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Stakeholder Green Pressure and New Product Performance in Emerging Countries: A Cross-country Study

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Despite the burgeoning literature on stakeholder green pressure, research is scarce on how it influences eco-product innovation and new product performance. This article examines stakeholder green pressures as antecedents of eco-product innovation and new product performance in firms operating in resource-constrained countries. Using data gathered from surveys in Vietnam (N = 183) and Ghana (N = 217), we find that the positive effects of stakeholder green pressures on new product performance are serially mediated by environmental sustainability orientation and eco-product innovation. Our findings contribute to ongoing efforts to clarify the mechanisms channelling stakeholder pressures into new product performance in resource-constrained environments.

Introduction

Eco-innovations, which are broadly conceptually similar to environmental, sustainable or green innovations (Díaz-García, González-Moreno and Sáez-Martínez, 2015), consist of a variety of innovation types that can be implemented to avoid or reduce harm (De Marchi, 2012). Eco-innovation is critically important to achieving sustainability improvements. For example, it is identified in the Lisbon strategy goals for competitiveness and economic growth as a key contributing factor for sustainable development (Rodriguez, Warmerdam and Triomphe, 2010). Companies across the developed world are incentivised to adopt eco-innovation practices, as a result of growing stakeholder greening pressures (Arranz, Arguello and de Arroyabe, 2021). Yet, the factors that influence firm adoption and the subsequent effect on performance are less understood in a developing country context. Product and process eco-innovations[1] have the greatest direct impact on environmental efficiency (Mavi and Mavi, 2021). Our study focuses on eco-product innovation, as we aim to examine its relationship to new product performance. Whilst other dimensions may also influence product performance, their relationship would be less direct. Eco-product innovations include improvements to product recyclability (Bammens and Hünermund, 2020) and the substitution of virgin inputs with recycled ones (Sarkar and Pansera, 2017). For firms, they present increased opportunities to decrease overall environmental impact and offer the potential to reduce costs and enter new markets, thereby enabling them to respond to stakeholder pressures while improving performance (Tatoglu *et al.*, 2020). Eco-product innovation presents complex challenges, requiring specialist knowledge, sustained motivation, resource endowment (human, financial,

[1]For classifications see Kemp and Andersen (2004).

technological) and increased stakeholder engagement (Watson *et al.*, 2018).

Research conducted across 18 emerging and developed countries identified that half of consumers consider themselves environmentalists (e.g. reduce waste, save energy and purchase sustainable products) (see National Geographic, 2014; Paparoidamis *et al.*, 2019). Extant studies in developing countries confirm the growing importance of eco-products (Fernández, Torrecillas and Labra, 2021; Sanni, 2018). Yet, the challenges that eco-product innovation presents are heightened for domestic firms operating in low- and middle-income developing countries, and these firms remain under-researched in comparison to multinationals and firms operating in developed countries (Cunha *et al.*, 2014; Jamali and Karam, 2018). Additional problems are presented by a scarcity of internal resources with which to innovate (e.g. skilled personnel, financial resources and equipment) (Amankwah-Amoah, Danso and Adomako, 2019), the low munificence of firms' business environments (Konadu *et al.*, 2020), and the priority of social sustainability concerns over environmental sustainability (Idemudia, 2017). Despite these challenges, recent studies indicate a growth in eco-product innovation (Sarkar and Pansera, 2017), even in subsistence markets (Steinfield and Holt, 2019). The literature on innovation in resource-poor environments identifies strategies such as: (i) bricolage – the reconfiguration of existing resources; (ii) frugal innovation – the development of user-friendly, low-cost technologies (Sharma and Iyer, 2012); and (iii) bootstrapping – reliance on fewer resources, sharing, and acquiring unused resources (Jayawarna, Jones and Macpherson, 2020). However, our understanding of why and under what circumstances stakeholder pressures translate into eco-innovation and how such innovations yield superior product performance in developing countries is fragmented. Concerns over high product failure rates, estimated to be approximately 75%, have consistently been highlighted (Castellion and Markham, 2012). It has been suggested that this challenge is heightened in developing countries (Dubiel and Ernst, 2013). Whilst eco-innovation has been linked to improvements in performance in developed countries, its influence is poorly understood in a developing country context. Furthermore, studies often overlook the mediating processes between innovation triggers and performance, and this calls for research to identify the underlying mechanisms boosting new product performance (Acar, Tarakci and van Knippenberg, 2019). Hence, there is a need to better understand the relationships between stakeholder greening pressures, eco-product innovation, and their effects on performance across different contexts (He *et al.*, 2018; Rueda-Manzanares, Aragón-Correa and Sharma, 2008).

Drawing on stakeholder theory and innovation constraints perspectives, we aim to address these gaps. We argue that within resource-constrained and institutionally challenging environments, stakeholder greening pressures provide the level of innovation constraints (neither too high, nor too low) required to direct firms towards eco-innovation. We look at both input (resource availability, e.g. financial, human, material) and output (normative, e.g. regulation, enforcement, standards and product specifications) constraints, and at how the moderate constraints elicited by stakeholder pressures indirectly steer innovation.

In developing countries, stakeholder greening pressures are an antecedent of environmental sustainability orientation (ESO), which reflects a firm's proactive stance towards: '*the integration of environmental concerns and practices into their strategic, tactical and operational activities*' (Roxas and Coetzer, 2012, p. 464). In turn, ESO has a positive impact on eco-innovation (Calic and Mosakowski, 2016) and firms' overall corporate performance (Adomako *et al.*, 2019; Danso *et al.*, 2020). Thus, stakeholder pressures influence ESO, ESO influences eco-innovation, and in turn eco-innovation subsequently influences product performance. This suggests mediating roles for ESO and eco-innovation. Building on these studies, we propose that ESO forms the connection between stakeholder greening pressures, eco-product innovation and product performance, because it provides the mechanisms to translate pressures into products that stakeholders expect and are willing to support. Our empirical research is conducted with lagged two-respondent surveys in two middle-income countries (Ghana and Vietnam) that are regional leaders in green growth policies with a focus on the exploration of green products (Mealy and Teytelboym, 2020).

The findings of our study contribute to the development of new theory on eco-innovation in developing countries, and respond to calls made by He *et al.* (2018) and Diaz-Garcia *et al.* (2015). We find that stakeholder greening pressures have

a positive indirect effect on firm-level new product performance, which is serially mediated by ESO and eco-product innovation. Drawing on insights from resource constraints and their influence on firm innovation, our findings illustrate how stakeholder pressures link to new product performance and are mediated by ESO and eco-innovation. In the context of the African continent, this showcases the potential presented by eco-innovation and expands on the work of Sanni (2018), who provided initial insights into factors influencing eco-innovation but did not demonstrate how this influenced product performance. Our second contribution is to the broader literature on ESO and performance. Building on Claudy, Peterson and Pagell. (2016), we propose that, in a context of low environmental munificence, the existence of greening stakeholder pressures steers domestic firms to develop an ESO. This strategic orientation towards environmental protection as a potential source of advantages creates the knowledge, commitment and relationships required to implement cognitive, motivational and social mechanisms towards resource-constrained eco-innovation. In turn, this leads to improved new product performance. Our findings provide support for the model in both of the countries studied and help to address the need to develop '*models that incorporate omitted variables, test mediating mechanisms and contextual conditions*' (Surroca, Tribó and Waddock, 2010, p. 463). Overall, we provide a more nuanced perspective on the relationships between the constructs studied. The next section articulates our hypotheses, and is followed by a description of methods, the results, and a discussion and conclusion.

Innovation constraints and stakeholder pressures

Research has identified the critical influence of input and output constraints on innovation performance (Acar, Tarakci and van Knippenberg, 2019). In terms of input constraints, one stream of studies, drawing on the resource-based view, argues that resource munificence enhances innovation performance, whilst a scarcity of resources has the opposite influence (Konadu *et al.*, 2020; Weiss, Hoegl and Gibbert, 2011). Conversely, a second stream contends that resource munificence makes firms complacent and stifles innovation, while scarcity motivates them to innovate with what they have at hand (Amankwah-Amoah, Danso and Adomako, 2019; Boso *et al.*, 2017). In terms of output constraints, it has been argued that a lack of regulation and standards hinders innovation, because it is easier to follow the path of less effort, whilst other authors suggest that a lack of regulation and standards favours innovation because '*standards promote consistency, uniformity, and reduction in variety, whereas creativity and innovation necessitate differentiation, novelty, and variation*' (Gilson *et al.*, 2005, p. 522).

In a systematic review, Acar, Tarakci and van Knippenberg (2019) reconciled these seemingly opposing views, identifying an inverted U-shaped relation between constraints and innovation. Whilst moderate levels of constraints trigger the cognitive, motivational and social mechanisms that facilitate innovation, where constraints are either too low or too high, innovation is suppressed. Motivational mechanisms include the framing of constraints as opportunities and the incentive to make the most of what is available. Cognitive mechanisms involve knowledge of how to access, search for, transform and re-configure scarce resources. Finally, social mechanisms relate to both internal and stakeholder interactions to maximise efficiency and effectiveness in the use of resources. While Acar, Tarakci and van Knippenberg (2019) explored some boundary conditions for these mechanisms, they called for research to expand the theory with insights from other perspectives.

Stakeholder theory highlights the crucial influence of stakeholder pressures in both constraining and enabling firms' activities (Kock, Santaló and Diestre, 2012; Mitchell *et al.*, 2016). Firms rely on relationships with certain stakeholders to acquire critical resources (Mitchell, Lee and Agle, 2017; Tang and Tang, 2018). Goodwill and access to resources are maximised when managers respond to stakeholders' often diverging goals (Hill and Jones, 1992). However, firms do not necessarily respond to their stakeholder claims with changes in practices (Crilly, Hansen and Zollo, 2016; Shevchenko, Lévesque and Pagell, 2016), particularly where there is a lower perceived risk or cost of not doing so (Shi, Connelly and Hoskisson, 2017). Thus, a firm's inclination to innovate depends on their assessment of the risks and costs of the response required versus ignoring or offsetting

claims (Shevchenko, Lévesque and Pagell, 2016). Notably, within resource-constrained environments, the risk of ignoring stakeholder claims can be greater, owing to fewer alternatives to substitute the resources necessary for survival (Pansera and Owen, 2015; Zeschky, Widenmayer and Gassmann, 2011). Hence, the risks of not innovating in response may be greater.

We theorise that in resource-constrained environments with institutional weaknesses, the existence of stakeholder green pressures provides the level of constraints (neither too high, nor too low) required to steer firms towards eco-innovation. Stakeholder pressures provide the output constraints required to stimulate the reduction of polluting activities, such as specifications (regulations, standards) that delineate what the product should (not) contain or do. On the other hand, weak enforcement of environmental regulations is typical in developing countries (Le Van, Viet Nguyen and Nguyen, 2019; Nguyen, Mickiewicz and Du, 2018). This contributes to innovation by preventing output constraints from being too rigid. With respect to input constraints, the context of low environmental munificence provides the constraints that stimulate innovation (Cunha *et al.*, 2014), whilst stakeholder pressures are needed to prevent such constraints from being too great. These pressures can also lead to opportunities to ameliorate resource scarcity, for example through subsidies, access to partnerships and technologies, and market opportunities (Goodman, Korsunova and Halme, 2017). Thus, increased pressures will be positively related to eco-product innovation. In turn, eco-product innovation will be positively related to new product performance, as a result of stakeholders' positive response to innovations satisfying their wants (Freeman *et al.*, 2010; Mitchell, Lee and Agle, 2017).

We propose that the positive effect of stakeholder pressures on innovation and performance is first channelled through the development of the firm's ESO. This orientation provides the resources needed to succeed in the implementation of motivational, cognitive and social routes towards eco-product innovation. ESO and eco-innovation are both influenced by stakeholder pressures; hence, we study these constructs as mediating variables. The following sections expand on this.

Hypothesis development

Stakeholder green pressure and ESO

Julian and Ofori-Dankwa (2013) argued that, in a context of weak governance and low resource munificence, firms will focus on financial survival; even where financial slack exists, they will often stick to their core business and economise in areas in which they are *'not […] under a great deal of pressure to expand'* (p. 1317). In the presence of low or inconsistent pressures from government and society, firms will not feel constrained to make products that harm the environment, and will have little awareness of potential benefits or resources to be gained. Thus, corporate social responsibility activities, such as environmental protection, will not be seen as strategic (Julian and Ofori-Dankwa, 2013). Accordingly, firms' ESO will be weak or non-existent. As stakeholder pro-environmental pressures increase, firms face increasing output constraints (regulations, standards and customer expectations) for practices and products, but also have opportunities to reduce input constraints (e.g. through subsidies and access to donor funding earmarked for greening the economy), and consequently this increases the centrality and embeddedness of green issues (Longoni and Cagliano, 2018).

Increasing pro-environmental pressures will result in greater firm endeavours to demonstrate commitment (Liston-Heyes and Vazquez-Brust, 2016), and will offer them an opportunity to differentiate from informal economic competitors, especially when green pressures come from local communities and customary stakeholders. Strong and sustained pressures will result in green practices and commitment being routinised, with a commitment to sustainability becoming an integral part of the business model, percolating strategy and operations (Jabbour *et al.*, 2020; Nason, Bacq and Gras, 2018). Specifically, increased pressures will result in enhanced ESO because the strategic centrality of environmental protection will increase as companies develop awareness of the output constraints and resource opportunities concomitant to such pressures. Ghana and Vietnam are medium-low-income countries currently implementing policies that aim to grow the economy through investment in the green sector. These policies typically combine increased output

constraints with opportunities to reduce input constraints.

Stakeholder theory suggests that, when managers observe that a variety of stakeholders agree on the salience of environmental issues, their expectations (or output constraints) become a reference for environmental performance (Nason, Bacq and Gras, 2018). Increased pressures result in greater efforts to integrate environmental concerns and practices into strategic, tactical and operational activities. Accordingly, firms develop internal knowledge and capabilities to better understand and respond to their increased output constraints (Delgado-Ceballos *et al.*, 2012). Simultaneously, firms tap into the resources that accompany these pressures and the goodwill endowed by communities through appeasing expectations. In West Africa, 60% of green products are funded with capital provided by extended family, friends and crowdsourcing, with firms subsequently communicating this in corporate reports and on webpages (Durand, Hawn and Ioannou, 2019). For domestic firms in developing countries, the importance of responsiveness to pressures is heightened further. Responding to and anticipating stakeholder pressures is a survival strategy owing to the distinctively hostile institutional environment in which they operate (Abubakar *et al.*, 2019), alongside a reliance on goodwill to navigate weak institutions and cyclical crises (Amaeshi, Adegbite and Rajwani, 2016).

Thus, we argue that domestic firms not only will be responsive to stakeholders' expectations in terms of environmental protection but also will be proactive in the identification of opportunities to access resources untapped by growing social commitment to environmental protection. Greater pressures will result in an increased proactive strategic stance towards the integration of environmental concerns and practices into firms' strategic, tactical and operational activities. Accordingly, our first hypothesis is:

H1: Stakeholder green pressure is positively related to environmental sustainability orientation.

ESO and eco-product innovation

We argue that in developing countries, an ESO will result in increased eco-product innovation. Financial, legal and labour market institutions are weak, and stock of production factors (capital, labour) is scarce (Julian and Ofori-Dankwa, 2013). Both efficiency and effectiveness in the management of scarce resources to achieve organisational objectives are paramount for survival (Sarkar and Pansera, 2017; Weiss, Hoegl and Gibbert, 2011). The knowledge, resources and capabilities created through ESO facilitate access to, search for and transformation of scarce resources for eco-product development (Claudy, Peterson and Pagell., 2016). ESO is a strategic orientation that underpins and intertwines cognitive, motivational and social mechanisms or routes for the translation of output and input constraints into eco-innovation. In the motivational route, product development is heavily reliant on a mindset that motivates the framing of output constraints as opportunities to reduce input constraints through innovation (Acar, Tarakci and van Knippenberg, 2019). In developing countries, new product initiatives are frequently adopted as a result of recognising opportunities to anticipate regulatory changes (Amankwah-Amoah, Danso and Adomako, 2019), or save costs (Sharma and Iyer, 2012; Steinfield and Holt, 2019). The commitment to environmental protection embedded in ESO underpins the perception of environmental constraints as eco-product innovation opportunities (Amankwah-Amoah, Danso and Adomako, 2019) and motivates the pursuit of the opportunities this creates for competitive advantage (Walls, Phan and Berrone, 2011). Firms with ESO will be motivated to exploit market opportunities for eco-products developed with bricolage and bootstrapping (Johnstone, Haščič and Popp, 2010) or to save costs while reducing natural resource use through frugal innovation. For instance, the development of products with remanufactured parts or recycled materials responds to pressures to reduce waste, while offering opportunities to reduce costs and pass savings to customers (Sharma and Iyer, 2012).

In the cognitive route, firms with an ESO have a greater emphasis on both knowing and understanding stakeholders' environmental expectations, which are placed at the centre of their activities (Luo and Bhattacharya, 2006). ESO also underpins the social route. Firms with a stronger ESO implement a range of environmental practices that develop social interactions within the company (e.g. green teamwork) and stakeholders (green partnerships). These aid in capturing green technological opportunities. For instance, Jekora is a small waste management company in Accra.

They noticed growing environmental concerns in large customers and in response reconfigured their strategic orientation into an ESO that features centrally in their advertising and branding. Jekora was the first company to offer the segregated collection of waste and recycling in Accra. Despite higher costs, the company built a portfolio of environmentally minded clients, engaging in regular contact to facilitate recycling, offering discounts for quality of segregation, and actively providing evidence that the waste had been recycled and helped customers to contribute to the UN Sustainable Development Goals[2]. Clients included local authorities, schools, hospitality companies and food companies. Consequently, Jekora used its knowledge of organic recycling and linkages with organisations providing technology, such as the International Water Management Institute, to develop two new products[3]. JVC compost is a rich organic soil made from organic restaurant waste. Fortifier[4] is a more daring product, utilising a mixture of human and organic waste to exploit the need for an affordable nitrogen-rich fertiliser. The firm raised capital from both local authorities and the food and agriculture sector. They further innovated by using demonstration plots where farmers (conservative and distrustful of the new product) could themselves observe the difference made by the fertiliser (Jekora, 2019).

In Vietnam, TH Group is a pioneer in utilising environmentally friendly consumer materials for its products, for example making straws from plant-based materials.[5] Driven by a combination of high customer demand for organic products and agriculture and external pressures from the requirements for more sustainable manufacturing, the company developed an eco-friendly strategic orientation with the aim of creating a circle from eco-production to eco-consumption. For example, traditional plastic bags were replaced by ones made from bio-plastics. The firm increased resources to reducing plastic waste by joining with eight other leading businesses to form Packaging Recovery Organisation (PRO Vietnam) to recycle 100% of the packaging of the products that have been marketed. Each case illustrates how ESO supports eco-innovation by facilitating the task of searching broadly for resources to eco-innovate across different domains and making connections between them. In summary, ESO provides cognitive, motivational and social routes for domestic firms to eco-innovate under resource constraints. Hence:

H2: Environmental sustainability orientation is positively related to eco-product innovation.

Eco-product innovation and new product performance

Whilst eco-product innovation is concerned with the activities involved in the production and exploitation of a novel product that results in a reduced environmental impact (Kemp and Pearson, 2007), new product performance relates to the extent to which a firm's new products accomplish its business objectives (Atuahene-Gima, Slater and Olson, 2005; Im and Workman, 2004). Eco-innovation thus incorporates pro-environmental decision-making within a firm's product development activities, with respect to environmentally sustainable packaging and materials, and evaluations conducted to improve recyclability, reuse and decomposability (see Chen, 2008 and measures in Table 1). In contrast, new product performance concerns the relative business performance of the products subsequent to their launch by the firm. Hence, in brief, this addresses the extent to which product development objectives are met, and their revenue, sales and profitability performance relative to business objectives (see Atuahene-Gima, Slater and Olson, 2005 and measures in Table 1).

Several studies have linked eco-innovation to firm performance (De Mendonca and Zhou, 2019; Doran and Ryan, 2016). Eco-innovation offers a number of potential benefits, including improvements in production efficiency and cost, increased quality, opportunities for new marketing, access to new markets, government support and access to subsidies and tax rebates, price premiums, and the potential to gain a competitive advantage (Cheng, Yang and Sheu, 2014; Kesidou and Demirel, 2012). Eco-product innovation often improves both environmental performance and product functionality (Coad and Pritchard, 2017).

[2]https://jekoraventures.com/2018/12/05/the-accra-sdgs-investment-fair/ Accessed 20/03/2019.
[3]https://www.youtube.com/watch?v=hYqE_fwqEzQ Accessed 02/01/2020.
[4]https://jekoraventures.com/fortifer-compost/ Accessed 20/09/2020.
[5]https://www.thmilk.vn/en/tien-phong-group-applied-solutions-of-raw-material-consumption-raw-materials/ Accessed 27/03/2021.

Table 1. Measures and results of validity tests of multi-item constructs

Measurement items	Standardized loadings (t-values) Vietnam	Ghana
Stakeholder green pressure : *α = 0.79; CR =0.080; AVE = 0.60; HSV = 0.17 / α = 0.86; CR = 0.87; AVE = 0.68; HSV = 0.19*		
Please rate the extent to which your company experiences pressures from the following stakeholders to take action on your sustainability activities		
Government/ regulators	0.82 (1.00)	0.87 (1.00)
Customers/suppliers	0.87 (17.97)	0.88 (27.17)
Competitors	0.94 (20.34)	0.87 (26.51)
Employees	0.85 (16.10)	0.89(28.06)
Local community	0.84(16.04)	0.80(16.32)
Non-governmental organisations/activists	0.88 (10.55)	0.83 (17.49)
Media	0.76 (10.17)	0.81 (16.99)
Environmental Sustainability Orientation		
Please rate the extent to which your company takes action on the following sustainability activities		
Knowledge: α = 0.86; CR = 0.87; AVE = 0.57; HSV = 0.06/ α = 0.80; CR = 0.81; AVE = 0.55; HSV = 0.09		
We are knowledgeable about climate change	0.72 (1.00)	0.88(1.00)
We know about waste management issues in the city	0.78 (10.17)	0.75 (15.86)
We are knowledgeable on issues about sources of drinking water	0.75 (10.09)	0.86 (18.66)
We are knowledgeable about issues concerning sources of electricity	0.88(12.43)	0.89(19.23)
We are knowledgeable about environmental protection programs	0.90(14.34)	0.93(21.32
Practices: α = 0.90; CR = 0.92; AVE = 0.67; HSV = 0.10/ α = 0.85; CR = 0.86; AVE = 0.63; HSV = 0.05		
We practice recycling of wastes	0.83 (1.00)	0.89(1.00)
We practice water and electricity conservation	0.67 (8.19)	0.75 (15.78)
We offer training to our employees on environmental awareness	0.84 (11.79)	0.87 (18.15)
We participate in environmental programs	0.76 (10.56)	0.78 (16.93)
We practice low impact manufacturing technology	0.89(13.29)	0.77(15.22)
We communicate with customers/buyers on sustainability issues	0.90(14.45)	0.89(18.99)
We deal with environment-friendly suppliers	0.92(16.19)	0.90(19.32)
Sustainability is an integral part of our business plans and operations	0.95(17.38)	0.92(20.69)
Commitment: α = 0.88; CR = 0.89; AVE = 0.72; HSV = 0.08/ α = 0.83; CR = 0.84; AVE = 0.68; HSV = 0.11		
Environmental protection is part of business	0.89(1.00)	0.93(1.00)
Committing to environmental sustainability is good for my business	0.87(18.34)	0.74 (14.86)
Our commitment to environmental allows us to gain more customers	0.89(.19.21)	0.65 (13.31)
We are proud to do environment-friendly business in the local community	0.78(15.32)	0.89 (18.55)
Eco-Product Innovation: *α = 0.80; CR = 0.81; AVE = 0.61; HSV = 0.07/ α = 0.86; CR = 0.86; AVE = 0.59; HSV = 0.04*		
Please rate the extent to which you agree or disagree with the following statements:		
The company is improving and designing environmentally friendly packaging for existing and new products	0.90(1.00)	0.78(1.00)
The company chooses materials for the product that consume the least amount of energy and resources for conducting the product development or design	0.88(18.99)	0.94 (28.17)
The company uses the smallest possible amount of materials to create the product for conducting the product development or design	0.90(19.76)	0.90 (26.63)
The company deliberately evaluates whether the product is easy to recycle, reuse and decompose for conducting the product development or design	0.95(22.48)	0.87 (24.20)
New product performance *: α = 0.82; CR = 0.82; AVE = 0.60; HSV = 0.12/ α = 0.79; CR = 0.80; AVE = 0.58; HSV = 0.14*		
The extent to which your company has achieved its product development objectives in terms of the following in the last three years:		
Revenues from new products compared with business objectives	0.75 (1.00)	0.88(1.00)
Growth in revenue from new products compared with business objectives	0.85(17.16)	0.82 (16.67)
Growth in sales of new products compared with business objectives	0.88(18.99)	0.83 (17.28)
Profitability of new products compared with business objectives	0.79(16.34)	0.85(18.23)

Note: AVE, average variance extracted; CR, composite reliability; HSV, highest shared variance; α, Cronbach alpha value; t-values in parentheses.

Hence, it is linked to a number of the factors that underpin product innovation success, such as price and the meeting of customer needs (Evanschitzky *et al.*, 2012). Empirical insights into the influence of eco-product innovation on product performance are limited, but suggest the potential for improvements (Du, Yalcinkaya and Bstieler, 2016; Nidumolu, Prahalad and Rangaswami, 2009). Within a developing market context, it has been argued that environmental performance has a lower influence on purchasing decisions (Khanna and Palepu, 2006, 2010). However, insights from studies of environmental sustainability in resource-poor communities suggest growing opportunities for low-cost eco-product innovation (Pansera and Owen, 2015; Sarkar and Pansera, 2017).

Beyond the opportunities of environmental products, the new resources created can contribute to improved product competitiveness, enabling improved competitiveness in both domestic and global supply chains (Giuliani, Pietrobelli and Rabellotti, 2005). Environmentally friendly processes and products that are more resource-efficient reduce costs through decreased raw material and energy consumption (Sarkar and Pansera, 2017). Frugal innovation and low-capital-intensive technologies, such as reverse logistics and the replacement of products by services (e.g. providing product refills), can substantially reduce costs and improve margins (Sanni, 2018; Sharma and Iyer, 2012). Moreover, bootstrapping and reconfiguration of resources for eco-innovation improves market understanding (Carrillo-Hermosilla, del González and Könnölä, 2009), which is critical for product success (Story, Boso and Cadogan, 2015; Wong and Tong, 2012). Thus, we suggest that:

H3: Eco-product innovation is positively related to new product performance.

Stakeholder green pressures, ESO, eco-product innovation and new product performance

The prior discussions set up the linkages between stakeholder environmental pressures and ESO, between ESO and eco-product innovation, and between eco-product innovation and new product performance. By providing organisations with the knowledge, motivation, practices and social linkages needed to address greening stakeholder pressures (Roxas, Ashill and Chadee, 2017), ESO is responsible for translating the effects of stakeholder pressures into eco-product innovation, which leads to improved new product performance. In Jekora, the increased commitment of local authorities and large companies with environmental protection resulted in moderate pressures on waste companies to reduce incineration and landfill. These slowly growing output constraints motivated Jekora's CEO to explore greener alternatives, with the aim of attracting environmentally committed clients. Knowledge was gathered to understand: (a) Jekora's resources for greening activities, and (b) the expectations and resources of its stakeholders. As a result, Jekora became more aware of the strategic potential of possessing a proactive stance in relation to environmental issues. Next, it integrated green concerns in its core operations and strategy, re-engineering itself as a waste management *and* resource recovery company[6].

Similarly, TH Group responded to early signals of green concerns, placing the environment as one of its central values, and green production has since been at the centre of its strategy. Over the years, TH Group has grown and come up with many solutions, initiatives, and green and circular production models to carry out environmental protection activities. Its products are greener but also competitive because it has successfully and incessantly innovated to improve resource efficiency. It reduced costs and emissions with solar farmland and electricity from bagasse (sugarcane pulp), sludge and waste gas from the production process. In partnership with local farmers, it developed sustainable practices to protect the environment and received subsidies from policymakers supportive of its efforts towards building modern, green and clean agriculture.[7]

In both companies, the translation of stakeholder concerns into a strategic orientation developed motivational, cognitive and relational mechanisms that together allowed continual innovation. Subsequently, their new offerings became successful because they were tailored to satisfy not only

[6]https://www.youtube.com/watch?v=KDA3WFeG7GI Accessed 23/06/2019.
[7]https://thgroupglobal.com/storage/attachment/6f93jIyyqy7YCPzbNzsqLb59tkQ4HrbbehJtM5j8.pdf Accessed 01/06/2021.

stakeholder requirements but also the availability of resources or the role of resource gatekeepers.[8,9]

Accordingly, we argue that when a company develops an ESO, this orientation can provide the commitment, knowledge and relationships needed to address stakeholder concerns and provide reputational improvements. However, without converting ESO into eco-products, the firm's products will not fully capture the opportunities that exist. On the other hand, where a firm attempts to eco-innovate but this is not underpinned by an ESO, the firm will not benefit from the ESO-derived knowledge, practices and social linkages, and thus improvements in product performance will not be as great. In sum, ESO and eco-product innovation are central mechanisms that indirectly and sequentially channel the influence of stakeholder environmental pressures into new product performance. Thus, we propose a serial mediation of ESO and eco-product innovation:

H4: Environmental sustainability orientation and eco-product innovation serially mediate the relationship between stakeholder green pressure and new product performance.

Method

Sample and data collection

The data for this research were collected from Vietnam, an emerging Southeast Asian economy, and Ghana, an emerging economy in sub-Saharan Africa. Both countries provide a suitable setting to test our hypotheses, owing to the growing but still moderate environmental pressures (Amankwah-Amoah, Danso and Adomako, 2019; Phuong, Biesbroek and Wals, 2018) and rising levels of eco-product innovation (Fu, Mohnen and Zanello, 2018; Le Van, Viet Nguyen and Nguyen, 2019). According to the World Bank (2020a,b), Ghana and Vietnam's development in the last decades has been remarkable, transforming the countries from two of the world's poorest in the 1970s to lower-middle-income economies in 2011. With rapid economic growth, above average in their regions, a set of unique challenges in climate change and environmental issues have required both countries to take more drastic actions to ensure a green and sustainable growth (World Bank, 2020a,b). Appendix 1 provides additional supporting details, showing how stakeholder greening pressures are helping to increase output constraints and decrease input constraints. In addition, the two countries have similar levels of environmental impacts, with Ghana ranked immediately after Vietnam in terms of ecological deficit (the difference between the environmental resources renewed and used in a given year).[10]

To select samples in both studies, we used the following sampling criteria: first, domestic firms that were not affiliated to any subsidiary or group; second, firms that were manufacturers of physical products. Structured questionnaires were divided into two parts, each addressed to a different respondent, to measure the constructs of interest. Part One measured stakeholder pressures, eco-innovation, ESO and other control variables. Part Two measured new product performance. We followed Story, Boso and Cadogan (2015) and carried out the surveys in two waves (T1 and T2), with a time lag of one year between them. In the first wave (T1), which was completed by CEOs, the questionnaire was either mailed or delivered in person. In the second wave (T2), the individuals responsible for financial/budget affairs (CFOs) were approached in person to complete the questionnaire. To verify the sources of the data, we randomly contacted 30 of the respondents. We did not find any anomalies. Data collection procedures varied slightly in the two countries because each presented specific opportunities and challenges (Story, Boso and Cadogan., 2015).[11]

In Vietnam, firms were located through students in six universities (two in Northern, two in Central, and two in Southern Vietnam) because private organisations were unwilling to share company information with unfamiliar individuals. Student networks were used to identify the CEOs of domestic companies. We contacted 705 firms, of which 236 agreed to participate. We excluded 53 cases owing to missing values, because the CEO and CFO were the same person, or because we did not receive a response to Part Two. Our final sample size for

[8]https://jekoraventures.com/2018/12/05/the-accra-sdgs-investment-fair/ Accessed 12/08/2021.
[9]https://www.youtube.com/watch?v=hYqE_fwqEzQ Accessed 17/05/2019.

[10]https://worldpopulationreview.com/country-rankings/ecological-footprint-by-country Accessed 20/09/2020.
[11]The questionnaire was piloted in the UK previous to its implementation in Ghana and Vietnam and examined by local experts in these countries.

analysis was 183 matched pairs of Part One and Part Two (26% response rate). The sample is geographically representative for the three regions in Vietnam, with 57 (31.14%) companies in Northern Vietnam, 62 (33.87%) in Central Vietnam, and 64 (34.97%) in Southern Vietnam. All the companies were manufacturers; 58% were high tech and 42% low tech. The average size was 17 employees, and the average company age was nine years.

In Ghana, the Association of Ghana Industry's listings (1500 firms as of June 2018) were used to identify 700 companies. The sampling procedure was the same as for Vietnam. We designed the questionnaire in two parts. Part One captured stakeholder pressures, eco-innovation, ESO and other control variables. Part Two measured new product performance. Before data collection, we contacted the CEOs of the selected companies via telephone, and 269 firms agreed to participate. The questionnaires were administered in person by visiting the head office of each company. During the visit, the time for collecting the completed questionnaire was agreed. Later, we returned to each company to collect the completed questionnaire. After removing cases with missing values and cases where the CFO and CEO were the same person, 217 matched responses to Part One and Part Two were retained for final analyses (31% overall response rate). Overall, 30% of firms were high tech and 70% low tech, the average size was 18 employees, and the average age six years.

Measures

Unless otherwise noted, we used a 7-point Likert scale to capture our multi-item measures. Table 1 provides measurement items and loadings.

Stakeholder pressure. We define stakeholder green pressure as the general external pressure exerted by environmental regulations and green customer needs (Shi, Connelly and Hoskisson, 2017; Song *et al.*, 2020). Accordingly, we measured stakeholder pressure with seven items, following Charan and Murty (2018).

Eco-product innovation. This construct signifies the processes of incorporating pro-environmental decision-making within a firm's product development activities, with respect to environmentally sustainable packaging, materials, and evaluations conducted to improve recyclability, reuse and decomposability. Thus, we measured eco-innovation with four items from Chen (2008).

Environmental sustainability orientation. This construct entails the strategic position of firms in integrating natural environmental considerations into their business strategy. Accordingly, we measured ESO using a three-dimensional scale capturing knowledge about environmental sustainability, environmentally sustainable practices, and commitment to environmental sustainability (Roxas, Ashill and Chadee, 2017). Knowledge about sustainability was measured with five items, while environmentally sustainable practices were captured with eight items. Commitment to environmental sustainability was assessed with four items. A composite of the three dimensions constitutes the variable score for ESO (Amankwah-Amoah, Danso and Adomako, 2019).

New product performance. We measured new product performance with four items by asking finance managers/chief accountants to evaluate their companies' new product revenues, growth in revenues from new products, profitability of new products, and growth in sales of new products (Atuahene-Gima, Slater and Olson, 2005).

Control variables. We used variables shown to have a potential influence on product performance outcomes (Atuahene-Gima, Slater and Olson, 2005) as controls. We measured *size* as the number of full-time employees. *Firm age* was measured as the number of years the firm has been operating. The *manufacturing sector* was coded as 1 = high-technology and 0 = low-technology industry, based on the firm's R&D (Tang, Kacmar and Busenitz, 2012). We controlled for the age of the CEO by using their age. Education was measured as follows: '1' = 'high school', '2' = 'associate degree', '3' = 'bachelor's degree', '4' = 'master's degree', '5' = 'doctoral degree'.

Potential biases

We examined non-response bias through a comparison of the respondents and non-respondents. The results of Pearson's chi-square test showed that respondents were not different from non-respondents in terms of education, firm age and firm size, indicating that non-response bias has no influence on our findings (Armstrong and Overton, 1977).

Table 2a. Results of model comparisons (Vietnam sample)

CFA model	χ^2	Df	χ^2/df	p-value	RMSEA	SRMR	NNFI	CFI
Hypothesized four-factor model (know+pract+commit, stakepress, ecoino, NPP)	1221.32	945	1.29	0.00	0.05	0.07	0.94	0.95
Three-factor model (know+pract+commit, stakepress+ ecoino, NPP)	2190.45	645	3.39	0.00	0.11	0.07	0.68	0.70
One-factor model (know+pract+commit +primstake+secstake+ ecoino+NPP)	2401.34	641	3.74	0.00	0.13	0.10	0.55	0.58

b. Results of model comparisons (Ghana sample)

CFA model	χ^2	df	χ^2/df	p-value	RMSEA	SRMR	NNFI	CFI
Hypothesized four-factor model (know+pract+commit, stakepress, ecoino, NPP)	1351.66	729	1.85	0.01	0.05	0.06	0.90	0.91
Three-factor model (know+pract+commit, stakepress+ecoino, NPP)	2618.43	776	3.37	0.03	0.09	0.13	0.71	0.69
One-factor model (know+pract+commit +stakepress+ ecoino+NPP)	2653.31	779	3.40	0.02	0.09	0.12	0.67	0.66

Abbreviations: know, knowledge; pract, practices; commit, commitment; stakepress, stakeholder pressure; ecoino, eco-innovation; NPP, new product performance.
$^{***}p < 0.001$.

Potential common method variance (Podsakoff *et al.*, 2003) was examined by performing several tests. A confirmatory factor analysis (CFA) was performed in Mplus 6.0 to examine the validity of the measures (Anderson *et al.*, 2010), to establish the convergent and discriminant validity of the variables, and to test for common method bias (Podsakoff *et al.*, 2003).

Following Hair *et al.* (2006), we used the traditional chi-square and approximate fit heuristics to establish the validity and reliability of the CFA models. Following these guidelines, we performed a sequence of nested CFA models and compared them with our hypothesised four-factor model. Table 2(a) and (b) shows that the results of the hypothesised four-factor model offered the best fit for the Vietnam data ($\chi^2 = 1221.32$; df = 945; χ^2/df = 1.29, RMSEA = 0.05, SRMR = 0.07, NNFI = 0.94, CFI = 0.95). Similarly, the hypothesised four-factor model provided an adequate model fit for the Ghana data ($\chi^2 = 1351.66$; df = 729; χ^2/df = 1.85, RMSEA = 0.05, SRMR = 0.06, NNFI = 0.90, CFI = 0.91).

Second, following the marker test procedure (Lindell and Whitney, 2001), we found that common method bias plays no substantial role in our findings. Specifically, we used 'top management shares the corporate mission with employees', a measure of shared vision, as the marker variable. The results indicated that no common method bias existed in the data because the correlations were low in both countries ($\rho = -0.02$ to 0.03).

We assessed reliability by establishing convergent and discriminant validity. In both samples, the results suggested that construct reliability was adequate (see Table 1). As shown in Table 1, the convergent reliability (CR) values for each construct exceeded the suggested threshold value of 0.70, which confirms reliability (Fornell and Larcker, 1981). Following an established practice (see Fornell and Larcker, 1981), we assessed the discriminant validity of the measures by determining whether the average variance extracted (AVE) for each construct exceeded the highest shared variance (HSV) of each pair of constructs. As presented in Table 1, discriminant validity was achieved in both samples because the AVE for each construct was larger than the HSV between each pair of constructs.

Measurement invariance assessment

We followed conventional practice (Bollen, 1989; Steenkamp and Baumgartner, 1998) to establish measurement invariance in our data. Using a configural model as our baseline model, we tested for configural, metric, scalar, factor variance and error variance invariance for each construct. We assessed the fit of the model using the χ^2

Table 3. Measurement invariance assessment

Unit A: An example of test procedure: Stakeholder green pressure across Vietnamese and Ghanaian firms

Model	χ^2 (df)	p-value	RMSEA	NNFI	CFI	CAIC
Configural invariance	12.30 (4)	0.02	0.06	0.98	0.97	119.45
Metric invariance	13.90 (6)	0.03	0.07	0.96	0.97	163.06
Scalar invariance	26.34 (12)	0.01	0.08	0.98	0.97	132.60
Factor variance invariance	27.29 (11)	0.01	0.05	0.97	0.98	116.30
Error variance invariance	29.48(15)	0.00	0.06	0.96	0.97	125.53

Unit B: Test results of all constructs between Vietnamese and Ghanaian firms

$\Delta\chi^2$ Difference test

	Factor versus configural	Error versus scalar metric	Variance versus metric	Variance versus scalar	Factor variance
Stakeholder green pressure	$\chi^2 = 21.16$ (14)	$\Delta\chi^2$ (4) = 1.29, p = 0.70	$\Delta\chi^2$ (3) = 7.12, p = 0.11	$\Delta\chi^2$ (2) = 0.66, p = 0.73	$\Delta\chi^2$ (3) = 1.11, p = 0.75
Environmental sustainability orientation +eco-innovation	$\chi^2 = 23.56$(11)	$\Delta\chi^2$ (3) = 1.96, p = 0.55	$\Delta\chi^2$ (3) = 6.70, p = 0.16	$\Delta\chi^2$ (2) = 6.41, p = 0.15	$\Delta\chi^2$ (4) = 5.60, p = 0.77
New product performance	$\chi^2 = 24.49$(10)	$\Delta\chi^2$ (3) = 2.30, p = 0.39	$\Delta\chi^2$ (3) = 5.61, p = 0.08	$\Delta\chi^2$ (3) = 11.14, p = 0.12	$\Delta\chi^2$ (2) = 0.67, p = 0.79

Abbreviations: χ^2, chi-square statistic; df, degrees of freedom; CAIC, consistent Akaike information criterion; CFI, comparative fit index; NNFI, non-normed fit index; RMSEA, root mean square error of approximation.

difference test and other fit heuristics (RMSEA, NNFI, CFI and consistent Akaike information criterion) (Steenkamp and Baumgartner, 1998). We found support for measurement invariance (Table 3), equally reliable across the two samples. Thus, using both datasets to test our hypotheses is acceptable. Table 3, Unit A shows that both samples show factor variance and error variance invariances for the stakeholder green pressure construct. It also shows that all error variances are significant at 1% for both samples. In addition, as shown in Table 3, Unit B, none of the χ^2 difference tests were significant. Hence, our results suggest that there exists configural, metric, scalar, factor variance and error variance invariances for all items across both samples. Thus, the items and the constructs are equally reliable across the samples, and the measures can be used for the testing of our hypotheses.

Model estimation procedure and results

Prior to estimating the model, we used Kolmogorov–Smirnov tests (Massey, 1951) to establish if the standardised residuals were adequately normal. We concluded that the data were sufficiently normally distributed. Subsequently, we confirmed whether the data suffered from heteroscedasticity by using the White test (White, 1980). Our test also showed that all the individual variance inflation factors (VIFs) based on standardised variables were below 2.30 and therefore below the suggested threshold value of 10. Thus, we believe that multicollinearity did not pose a challenge to the results (Neter, Wasserman and Kutner, 1985).

To estimate the research model, we followed Durvasula *et al.* (1993) in using a two-step procedure. First, we utilised the unpooled data analysis at the country level. This was done to ensure that the data worked well in a particular country. Second, we used the pooled data analysis method, where the two samples were merged. Accordingly, the responses were standardised in each country's sample in order to explain whether the measures work satisfactorily in a particular country (Song, Kawakami, and Stringfellow, 2010). Our two-step approach offers a robust test of the research model in a multi-country sample.

Given the nature of our model (i.e. two levels of mediation), we followed the statistical

Table 4. Descriptive statistics and correlations (Ghana – lower left corner, Vietnam – upper right corner)

	Variable	1	2	3	4	5	6	7	8	9
1.	Firm size		0.02	0.03	0.02	−0.11	0.09	0.04	−0.07	−0.03
2.	Firm age	0.10		0.05	0.06	−0.05	0.19**	0.14*	−0.05	−0.04
3.	Industry dummy	0.05	0.12		0.00	−0.14*	0.10	0.06	0.19**	0.11
4.	Founder/CEO age	−0.04	0.04	0.03		−0.03	0.03	0.26**	0.04	−0.02
5.	Founder/CEO education	−0.09	−0.02	−0.04	0.12		0.10	0.29**	0.19**	0.22**
6.	Stakeholder green pressure	−0.10	−0.12	0.19**	0.24**	0.13		0.23**	0.19**	0.23**
7.	Environmental sustainability orientation	0.00	0.11	0.14*	0.32**	0.11	0.24**		0.21**	0.24**
8.	Eco-product innovation	0.04	0.05	0.09*	0.11	0.15*	0.12	0.22**		0.17**
9.	New product performance	−0.11	−0.04	0.14*	−0.03	0.22**	0.13*	0.17**	0.13	
Mean	Vietnam	17.31	9.47	0.58	48.10	3.48	4.53	3.66	3.50	3.78
	Ghana	8.12	6.84	0.30	51.84	2.96	5.12	4.60	4.11	3.61
Standard deviation	Vietnam	8.68	4.73	0.46	9.46	1.20	2.70	0.57	1.03	0.89
	Ghana	12.45	6.30	0.51	9.11	1.18	1.24	1.23	1.18	1.33

*$p < 0.05$.
**$p < 0.01$.

estimation approached in Mplus path analysis (Muthén and Muthén, 2010). Following extant studies (e.g. Barnes *et al.*, 2015; Preacher, Zyphur and Zhang, 2010), we tested the serial mediation model by including stakeholder pressure as an independent variable, ESO as the first-stage mediation variable, eco-product innovation as the second-stage mediation variable, and new product performance as the dependent variable.

To examine the serial mediation model, statistical significance was tested using the indirect effects and confidence interval associated with it (see Barnes *et al.*, 2015; Mackinnon, 2008). Comparisons between the hypothesised full mediation model and the nested models investigated the model that best fits the data (Shrout and Bolger, 2002). The full mediation model was a good fit to the data for both Vietnam and Ghana (Table 2a and b). Nested alternative models were then tested by adding direct paths from stakeholder pressures to eco-product innovation, and from stakeholder pressures to eco-innovation to new product performance. These nested models did not perform better that the full mediation model. Thus, the full model was regarded as the best fit for testing the hypothesised mediating effects.

Unpooled analyses

Table 4 summarises correlations and descriptive statistics. Tables 5 and 6 provide the results of the tests of the hypotheses and path analysis. Hypothesis 1 (H1) predicted that stakeholder pressure would be positively related to ESO. Results from both studies provided support for H1 (Vietnam: $\gamma = 0.19$, $p < 0.01$; Ghana: $\gamma = 0.23$, $p < 0.01$). H2 proposed that ESO would be positively related to eco-product innovation, which also received support (Vietnam: $\gamma = 0.19$, $p < 0.01$; Ghana: $\gamma = 0.33$, $p < 0.01$). H3 predicted that eco-product innovation would be positively associated with new product performance. H3 received support (Vietnam: $\gamma = 0.14$, $p < 0.05$; Ghana: $\gamma = 0.25$, $p < 0.01$). The results also indicate that the relationship between stakeholder pressure and eco-product innovation is mediated by ESO (Vietnam: coefficient value β (ab) = 0.14, $p < 0.05$; 95% CI [0.08, 0.21]; Ghana: ab = 0.18, $p < 0.01$; 95% CI [0.13, 0.34]).

H4 predicted that ESO and eco-product innovation would serially mediate stakeholder pressure and new product performance. H4 was supported (Vietnam: ab = 0.22, $p < 0.01$; 95% CI [0.14, 0.34]; Ghana: $ab = 0.20$, $p < 0.01$; 95% CI [0.12, 0.30]). Thus, the results indicate that the indirect effect related to the serial mediation is significant at the 0.01 level. Further, the findings show that the lower bound of the 95% confidence interval has non-zero values.

Pooled data analyses

We used the pooled data analysis procedure by 'deculturalising' the data in order to remove national bias (Engelen *et al.*, 2015; Song, Kawakami

Table 5. Path analysis for Vietnam (Sample, N = 183)

	Hypotheses	Sustainability orientation	Eco-product innovation	New product performance
Controls				
Firm size (number of full-time employees)		−0.09*	−0.08*	−0.09*
Firm age		−0.05	−0.05	−0.08*
CEO age		−0.04	−0.03	−0.02
Education		0.11*	0.11*	0.05
Industry (1 = high technology; 0 = low technology)		0.13**	0.14**	0.12*
Main effects				
Stakeholder green pressure	H1	0.19***	0.12*	0.14**
Environmental sustainability orientation	H2		0.19***	
Eco-product innovation	H3			0.14**
Model fit statistics				
R^2		0.11	0.15	0.18
ΔR^2		–	0.04	0.03
F-value		3.18**	5.88***	8.15***
Largest VIF		1.70	1.86	1.55
			95% Confidence interval	
		Estimate	CI lower end	CI upper end
Indirect effects				
Stakeholder green pressure → sustainability orientation (via eco-product innovation)		0.14**	0.08	0.22
Stakeholder green pressure→ new product performance (via sustainability orientation, and eco-product innovation)	H4	0.22***	0.14	0.32

*$p < 0.10$.
**$p < 0.05$.
***$p < 0.01$. Standardised coefficients are shown. The model was estimated simultaneously. CI, confidence interval.

and Stringfellow, 2010). This approach helps to eliminate cultural-specific determinants that may affect the true correlation between the variables. The path coefficients of our initial results compared with the pooled sample yielded similar results. Table 7 provides the results of the tests of the hypotheses and path analysis.

The results in Table 7 provide support for H1 ($\gamma = 0.23$, $p < 0.01$). H2 was also supported ($\gamma = 0.29$, $p < 0.01$). In addition, H3 received support (Vietnam: $\gamma = 0.28$, $p < 0.01$). Our results from the pooled data analysis also show that the effect of stakeholder pressure on eco-product innovation is mediated by ESO (ab = 0.17, $p < 0.05$; 95% CI [0.07, 0.22]). Finally, the results show that H4 was supported (ab = 0.14, $p < 0.05$; 95% CI [0.06, 0.20]). Given that the lower bound of the 95% confidence interval has non-zero values, we concluded that our pooled data support the predicted mediation paths. Thus, the results from the pooled data analysis replicate the country-level analysis, providing a robust test for our research model.

Table 8 compares the impact of control variables on mediating and dependent variables in Ghana and Vietnam. Firm size and age negatively influence performance in Vietnam but not in Ghana. Founder education is non-significant in Vietnam, where differences between high and low tech are also less significant than in Ghana. CEO education had a positive influence on ESO and eco-product innovation in Ghana and Vietnam. Thus, firms that have more educated CEOs are more likely to develop ESO and eco-innovate. In Vietnam, firm size has a negative influence on both ESO and eco-product innovation. This is not the case in Ghana. Conversely, CEO age is negatively related to ESO in Ghana but not in Vietnam. Finally, while in Vietnam high-tech firms are more likely to develop an ESO and eco-innovate, in Ghana, only the effect on eco-innovation is significant.

Table 6. Path analysis for Ghana (Sample, N = 217)

	Hypotheses	Sustainability orientation	Eco-product innovation	New product performance
Controls				
Firm size (number of full-time employees)		−0.05	0.04	−0.11*
Firm age		−0.05	0.15***	−0.07*
CEO age		−0.14**	−0.03	−0.04
Education		0.09*	0.29***	0.22***
Industry (1 = high technology; 0 = low technology)		0.12*	0.04	0.22***
Main effects				
Stakeholder green pressure	H1	0.23***	0.24***	0.19***
Sustainability orientation	H2		0.33***	
Eco-product innovation	H3			0.25***
Model fit statistics				
R^2		0.13	0.17	0.20
ΔR^2		–	0.04	0.03
F-value		5.29***	9.89***	11.25***
Largest VIF		2.05	2.29	1.07
			95% Confidence interval	
		Estimate	CI lower end	CI upper end
Indirect effects				
Stakeholder green pressure → sustainability orientation (via eco-product innovation)		0.18***	0.13	0.34
Stakeholder green pressure→ new product performance (via sustainability orientation, and eco-product innovation)	H4	0.20***	0.12	0.30

*p <0 .10.
**p <0 .05.
***p <0 .01. Standardised coefficients are shown. The model was estimated simultaneously. CI, confidence interval.

In post hoc analysis, we added additional control variables, including gender and environmental dynamism, in both samples. In addition, we repeatedly tested our hypotheses with randomly selected subsets of the firms, from 90% of the sample down to 50% of the sample (Boling *et al.*, 2016). The results retained their statistical significance or better, suggesting that our initial findings are robust to alternative explanations and specifications.

Discussion and conclusion

The results of our study have a number of theoretical implications through the finding that stronger green stakeholder pressures indirectly influence new product performance through a serial mediation, where stakeholder pressures increase ESO, and this in turn increases eco-product innovation. When firms develop an ESO they are more likely to see environmental issues as opportunities than as threats, and accordingly deploy the capabilities underpinning ESO to seek, create and exploit market opportunities presented by solving environmental problems (Antolin-Lopez, Martinez-del-Rio and Cespedes-Lorente, 2019; Hockerts and Wüstenhagen, 2010). Prior studies in a developed country context support a link between ESO and eco-innovation (see Adams *et al.*, 2016). Yet, to date, insights in a developing market context have been comparatively sparse (Sanni, 2018; Yang and Yang, 2015). Sanni's (2018) study in Nigeria highlighted the importance of aspects related to ESO, such as internal knowledge, alongside innovative strategies, as an internal driver of eco-innovation, but did not demonstrate how this influenced product performance.

Our results show a consistent impact of eco-product development activities on product performance. Previous studies have found similar linkages between eco-innovation and other aspects of performance (Cheng, Yang and Sheu, 2014; Ray and Ray, 2009). However, they failed

Table 7. Path analysis for the pooled sample (N = 400)

	Hypotheses	Sustainability orientation	Eco-product innovation	New product performance
Controls				
Firm size		−0.04	0.06	−0.10*
Firm age		−0.03	0.14**	−0.08*
Founder/CEO age		−0.13**	−0.05	−0.04
Founder/CEO education		0.11*	0.25***	0.27***
Industry (1 = high-technology; 0 = low technology)		0.13**	0.06	0.22***
Main effects				
Stakeholder pressure	H1	0.23***	0.26***	0.19***
Sustainability orientation	H2		0.29***	0.25***
Eco-product innovation	H3			0.28***
Model fit statistics				
R^2		0.11	0.16	0.20
ΔR^2		–	0.05	0.04
F-value		5.15***	8.49***	10.20***
Largest VIF		2.15	2.39	2.66
			95% Confidence interval	
		Estimate	CI lower end	CI upper end
Indirect effects				
Stakeholder pressure → sustainability orientation (via eco-product innovation)		0.17***	0.07	0.22
Stakeholder pressure→ new product performance (via sustainability orientation, and eco-product innovation)	H4	0.14**	0.06	0.20

*p < 0.10.
**p < 0.05.
***p < 0.01. Standardized coefficients are shown. The model was estimated simultaneously. CI, confidence interval.

Table 8. Cross-country comparison of control variables

Control variables	Vietnam			Ghana		
	ESO	Eco-product innovation	New product performance	ESO	Eco-product innovation	New product performance
Firm size	−0.09*	−0.08*	−0.09*	−0.05	0.04	−0.11*
Firm age	−0.05	−0.05	−0.08*	−0.05	0.15***	−0.07*
Founder/CEO age	−0.04	−0.03	−0.02	−0.14**	−0.03	−0.04
Founder/CEO education	0.11*	0.11*	0.05	0.09*	0.29***	0.22***
Industry (1 = high technology; 0 = low technology)	0.13**	0.14**	0.12*	0.12*	0.04	0.22***

*p < 0.10.
**p <0 .05.
***p < 0.01. Standardized coefficients are shown.

to map the mechanisms linking pressures to improved performance through innovation.

Prior studies have found linkages between ESO and new product development performance (Claudy, Peterson and Pagell, 2016; Du, Yalcinkaya and Bstieler, 2016). Others have highlighted the increasing importance of stakeholders to new product development (Driessen and Hillebrand, 2013; Watson *et al.*, 2018). Our main contribution is the conceptual integration of these separate streams of research into an innovation constraints framework. The framework proposes that moderate stakeholder pressures maintain input and output constraints in developing countries

within the range needed (neither too low nor too high) to encourage innovation. We highlight the indirect influence of stakeholder pressure on product performance and demonstrate that ESO and eco-product innovation serially mediate this influence. These chains of relationships between stakeholder greening pressures, ESO, eco-product innovation and performance have not previously been conceptualised as a whole or empirically captured.

Our results have implications for wider research on innovation in developing countries. Proponents of the enabling environment perspective of corporate social responsibility (Idemudia, 2017) argue that weak institutional environments create barriers for domestic firms to act upon stakeholder pressures. Weak political systems and legal and regulatory frameworks constrain access to resources and information, adding to the cost of doing business, and thereby hampering innovation (Adeyeye *et al.*, 2018). Overall, this research suggests that resource constraints and weak institutions are inherent hindrances to new product performance in developing countries (Story, Boso and Cadogan, 2015).

In accordance with constraint-based views of innovation (Acar, Tarakci and van Knippenberg, 2019; Cunha *et al.*, 2014), our conceptualisation and results shift the focus to constraints as opportunities for innovation in developing countries (Amankwah-Amoah and Hinson, 2019; Pansera and Owen, 2015). Despite the challenges presented by their weak institutional environment, when there are some stakeholder pressures domestic firms can make use of the knowledge, capabilities and linkages developed through ESO to utilise available resources and elicit support from stakeholders to exploit opportunities and develop competitive new environmental products. This research emphasises the possibilities for enhanced development of cognitive, motivational and social mechanisms for eco-innovation through the closer ties of domestic firms with informal institutions, such that they share scarce resources to develop context-sensitive, frugal innovation that is affordable and good enough to meet the requirements of resource-constrained customers (Adomako *et al.*, 2021; Amankwah-Amoah and Hinson, 2019). We contend that resource constraints combined with output constraints force firms in developing countries to innovate and utilise resources more efficiently and effectively to gain competitive advantage (Van Burg *et al.*, 2012; Zeschky, Widenmayer and Gassmann, 2011). Critically, ESO is the central mechanism to translate changes in constraints elicited by stakeholder pressures into innovation that leads to improved new product performance.

With respect to managerial implications, since ESO plays a key role in the serial translation of pressures into performance, companies will be better positioned to exploit emerging opportunities if they proactively develop an ESO in response to early, incipient greening pressures, rather than wait until this pressure grows. Improvements in new product performance result from firms better meeting the needs of stakeholders demonstrating their green concerns. Hence, this underpins improvements in product performance, owing to the support of the stakeholders, such as accessing subsidies, an ability to export to new markets, and the support of local authorities who may procure products. Managers should also be aware that country-specific factors are likely to influence the intensity of the impact of greening stakeholder pressures in performance through ESO and eco-product innovation.

Limitations and future research trajectory

The limitations of this study are related to its survey-based nature. Although we employed empirical techniques in mitigating common method bias in the current study, the dependent variable is nonetheless a self-report measure. Future researchers should make use of objective measures of new product performance. In addition, we capture managerial perceptions of eco-innovation and product performance rather than using more objective indicators, such as registered patents and product performance indicators. In terms of control variables, a limitation is the lack of financial measures such as overall turnover or profitability. These limitations are a common hindrance for researching domestic firms in developing countries, where owners are reluctant to disclose financial data, the availability of corporate reports is limited, and even the reliability of patent data is compromised as many domestic firms do not patent their innovations.

Conceptually, the analysis of control variables shows a mosaic of aspects that can be generalised and aspects that remain country-specific, which highlights the importance of developing

context-specific research. Future research should build upon our findings by examining this in detail, conceptualising the reason for these differences, and exploring potential moderations, for instance using a national system of innovation perspective (Lundvall, 1992). Further studies could also test the serial mediation relations in a developed country, exploring context-related moderators. Future studies should also examine the differing influences of various stakeholders, as well as the different impacts of input and output constraints. Finally, further studies could explore other types of eco-innovations and their impact on product performance.

References

Abubakar, Y. A., C. Hand, D. Smallbone and G. Saridakis (2019). 'What specific modes of internationalization influence SME innovation in Sub-Saharan least developed countries (LDCs)?', *Technovation*, **79**, pp. 56–70.

Acar, O. A., M. Tarakci and D. van Knippenberg (2019). 'Creativity and innovation under constraints: A cross-disciplinary integrative review', *Journal of Management*, **45**, pp. 96–121.

Adams, R., S. Jeanrenaud, J. Bessant, D. Denyer and P. Overy (2016). 'Sustainability-oriented innovation: A systematic review', *International Journal of Management Reviews*, **18**, pp. 180–205.

Adeyeye, D., A. Egbetokun, J. Opele, O. Oluwatope and M. Sanni (2018). 'How barriers influence firms' search strategies and innovative performance', *International Journal of Innovation Management*, **22**, pp. 1–21.

Adomako, S., J. Amankwah-Amoah, A. Danso, R. Konadu and S. Owusu-Agyei (2019). 'Environmental sustainability orientation and performance of family and nonfamily firms', *Business Strategy and the Environment*, **28**, pp. 1250–1259.

Adomako, S., J. Amankwah-Amoah, Y. A. Debrah, Z. Khan, I. Chu and C. Robinson (2021). 'Institutional voids, economic adversity and inter-firm cooperation in an emerging market: The mediating role of government R&D support', *British Journal of Management*, **32**, pp. 40–58.

Amaeshi, K., E. Adegbite and T. Rajwani (2016). 'Corporate social responsibility in challenging and non-enabling institutional contexts: Do institutional voids matter?', *Journal of Business Ethics*, **134**, pp. 135–153.

Amankwah-Amoah, J., A. Danso and S. Adomako (2019). 'Entrepreneurial orientation, environmental sustainability and new venture performance: Does stakeholder integration matter?', *Business Strategy and the Environment*, **28**, pp. 79–87.

Anderson, R., B. Babin, W. Black and J. Hair (2010). *Multivariate Data Analysis–A Global Perspective*. Upper Saddle River, NJ: Pearson Prentice Hall.

Antolin-Lopez, R., J. Martinez-del-Rio and J. J. Cespedes-Lorente (2019). 'Environmental entrepreneurship as a multicomponent and dynamic construct: Duality of goals, environmental agency, and environmental value creation', *Business Ethics: A European Review*, **28**, pp. 407–422.

Armstrong, J. S. and T. S. Overton (1977). 'Estimating nonresponse bias in mail surveys', *Journal of Marketing Research*, **14**, pp. 396–402.

Arranz, N., N. L. Arguello and J. C. F. de Arroyabe (2021). 'How do internal, market and institutional factors affect the development of eco-innovation in firms?', *Journal of Cleaner Production*, **297**, p. 126692.

Atuahene-Gima, K., S. F. Slater and E. M. Olson (2005). 'The contingent value of responsive and proactive market orientations for new product program performance', *Journal of Product Innovation Management*, **22**, pp. 464–482.

Amankwah-Amoah, J. and R. E. Hinson (2019). 'Contextual influences on new technology ventures: A study of domestic firms in Ghana', *Technological Forecasting and Social Change*, **143**, pp. 289–296.

Bammens, Y. and P. Hünermund (2020). 'Nonfinancial considerations in eco-innovation decisions: The role of family ownership and reputation concerns', *Journal of Product Innovation Management*, **37**, pp. 431–453.

Barnes, C. M., L. Lucianetti, D. P. Bhave and M. S. Christian (2015). 'You wouldn't like me when I'm sleepy: Leaders' sleep, daily abusive supervision, and work unit engagement', *Academy of Management Journal*, **58**, pp. 1419–1437.

Boling, J. R., T. M. Pieper and J. G. Covin (2016). 'CEO tenure and entrepreneurial orientation within family and nonfamily firms', *Entrepreneurship Theory and Practice*, **40**, pp. 891–913.

Bollen, K. A. (1989). 'A new incremental fit index for general structural equation models', *Sociological Methods & Research*, **17**, pp. 303–316.

Boso, N., A. Danso, C. Leonidou, M. Uddin, O. Adeola and M. Hultman (2017). 'Does financial resource slack drive sustainability expenditure in developing economy small and medium-sized enterprises?', *Journal of Business Research*, **80**, pp. 247–256.

Calic, G. and E. Mosakowski (2016). 'Kicking off social entrepreneurship: How a sustainability orientation influences crowdfunding success', *Journal of Management Studies*, **53**, pp. 738–767.

Carrillo-Hermosilla, J., P. R. del González and T. Könnölä (2009). 'Barriers to eco-innovation'. In Javier Carrillo-Hermosilla, Pablo Río del González, and Totti Könnölä (eds), *Eco-Innovation*, pp. 28–50. London: Palgrave Macmillan.

Castellion, G. and S. K. Markham (2012). 'Perspective: New product failure rates: Influence of argumentum ad populum and self-interest', *Journal of Product Innovation Management*, **30**, pp. 976–979.

Charan, P. and L. S. Murty (2018). 'Secondary stakeholder pressures and organizational adoption of sustainable operations practices: The mediating role of primary stakeholders', *Business Strategy and the Environment*, **27**, pp. 910–923.

Chen, Y. S. (2008). 'The driver of green innovation and green image–green core competence', *Journal of Business Ethics*, **81**, pp. 531–543.

Cheng, C.J., C.-L. Yang and C. Sheu (2014). 'The link between eco-innovation and business performance: A Taiwanese industry context', *Journal of Cleaner Production*, **64**, pp. 81–90.

Claudy, M. C., M. Peterson and M. Pagell (2016). 'The roles of sustainability orientation and market knowledge competence in new product development success', *Journal of Product Innovation Management*, **33**, pp. 72–85.

Coad, N. and P. Pritchard (2017). '*Leading Sustainable Innovation*'. New York, NY: Routledge.

Crilly, D., M. Hansen and M. Zollo (2016). 'The grammar of decoupling: A cognitive-linguistic perspective on firms' sustainability claims and stakeholders' interpretation', *Academy of Management Journal*, **59**, pp. 705–729.

Cunha, M. P. E., A. Rego, P. Oliveira, P. Rosado and N. Habib (2014). 'Product innovation in resource-poor environments: Three research streams', *Journal of Product Innovation Management*, **31**, pp. 202–210.

Danso, A., S. Adomako, T. Lartey, J. Amankwah-Amoah and D. Owusu-Yirenkyi (2020). 'Stakeholder integration, environmental sustainability orientation and financial performance', *Journal of Business Research*, **119**, pp. 652–662.

De Marchi, V. (2012). 'Environmental innovation and R&D cooperation: Empirical evidence from Spanish manufacturing firms', *Research Policy*, **41**, pp. 614–623.

De Mendonca, T. and Y. Zhou (2019). 'What does targeting ecological sustainability mean for company financial performance?', *Business Strategy and the Environment*, **28**, pp. 1583–1593.

Delgado-Ceballos, J., J. A. Aragón-Correa, N. Ortiz-de-Mandojana and A. Rueda-Manzanares (2012). 'The effect of internal barriers on the connection between stakeholder integration and proactive environmental strategies', *Journal of Business Ethics*, **107**, pp. 281–293.

Díaz-García, C., Á. González-Moreno and F. J. Sáez-Martínez (2015). 'Eco-innovation: insights from a literature review', *Innovation*, **17**, pp. 6–23.

Doran, J. and G. Ryan (2016). 'The importance of the diverse drivers and types of environmental innovation for firm performance', *Business Strategy and the Environment*, **25**, pp. 102–119.

Driessen, P. H. and B. Hillebrand (2013). 'Integrating multiple stakeholder issues in new product development: An exploration', *Journal of Product Innovation Management*, **30**, pp. 364–379.

Du, S., G. Yalcinkaya and L. Bstieler (2016). 'Sustainability, social media driven open innovation, and new product development performance', *Journal of Product Innovation Management*, **33**, pp. 55–71.

Dubiel, A. and H. Ernst (2013). Success factors of new product development for emerging markets, 3rd Editiion. In K. Kahn, S. E. Kay, G. Gibson and S. Urban (eds), *The PDMA Handbook of New Product Development*, New York: John Wiley & Sons, pp. 100–114.

Durand, R., O. Hawn and I. Ioannou (2019). 'Willing and able: A general model of organizational responses to normative pressures', *Academy of Management Review*, **44**, pp. 299–320.

Durvasula, S., J. C. Andrews , S. Lysonski and R. G. Netemeyer (1993). 'Assessing the cross-national applicability of consumer behavior models: A model of attitude toward advertising in general', *Journal of Consumer Research*, **19**, pp. 626–636.

Engelen, A., V. Gupta , L. Strenger and M. Brettel (2015). 'Entrepreneurial orientation, firm performance, and the moderating role of transformational leadership behaviors', *Journal of Management*, **41**, pp. 1069–1097.

Evanschitzky, H., M. Eisend , R. Calantone and Y. Jiang (2012). 'Success factors of product innovation: An updated meta-analysis', *Journal of Product Innovation Management*, **29**, pp. 21–37.

Fernández, S., C. Torrecillas and R. E. Labra (2021). 'Drivers of eco-innovation in developing countries: The case of Chilean firms', *Technological Forecasting and Social Change*, **170**, p. 120902.

Fornell, C. and D. F. Larcker (1981). 'Evaluating structural equation models with unobservable variables and measurement error', *Journal of Marketing Research*, **18**, pp. 39–50.

Freeman, R. E., J. S. Harrison , A. C. Wicks , B. L. Parmar and S. De Colle (2010). *Stakeholder Theory*. Cambridge, UK: Cambridge University Press.

Fu, X., P. Mohnen and G. Zanello , (2018). 'Innovation and productivity in formal and informal firms in Ghana', *Technological Forecasting and Social Change*, **131**, pp. 315–325.

Gilson, L. L., J. E. Mathieu , C. E. Shalley and T. M. Ruddy (2005). 'Creativity and standardization: Complementary or conflicting drivers of team effectiveness?', *Academy of Management Journal*, **48**, pp. 521–531.

Giuliani, E., C. Pietrobelli and R. Rabellotti (2005). 'Upgrading in global value chains: Lessons from Latin American clusters', *World Development*, **33**, pp. 549–573.

Goodman, J., A. Korsunova and M. Halme (2017). 'Our collaborative future: Activities and roles of stakeholders in sustainability-oriented innovation', *Business Strategy and the Environment*, **26**, pp. 731–753.

Hair, J. F., R. E. Anderson , R. L. Tathum and W. C. Black (2006). *Multivariate Data Analysis with Readings*, New York, NY: Macmillan.

He, F., X. Miao , C. W. Wong and S. Lee (2018). 'Contemporary corporate eco-innovation research: A systematic review', *Journal of Cleaner Production*, **174**, pp. 502–526.

Hill, C. W. and T. M. Jones (1992). 'Stakeholder-agency theory', *Journal of Management Studies*, **29**, pp. 131–154.

Hockerts, K. and R. Wüstenhagen (2010). 'Greening Goliaths versus emerging Davids—Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship', *Journal of Business Venturin*, **25**, pp. 481–492.

Idemudia, U. (2017). 'Environmental business–NGO partnerships in Nigeria: Issues and prospects', *Business Strategy and the Environment*, **26**, pp. 265–276.

Im, S. and J. P. Workman Jr , (2004). 'Market orientation, creativity, and new product performance in high-technology firms', *Journal of Marketing*, **68**, pp. 114–132.

Jabbour, L. S., A. B. D. Vazquez-Brust , C. Jabbour, J. C and D. Andriani Ribeiro (2020). 'The interplay between stakeholders, resources and capabilities in climate change strategy: Converting barriers into cooperation', *Business Strategy and the Environment*, **29**, pp. 1362–1386.

Jamali, D. and C. Karam (2018). 'Corporate social responsibility in developing countries as an emerging field of study', *International Journal of Management Reviews*, **20**, pp. 32–61.

Jayawarna, D., O. Jones and A. Macpherson (2020). 'Resourcing social enterprises: The role of socially oriented bootstrapping', *British Journal of Management*, **31**, pp. 56–79.

Jekora (2019). *Green Products: Fortifier, Promotional Leaflet*, Accra, Ghana: Jekora Ventures Ltd.

Johnstone, N., I. Haščič and D. Popp (2010). 'Renewable energy policies and technological innovation: Evidence based on patent counts', *Environmental and Resource Economics*, **45**, pp. 133–155.

Julian, S. D. and J. C. Ofori-Dankwa (2013). 'Financial resource availability and corporate social responsibility expenditures in

a sub-Saharan economy: The institutional difference hypothesis', *Strategic Management Journal*, **34**, pp. 1314–1330.
Kemp, R. and M. M. Andersen (2004). Strategies for Eco-Efficiency Innovation. Strategy paper for the Informal Environmental Council Meeting, pp. 16–18 July, Maastricht, VROM, Den Haag.
Kemp, R. and P. Pearson (2007). Final report MEI project about measuring eco-innovation. Project Deliverable 25. Retrieved from http://www.oecd.org/env/consumption-innovation/43960830.pdf.
Kesidou, E. and P. Demirel (2012). 'On the drivers of eco-innovations: Empirical evidence from the UK', *Research Policy*, **41**, pp. 862–870.
Khanna, T. and K. Palepu (2006). 'Emerging giants: Building world-class companies in developing countries', *Harvard Business Review*, **84**, pp. 60–69.
Khanna, T. and K. Palepu (2010). *Winning in Emerging Markets: A Road Map for Strategy and Execution*. Boston, MA: Harvard Business School Press.
Kock, C. J., J. Santaló and L. Diestre (2012). 'Corporate governance and the environment: What type of governance creates greener companies?', *Journal of Management Studies*, **49**, pp. 492–514.
Konadu, R., S. Owusu-Agyei , T. A. Lartey , A. Danso , S. Adomako and J. Amankwah-Amoah (2020). 'CEOs' reputation, quality management and environmental innovation: The roles of stakeholder pressure and resource commitment', *Business Strategy and the Environment*, **29**, pp. 2310–2323.
Le Van, Q., T. Viet Nguyen and M. H. Nguyen (2019). 'Sustainable development and environmental policy: The engagement of stakeholders in green products in Vietnam', *Business Strategy and the Environment*, **28**, pp. 675–687.
Lindell, M. K. and D. J. Whitney (2001). 'Accounting for common method variance in cross-sectional research designs', *Journal of Applied Psychology*, **86**, pp. 114–121.
Liston-Heyes, C. and D. A. Vazquez-Brust (2016). 'Environmental protection in environmentally reactive firms: Lessons from corporate Argentina', *Journal of Business Ethics*, **135**, pp. 361–379.
Longoni, A. and R. Cagliano (2018). 'Inclusive environmental disclosure practices and firm performance', *International Journal of Operations and Production Management*, **38**, pp. 1815–1835.
Lundvall, B. Å. (1992). *National Systems of Innovation: An Analytical Framework*, London, UK: Pinter.
Luo, X. and C. B. Bhattacharya (2006). 'Corporate social responsibility, customer satisfaction, and market value', *Journal of Marketing*, **70**, pp. 1–18.
Mackinnon, D. P. (2008). *Introduction to Statistical Mediation Analysis*. New York, NY: Lawrence Erbaum Associates.
Massey Jr, F. J. (1951). 'The Kolmogorov–Smirnov test for goodness of fit', *Journal American Statistical Association*, **46**, pp. 68–78.
Mavi, R. K. and N. K. Mavi (2021). 'National eco-innovation analysis with big data: A common-weights model for dynamic DEA', *Technological Forecasting and Social Change*, **162**, p. 120369.
Mealy, P. and A. Teytelboym (2020). 'Economic complexity and the green economy', *Research Policy*, p. 103948.
Mitchell, R. K., G. R. Weaver , B. R. Agle , A. D. Bailey and J. Carlson (2016). 'Stakeholder agency and social welfare: Pluralism and decision making in the multi-objective corporation', *Academy of Management Review*, **41**, pp. 252–275.
Mitchell, R. K., J. H. Lee and B. R. Agle (2017). 'Stakeholder prioritization work: The role of stakeholder salience in stakeholder research', *Stakeholder Management, Business and Society*, **360**, pp. 123–157).
Muthén, L. K. and B. O. Muthén (2010). *Mplus: Statistical Analysis with Latent Variables: User's Guide*, pp. 1998–2007. Los Angeles, CA: Muthén & Muthén.
Nason, R. S., S. Bacq and D. Gras (2018). 'A behavioral theory of social performance: Social identity and stakeholder expectation', *Academy of Management Review*, **43**, pp. 259–283.
National Geographic. (2014). Greendex 2014: Consumer choice and the environment—A worldwide tracking survey. Retrieved from: http://images.nationalgeographic.com/wpf/media-content/file/NGS_2014_Green_dex_Highlights_FINAL-cb141689730.pdf.
Neter, J., W. Wasserman and M. H. Kutner (1985). *Applied Linear Statistical Models: Regression, Analysis of Variance, and Experimental Design*. Homewood, IL: Irwin.
Nguyen, B., T. Mickiewicz and J. Du (2018). 'Local governance and business performance in Vietnam: The transaction costs' perspective', *Regional Studies*, **52**, pp. 542–557.
Nidumolu, R., C. K. Prahalad and M. R. Rangaswami (2009). 'Why sustainability is now the key driver of innovation', *Harvard Business Review*, **87**, pp. 56–64.
Pansera, M. and R. Owen (2015). 'Framing resource-constrained innovation at the 'bottom of the pyramid': Insights from an ethnographic case study in rural Banglades', *Technological Forecasting and Social Change*, **92**, pp. 300–311.
Paparoidamis, N. G., T. T. H. Tran , L. C. Leonidou and A. Zeriti (2019). 'Being innovative while being green: An experimental inquiry into how consumers respond to eco-innovative product designs', *Journal of Product Innovation Management*, **36**, pp. 824–847.
Phuong, L. T. H., G. R. Biesbroek and A. E. Wals (2018). 'Barriers and enablers to climate change adaptation in hierarchical governance systems: The case of Vietnam', *Journal of Environmental Policy and Planning*, **20**, pp. 518–532.
Podsakoff , P. M., S. B. MacKenzie , J. Y. Lee and N. P. Podsakoff (2003). 'Common method biases in behavioral research: A critical review of the literature and recommended remedies', *Journal of Applied Psychology*, **88**, p. 879.
Preacher, K. J., M. J. Zyphur and Z. Zhang (2010). 'A general multilevel SEM framework for assessing multilevel mediation', *Psychological Methods*, **15**, pp. 209–233.
Ray, P. K. and S. Ray (2009). 'Resource-constrained innovation for emerging economies: The case of the Indian telecommunications industry', *IEEE Transactions on Engineering Management*, **57**, pp. 144–156.
Rodriguez, R., J. Warmerdam and C. E. Triomphe (2010). *The Lisbon Strategy 2000–2010. An Analysis and Evaluation of Methods Used and Results Achieved*. Document IP/A/EMPL/ST/2008-07. Brussels, Belgium: European Parliament.
Roxas, B. and A. Coetzer (2012). 'Institutional environment, managerial attitudes and environmental sustainability orientation of small firms', *Journal of Business Ethics*, **111**, pp. 461–476.
Roxas, B., N. Ashill and D. Chadee (2017). 'Effects of entrepreneurial and environmental sustainability orientations on firm performance: A study of small businesses in the Philip-

pines', *Journal of Small Business Management*, **55**, pp. 163–178.

Rueda-Manzanares, A., J. A. Aragón-Correa and S. Sharma (2008). 'The influence of stakeholders on the environmental strategy of service firms: The moderating effects of complexity, uncertainty and munificence', *British Journal of Management*, **19**, pp. 185–203.

Sanni, M. (2018). 'Drivers of eco-innovation in the manufacturing sector of Nigeria', *Technological Forecasting and Social Change*, **131**, pp. 303–314.

Sarkar, S. and M. Pansera (2017). 'Sustainability-driven innovation at the bottom: Insights from grassroots ecopreneurs', *Technological Forecasting and Social Change*, **114**, pp. 327–338.

Sharma, A. and G. R. Iyer (2012). 'Resource-constrained product development: Implications for green marketing and green supply chains', *Industrial Marketing Management*, **41**, pp. 599–608.

Shevchenko, A., M. Lévesque and M. Pagell (2016). 'Why firms delay reaching true sustainability', *Journal of Management Studies*, **53**, 911–935.

Shi, W., B. L. Connelly and R. E. Hoskisson (2017). 'External corporate governance and financial fraud: Cognitive evaluation theory insights on agency theory prescriptions', *Strategic Management Journal*, **38**, pp. 1268–1286.

Shrout, P. E. and N. Bolger (2002). 'Mediation in experimental and nonexperimental studies: New procedures and recommendations', *Psychological Methods*, **7**, pp. 422–445.

Steenkamp, J. B. and H. Baumgartner (1998). 'Assessing measurement invariance in cross-national consumer research', *Journal of Consumer Research*, **25**, pp. 78–90.

Song, M., T. Kawakami and A. Stringfellow (2010). 'A cross-national comparative study of senior management policy, marketing–manufacturing involvement, and innovation performance', *Journal of Product Innovation Management*, **27**, pp. 179–200.

Song, M., M. X. Yang , K. J. Zeng and W. Feng (2020). 'Green knowledge sharing, stakeholder pressure, absorptive capacity, and green innovation: Evidence from Chinese manufacturing firms', *Business Strategy and the Environment*, **29**, pp. 1517–1531.

Steinfield, L. and D. Holt (2019). 'Toward a theory on the reproduction of social innovations in subsistence marketplaces', *Journal of Product Innovation Management*, **36**, pp. 764–799.

Story, V.i.M., N. Boso and J. W. Cadogan (2015). 'The form of relationship between firm-level product innovativeness and new product performance in developed and emerging markets', *Journal of Product Innovation Management*, **32**, pp. 45–64.

Surroca, J., J. A. Tribó and S. Waddock (2010). 'Corporate responsibility and financial performance: The role of intangible resources', *Strategic Management Journal*, **31**, pp. 463–490.

Tang, Z. and J. Tang (2018). 'Stakeholder corporate social responsibility orientation congruence, entrepreneurial orientation and environmental performance of Chinese small and medium-sized enterprises', *British Journal of Management*, **29**, pp. 634–651.

Tang, J., K. M. M. Kacmar and L. Busenitz (2012). 'Entrepreneurial alertness in the pursuit of new opportunities', *Journal of Business Venturing*, **27**, pp. 77–94.

Tatoglu, E., J. G. Frynas , E. Bayraktar , M. Demirbag , S. Sahadev , J. Doh and S. L. Koh (2020). 'Why do emerging market firms engage in voluntary environmental management practices? A strategic choice perspective', *British Journal of Management*, **31**, pp. 80–100.

Van Burg, E., K. Podoynitsyna , L. Beck and T. Lommelen (2012). 'Directive deficiencies: How resource constraints direct opportunity identification in SMEs', *Journal of Product Innovation Management*, **29**, pp. 1000–1011.

Walls, J. L., P. H. Phan and P. Berrone (2011). 'Measuring environmental strategy: Construct development, reliability, and validity', *Business Society*, **50**, pp. 71–115.

Watson, R., H. N. Wilson , P. Smart and E. K. MacDonald (2018). 'Harnessing difference: A capability-based framework for stakeholder engagement in environmental innovation', *Journal of Product Innovation Management*, **35**, pp. 254–279.

Weiss, M., M. Hoegl and M. Gibbert (2011). 'Making virtue of necessity: The role of team climate for innovation in resource-constrained innovation projects', *Journal of Product Innovation Management*, **28**, pp. 196–207.

White, H. (1980). 'A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity', *Econometrica*, **48**, pp. 817–838.

Wong, S. K. S. and C. Tong (2012). 'The influence of market orientation on new product success', *European Journal of Innovation Management*, **15**, pp. 99–121.

World Bank (2020a). Vibrant Vietnam forging the foundation of a high-income economy. Retrieved from: https://documents1.worldbank.org/curated/en/745271590429811414/pdf/Main-Report.pdf.

World Bank. (2020b). Ghana balancing economic growth and depletion resources. Retrieved from: https://blogs.worldbank.org/africacan/ghana-balancing-economic-growth-and-depletion-resources.

Yang, F. and M. Yang (2015). 'Analysis on China's eco-innovations: Regulation context, intertemporal change and regional differences', *European Journal of Operational Research*, **247**, pp. 1003–1012.

Zeschky, M., B. Widenmayer and O. Gassmann (2011). 'Frugal innovation in emerging markets', *Research-Technology Management*, **54**, pp. 38–45.

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.