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Stakeholder Pressure for Eco-friendly Practices, International Orientation, and Eco-Innovation: A Study of Small and Medium-sized Enterprises in Vietnam

Abstract

The literature on stakeholder management suggests that involving stakeholders in the decision-making process of firms is an ethical requirement and a valuable strategic resource for businesses to derive competitive advantage. However, the extent to which stakeholder pressure influences eco-product innovation lacks theoretical clarity. This article extends the eco-innovation literature by investigating the role of stakeholder pressure on eco-innovation through the mediating mechanism of environmental commitment. In addition, it examines the moderating impact of international orientation on the environment commitment–eco-innovation nexus. The results from a sample of 255 Vietnamese small and medium-sized enterprises (SMEs) indicate that the influence of both primary and secondary stakeholder pressure on eco-innovation is mediated by environmental commitment. In addition, the positive relationship between environmental commitment and eco-innovation increases with a firm's level of international orientation. The findings provide a nuanced understanding of the role of stakeholder in eco-innovation.

Keywords: *stakeholder pressure; eco-innovation; Vietnam; international orientation; environmental commitment*

1. Introduction

Pressure from stakeholders—parties that can affect or be affected by a firms' activities (Freeman, 1999)—is considered to be a crucial motivation for firms to protect the natural environment from the negative impacts of their activities (Shubham et al., 2018; Tran, & Adomako, 2021). The stakeholder approach to strategic management suggests that organizations may adopt pro-environmental practices to strategically respond to their stakeholders' expectations by formulating and implementing processes that satisfy their demands (Freeman et al., 2010; Wood et al., 2018). Thus, firms may voluntarily engage in welfare-enhancing activities that do not provide immediate financial rewards and that they are not morally obliged to pursue. These activities, however, improve their relationship with stakeholders and ensure access to resources that are needed for the company's survival (Mitchell et al., 2016).

Stakeholders tend to put pressure on firms to reduce their carbon footprints due to the reality of climate change. This prompts firms to adopt product, organizational, and technological innovations that yields eco-friendly products for consumers. In this way, firms are able to respond to consumers' growing demand for eco- friendly products and services (Hojnik, Ruzzier, & Manolova, 2018). In particular, firms also abide by regulations and conversions by adopting eco-innovation. Instructively, eco-innovation reflects "production, application or exploitation of a good, service, production process, organizational structure, management or business method that is novel to the firm or user and which results, throughout its lifecycle, in a reduction of environmental risk, pollution and the negative impacts of resources use (including energy use) compared to relevant alternatives" (Kemp & Foxon, 2007, p. 4).

Within the realm of stakeholder management research, scholars have pursued diverse issues, including the influence of stakeholder pressure on a firm's environmental performance (Betts et al., 2015; Kassinis & Vafeas, 2006), innovation (Yu et al., 2017), and sustainability (Shubham et al., 2018; Zhang & Zhu, 2019). The outcomes of these studies show that this pressure is a significant driver of desirable environmental behavior (Roxas et al., 2017).

However, despite the acknowledged influence of stakeholder pressure on a firm's behaviors and their outcomes, the literature remains limited in some respects. First, the mechanisms through which stakeholder pressure predicts eco-product innovation in firms in emerging countries is not clear. This is a significant gap since a firm's environmental proactivity is complex and could be driven by stakeholder concerns. Second, the current literature shows that environmental commitment may yield pro-environmental behaviors (Henriques & Sadorsky, 1999; Sendawula et al., 2020). However, despite the foregoing observation, the boundaries between environmental commitment and eco-product innovation lack theoretical precision. Thus,

this paper seeks to narrow this divide by investigating the potential role of international orientation on the link between environmental commitment and eco-product innovation. Arguably, internationally oriented firms are exposed to institutional pressures in all the countries in which they do business (Gómez-Bolaños et al., 2020; Marano & Kostova, 2016). Thus, international orientation allows firms to deploy efforts to gain legitimacy and manage their competitive position through their sustainability efforts.

Drawing on the fundamental premise of stakeholder theory (Freeman, 1984; Freeman & McVea, 2001; Freeman et al., 2010), the main aims of this study were to investigate (1) the impact of stakeholder pressure on environmental commitment and eco-product innovation, (2) the moderating impact of international orientation on this relationship, and (3) the mediating impact role of environmental commitment in the connection between stakeholder pressure and eco-product innovation.

This paper contributes to the literature in two specific ways. First, we contribute to the eco-product innovation literature (e.g., Cheng et al. 2014; Peng & Liu, 2016) by highlighting the mechanism through which stakeholder pressure predicts eco-product innovation. Specifically, we show that environmental commitment mediates the relationship between stakeholder pressure and eco-product innovation. This is an important contribution to the extant literature because the findings of the current study improve our understanding of the specific ways in which stakeholder pressure drives environmental behaviors. Moreover, our paper contributes to the eco-innovation literature in emerging countries by revealing further evidence of the role of stakeholder pressure in driving the environmental behavior of firms. Second, despite the strong theoretical and empirical support for the critical importance of environmental commitment on eco-innovation, our understanding of the extent to which the connection between environmental commitment and eco-

innovation may be moderated by varying degrees of internal factors is limited. Stated differently, if environmental commitment matters to eco-innovation in emerging economies, under which condition is this more effective? The lack of concern to address this question is particularly surprising given that differences in firms' internal policies significantly affect their behavior. Thus, our paper contributes to the environmental management literature by showing the conditions under which a firm's environmental commitment drives eco-product innovation. Specifically, we show that when a firm's international orientation is greater, the potency of environmental commitment in driving eco-product innovation is substantial.

The rest of the paper is organized as follows: Section 2 of this paper describes stakeholder theory, and this is followed by the derivation of our hypotheses. Next, is the data collection procedure and estimation strategy. Following this, the results of the study and discussion of the findings are presented. Finally, the study concludes with the contributions of the findings to current literature.

2. Stakeholder theory

Stakeholder theory discusses the different stakeholder needs that are required to meet the objectives of an organization (Freeman, 1984; Laplume et al., 2008). It has been put forward as a framework for managing the relationships among many actors in the business environment (Freeman, 1984). It proposes that managers must pay "simultaneous attention to the legitimate interests of all appropriate stakeholders" (Donaldson & Preston, 1995, p. 67). The literature devoted to stakeholder management defines stakeholders as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46), suggesting that a firm's stakeholders are not only its customers but also include shareholders, employees, and special interest groups such as consumer associations and environmental pressure

groups. The interest that stakeholders have in a business is that they stand to gain or lose something from the firm's success or failure. Stakeholder theory argues that firms do not manage their relationship with society as an abstract entity but with actors that can affect or are affected by the achievement of the firm's objectives (Clarkson, 1995).

Organizational managers often elicit information relating to stakeholder issues and use this to manage various stakeholder relationships (Driessen & Hillebrand, 2013). Thus, the concept of stakeholder pressure is the extent to which the voice of stakeholders is included in a firm's decision-making process (Atkins & Lowe, 1994; Freeman et al., 2010).

As firms obtain a competitive advantage not only through acquiring and generating unique heterogeneous, tangible, or intangible assets but also through their ability to incorporate and develop capabilities in an inimitable, socially complex, and ambiguous way (Barney, 1991; Driessen & Hillebrand, 2013), the concept of stakeholders is proposed as being especially relevant for exploratory activities such as new product development (Hart, 1995). However, research into stakeholder theory reveals that how stakeholder pressures manifest in eco-innovation activities is not well developed. This paper focuses on examining how stakeholder pressure influences eco-innovation through the mediating mechanism of environmental commitment. Figure 1 captures our conceptual model.

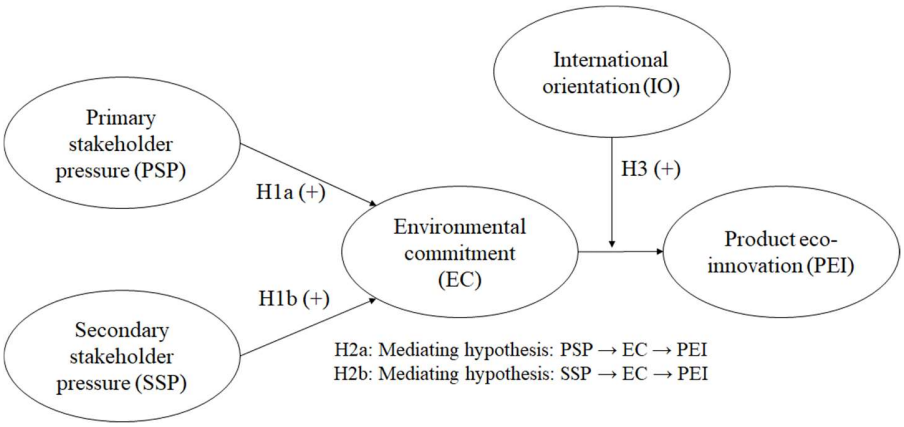

Figure 1. Proposed model

3. Hypothesis development

3.1 Stakeholder green pressures and environmental commitment

Stakeholders can exert pressure on firms to implement strategic decisions. As competitive intensity increases, firms are likely to improve their relationships with stakeholders (Kassinis & Vafeas, 2006). As such, there has been increased pressure on firms to engage in environmental responsibility (Orlitzky et al., 2011). For example, the reality of climate change and its associated impact on the environment has made it critical for firms to adopt product, organization, and technological innovations. These innovations aim to enhance a firm's approach to environmental sustainability in response to consumers' growing demand for eco-friendly products and services and to meet the regulatory requirements. Thus, the demand for eco-friendly products by consumers is on the rise, which makes it essential for firms to commit to environmental innovation.

Environmental commitment has been conceptualized as the degree to which the firm commits to supporting environmental protection and the implementation of environmental strategies (Banerjee et al., 2003). Previous studies have suggested that the firm's commitment to ethical responsibility should be considered the dominant determinant of environmental protection (Muller & Kolk, 2010). In this study, we suggest that stakeholders' green pressures on businesses to respond to environmental challenges is likely to increase a firm's commitment to environmental issues. First, the literature provides ample evidence to show that pressure from stakeholders can encourage a firm to be proactive towards environmental responsibility. For example, it has been suggested that firms tend to implement an environmental strategy to respond to stakeholder pressure (Buysse & Verbeke, 2003; Garcés-Ayerbe et al., 2012). More importantly, stakeholder influences affect a firm's sustainability practices such as eco-efficiency and industrial ecosystems (Sharma & Henriques, 2005). Second, empirical evidence shows a positive link between

stakeholder pressure and environment proclivity (Darnall et al., 2010; Murillo-Luna et al., 2008; Rueda-Manazanares et al., 2008). This suggests that the greater the perceived green pressures from both primary and secondary stakeholder groups, the more firms will increase their commitment to environmental responsibility. Third, the resource dependency perspective suggests that a firm depends on its environment to obtain resources (Pfeffer & Salancik, 1978). This indicates that stakeholders are a powerful source of resources for firms, allowing them to influence environmental strategies designed by firms (Kassinis & Vafeas, 2006; Sharma & Henriques, 2005). Thus, given the benefits that firms stand to gain from stakeholders, it is likely that stakeholders' green pressures will influence firms' environmental commitment. Therefore, we propose that:

H1a: *Primary stakeholder green pressures are positively associated with a firm's degree of environmental commitment.*

H1b: *Secondary stakeholder green pressures are positively associated with a firm's degree of environmental commitment.*

3.2 *The mediating role of environmental commitment*

This study further argues that the link between stakeholder green pressures and eco-innovation is mediated by environmental commitment. In Hypothesis 1, it was established that stakeholder pressure fosters greater environmental commitment. Besides, the environmental management literature suggests that environmental proclivity triggers responsible environmental management practices (Fernando & Wah, 2017; Garcés-Ayerbe et al., 2012; Zhang & Walton, 2017). This evidence makes us believe that environmental commitment mediates the relationship between stakeholder pressure and eco-product innovation. First, firms with a strong environmental commitment are more likely to implement effective environmental strategies such as eco-innovation. However, the increasing pressures from stakeholder groups are sources of inspiration

for top management's commitment to environmental commitment (Fernando & Wah, 2017). A major rationale is that the environmental commitment of the firm promotes an environment conducive to the implementation of the corporate environmental strategy (Chen et al., 2015; Lee & Ball, 2003). Second, given the pressure from stakeholder groups to implement sustainable environmental solutions, firms committed to environmental proclivity are likely to consider eco-product innovation as their source of competitive advantage. Thus, with pressure from stakeholder groups, firms are likely to encourage their employees to embark on pro-environmental activities and deploy resources to support its implementation of eco-product innovation (Boiral et al., 2012). Third, without such commitment to the environment, stakeholder pressure may not always lead to eco-product innovation, as has been shown in the environmental management literature (Sen & Bhattacharya, 2001). Thus, based on the preceding arguments, we propose the following hypothesis:

H2: *Environmental commitment mediates the relationship between (a) primary stakeholder green pressures, (b) secondary stakeholder green pressures and eco-product innovation.*

3.3 The moderating role of international orientation

This study also sought to examine the moderating impact of international orientation in the relationship between environmental commitment and eco-innovation. International orientation is defined as the "aggressive, entrepreneurial approach to international markets" (Knight & Kim, 2009, p. 260). In a broader sense, it constitutes an SME's international business competence that allows it to survive and compete in the international market (Coviello, 2015). Thus, international orientation serves as a key foundation stone for a firm's subsequent internationalization.

Previous research has highlighted that firms that are oriented towards foreign sales tend to engage in sustainability because they pay more attention to global stakeholders, who are more concerned with environmental issues than many domestic stakeholders (Park, 2018). This suggests

that a firm's commitment to environmental issues is likely to be boosted when it actively engages in cross-border activities. In essence, internationally oriented firms are more visible than domestic firms, which means that they have the responsibility to commit to the environmental concerns of stakeholders. In addition, their presence in the international market makes them more prone to criticism on environmental matters by global stakeholder groups and influential market intermediaries. International firms pay attention to their global stakeholders, putting more pressure on a firm to commit to environmental issues and produce eco-friendly products for the international market. More importantly, internationally oriented firms are exposed to international standards certifications and monitoring from global constituents. Thus, the notion here is that firms involved in cross-border activities are more vulnerable to environmental certification and monitoring concerns about eco-product design and development. In this case, international orientation is likely to help firms meet the demands of international customers by committing to environmental concerns for sustainable production and consumption. The foregoing argument leads us to suggest that:

H3: *The positive effect of environmental commitment on eco-product innovation is increased when a firm's international orientation is stronger.*

4. Method

4.1. Research setting

The research setting is Vietnam, an emerging market in Asia. This country is one of the fastest-growing economies in the region. Between 2002 and 2018, GDP per capita rose 2.7-fold, to over US $2.7 in 2019, and over 45 million people were lifted out of poverty. Poverty rates (defined as US $3.2/day per person) fell precipitously from over 70% to less than 6%. Given its close ties to the global economy, the Vietnamese economy has been hard hit by the ongoing COVID-19 pandemic. However, it has shown remarkable resilience, with GDP growing by 2.9% in 2020. It

was one of only a few countries whose GDP grew in this period. Vietnam's economy is expected to expand by 6.6% in 2021, owing to reasonable COVID-19 infection control, strong export-oriented manufacturing results, and a robust recovery in domestic demand (World Bank, 2021).

SMEs are crucial to the Vietnamese economy, accounting for 40% of GDP, 33% of industrial output value, 30% of exports, and employing 50% of the labor force. Vietnam's innovation policies and programs are strongly focused on technology and product growth. Most of them are supply-driven, and this encourages SMEs to adopt new technologies and develop high-tech products and services. However, most Vietnamese SMEs lack innovation capabilities, suggesting that policy efforts should improve these capabilities among the small business community. Moreover, the main challenge for Vietnam is to handle its rapid economic growth sustainably and avoid the detrimental effects of the deterioration of the environment and climate change. Industrialization, urbanization, and farm intensification have had adverse effects on air, land, and water, as well as far-reaching effects on energy and transport industries, which have resulted in higher greenhouse gas emissions and decreased climate change resistance (Asian Development Bank, 2013). Thus, Vietnam is a relevant context for a study into SMEs and issues related to the environment and innovation.

4.2. Sampling

To test the hypotheses, the quantitative data were collected through an online questionnaire. We preferred the online survey data collection method to reduce the risks of COVID-19 infection for participants and researchers. The target informants had to be top- and mid-level managers working in manufacturing SMEs, with a minimum of two years of experience in their respective firms. According to the Vietnamese SME Support Law No.04/2017/QH14, SMEs are classified as businesses with fewer than 250 employees and are further subdivided into the following categories:

i) micro-enterprises employing 1–9 people, ii) small businesses employing 10–49 people, iii) medium-sized businesses employing 50–249 people (Vietnamese Government, 2017).

In this study, a sampling frame was initially created using LinkedIn, the most popular and comprehensive professional networking platform (Mintz & Currim, 2013). Previously, researchers such as Nguyen et al. (2020) and Ouakouak & Ouedraogo (2017) have used their personal LinkedIn networks to collect the email addresses of target informants. While this method of hiring potential informants takes time and patience, it has many advantages: rapid recruitment, cost efficiency, researcher accessibility to potential informants, and the opportunity to produce a diverse sample (Stokes et al., 2019). LinkedIn allowed us to reach respondents from manufacturing SMEs located throughout Vietnam in the current study, which would not have been possible otherwise.

To minimize common method bias (Podsakoff et al., 2003), a two-wave survey was conducted. By concentrating on the back-translation approach, the questionnaire ensured language equivalence. It was initially written in English, translated into Vietnamese, and then retranslated into English by the bilingual authors. In Wave 1, the informants provided sociodemographic data, emails, and their perceptions of primary stakeholder pressure (PSP), secondary stakeholder pressure (SSP), and international orientation (IO). Each member of the list was sent an invitation email outlining the scope and objectives of the current study, along with instructions to access a specified link to the survey questionnaire if they wanted to participate. By emailing 11,194 LinkedIn users from our networks followed by a reminder email after two weeks, we received 2,584 completed responses. After excluding invalid responses from non-manufacturing firms, non-SMEs, and responses from low-level managers and employees or those with less than two years' work experience in their respective firms, we obtained 389 valid responses for Wave 1.

In Wave 2, other main variables—environmental commitment (EC) and product eco-innovation (PEI)—were collected four weeks later by sending an email with a survey link to respondents in Wave 1. A short interval between Waves 1 and 2 was chosen to minimize dropout and memory bias (Einarsen et al., 2009). The two waves of data were matched using a unique identifier assigned to each respondent. After Wave 2, a total of 255 Vietnamese manufacturing SMEs were included in the final sample, representing a response rate of 2.3%. This low response rate is understandable given the unfamiliarity with email survey responses in Vietnam and the limited number of target informants in our LinkedIn networks.

Given the organizational level of analysis, we cautiously searched the sample for potential duplicate responses from the same organization. No such instances were discovered during the scanning process. Additionally, while the response rate was low, a test based on the advice of Armstrong and Overton (1977) was conducted to estimate non-response bias. No major discrepancies in key measures concerning the first and fourth quartiles of responses were found after using independent t-tests, indicating no non-response bias.

4.3. Measurement scales

All the main constructs in the research model (Figure 1) were measured by the scale items used by previous studies. Specifically, primary stakeholder pressure (PSP) and secondary stakeholder pressure (SSP) were measured using formative scales, adapted from Shubham et al. (2018), with four items and two items, respectively. Environmental commitment (EC) was measured using a three-item scale adopted from Banerjee et al. (2003) and Chen et al. (2015). International orientation (IO) was assessed using a five-item scale adopted from Williams et al. (2020). We measured the dependent variable, eco-product innovation (PEI), with a four-item scale proposed

by Hojnik et al. (2018). Given that secondary sources of eco-innovation data are rarely available in Vietnam, we used subjective performance measure. Except for PSP, which has anchors ranging from one, "to a very low extent," to seven, "to a very large extent", all the remaining scales used anchors ranging from one, "strongly disagree," to seven, "strongly agree."

5. Analyses and results

5.1. Reliability and validity tests

Initial reliability and validity tests were conducted on the measurement model. As indicated in Table 2, all observed variables (except the items of formative constructs) have outer loadings between 0.76 and 0.88, greater than the cut-off value of 0.50 (Hulland, 1999). Each of the corresponding t-bootstrap values is significantly greater than 1.96 and falls within the statistical significance range of 15.16 to 55.18. The average variance extracted (AVE) values range from 0.69 to 0.74, all above the 0.50 threshold, suggesting adequate convergent validity. The composite reliabilities of the latent variables vary between 0.89 and 0.92, indicating an appropriate level of reliability (Kline, 2015).

Table 1. Scale evaluation

Constructs and their measures	Weight/ loading	*t*-value
Primary stakeholder pressure (Shubham et al., 2018) *		
Government/regulators put pressure on our company to pursue sustainable environmental practices	0.69	17.30
Customers/suppliers put pressure on our company to pursue sustainable environmental practices	0.74	15.63
There are pressures on our company from employees to embark on sustainable environmental practices	0.85	44.26
Competitors put pressure on our company to pursue sustainable environmental practices	0.77	15.48
Secondary stakeholder pressure (Shubham et al., 2018) *		
To what extent do the following stakeholders put pressure on your company to pursue sustainable environmental practices?		

Non-governmental organizations/activists	0.50	11.19
Media	0.62	13.18
Environmental commitment (Banerjee et al., 2003; Chen et al., 2015) (CR = 0.89; AVE = 0.74)		
The top management team in our firm is committed to environmental preservation	0.87	51.07
Our firm's environmental efforts receive full support from our top management.	0.86	47.45
Our firm's environmental strategies are driven by the top management team.	0.85	43.77
International orientation (Williams et al., 2020) (CR = 0.92; AVE = 0.69)		
Top management tends to see the world as our firms' marketplace	0.76	16.03
The prevailing organizational culture is conducive to active exploration of new business opportunities abroad	0.77	15.16
Management continuously communicates its mission to succeed in international markets	0.88	39.60
Top management is experienced in international business	0.88	43.30
Management communicates information regarding successful and unsuccessful customer experience abroad	0.87	38.21
Eco-product innovation (Hojnik et al., 2018) (CR = 0.92; AVE = 0.73)		
The company is improving and designing environmentally friendly packaging (e.g., fewer paper and plastic materials) for existing and new products.	0.87	54.56
The company chooses product materials that consume the least amount of energy and resources when conducting product development or design.	0.84	44.07
The company uses the smallest possible number of materials to create products when conducting product development or design.	0.86	55.18
The company deliberately evaluates whether the product is easy to recycle, reuse, and decompose when conducting the product development or design.	0.85	44.08

Notes: CR: Composite reliability, AVE: Average variance extracted; *: CR and AVE are not applicable for formative constructs.

The procedure proposed by Fornell and Larcker (1981) was used to assess discriminant validity. As seen in Table 2, the square root of the AVE of the focal constructs ranges from 0.83 to 0.86, which is significantly greater than all of the bootstrapped correlation coefficients. Additionally, no individual correlation coefficient (between 0.19 and 0.63) is greater than their respective composite reliabilities (between 0.89 and 0.92), whereas most correlation coefficients

are consistently less than the cut-off value of 0.70 (Tabachnick, Fidell, & Ullman 2007). Both results mean that the discriminant validity is satisfactory. In addition to Fornell and Larcker's (1981) procedure, we used the more rigorous Heterotrait–Montrait (HTMT) test (Henseler, Ringle, & Sarstedt, 2015) with HTMT values ranging between 0.22 and 0.74. Since these values are significantly less than 0.85, the evidence for discriminant validity is reinforced.

Table 2. Discriminant validity analysis

	1	2	3	4	5
1. Primary stakeholder pressure	**N/A**				
2. Secondary stakeholder pressure	0.44**	**N/A**			
3. Environmental commitment	0.54**	0.38**	**0.86**		
4. International orientation	0.33**	0.21**	0.19**	**0.83**	
	N/A	*N/A*	*0.22*		
5. Eco-product innovation	0.51**	0.40**	0.63**	0.29**	**0.85**
	N/A	*N/A*	*0.74*	*0.32*	

Notes: 1st value = Correlation between variables (off diagonal); 2nd value (italic) = HTMT ratio; Square root of average variance extracted (bold diagonal); *, **: Correlations are significant at the 5% and 1% levels respectively (2-tailed t-test); N/A: Square root of average variance extracted and HTMT ratios are not applicable for formative constructs.

5.2 Hypothesis testing

We used the partial least squares structural equation modeling (PLS-SEM) approach to analyze the proposed model and hypotheses. The sample size of 255 was sufficient since it exceeds by tenfold the maximum number of paths leading to any construct (Hair et al., 2017). Additionally, the full model's standardized root means the square residual value is 0.05, which is less than the 0.08 threshold (Henseler et al., 2016), demonstrating that the proposed model fits the data adequately.

To test the hypotheses, we established four hierarchical models in PLS-SEM. Model 1 was a direct relationship between PSP and PEI, while Model 2 was a direct relationship between SSP

and PEI. Model 3 depicts the effects of PSP and SSP on PEI, with EC serving as a mediating variable. Model 4 was an augmentation of Model 3 by including IO as a moderating variable in the EC - PEI relationship. Table 3 shows the indices used to determine the predictive power of the individual routes (b coefficients, t-values) and the adjusted R^2 for PEI. These indices were computed using 5,000 bootstrapping sampling times. The adjusted R^2 values for eco-product innovation in all four models were all greater than 0.10 (ranging from 0.37 to 0.65), which is the recommended level to suggest that the variance of the independent variable is sufficient (Falk & Miller, 1992).

H1a suggests that PSP positively influences EC. This hypothesis was confirmed as the path between PSP and EC was positive and significant (Model 3: b = 0.46, t-value = 9.30; Model 4: b = 0.46, t-value = 9.61). The analysis also found support for H1b, which postulates that SSP positively affects EC; the SSP-EC path was positive and statistically significant (Model 3: b = 0.18, t-value = 3.18; Model 4: b = 0.18, t-value = 3.14).

H2a and H2b assert that EC acts as a mediator between PSP and PEI, and SSP and PEI. These hypotheses were supported as there were significant reductions in the effect of PSP on PEI (b = 0.43, t-value = 8.84: Model 1; b = 0.15, t-value = 2.92: Model 3) and the effect of SSP on PEI (b = 0.33, t-value = 5.94: Model 1; b = 0.11, t-value = 2.01: Model 3) when EC was added as a mediator. Furthermore, the indirect effects of both PSP and SSP on PEI via EC were both significant (b = 0.22, t-value = 7.39; CI = [0.17; 0.28] for the PSP→EC→PEI path; b = 0.09, t-value = 3.02; CI = [0.03; 0.15] for the PSP→EC→PEI path), providing a support for H2a and H2b.

To test H3, which proposes that IO has a moderating effect on the EC-PEI relationship. An interaction term (i.e., IO×EC) was created to mitigate possible multicollinearity after mean centering the moderating variable (IO) and the independent variable (EC) (Aiken, West, & Reno,

1991). Model 4 in Table 3 demonstrates that IO had a positive moderating effect on the impact of EC on PEI (b = 0.26, t-value = 5.54), so H3 was supported.

Table 3. Hypothesis testing results

		Model 1	Model 2	Model 3 (with EC as the mediating variable)		Model 4 (with EC as the mediating variable and IO as the moderating variable)	
Dependent variable		PEI	PEI	EC	PEI	EC	PEI
	Independent variable						
H1a	PSP	0.43 (8.84)[c]		0.46 (9.30)[c]	0.15 (2.92)[c]	0.46 (9.61)[c]	0.09 (1.78)[a]
H1b	SSP		0.33 (5.94)[c]	0.18 (3.18)[c]	0.11 (2.01)[b]	0.18 (3.14)[c]	0.06 (1.36)
	EC				0.43 (9.18)[c]		0.49 (11.02)[c]
H3	IO×EC						0.26 (5.54)[c]
	Control variable						
	Firm size (assets)	0.35 (5.02)	0.39 (5.57)[c]		0.31 (5.43)[c]		0.30 (5.72)[c]
	Firm size (employees)	0.08 (1.20)	0.07 (0.92)		0.06 (1.01)		0.09 (1.58)
	Firm age	0.09 (2.01)[b]	0.08 (2.19)[b]		0.09 (2.73)[c]		0.07 (2.17)[b]
Adjusted R^2 of PEI		0.44	0.37		0.58		0.65
Indirect effect					Estimate	LLCI	ULCI
H2a	PSP→EC→PEI				0.22 (7.39)[c]	0.17	0.28
H2b	SSP→EC→PEI				0.09 (3.02)[c]	0.03	0.15

Notes: PSP: primary stakeholder pressure; SSP: secondary stakeholder pressure; EC: environmental commitment; PEI: eco-product innovation; IO×EC: interaction between IO and EC; numbers in brackets: *t*-values; [a], [b], [c] denote significance at 10%, 5%, and 1% levels respectively (two-tailed *t*-test).

5.3 Common method bias and multicollinearity issues

Given that the measurements of the different constructs were obtained using a self-reported and a key informant approach, despite the use of a two-wave survey, the possible issue of common

process variance had to be resolved (Podsakoff et al., 2003). The Harman single factor analysis revealed that no single factor explained the majority of variance (the first factor explained 40.45% of the 62.69% explained variance). Given the highly conservative nature of Harman's test for detecting biases (Malhotra et al., 2006), we have used the marker-variable procedure (Lindell & Whitney, 2001). The questionnaire item 'Would you like to visit Ha Long Bay during the national holiday this year?' was used as a marker variable. When the effects of rM are subtracted, the mean change in the correlations between the main constructs *(rU–rA)* is only 0.03. All the tests mentioned above indicate that common process bias does not arise in this study. Moreover, we tested for a potential multicollinearity issue. The maximum inner variance inflation (VIF) value is 2.31, significantly less than the "rule of thumb" of 10. As a result, multicollinearity is negligible in this study.

6. Discussion and conclusion

This study utilized insights from the stakeholder theory (Freeman, 1984; Freeman & McVea, 2001) to argue that increases in stakeholder green pressures are associated with increases in eco-product innovation through environmental commitment. In addition, we argued that SMEs' international orientation increases the effect of environmental commitment on eco-product innovation. We tested our research model using data from 255 SMEs operating in Vietnam, an emerging Asian economy. The results of the hypothesis testing show that both primary and secondary stakeholder pressure relates to environmental commitment. These findings provide support for H1a and H1b. In addition, we found that environmental commitment mediates the relationship between stakeholder pressure and eco-product innovation, thus, providing support for H2. Moreover, the results show that the effect of environmental commitment on eco-product innovation is amplified

when international orientation is greater. These findings provide several theoretical and practical implications for eco-innovation literature.

6.1 Theoretical contribution

This study contributes to the existing literature in four main ways. First, our findings extend our understanding of the role that stakeholders play in facilitating environmental commitment of SMEs in emerging markets. Although previous studies have examined the role of stakeholder pressure on environmental performance (e.g., Henriques & Sadorsky, 1999; Kassinis & Vafeas, 2006; Yu et al., 2017), these did not investigate the effect of stakeholders on SMEs' commitment to the environment. In contrast, our study hypothesized and tested the impact of primary and secondary stakeholder green pressures on SMEs' environmental commitment. In doing so, we complement existing environmental management studies (Cai & Li, 2018; Konadu et al., 2020) by proposing that stakeholder green pressures could help to facilitate SMEs' environmental commitment in an emerging market.

Second, our finding that stakeholder pressure facilitates eco-innovation through environmental commitment extends the eco-innovation literature by explaining the mediating mechanism of the relationship between stakeholder green pressures and eco-innovation. This is an important contribution because previous studies have assumed a direct impact of stakeholders on eco-innovation (e.g., Betts et al., 2015; Cai & Li, 2018). By showing the mediating role of environmental commitment, our study departs from previous studies that often assume a direct link between stakeholder green pressure and eco-innovation.

Third, our study enhances our understanding of the boundary conditions of the effects of environmental commitment. Although the effects of environmental commitment have been investigated in previous studies (Banerjee et al., 2003; Henriques & Sadorsky, 1999), agreement

on its influence has been inconclusive (Adomako, 2020). Thus, our study takes the first initiative to examine the moderating role of international orientation on the relationship between environmental commitment and eco-innovation. The finding in H3 indicates that SMEs' international orientation is one such boundary condition. This suggests that in the environmental management process, higher international orientation may improve the SMEs' commitment to engage in eco-innovation.

Finally, given that our sample comes from SMEs in an emerging country (Vietnam), our findings contribute to the stakeholder literature (Driessen & Hillebrand, 2013; Freeman et al., 2010; Kassinis & Vafeas, 2006) by showing that both primary and secondary stakeholder green pressure is beneficial not only for large firms from Western countries but also to SMEs in emerging markets. Stakeholder pressures have often been investigated in larger multinational companies (MNC) from developed economies where resources are not scant (Kawai, Strange, & Zucchella, 2018; Khojastehpour & Shams, 2020). Extant literature on the role of stakeholder pressures on SMEs' environmental commitment and eco-innovation is limited to SMEs operating in emerging markets. Thus, our study shows that stakeholder green pressures are critical for SMEs in emerging markets.

6.2 Practical contribution

This study has two practical implications. First, our findings that stakeholder pressure facilitates eco-innovation through environmental commitment is important for managers in emerging market SMEs such as Vietnam. The importance of this finding is that managers can be guided by stakeholders to improve environmental innovation. In doing so, managers can devise environmental strategies that improve societal wellbeing. Second, the finding that international orientation significantly improves the effect of environmental commitment on eco-innovation is

crucial for managers engaged in cross-border activities. For example, managers of emerging market international SMEs could boost their firms' environmental footprint when their international orientation is greater. SMEs operating in emerging market contexts are more likely to invest in green innovation when international orientation is high. In other words, international orientation should boost SMEs' commitment to pursue eco-innovation activities. Overall, the significance of the research topic and the context of the study can extend our understanding and provide guidance for managers in Vietnam, as well as across other emerging economies.

7. Limitations and future research

Our study has some limitations, which open up possibilities for future research. First, even though we collected data with a one-month time lag between the independent and moderating variables (PSP, SSP, and IO) and the mediating and dependent variables (EC and PEI), we were unable to make causal claims due to our inability to handle variables or use randomly assigned techniques. Future studies may circumvent this constraint by using an experimental design or a longitudinal method with a minimum of a one-year time lag between data collection on the study variables. Second, this study examined manufacturing SMEs in Vietnam. As a result, the study's findings are constrained in generalizability, and extrapolating the findings to other countries should be done with caution. Thus, future research into our proposed model in advanced economies is encouraged. Third, we sampled manufacturing SMEs without regard to their environmental impact classifications. Given that activities in some industry classifications (e.g., cement, pesticides, and ceramic/refractoriness) can have higher levels of environmental effect (e.g., higher emission/ pollution index) than others. Thus, future studies should take the environmental impact classifications into account.

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