GICS), the health care industry encompasses sub-sectors such as health care equipment and supplies, health care providers and services, health care technology, biotechnology, pharmaceuticals, life sciences and tools. Following Brown et al. (2009), these sub-sectors classify the health care industry as a high-technology sector. This categorization aligns with the analyses of Saxenian (2007) and Jia and Li (2020), suggesting that firms in high-technology industries have fewer postponement options for sustainability investments due to intense competition. Consequently, our findings for the health care industry support the strategic growth option theory, indicating that firms in competitive sectors continue to invest in sustainability to avoid giving rivals a competitive advantage. Also, Consumer Staples firms adjust their environmental and social practices negatively but enhance governance practices in response to increased economic uncertainty. Moreover, there is heterogeneity in the magnitudes of reactions across industries. For every percentage point increase in the uncertainty index, the ESG score drops by 31.693 in the Consumer Discretionary sector, 66.445 in the Basic Materials sector, 33.185 in the Consumer Staples sector, but increases by 39.273 in the Health Care sector. Regarding the governance pillar, the coefficients of *WUI* are positive in Consumer Staples and Health Care, with values of 26.205 and 95.666, respectively, while that of Real Estate is -1,088.071. In the environmental pillar, Basic Materials firms record a 121.389-point drop, and Consumer Staples firms record a 42.345-point drop when economic uncertainty increases by one percentage point. Lastly, the results indicate that only firms in the Health Care industry adjust their social practices when observing an increase in economic uncertainty, with a coefficient value of 30.739.

Table 5. Industry heterogeneity.

Industry	Variables	WUI	Obs	R^2	r^2_a
Consumer discretionary	*ESG*	−31.693***	267	0.872	0.837
	GO	10.688	267	0.793	0.737
	EN	−17.729	267	0.851	0.811
	SO	−72.501***	267	0.856	0.817
Basic materials	*ESG*	−66.445*	114	0.839	0.779
	GO	−4.636	114	0.773	0.687
	EN	−121.389**	114	0.770	0.682
	SO	−54.725	114	0.851	0.795
Industrials	*ESG*	−69.914	349	0.837	0.804
	GO	94.642	349	0.753	0.703
	EN	36.697	349	0.749	0.698
	SO	−235.252	349	0.835	0.802
Financials	*ESG*	17.584	390	0.786	0.744
	GO	30.439	390	0.604	0.526
	EN	−3.462	390	0.697	0.637
	SO	12.999	390	0.839	0.807
Real estate	*ESG*	−355.979	283	0.908	0.873
	GO	−1,088.071*	283	0.847	0.790
	EN	623.179	283	0.865	0.814
	SO	−590.451	283	0.884	0.840
Consumer staples	*ESG*	−33.185***	246	0.913	0.887
	GO	26.205*	246	0.810	0.754
	EN	−42.345*	246	0.901	0.871
	SO	−68.720***	246	0.900	0.870
Telecommunications	*ESG*	−23.549	162	0.711	0.628
	GO	−12.688	162	0.642	0.539
	EN	−12.613	162	0.826	0.776
	SO	−37.532	162	0.726	0.647
Health care	*ESG*	39.273***	87	0.908	0.848
	GO	95.666***	87	0.806	0.679
	EN	−20.070	87	0.833	0.723
	SO	30.739**	87	0.911	0.853
Utilities	*ESG*	8.375	150	0.866	0.812
	GO	89.607	150	0.623	0.470
	EN	−12.954	150	0.849	0.788
	SO	−26.465	150	0.927	0.898
Energy	*ESG*	16.292	89	0.899	0.844
	GO	610.698	89	0.799	0.689
	EN	112.362	89	0.889	0.829
	SO	285.904	89	0.884	0.821

This table presents the industry heterogeneity regression results of the impact of uncertainty on sub-dimension of corporate social responsibility. The standard errors in brackets are heteroskedasticity-robust and clustered at firm level. Variables are defined in Table 1. ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

4.3. Robustness tests

To ensure that our baseline regression results are not affected by using different regression models, we employ some robustness tests. Specifically, in this section, we test whether the previous negative effect of economic uncertainty on CSR scores at the aggregate panel is robust to alternative regression models, using (i) Tobit regression, (ii) multilevel regression, (iii) lagged explanatory variables and (iv) addressing endogeneity issues.

4.3.1. Tobit regression

Since our dependent variables, *ESG* and its pillar scores, are bounded between 0 and 100, Tobit regression should be applied (Wooldridge, 2020).

The findings from Tobit regression analysis are presented in Table 6. Consistent with our baseline results, the Tobit regression reveals that *WUI* does not have a statistically significant impact on firms' overall ESG score. However, economic uncertainty exhibits negative effects on firms' Environmental and Social scores, with the coefficients of *WUI* in these two pillars being negative and statistically significant at a confidence level of at least 10%. Also, varied values of *WUI* coefficients across pillar scores are observed, with values of 21.992 and 20.267 for the Environmental and Social pillars, respectively. These results reaffirm the sensitivity of CSR practices to economic uncertainty, particularly in environmental and social dimensions, as indicated by the Tobit regression analysis.

Table 6. Tobit regression results.

	(1)	(2)	(3)	(4)
VARIABLES	*ESG*	*GO*	*EN*	*SO*
WUI	−6.810	15.909	−21.992**	−20.267*
	[−0.737]	[1.619]	[−1.985]	[−1.754]
SIZE	5.375***	1.110	8.636**	6.367***
	[2.682]	[0.668]	[2.280]	[2.634]
LEV	−4.346	−12.918**	−3.657	2.071
	[−0.955]	[-2.014]	[-0.540]	[0.354]
CA	−9.840	−24.291**	−16.991	4.378
	[−1.462]	[−2.405]	[−1.433]	[0.522]
DIV	18.561**	4.698	34.547**	21.883**
	[2.490]	[0.326]	[2.367]	[2.065]
ROA	−1.958	−4.191	−17.543	0.617
	[−0.385]	[−0.505]	[−1.544]	[0.084]
BM	0.026	0.018	−0.001	0.039
	[0.990]	[0.469]	[-0.024]	[1.283]
Constant	−44.937	−48.963	−70.066	−13.144
	[−1.223]	[−1.438]	[−1.165]	[−0.300]
Year effect	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes
Observations	2,166	2,166	2,166	2,166
Pseudo R^2	0.207	0.142	0.173	0.195

This table presents the Tobit regression results of the impact of uncertainty on sub-dimension of corporate social responsibility. The standard errors in brackets are heteroskedasticity -robust and clustered at firm level. Variables are defined in Table 1. ***,** and * denote significance level at 1%, 5% and 10%, respectively.

4.3.2. Multilevel regression

The next robustness test employs multilevel regression analysis. Given the complexity of the data structure, where the dependent variable is measured at the firm level and the independent variable is at the country level, multilevel regression proves to be a suitable method (Hough, 2006; Hox et al., 2010; Snijders & Bosker, 2012). The results of this analysis are reported in Table 7. Overall, similar findings emerge when employing multilevel regression to examine the relationship between CSR and economic uncertainty. Specifically, at the aggregate panel level, it is observed that an increase in economic uncertainty adversely affects firms' environmental and social practices.

4.3.3. Using lag independent variables

We continue to regress Equation (1) using the lagged of independent variable, *WUI*, in order to address the potential endogeneity. This approach has been applied in previous literature; see Jia and Li (2020) and Phan et al. (2021). Continuing our analysis, we extend regression Equation (1) by incorporating the lagged independent variable, *WUI*, to mitigate potential endogeneity concerns. This strategy has been employed in prior studies to address similar issues, as demonstrated by Jia and Li (2020) and Phan et al. (2021). By incorporating the lagged variable, we aim to account for any temporal dependencies and potential biases in the estimation process. This approach enhances the robustness of our analysis by providing insights into the dynamic relationship between economic uncertainty and CSR over time. The regression results reported in Table 8 remain consistent even after incorporating the lagged independent variable, *WUI*. This suggests that the relationship between economic uncertainty and CSR, as captured by Equation (1), remains stable and robust.

4.3.4. Endogeneity

It is possible that there can be an endogeneity issue arising from the correlation between explanatory variable - WUI and the error terms, and therefore bias our estimation. We have adopted a comprehensive Instrumental Variable (IV) approach to mitigate the potential endogeneity between economic policy uncertainty and CSR performance. Specifically, we employed industry average policy uncertainty (WUI_{IND}) as an IV in our analysis. This strategy aims to address any concerns related to reverse causality or omitted variable bias, ensuring the reliability of our findings. WUI_{IND} can be expected to correlate with WUI and be uncorrelated with exogenous control variables and the error terms. In the first stage regression, we

Table 7. Multilevel regression results.

	(1)	(2)	(3)	(4)
VARIABLES	*ESG*	*GO*	*EN*	*SO*
WUI	−0.205	0.863	−2.720***	−13.330***
	[−0.166]	[1.204]	[−3.681]	[−5.021]
SIZE	4.778***	1.545*	6.684***	6.012***
	[4.374]	[1.825]	[2.774]	[3.437]
LEV	−4.698	−12.592**	−0.445	0.090
	[−1.596]	[−1.979]	[−0.088]	[0.037]
CA	−9.949	−24.493***	−15.675***	3.369
	[−1.590]	[−5.548]	[−3.292]	[0.258]
DIV	26.372***	16.410	38.288**	31.090**
	[2.608]	[1.340]	[2.527]	[2.515]
ROA	−0.960	−10.582*	−5.685	1.410
	[−0.169]	[−1.692]	[-0.955]	[0.129]
BM	0.032	0.025	0.006	0.048
	[0.877]	[0.601]	[0.177]	[1.059]
Constant	−49.372***	20.929	−93.586***	−59.556**
	[−3.566]	[1.633]	[−2.842]	[−2.395]
Year effect	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes
Observations	2166	2166	2166	2166

This table presents the multilevel regression results of the impact of uncertainty on sub-dimension of corporate social responsibility. The standard errors in brackets are heteroskedasticity-robust and clustered at firm level. Variables are defined in Table 1. ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

Table 8. Lagged effect results.

	(1)	(2)	(3)	(4)
VARIABLES	*ESG*	*GO*	*EN*	*SO*
L.WUI	−8.288	14.288	−19.662*	−20.844*
	[−0.911]	[1.407]	[−1.730]	[−1.846]
SIZE	6.329**	1.027	8.639**	7.921***
	[2.574]	[0.531]	[2.102]	[2.731]
LEV	−6.047	−14.779**	−2.388	0.892
	[−1.203]	[−2.067]	[−0.346]	[0.133]
CA	−8.109	−20.663*	−13.482	3.225
	[−1.095]	[−1.756]	[−1.021]	[0.386]
DIV	23.434**	10.342	31.809**	25.674*
	[2.528]	[0.727]	[2.314]	[1.942]
ROA	−4.661	−8.343	−14.525	−2.007
	[−0.801]	[−1.004]	[−1.463]	[−0.221]
BM	0.022	−0.000	0.017	0.034
	[1.062]	[−0.012]	[0.513]	[1.313]
Constant	−46.897	27.195	−82.266	−62.221
	[−1.174]	[0.888]	[−1.239]	[−1.335]
Year effect	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes
Observations	1801	1801	1801	1801
Adjusted R^2	0.820	0.690	0.745	0.810

This table presents the regression results of the impact of uncertainty on sub-dimension of corporate social responsibility. All independent variables are lagged 1 year. The standard errors in brackets are heteroskedasticity -robust and clustered at firm level. Variables are defined in Table 1. ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

predict the expected economic policy uncertainty (WUI_{EXP}) using WUI_{IND} and the base set of controls. To thoroughly assess the validity and strength of our instruments, we conducted several post-estimation tests, the results of which are presented in Panel A of Table 9. The significant outcomes of the Durbin–Wu–Hausman test statistics indicate the presence of endogeneity between policy uncertainty and CSR performance, providing empirical support for the use of an IV approach. Moreover, the significant Anderson canonical correlation test statistics highlight the relevance of our model and the validity of our instruments. Also, the Cragg–Donald Wald F statistic demonstrates the validity of the instruments used in the first stage, meeting the critical values. Further, we performed the over-identifying restrictions test using the Sargan χ^2 statistics, which yielded insignificant results, indicating that our model does not suffer from over-identification issues. These robustness tests collectively support the integrity of our IV strategy and the validity of our findings.

Table 9. Endogeneity.

	Panel A: 1st stage			
VARIABLES				WUI
WUI_{IND}				0.3287***
				[12.76]
Constant				0.2498***
				[16.54]
Control variables				Yes
Fixed effects				Yes
Adj R^2				0.3973
Obs				2166
Durbin–Wu–Hausman χ^2				86.43
Underidentification test (Anderson – LM statistic):				1439.64
Weak identification test: (Cragg–Donald Wald F statistic)				1932.10
Overidentification test Sargan (1958) χ^2				43.23
p Value for Sargan test				0.74
	Panel B: 2nd stage			
VARIABLES	*ESG*	*GO*	*EN*	*SO*
WUI_{EXP}	−10.1317	13.6673**	−17.2018**	−20.1519***
	[−1.01)	[2.37]	[−2.58]	[−2.62]
Control variables	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes
Adj R^2	0.8412	0.7362	0.7875	0.8464
Obs	2166	2166	2166	2166

This table presents the endogeneity results of the impact of economic uncertainty on corporate social responsibility. ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

The predicted WUI_{EXP} from the first stage regression is used in the second stage regression instead of WUI. The results in Panel B Table 9 show that after accounting for the endogeneity, the negative association between policy uncertainty and ESG performance still remains, confirming our expectation.

5. Conclusion

This article has undertaken a comprehensive examination of the relationship between economic policy uncertainty and CSR practices across six distinct ASEAN nations spanning the period from 2004 to 2021. Our findings reveal a significant and negative impact of country-level economic and policy uncertainty on firms' CSR performance, particularly evident in the Environmental and Social dimensions. Investigating deeper into industry-level dynamics, our analysis shows variations across sectors. Accordingly, we identify five industries – Consumer Discretionary, Basic Materials, Real Estate, Consumer Staples, and Health Care, as being statistically influenced by economic uncertainty. Within this spectrum, we observe divergent effects: firms operating in the Consumer Discretionary, Basic Materials and Real Estate sectors experience adverse repercussions in response to heightened economic uncertainty, while those within the Health Care sector demonstrate a positive response.

Importantly, the robustness of our main findings is reaffirmed through a battery of rigorous tests, including probit regression, multilevel regression, the incorporation of lagged explanatory variables, and endogeneity. This robustness lends further credence to the main conclusion that economic uncertainty significantly shapes firms' CSR practices, with implications varying across industries. As such, our study not only contributes to advancing understanding of the interaction between economic conditions and CSR engagement but also offers valuable insights for firm managers, investors, and policymakers.

Firms operating in sectors susceptible to economic uncertainty, such as Consumer Discretionary, Basic Materials and Real Estate, should adopt practical strategies to navigate volatility and maintain their CSR commitments. This may include scenario planning, diversification of CSR initiatives, and stakeholder engagement to build resilience and sustain CSR performance amid economic fluctuations. Investors, on the other hand, should consider economic uncertainty as a critical factor when evaluating firms' CSR performance. Understanding the impact of economic conditions on CSR practices can inform investment decisions and enhance portfolio sustainability. Policymakers should prioritize fostering stable economic environments to encourage robust corporate engagement in CSR activities. By mitigating economic uncertainty, governments can create advantageous conditions for firms to allocate resources toward sustainability initiatives, thereby promoting long-term societal and environmental well-being.

Future research in this domain could explore additional contextual factors and mechanisms underlying these relationships, thereby enriching our understanding and informing more targeted interventions to promote sustainable corporate behavior in response to economic uncertainty.

Notes

1. A substantial body of literature underscores the significant effects of implementing CSR on business reputation and performance. For instance, poor CSR performance can lead to negative publicity, potentially resulting in a significant decline in firms' revenue (Benlemlih & Bitar, 2018; Di Giuli & Kostovetsky, 2014; Fabrizi et al., 2014; Sun & Gunia, 2018). Furthermore, over the long term, inadequate CSR performance may erode a company's branding and reputation (Deckop et al., 2006; Di Giuli & Kostovetsky, 2014; Fabrizi et al., 2014; Sun & Gunia, 2018).
2. https://worldpopulationreview.com/country-rankings/asean-countries.
3. The EIU publishes nation reports for 189 countries on a regular basis, with topics including politics, economic policy, domestic economics, foreign and trade payments events, and their overall impact on country risk. In other words, reports of this prominent company in the field of country intelligence primarily examines and discusses a country's major economic, financial, and political developments.
4. This index is also used to proxy for cross-country policy and economic uncertainty in numerous preceding studies (Boubaker & Nguyen, 2019; Constantinescu et al., 2020; Gozgor et al., 2019; Baker et al., 2020; Cheung et al., 2020).
5. Technology is not reported due to the low number of observations, only 29.

Acknowledgment

The authors wish to thank Collins Ntim (Academic Editor) and the anonymous referees for very helpful comments and suggestions. All remaining errors are our own.

Authors' contribution

The list of complete authors along with the contribution to the paper is as follows. Anh Hoang (email: anhhdv@due.udn.vn): Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing. Dat Thanh Nguyen (email: datnt@due.udn.vn): Formal analysis, Writing – original draft, Visualization. Phuong Uyen Le (email: uyenltp@due.udn.vn): Conceptualization, Data collecting, Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing. All the authors agreed to be accountable for all aspects of the work.

Disclosure statement

No potential conflict of interest was reported by the authors.

About the authors

Anh Hoang is a senior lecturer and enthusiastic academic researcher at Banking Department, The University of Danang, University of Economics, Danang, Vietnam. He earned his Ph.D. in Economics from the Vietnam Academy Of Social Sciences. His research interests include Public Finance and Corporate Finance.

Dat Thanh Nguyen is an associated professor at Banking Department, The University of Danang, University of Economics, Danang, Vietnam. He earned his Ph.D. in Economics from the Latrobe University, Australia. His research interests include Macroeconomic theory, Fiscal policy, Monetary policy and the interaction between the two policies; Game theory and applications; Corporate Finance.

Phuong Uyen Le is a Ph.D. candidate at Department of Accounting and Finance, Kent Business school, University of Kent, Canterbury, United Kingdom. She is also a lecturer and academic researcher at Banking Department, The University of Danang, University of Economics, Danang, Vietnam. Her research interest is Corporate Finance.

Funding

This research is partly funded by the University of Da Nang, University of Economics, Vietnam.

Data availability statement

The data supporting this study's findings are available on request from the corresponding author [P.U.L]. The data are not publicly available due to the privacy of research participants.

References

Ahir, H., Bloom, N., & Furceri, D. (2022). *The world uncertainty index*. (No. w29763) National Bureau of Economic Research.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). measuring economic policy uncertainty. *The Quarterly Journal of Economics*, *131*(4), 1–17. https://doi.org/10.1093/qje/qjw024

Baker, S. R., Bloom, N., Davis, S. J., & Terry, S. J. (2020). *Covid-induced economic uncertainty (No. w26983)*. National Bureau of Economic Research.

Benlemlih, M., & Bitar, M. (2018). Corporate social responsibility and investment efficiency. *Journal of Business Ethics*, *148*(3), 647–671. https://doi.org/10.1007/s10551-016-3020-2

Bernanke, B. S. (1983). Irreversibility, uncertainty, and cyclical investment. *The Quarterly Journal of Economics*, *98*(1), 85–106. https://doi.org/10.2307/1885568

Bonaime, A., Gulen, H., & Ion, M. (2018). Does policy uncertainty affect mergers and acquisitions? *Journal of Financial Economics*, *129*(3), 531–558. https://doi.org/10.1016/j.jfineco.2018.05.007

Boubaker, S., & Nguyen, D. K. (2019). Financial decisions in a global uncertain context. *International Review of Financial Analysis*, *63*, 355–356. https://doi.org/10.1016/j.irfa.2019.03.002

Boyle, G. W., & Guthrie, G. A. (2003). Investment, uncertainty, and liquidity. *The Journal of Finance*, *58*(5), 2143–2166. https://doi.org/10.1111/1540-6261.00600

Brown, J. R., Fazzari, S. M., & Petersen, B. C. (2009). Financing innovation and growth: Cash flow, external equity, and the 1990s R&D boom. *The Journal of Finance*, *64*(1), 151–185. https://doi.org/10.1111/j.1540-6261.2008.01431.x

Byeongju, J. (2002). Policy uncertainty and long-run investment and output across countries. *International Economic Review*, *43*(2), 363–392. https://doi.org/10.1111/1468-2354.t01-1-00019

Cai, Y., Pan, C. H., & Statman, M. (2016). Why do countries matter so much in corporate social performance? *Journal of Corporate Finance*, *41*, 591–609. https://doi.org/10.1016/j.jcorpfin.2016.09.004

Carroll, A. B. (1999). Corporate social responsibility: Evolution of a definitional construct. *Business & Society*, *38*(3), 268–295. https://doi.org/10.1177/000765039903800303

Carroll, A. B., & Shabana, K. M. (2010). The business case for corporate social responsibility: A review of concepts, research and practice. *International Journal of Management Reviews*, *12*(1), 85–105. https://doi.org/10.1111/j.1468-2370.2009.00275.x

Cheung, Y., Steinkamp, S., & Westermann, F. (2020). Capital flight to Germany: Two alternative measures. *Journal of International Money and Finance*, *102*, 102095. https://doi.org/10.1016/j.jimonfin.2019.102095

Constantinescu, C., Mattoo, A., & Ruta, M. (2020). Policy uncertainty, trade and global value chains: Some facts, many questions. *Review of Industrial Organization*, *57*(2), 285–308. https://doi.org/10.1007/s11151-020-09772-0

Deckop, J. R., Merriman, K. K., & Gupta, S. (2006). The effects of CEO pay structure on corporate social performance. *Journal of Management*, *32*(3), 329–342. https://doi.org/10.1177/0149206305280113

Di Giuli, A., & Kostovetsky, L. (2014). Are red or blue companies more likely to go green? Politics and corporate social responsibility. *Journal of Financial Economics*, *111*(1), 158–180. https://doi.org/10.1016/j.jfineco.2013.10.002

Fabrizi, M., Mallin, C., & Michelon, G. (2014). The role of CEO's personal incentives in driving corporate social responsibility. *Journal of Business Ethics*, *124*(2), 311–326. https://doi.org/10.1007/s10551-013-1864-2

Figueira, S., Gauthier, C., & Oliveira, R. T. (2023). CSR and stakeholder salience in MNE subsidiaries in emerging markets. *International Business Review*, *32*(5), 102159. https://doi.org/10.1016/j.ibusrev.2023.102159

Flammer, C. (2015). Does product market competition foster corporate social responsibility? Evidence from trade liberalization. *Strategic Management Journal*, *36*(10), 1469–1485. https://doi.org/10.1002/smj.2307

Flammer, C., & Bansal, P. (2017). Does a long-term orientation create value? Evidence from a regression discontinuity. *Strategic Management Journal*, *38*(9), 1827–1847. https://doi.org/10.1002/smj.2629

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Cambridge university press.

Ghoul, S. E., Guedhami, O., & Jamshed, R. (2024). Global perspectives on corporate social responsibility, political institutions, and the political economy. *Global Finance Journal*, *60*, 100936. https://doi.org/10.1016/j.gfj.2024.100936

Gong, N., Tao, O., & Zhang, W. (2024). Economic policy uncertainty, political connections, and M&As: Evidence from China. *Pacific-Basin Finance Journal*, *85*, 102330. https://doi.org/10.1016/j.pacfin.2024.102330

Gozgor, G., Demir, E., Belas, J., & Yesilyurt, S. (2019). Does economic uncertainty affect domestic credits? An empirical investigation. *Journal of International Financial Markets, Institutions and Money*, *63*, 101147. https://doi.org/10.1016/j.intfin.2019.101147

Gracia, O., & Siregar, S. V. (2021). Sustainability practices and the cost of debt: Evidence from ASEAN countries. *Journal of Cleaner Production*, *300*, 126942. https://doi.org/10.1016/j.jclepro.2021.126942

Grenadier, S. R. (2002). Option exercise games: An application to the equilibrium investment strategies of firms. *Review of Financial Studies*, *15*(3), 691–721. https://doi.org/10.1093/rfs/15.3.691

Gulen, H., & Ion, M. (2015). Policy uncertainty and corporate investment. *Review of Financial Studies*, *29*(3), hhv050. https://doi.org/10.1093/rfs/hhv050

Hong, H., Kubik, J. D., & Scheinkman, J. A. (2012). *Financial constraints on corporate goodness*. (No. w18476). National Bureau of Economic Research.

Hough, J. R. (2006). Business segment performance redux: A multilevel approach. *Strategic Management Journal*, *27*(1), 45–61. https://doi.org/10.1002/smj.498

Hox, J. J., Maas, C. J., & Brinkhuis, M. J. (2010). The effect of estimation method and sample size in multilevel structural equation modeling. *Statistica Neerlandica*, *64*(2), 157–170. https://doi.org/10.1111/j.1467-9574.2009.00445.x

Ioannou, I., & Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies*, *43*(9), 834–864. https://doi.org/10.1057/jibs.2012.26

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Jia, J., & Li, Z. (2020). Does external uncertainty matter in corporate sustainability performance? *Journal of Corporate Finance*, *65*, 101743. https://doi.org/10.1016/j.jcorpfin.2020.101743

Jo, E. H., & Lee, J. W. (2024). Economic policy uncertainty and managerial short-termism. *International Review of Financial Analysis*, *93*, 103216. https://doi.org/10.1016/j.irfa.2024.103216

Julio, B., & Yook, Y. (2012). Political uncertainty and corporate investment cycles. *The Journal of Finance*, *67*(1), 45–83. https://doi.org/10.1111/j.1540-6261.2011.01707.x

Kirste, L., Oberhauser, M., & Holtbrügge, D. (2024). What drives the dissemination of CSR practices in global value chains? An institutional and psychological perspective. *International Business Review*, *33*(1), 102218. https://doi.org/10.1016/j.ibusrev.2023.102218

Kogut, B., & Kulatilaka, N. (2001). Capabilities as real options. *Organization Science*, *12*(6), 744–758. https://doi.org/10.1287/orsc.12.6.744.10082

Kulatilaka, N., & Perotti, E. C. (1998). Strategic growth options. *Management Science*, *44*(8), 1021–1031. https://doi.org/10.1287/mnsc.44.8.1021

Liang, J., Jain, A., Newman, A., Mount, M. P., & Kim, J. (2024). Motivated to be socially responsible? CEO regulatory focus, firm performance, and corporate social responsibility. *Journal of Business Research*, *176*, 114578. https://doi.org/10.1016/j.jbusres.2024.114578

Li, M., & Kong, L. (2024). Executives with financial backgrounds and corporate social responsibility: Evidence from China. *Finance Research Letters*, *61*, 105054. https://doi.org/10.1016/j.frl.2024.105054

Li, Z. F., Lu, X. Z., & Wang, J. (2024). *Corporate social responsibility and goodwill impairment: Charitable donations of Chinese listed companies*. https://doi.org/10.2139/ssrn.4337571

Lys, T., Naughton, J. P., & Wang, C. (2015). Signaling through corporate accountability reporting. *Journal of Accounting and Economics*, *60*(1), 56–72. https://doi.org/10.1016/j.jacceco.2015.03.001

McWilliams, A., & Siegel, D. (2000). Corporate social responsibility and financial performance: Correlation or misspecification? *Strategic Management Journal*, *21*(5), 603–609. https://doi.org/10.1002/(SICI)1097-0266(200005)21:5<603::AID-SMJ101>3.0.CO;2-3

Miska, C., Szőcs, I., & Schiffinger, M. (2018). Culture's effects on corporate sustainability practices: A multi-domain and multi-level view. *Journal of World Business*, *53*(2), 263–279. https://doi.org/10.1016/j.jwb.2017.12.001

Najam, H., Abbas, J., Álvarez-Otero, S., Dogan, E., & Sial, M. S. (2022). Towards green recovery: Can banks achieve financial sustainability through income diversification in ASEAN countries? *Economic Analysis and Policy*, *76*, 522–533. https://doi.org/10.1016/j.eap.2022.09.004

Peng, D., Colak, G., & Shen, J. (2023). Lean against the wind: The effect of policy uncertainty on a firm's corporate social responsibility strategy. *Journal of Corporate Finance*, *79*, 102376. https://doi.org/10.1016/j.jcorpfin.2023.102376

Phan, D. H. B., Tran, V. T., Tee, C. M., & Nguyen, D. T. (2021). Oil price uncertainty, CSR and institutional quality: A cross-country evidence. *Energy Economics*, *100*, 105339. https://doi.org/10.1016/j.eneco.2021.105339

Rodrik, D. (1991). Policy uncertainty and private investment in developing countries. *Journal of Development Economics*, *36*(2), 229–242. https://doi.org/10.1016/0304-3878(91)90034-S

Sacconi, L., & Antoni, G. (Ed.). (2011). *Social capital, corporate social responsibility, economic behaviour and performance*. Palgrave Macmillan.

Saxenian, A. (2007). *The new argonauts: Regional advantage in a global economy*. Harvard University Press.

Sha, Y., Kang, C., & Wang, Z. (2020). Economic policy uncertainty and mergers and acquisitions: Evidence from China. *Economic Modelling*, *89*, 590–600. https://doi.org/10.1016/j.econmod.2020.03.029

Snijders, T. A. B., & Bosker, R. J. (2012). *Multilevel analysis: An introduction to basic and advanced multilevel modeling* (2nd ed.). Sage.

Sun, X., & Gunia, B. C. (2018). Economic resources and corporate social responsibility. *Journal of Corporate Finance*, *51*, 332–351. https://doi.org/10.1016/j.jcorpfin.2018.06.009

Trumpp, C., Endrikat, J., Zopf, C., & Guenther, E. (2015). Definition, conceptualization, and measurement of corporate environmental performance: A critical examination of a multidimensional construct. *Journal of Business Ethics*, *126*(2), 185–204. https://doi.org/10.1007/s10551-013-1931-8

Van Vo, L., & Le, H. T. T. (2017). Strategic growth option, uncertainty, and R&D investment. *International Review of Financial Analysis*, *51*, 16–24. https://doi.org/10.1016/j.irfa.2017.03.002

Wang, T., & Bansal, P. (2012). Social responsibility in new ventures: Profiting from a long-term orientation. *Strategic Management Journal*, *33*(10), 1135–1153. https://doi.org/10.1002/smj.1962

Wang, J., & Chaudhri, V. (2009). Corporate social responsibility engagement and communication by Chinese companies. *Public Relations Review*, *35*(3), 247–250. https://doi.org/10.1016/j.pubrev.2009.04.005

Wang, Z., Kong, D., & Liu, S. (2024). Corporate social responsibility and firm-level systematic risk: The moderating effect of economic policy uncertainty. *International Review of Financial Analysis*, *94*, 103226. https://doi.org/10.1016/j.irfa.2024.103226

Wood, D. J. (1991). Corporate social performance revisited. *The Academy of Management Review*, *16*(4), 691–718. https://doi.org/10.2307/258977

Wooldridge, J. M. (2020). *Introductory econometrics: A modern approach* (7th ed.). Cengage Learning.

Wu, J., Zhang, J., Wu, Y., & Kong, D. (2020). When to go abroad: Economic policy uncertainty and Chinese firms' overseas investment. *Accounting & Finance*, *60*(2), 1435–1470. https://doi.org/10.1111/acfi.12474

Wu, J., Zhang, J., Zhang, S., & Zou, L. (2020). The economic policy uncertainty and firm investment in Australia. *Applied Economics*, *52*(31), 3354–3378. https://doi.org/10.1080/00036846.2019.1710454

Yuan, T., Wu, J. G., Qin, N., & Xu, J. (2022). Being nice to stakeholders: The effect of economic policy uncertainty on corporate social responsibility. *Economic Modelling*, *108*, 105737. https://doi.org/10.1016/j.econmod.2021.105737

Zhang, Y., Liu, L., Lan, M., Su, Z., & Wang, K. (2024). Climate change and economic policy uncertainty: Evidence from major countries around the world. *Economic Analysis and Policy*, *81*, 1045–1060. https://doi.org/10.1016/j.eap.2024.02.003

Zhu, H., & Wagner, E. (2024). Is corporate social responsibility a matter of trust? A cross-country investigation. *International Review of Financial Analysis*, *93*, 103127. https://doi.org/10.1016/j.irfa.2024.103127