

**ASSESSING THE DRIVERS AND ENABLERS OF  
PROACTIVE ENVIRONMENTAL BEHAVIOR IN  
EMERGING ECONOMIES A GENERAL OVERVIEW  
AND SPECIFIC INSIGHTS FROM FAMILY FIRMS.**

WALTER JONATHAN HEREDIA HEREDIA

Universidad del Desarrollo

Chile

Thesis submitted to the Faculty of Business Economics at Universidad del Desarrollo for the academic  
degree of Doctor in Business Economics.

THESIS DIRECTOR:

DR. ROBERTO PONCE OLIVA

February, 2025

CONCEPCIÓN, CHILE

© Excerpts from this work may be reproduced for academic or research purposes, provided that a proper bibliographic reference is included.

## **STATEMENT OF ORIGINALITY**

I declare that this doctoral thesis is my own work and has not been previously submitted to any other university for a degree. It contains no material published or written by others, except where properly cited. While this dissertation is primarily the result of my own work, the contributions of co-authors have been properly recognized.

A handwritten signature in blue ink, appearing to be 'W. Heredia', written in a cursive style.

Walter Heredia  
February 2025

## AUTHORSHIP CONTRIBUTIONS

This dissertation is based on two empirical articles, developed during my PhD candidature, with the author's contributions delineated below:

**Article 1:** *“The effect of competition from informal firms on proactive environmental strategies in emerging economies”*

**Status:** Published in Business Strategy and the Environment.

**Authors:**

Walter Heredia (first author) 80 % (Conceptualization, methodology, analysis, writing, revision, and editing).

Roberto D. Ponce Oliva (second and corresponding author) 10 % (Conceptualization, writing, revision, and editing).

Felipe Vásquez-Lavín (third author) 10 % (Conceptualization, methodology, analysis, writing, revision, and editing).

**Article 2:** *“Proactive environmental strategies adoption by family firms in developing countries: The role of informality and environmental policy stringency”*

**Status:** Passed desk rejection in Corporate Social Responsibility and Environmental Management.

**Authors:**

Walter Heredia (first author) 80 % (Conceptualization, methodology, analysis, writing, revision, and editing).

Roberto D. Ponce Oliva (second and corresponding author) 10 % (Conceptualization, writing, revision, and editing).

Javier Aguilera-Caracuel (third author) 10 % (Conceptualization, writing, revision, and editing).

## **ACKNOWLEDGEMENTS**

I would like to express my gratitude to my advisor, Dr. Roberto Ponce, and my co-advisors, Dr. Felipe Vásquez from the Universidad del Desarrollo in Chile and Dr. Javier Aguilera from the Universidad de Granada in Spain, for their support throughout this doctoral journey. Their guidance has helped me grow as a researcher. They have always provided me with the time and space to focus on my work. I hope we can continue collaborating on future research projects.

I also thank the faculty of Business Economics and the Universidad del Desarrollo for awarding me a scholarship that allowed me to focus exclusively on my research.

Finally, my deepest appreciation goes to my family for supporting me throughout my doctoral journey. They have offered me intangible support such as hope, love, encouragement, peace, and strength. I thank my parents, Rosa and Walter, for their invaluable support. I am especially grateful to my wife, Tiffany, for her unconditional love. I also thank my baby, Alanna, for expressing her love through nonverbal communication, which brings me harmony. My brothers, Juan and David, have inspired me to explore new perspectives. I am also grateful to my grandmother, Francisca, for igniting in me the passion for education. Above all, I thank God for giving me the resilience and strength to complete this journey.

## ABSTRACT

This doctoral dissertation explores the factors influencing the adoption of Proactive Environmental Strategies (PES) by firms in emerging economies, focusing on the roles of informal competition, family ownership, and environmental policy stringency. While most research on PES has concentrated on developed economies and China, emerging economies present unique challenges due to relatively weak institutional frameworks and high levels of informal competition. Under the theoretical lenses of the Attention-Based View (ABV) and Socioemotional Wealth (SEW), this dissertation investigates both external and internal factors that influence firms' environmental strategies.

The first study examines how informal competition affects the adoption of PES by formal firms, considering the moderating effects of formal competition and CEOs' managerial experience. Using data from the 2019 World Bank Enterprise Survey covering 7,436 manufacturing firms across 25 emerging economies, the findings indicate that while informal competition fosters PES adoption as a differentiation strategy, its impact diminishes when formal competition is high or when CEOs have extensive industry experience. This study extends the application of ABV to PES research, emphasizing the need for firms to recognize informal competitors and adopt PES to reduce costs and access new markets, thereby offsetting the cost advantages of informal firms.

The second study focuses on family firms, assessing the relationship between family ownership and PES adoption through the lens of SEW theory. It investigates the moderating effects of informal competition and environmental policy stringency. Findings based on 6,862 manufacturing firms drawn from the same dataset indicate that family firms are more likely to adopt PES due to their long-term orientation and commitment to preserving non-financial family assets. However, this effect is weakened by high informal competition, which pressures family firms to prioritize short-term survival, and by stringent environmental policies, which may be perceived as threats to family control.

Together, these studies contribute to a more nuanced understanding of PES adoption in emerging economies by considering the competitive landscape (both formal and informal), regulatory stringency, family firm ownership, and CEO experience. The dissertation offers theoretical contributions by

uncovering the mechanism through which informal competition influences PES adoption under ABV, and by extending the SEW perspective on how family firms respond to PES adoption under contextual factors specifically, informal competition and environmental policy stringency where most research has concentrated on internal contingencies. Additionally, it provides practical implications for managers and policymakers. For managers, PES can serve as a tool for differentiation and long-term strength, particularly under competitive and environmental regulatory pressures. On the other hand, policymakers should design targeted interventions to support firms, particularly family firms, in meeting new environmental regulatory requirements without compromising their non-financial assets.

This research highlights the need for a contextualized approach to PES adoption in emerging economies, emphasizing the competitive dynamics among formal and informal competition, environmental policy stringency, family ownership, and CEO experience. Future research should explore these external and internal factors in other industries and regions and use longitudinal data to capture the time effects of PES adoption.

## TABLE OF CONTENTS

STATEMENT OF ORIGINALITY .....	iii
AUTHORSHIP CONTRIBUTIONS .....	iv
ACKNOWLEDGEMENTS .....	v
ABSTRACT .....	vi
TABLE OF CONTENTS.....	viii
LIST OF FIGURES.....	x
LIST OF TABLES.....	xi
Chapter 1: .....	1
INTRODUCTION .....	1
Chapter 2.....	11
<b>ARTICLE 1. THE EFFECT OF COMPETITION FROM INFORMAL FIRMS ON PROACTIVE ENVIRONMENTAL STRATEGIES IN EMERGING ECONOMIES .....</b>	<b>11</b>
Abstract .....	12
1   INTRODUCTION.....	12
2   ADOPTION OF PROACTIVE ENVIRONMENTAL PRACTICES (PES) AND THE IMPACT OF COMPETITION .....	16
3   THEORETICAL BACKGROUND.....	18
4   HYPOTHESES DEVELOPMENT .....	20
4.1   <i>Informal competition in emerging economies</i> .....	20
4.2   <i>Moderating factors of informal competition on PES adoption: formal competition and CEO years of experience.....</i>	<i>22</i>
5   METHOD .....	25
5.1   <i>Data and sample.....</i>	<i>25</i>
5.2   <i>Measures .....</i>	<i>27</i>
5.3   <i>Analytical approach .....</i>	<i>30</i>
5.4   <i>Robustness test .....</i>	<i>30</i>
6   RESULTS .....	31
7   DISCUSSION .....	32
7.1   <i>Theoretical Implications .....</i>	<i>33</i>
7.2   <i>Practical Implications .....</i>	<i>35</i>
7.3   <i>Limitations and Directions for Future Research.....</i>	<i>36</i>
8   CONCLUSION .....	37
Appendix 1.....	44
Chapter 3.....	45
<b>ARTICLE 2. PROACTIVE ENVIRONMENTAL STRATEGIES ADOPTION BY FAMILY FIRMS IN DEVELOPING COUNTRIES: THE ROLE OF INFORMALITY AND ENVIRONMENTAL POLICY STRINGENCY .....</b>	<b>45</b>
Abstract .....	46
1   INTRODUCTION.....	46
2   THEORETICAL FRAMEWORK.....	52
2.1   <i>The SEW perspective of family firms in emerging economies.....</i>	<i>52</i>
3   HYPOTHESES.....	54
3.1   <i>The Effect of the Degree of Family Ownership on PES Adoption. ....</i>	<i>54</i>
3.2   <i>The role of informal firms' competition as a moderator in the relationship between family firms and PES adoption.....</i>	<i>56</i>
3.3   <i>The role of Environmental Policy Stringency (EPS) as moderator of family firms PES adoption .....</i>	<i>57</i>
4   METHODS .....	59
4.1  <i>Data.....</i>	<i>59</i>

4.2 / <i>Measures</i> .....	59
4.3 / <i>Methodology</i> .....	61
5   <b>RESULTS</b> .....	61
5.1 / <i>Robustness test</i> .....	63
6   <b>DISCUSSION AND THEORETICAL CONTRIBUTIONS, PRACTICAL CONTRIBUTIONS, LIMITATIONS AND FUTURE RESEARCH</b> .....	63
6.1 / <i>Discussion and theoretical contributions</i> .....	63
6.2 / <i>Practical contributions</i> .....	65
6.3 / <i>Limitations and future research</i> .....	66
<b>Appendices</b> .....	72
<i>Appendix 1</i> .....	72
<b>Appendix 2</b> .....	73
<b>Appendix 3</b> .....	74
<b>Appendix 4</b> .....	75
<b>Appendix 5</b> .....	76
<b>Chapter 4</b> .....	77
<b>CONCLUSION</b> .....	77
<b>REFERENCES</b> .....	80

## LIST OF FIGURES

Figure 1: Proposed Model.....	38
Figure 1: Proposed theoretical model .....	68

## LIST OF TABLES

Table 1. Summary of Variables: The Descriptions of The Variables Come from The Enterprise Survey of 2019 .....	39
Table 2. Descriptive Statistics.....	41
Table 3. Correlation Matrix. ....	42
Table 4. Results.....	43
Table 1 Descriptive statistics .....	69
Table 2 Correlation table .....	70
Table 3 Regression results of firm's adoption of PES .....	71
Table 4 Regression results of firm's adoption of PES at family ownership 20% .....	72
Table 5 Regression results of firm's adoption of PES at family ownership 10 % .....	73
Table 6 Regression results of firm's adoption of PES with different types of ownership.....	74
Table 7 Regression results of firm's adoption of PES with enforcement of environmental regulations. .....	75
Table 8 Regression results of firm's adoption of PES with environmental regulations as an obstacle. 76	

# **Chapter 1:**

## **INTRODUCTION**

Grand challenges “are specific barriers that if removed would help solve an important societal problem with a high likelihood of global impact through widespread implementation”(George et al., 2016: 1881). Examples include resource scarcity, climate change, global poverty (George et al., 2016), and loss of biodiversity (Berkowitz et al., 2024; Gariel & Bartel-Radic, 2024). Among these challenges, firms’ production patterns often described as “take, make, and dispose” (Adams et al., 2016; Ghisellini et al., 2016: 11) are depleting biodiversity, increasing greenhouse gas emissions, and contributing to global temperature rise (Klassen & Vachon, 2003; Nyberg & Wright, 2022), thereby creating an “environmental crisis” (Mercier-Roy & Mailhot, 2024). This dissertation explores the internal and external factors that limit or foster proactive environmental behavior at the firm level in emerging economies.

Most research on proactive environmental behavior has focused on developed economies and China (Balasubramanian et al., 2021; Zhu et al., 2013). Such work has examined external factors such as institutional factors, stakeholder pressure, and industry-based factors that influence environmental practices (Darnall et al., 2010; Delmas & Toffel, 2008; Duanmu et al., 2018; Gadenne et al., 2009; Zhu et al., 2013) and internal factors such as leadership, environmental cooperation, and organizational capabilities (Aragón-Correa et al., 2008; Dubey et al., 2015; Vachon & Klassen, 2008).

In contrast to developed economies, emerging economies are often characterized by low institutional development, weak factor markets, underdeveloped infrastructure (Hoskisson et al., 2013), and intense competition from informal firms (Iriyama et al., 2016). These economies also contribute significantly to global CO<sub>2</sub> emissions (Nguyen et al., 2018). Under such conditions, emerging economies provide a valuable setting for understanding how firms and family firms in

particular, as a prevalent form of ownership respond to environmental degradation under challenging circumstances, including competition from informal firms and environmental policy stringency (EPS).

Informal firms in emerging economies operate outside the regulatory framework avoiding taxes, withholding social benefits, enjoying cost advantages, and capturing market share from formal firms (Iriyama et al., 2016; McCann & Bahl, 2017). They exist in several industrial sectors, including apparel (Carneiro-Da-Cunha & Rossetto, 2015), textile, leather tanning, and metalworking (Blackman, 2000: 2067; Sweet, 2023), printing (Darbi & Knott, 2016) and electric equipment (Siqueira & Bruton, 2010:43) among others. Because these firms do not compete on equal terms and are widespread, they pose a significant challenge to formal firms' strategic decisions, particularly regarding the adoption of proactive environmental strategies (PES).

EPS reflects the fines for non-compliance and the introduction of new environmental standards that influence firms' compliance costs and strategies (Aguilera-Caracuel et al., 2013). EPS can function as a double-edged sword: it may encourage firms to reduce pollution by adopting PES to avoid sanctions and loss of legitimacy, but on the other hand, it may result in increased operational costs and may threaten their flexibility due to the required process modification to adopt PES (Aragon-Correa et al., 2020) Consequently, understanding the role of EPS in promoting or discouraging PES is crucial, especially as governments in emerging economies increasingly attempt to reduce environmental impacts by strengthening environmental regulations (Shi et al., 2021; Wolde-Rufael & Mulat-Weldemeskel, 2021).

Regarding family firms and PES, most studies have focused on developed economies and China (Berrone et al., 2010; Block & Wagner, 2014; Fan et al., 2021; Gibb Dyer & David Whetten, 2006; Miroshnychenko & De Massis, 2022; Rees & Rodionova, 2015). However,

family firms play a key role in emerging economies due to their contributions to employment and GDP (Björnberg & Pandit, 2015; Broccardo et al., 2019) and their strong embeddedness in social systems (Berrone et al., 2022). Their behavior is driven by factors beyond financial considerations (i.e., family identification or family bonds), which make them more prone to adopt PES (Berrone et al., 2010, 2012; Broccardo et al., 2019; Gomez-Mejia et al., 2011; Li et al., 2023; Swab et al., 2020). As a result, they serve as a keystone for reducing the private sector's environmental footprint in developing countries.

The main goal of this dissertation is to understand how firms in emerging economies adopt PES to mitigate their environmental footprint. The first specific objective is to investigate the impact of informal competition on the adoption of PES among formal firms, including the moderating effects of an external factor (the number of formal competitors) and an internal factor (the CEO's years of experience). The second specific objective is to assess the impact of family ownership on PES adoption in emerging economies and to determine how external contextual factors such as the level of informal firm competition and EPS moderate this relationship.

From a theoretical perspective, this dissertation employs the Attention-Based View (ABV) (Ocasio, 1997) in the first empirical paper to address the first objective. The second empirical study draws on the Socioemotional Wealth (SEW) theory (Berrone et al., 2012) to achieve the second objective.

Chapter 2 addresses the first objective through the article "The effect of competition from informal firms on proactive environmental strategies in emerging economies" (Heredia et al., 2024) published in *Business Strategy and the Environment*, ranked in the first decile of the Management discipline (5/407). This chapter examines how informal competition influences the adoption of PES by formal firms in emerging economies, as well as the moderating role of

formal competition and managerial experience.

When operating in markets with high levels of informality, formal firms face a dilemma: they can imitate informal firms by engaging in illegal practices such as tax evasion and corruption (Gokalp et al., 2017; Iriyama et al., 2016), or they can respond with innovation as a means of differentiation (McCann & Bahl, 2017). Nevertheless, the impact of informal competition on PES adoption by formal firms as a differentiation tool has not yet been evaluated. Moreover, formal firms compete not only with informal firms but also with other formal firms, and this dual competition may shape their attention to informal firms (McCann & Bahl, 2017). Additionally, managerial attention may shift based on key actors within the organization, particularly the CEO's managerial experience.

Using the ABV lens theory, which posits that managers focus their attention on only certain issues and potential responses, due to bounded rationality (Brielmaier & Friesl, 2023; Ocasio, 1997), the adoption of PES by formal firms can be a strategic response to the threat posed by informal competitors. By adopting PES, firms may reduce costs, and access new markets (Ambec & Lanoie, 2008), helping offset the cost advantages of informal firms. This positive effect, however, may be moderate and diminished as the number of formal competitors increases.

Formal firms perceive competition not only from informal firms but also from other formal firms operating in local, regional, national, and international markets. These formal competitors benefit from access to formal financing and skilled human resources (Assenova & Sorenson, 2017). In contrast, informal competitors often rely on family resources and operate in local markets, making them less visible (Boafo et al., 2022; Boudreaux et al., 2022; Phaniel & Knott, 2016). As a result, when there are numerous other formal rivals formal firms may

overlook informal competitors reducing the positive impact of informal competition on PES adoption.

Furthermore, the positive impact of informal competition on PES adoption is likely moderated and diminished when Chief Executive Officers (CEOs) have more years of managerial experience, reflecting accumulated knowledge of the industry and beliefs (Ocasio, 1997). More experienced CEOs may view informal competitors as small-scale operations lacking comparable resources (Distinguin et al., 2016) or functional knowledge (e.g., marketing or finance) (Thatchenkery, 2017). Consequently, experienced CEOs may feel overconfident in their knowledge and capabilities, causing them to disregard informal firms as a relevant threat (Zajac & Bazerman, 1991). This reduced attention to informal competitors diminishes the positive impact of informal competition on PES adoption.

Theoretically, Chapter 2 expands the understanding of how informal competition can positively influence formal firms' PES adoption, contrasting the negative impact observed under formal competition in China (Chen et al., 2015; Guo et al., 2022). By highlighting informal competition as a driver for differentiation where formal firms use PES to reduce costs, lower energy consumption (Denis Boatfield, 1984; Shrivastava & Hart, 1995; Zhao et al., 2022) and gain access to new markets (Ambec & Lanoie, 2008; George et al., 2015), this research extends the literature on competitive dynamics between formal and informal firms, which has predominantly focused on innovation (McCann & Bahl, 2017; Miocevic et al., 2022). Additionally, it uncovers the critical role of cognitive factors, such as top managers' industry experience, in guiding attention toward the threat posed by informal competitors.

Chapter 3 addresses the second objective through the article "Proactive environmental strategies adoption by family firms in developing countries: The role of informality and

environmental policy stringency” which passed desk rejection in Corporate Social Responsibility and Environmental Management, (ranked 23/407 in the Management discipline). This chapter examines how the degree of family ownership influences the adoption of PES, and how external factors such as the level of informal firm competition and EPS moderate this relationship.

In emerging economies, family firms typically operate in contexts of high Family Business Legitimacy (FBL), defined as the process by which family firms gain acceptance and validation from key stakeholders (Berrone et al., 2022: 1156). Consequently, these firms are more likely to prioritize non-financial dimensions (e.g., “emotional attachment,” “control and influence,” “identification of family members with the firm,” “binding social ties,” and “renewal of family bonds through dynastic succession”) over purely financial considerations (Berrone et al., 2012, 2022). Research on family firms in emerging economies, particularly in Asia, suggests that these non-financial dimensions especially “identification of family members with the firm,” “binding social ties,” and “renewal of family bonds through succession” can be reinforced by adopting PES (Berrone et al., 2023; Dayan et al., 2019; J. Li et al., 2023; Nikolakis et al., 2022). While evidence from developed economies and China primarily highlights that this positive effect is moderated by internal factors (e.g., long-term orientation)(Dou et al., 2019), contextual factors in emerging economies (de Abreu et al., 2023; Peng et al., 2009) such as informal competition and EPS may also play a relevant role in moderating the relationship between family firms and the adoption of PES.

Most informal firms in emerging economies are small and are managed and operated as family firms (Losby et al., 2002). As such, some formal family firms may face similar resource constraints (Alvaro González & Francesca Lamanna, 2007; Distinguin et al., 2016; Losby et al., 2002). Consequently, understanding how they respond to informal competition when adopting

PES is crucial. Family firms also consider non-financial factors such as obligations to extended family members, reputational gains associated with PES adoption, and the required investments (Berrone et al., 2010, 2012, 2023; Dayan et al., 2019; Gomez-Mejia et al., 2014, 2023; Khavul et al., 2009; Liu et al., 2023; Souder et al., 2017).

Another relevant contextual factor is the degree of EPS. The impact of EPS on family firms' adoption of PES remains inconclusive (Agostino & Ruberto, 2021; Fan et al., 2021; Flores-Rivera et al., 2024). On the one hand, stringent EPS can help family firms gain legitimacy and align with their long-term perspective (Fan et al., 2021). On the other hand, it may threaten the flexibility of family firms because the required process and product modifications can compromise family control, potentially necessitating the hiring of external workers or the acquisition of external knowledge and financing (Arena & Michelon, 2018).

Chapter 3 employs the SEW theory, which highlights that family firms prioritize non-financial objectives such as maintaining family control and influence within the firm, emotional attachment of family members, and strengthening family identification over only financial considerations in their strategic decisions (Berrone et al., 2012: 259; Swab et al., 2020). Consequently, family firms often adopt PES to gain legitimacy, avoid reputational damage, reinforce family identification with the firm, ensure the renewal of family bonds in the long term, and build social ties with the community (Berrone et al., 2010, 2023; Block & Wagner, 2014; Broccardo et al., 2019). In emerging economies, where emotional ties and community engagement can be particularly strong, family firms may be even more motivated to safeguard their SEW by implementing PES (Berrone et al., 2022).

Informal competition is introduced as the first moderator of the relationship between family firms and PES adoption. When competition from informal firms is high family firms may

imitate these competitors by focusing on core activities, rather than allocating resources to PES. This behavior may arise from the trade-offs between PES related investments and reputational gains (Heredia et al., 2024; B. Liu et al., 2023; Zhao et al., 2022). In contexts where some family firms share similarities with informal firms (e.g., in size, and financing), they may prioritize stable income for their family (Alvaro González & Francesca Lamanna 2007; Distinguin et al., 2016; Gomez-Mejia et al., 2024; Khavul et al., 2009) choosing to concentrate on their core business activities. In such cases, high levels of informal firm competition may weaken family firms' adoption of PES in order to secure family income (Berrone et al., 2012; Gomez-Mejia et al., 2024; Khavul et al., 2009).

EPS is the second moderator. Stricter EPS often requires new expertise, financing, and operational modifications that can undermine family control and influence (Arena & Michelon, 2018). Additionally, it may affect emotional bonds with customers, particularly if governments require the use of more environmentally friendly inputs that could compromise product quality or taste. Hence, stringent EPS may weaken family firms' adoption of PES.

The theoretical contribution of Chapter 3 lies in extending the literature on PES adoption by providing new evidence from developing economies, where family ownership are common. It highlights the unique, idiosyncratic behavior of family firms in emerging economies (Berrone et al., 2022), regarding PES adoption under SEW theory. Additionally, it examines two contextual factors competition from informal firms and EPS thus broadening the scope of prior research (Battisti et al., 2023; Berrone et al., 2010; Dekker & Hasso, 2016; Dou et al., 2019; Graafland, 2020).

The two empirical studies in this dissertation contribute to the literature on PES in emerging economies by incorporating an often-overlooked stakeholder: competition from

informal firms. By examining this kind of competition, this research provides a more comprehensive understanding of the drivers and barriers to PES adoption. Furthermore, this dissertation takes a holistic approach by analyzing both external factors such as formal and informal competition and environmental regulatory stringency, and internal factors, including family ownership and managerial experience. In doing so, it offers deeper insights into how firms in emerging economies navigate environmental challenges and contribute to sustainable development.

## **Chapter 2**

### **ARTICLE 1. THE EFFECT OF COMPETITION FROM INFORMAL FIRMS ON PROACTIVE ENVIRONMENTAL STRATEGIES IN EMERGING ECONOMIES**

## **The effect of competition from informal firms on proactive environmental strategies in emerging economies**

### **Abstract**

Drawing on the Attention Base View (ABV) theory, this paper examines the adoption of Proactive Environmental Strategies (PES) by formal firms in emerging economies and explores the influence of informal competition. We investigate the moderating effects of contextual factors (number of formal competitors) and firm characteristics (CEO's experience). Using data from the 2019 World Bank Enterprise Survey, we apply a Negative Binomial model to a sample of 7436 manufacturing firms across 25 emerging economies. Unlike previous evidence, our findings suggest that formal firms facing competition from informal counterparts tend to adopt PES to bolster competitiveness. However, the perception of high formal competition and the CEO's industry experience may reduce PES adoption. This study advances our understanding of PES adoption in emerging economies, emphasizing the significance of informal competition. It also increases the evidence of the ABV approach to environmental strategy research, offering insights for managing environmental challenges in emerging markets.

**KEYWORDS:** Informal competition, emerging economies, proactive environmental strategies, top manager experience, formal competition, manufacturing firms.

### **1 | INTRODUCTION**

Recent structural changes related to environmental pressures, such as responses to climate change, are creating new challenges for firms, governments, consumers, and scientists alike (Dietz et al., 2003; Whiteman et al., 2013). For businesses, some estimates suggest that firms and organizations could face increases of "up to US\$120 billion in costs from environmental risks" in the short term (CDP 2021: 9). In this context, firms are forced to take action in reducing the environmental impacts of their operations (Sharma & Sharma, 2011; Sharma & Ruud, 2003; Shrivastava & Hart, 1995) for instance by adopting pollution prevention strategies to decrease

their environmental footprint (Hart & Dowell, 2011; King & Lenox, 2002; Sharma & Henriques, 2005). This paper sheds light on such issues by assessing the drivers leading firms to adopt Proactive Environmental Strategies (PES).

PES refers to a company's voluntary actions to decrease its impact on the natural environment (González-Benito & González-Benito, 2006a; Potrich et al., 2019). It is strategic, as its implementation aims to distinguish itself from its competitors and achieve better performance (Frank, 2017; Porter, 1996). These strategic actions can be observed across three levels: roles and policies; product and process operational practices, which often have the most significant environmental impact; and communication methods, including environmental reporting (González-Benito & González-Benito, 2006). Here, we focus on environmental operational practices.

The evidence suggests that the implementation of PES provides benefits for firms by increasing efficiency, competitiveness, legitimacy of customers, and better access to credits, thus reducing the costs of raw material and energy, among others (Ambec & Lanoie, 2008; Banerjee et al., 2019; Hart & Dowell, 2011), which ultimately could affect firms' performance (Aragón-Correa & Sharma, 2003; Chan et al., 2022).

The adoption of PES depends on firms' internal and external features (Whiteman et al., 2013). At the internal level, there is a relationship between PES adoption and firm's size and age (Banerjee et al., 2019; Uhlener et al., 2012), physical assets such as plant and equipment (Bansal, 2005; Russo et al., 1997); membership in a business group (Ray & Ray, 2018); and CEO experience (Anupam Kumar, 2018; Bansal, 2005; Seroka-Stolka & Fijorek, 2020) among others. External features that affect the adoption of PES include government policies (Bansal, 2005; Hoogendoorn et al., 2015; Seroka-Stolka & Fijorek, 2020), stakeholder pressure

(Balasubramanian et al., 2021), and the level of formal competition (Aboelmaged, 2018; Chan et al., 2022; Seroka-Stolka & Fijorek, 2020; Zhu, Qinghua, 2015). Most of the research on PES implementation and competition has primarily focused on developed nations, such as the U.S., Europe, and China (Balasubramanian et al., 2021; Duanmu et al., 2018; Elkhwesky, 2022; Forgione & Migliardo, 2022; Graafland, 2016).

This study concentrates on emerging economies because their environmental footprint is growing more rapidly than in developed nations (Mishra & Yadav, 2021; Nguyen et al., 2018). Additionally, emerging economies represent "two-thirds of global growth in the past decade" (Morris, Aguilera, Fisher, & Thatcher, 2023: 1). In this context, policymakers have increasing concerns about how these economies will be able to transition to a more friendly environmental status (Sharma & Ruud, 2003; Shi et al., 2021) considering the limited internal guidelines for environmental performance (Etzion, 2007; Sharma & Ruud, 2003) and the existence of a large informal sector (Bu et al., 2022; Iriyama et al., 2016).

In developing economies, the informal sector accounts for one-third of the GDP and 70% of overall employment (Ohnsorge & Shu Yu, 2022). Informal competition arises when firms do not pay taxes, do not provide social benefits to their employees, skirt environmental laws, and do not register with the government but still sell legal products and services that consumers accept (Godfrey, 2011; Miocevic et al., 2022; Phanuel et al., 2016; Salvi et al., 2022; Webb et al., 2009). Thus, in developing countries, formal firms cohabit with a large sector of informal firms.

Studies on the impact of informal competition on formal firms' behavior have concentrated on areas such as innovation (Abbas et al., 2022; Heredia et al., 2019; Mccann & Bahl, 2017), research and development (Kouakou, 2022), credit constraints (Distinguin et al., 2016), corruption (Xie et al., 2018), performance (Piperopoulos et al., 2021), job creation (Amin, 2023),

tax evasion (Gokalp et al., 2017) and energy intensity (Zhao et al., 2022). Hence, the analysis of informal competition on PES adoption by formal firms has been neglected in the literature, perhaps because informal competition is not a relevant sector in developed countries.

This paper aims to assess the impact of informal competition on the adoption of PES by formal firms in emerging economies using the Attention Base View (ABV) theory. Furthermore, it seeks to investigate how contextual factors (i.e., level of formal competition) and firm characteristics (i.e., CEO sector experience) moderate this relationship. Using a Negative Binomial model, we tested our hypotheses using a sample of 9975 manufacturing firms from 20 industries in 25 emerging economies, as the 2019 World Bank Enterprise Survey reported.

Our study contributes to the literature in three ways. First, we present evidence of PES adoption in emerging countries, a commonly underrepresented study setting. Secondly, by focusing on emerging economies, we evaluate the impact of informal competition on PES adoption. This is a recent call for assessing the effects of informal competition on distinct outcomes (McCann & Bahl, 2017). Finally, we provide new evidence about the influence of cognitive factors on the decision to adopt PES under informal competition, specifically the role of CEOs' years of experience.

This paper is structured as follows: the second section presents previous evidence on PES, focusing on competition. The third section presents the theoretical framework used, whereas section four shows the development of the hypotheses. Section five delves into the methods, detailing the data, sample, and econometric approach. Section six presents the main results of our study. The next section of the paper is devoted to the discussion, implications, and limitations (section 7). Finally, section 8 presents the main conclusions of our study.

## **2 | ADOPTION OF PROACTIVE ENVIRONMENTAL PRACTICES (PES) AND THE IMPACT OF COMPETITION**

The literature on PES has analyzed both internal and external factors. Internal factors include environmental cooperation and organizational capabilities, while external factors include institutional influences, stakeholder pressure, and industry-based factors (Aragón-Correa et al., 2008; Darnall et al., 2010; Delmas & Toffel, 2008; Shi et al., 2008; Vachon & Klassen, 2008). Additionally, other studies have investigated the development of green product innovation (Dangelico & Pujari, 2010) and the categorization of environmental strategies based on their proactivity levels, ranging from reactive ("end-of-pipe") to proactive ("pollution prevention") (Berrone & Gomez-Mejia, 2009: 103). Others have analyzed more advanced sustainable practices such as "Ecosystem stewardship, eco-design, and business redefinition"(Sharma & Henriques, 2005: 168).

Previous reviews on PES adoption have shown that most studies have focused on developed economies, single-country analyses, or China, with a particular focus on regulation and internal factors such as "environmental commitment," "environmental concern," "environmental training" (Balasubramanian et al., 2021:1399; Elkhwesky, 2022:3281), along with organizational characteristics, stakeholder pressure, or individual factors (Balasubramanian et al., 2021; Etzion, 2007; González-Benito & González-Benito, 2006). While the above-mentioned factors influence PES, the role of competition in PES adoption remains inconclusive.

Extant literature has shown that various types of market competition can affect the adoption of PES. These types include competition for resources, competition in the product market, and competition in price (Graafland, 2016; Lee et al., 2018; Tsendsuren et al., 2021). Most of the research concludes that the effect of market competition is positive on PES adoption. For instance, Flammer, (2014) suggests that public firms in the United States use corporate social

responsibility as a differentiation strategy (including environmental practices). Forgione & Migliardo, (2022) found that increased competition enhances environmental performance in U.S. manufacturing firms. Other studies have indicated that firms tend to mirror their peers' investments, resulting in increased investment in renewable energy(Weigelt & Shittu, 2016).

Additionally, research has found that competition for limited resources prompts firms to adopt environmental practices (Lee et al., 2018). On the contrary, Tsendsuren et al., (2021) discovered a negative impact of product market competition on the environmental responsibility of firms. Additionally, Graafland, (2016) argues that the effect of product price competition is small and negatively correlated with environmental performance.

Meng et al., (2016) uncovered an inverted U-shaped relationship between competition and corporate environmental responsibility among manufacturing firms in China. Moreover, Guo et al., (2022) noted that market competition negatively affects green innovation in manufacturing firms. Similar results are reported by Duanmu et al., (2018), in which market competition hinders the environmental performance of manufacturing firms. However, the negative impact is alleviated by a differentiation strategy that reduces the adverse effects of market competition on environmental performance (Duanmu et al., 2018).

As noted by previous research, most of the evidence on PES adoption is focused on developed economies and China, where the study of competition-related factors is restricted to formal competition. This paper aims to provide new evidence and close the knowledge gap of PES adoption in developing economies. In doing that, we need to study the effect of informal competition, a relevant economic sector, on those economies.

### **3 | THEORETICAL BACKGROUND**

To study the effect of informal competition on PES adoption, we draw on the ABV of the firm (Ocasio, 1997). Ocasio highlighted "organizations as systems of distributed attention" for decision-making (Ocasio, 1997: 189). These structures include "procedures and communication channels" and four regulators (rules of the game, structural position, players, and resources) (Ocasio, 1997: 192) linked to the environment and individuals' cognition in shaping firm attention and firm behavior (Ocasio, 1997). According to Ocasio (1997: 189), "Attention is defined to encompass the noticing, encoding, interpreting, and focusing of time and effort by organizational decision-makers on both (a) issues; the available repertoire of categories for making sense of the environment: problems, opportunities, and threats; and (b) answers: the available repertoire of action alternatives: proposals, routines, projects, programs, and procedures."

The ABV is rooted in two assumptions. The first assumption of ABV is that "executive attention or control" refers to a firm's voluntary focus of time and effort to notice, encode, and interpret issues and answers (Ocasio, 2011: 1287) due to the limited attentional capacity resulting from bounded rationality of decision makers (Brielmaier & Friesl, 2023). The second assumption is selective attention (Ocasio, 2011, 2012: 313) because the firm focuses on specific issues based on situational factors at specific moments in time, focusing on the firm's communication channels that distribute attention (Ocasio, 2011, 2012: 301).

Based on its assumptions, the ABV proposes three premises. First, the focus of attention affects firms' outcomes and depends on the issues and answers that firms concentrate on (Ocasio, 2011). Second, the situational context determines which issues and answers firms focus on (Ocasio, 2011), while the third premise states that firms prioritize specific issues or solutions based on the context in which they are found, as well as the "attention structures" and

"procedures and communication channels" within the organization(Ocasio 2011). Further, the ABV considers four structural regulators that impact organizational behavior: the rules of the game (formal or informal norms and guidelines), the players (individuals involved in decision-making), structural positions (roles and positions that direct attention within the organization), and available resources (tangible and intangible assets that impact directed attention) (Ocasio, 1997).

The ABV has been used to highlight the impact of the diversity of firm attention as a limited resource on various outcomes, such as top management team attention to innovation and new product development (Li & Smith, 2013; McCann & Bahl, 2017), non-CEO mobility (Buyl et al., 2015), corporate strategy (Joseph & Wilson, 2018), green innovation (Andersén, 2022), firm performance (Eklund & Mannor, 2021), renewable energy use (Weigelt & Shittu, 2016), and boards' impact on sustainability development (Galbreath, 2018). Refer to Brielmaier & Friesl, (2023) study for a comprehensive review of ABV.

Our study builds upon the research conducted by McCann & Bahl, (2017), which utilized the ABV to investigate the impact of informal competition on new product development moderated by formal competition, the prevalence of irregular payments, and regulatory optimism as external factors. We differ from McCann & Bahl, (2017) in that we focus on the impact of informal competition on PES adoption, with formal competition considered as a moderator variable in this relationship. We also included the CEO's years of experience as an internal factor that diverts attention from informal firms.

#### **4 | HYPOTHESES DEVELOPMENT**

This section introduces our conceptual model and delineates the hypotheses derived from the three ABV premises (Figure 1). We draw on the first premise of the ABV, focus attention, to understand the impact of informal competition on PES adoption by formal firms. The second premise, situated attention, is used to assess the moderating role of formal competition. Finally, based on the third premise, structural distribute of attention, we focus on the CEO's years of experience in the industry as a moderating factor in the relationship between informal competition and PES adoption.

-----  
Insert Figure 1 around here  
-----

##### **4.1 | Informal competition in emerging economies**

According to the first premise of the ABV, formal firms pay attention to some issues (problems, opportunities, and threats) and respond with various answers (the available repertoire of action alternatives) (Joseph & Wilson, 2018; Ocasio, 1997). In our case, we claim that informal firms represent an issue to formal firms, as they compete for the same customers and resources, thereby capturing market share from formal firms (Iriyama et al., 2016; McCann & Bahl, 2017; McGahan, 2012; Mendi & Costamagna, 2017).

Informal firms operating outside institutional frameworks enjoy cost, time, and flexibility advantages over their formal counterparts (McCann & Bahl, 2017). Further, some informal firms engage in innovation activities related to processes and products (Nyaware, 2019), significantly influencing their productivity (Fu et al., 2018). They also possess language skills that allow them to access a broader range of customers and have marketing capabilities to reach markets beyond their local area (Boafo et al., 2022; Grimm et al., 2012; Tang & Konde, 2021). Additionally, informal firms are present in several industries such as dairy (Alexopoulou-Giannakitsa, 2011), apparel industry (Carneiro-Da-Cunha & Rossetto, 2015), textile sector, leather tanning, and

metalworking (Blackman, 2000: 2067; Sweet, 2023), printing (Darbi & Knott, 2016) and electric equipment (Siqueira & Bruton, 2010:43). As a result, formal firms operating in emerging economies face a significant challenge from informal firms. Therefore, formal firms should be aware of the issue of informal competition.

Previous research suggests that formal firms may answer with different strategies to differentiate themselves from their informal counterparts. For instance, formal firms may increase innovation as a differentiating strategy when faced with informal competition in developing countries (Dwibedy, 2022; McCann & Bahl, 2017; Miocevic et al., 2022). In addition, Williams, & Kosta, (2020) found that formal firms competing with informal firms increased their performance because formal firms have greater legitimacy (i.e., formal status), which signals quality, stability, or prestige and may attract customers who prefer to buy from such firms.

We argue that PES adoption may be another differentiation strategy that could hinder imitation from informal firms because they are weaker in resources and capabilities to protect the environment (Ben et al., 2018; Blackman, 2000; Lloret, 2012; Sweet, 2023). PES adoption, as a differentiated element, will benefit the formal firms by increasing the "downstream demand" (Schillebeeckx et al., 2022: 475), reducing energy intensity (Zhao et al., 2022), reducing risks by improving their relations with stakeholders (Ambec & Lanoie, 2008; Flammer, 2014; Seroka-Stolka & Fijorek, 2020), and increasing performance (Ambec & Lanoie, 2008; Fernandez, 2022). Thus, we propose the following hypothesis:

**Hypothesis 1.** Formal firms are more likely to adopt PES when they perceive a higher degree of obstacles from informal competitors.

#### **4.2 | Moderating factors of informal competition on PES adoption: formal competition and CEO years of experience.**

According to the second premise of the ABV, firms practice situational attention by analyzing, interpreting, and selectively directing their focus to specific issues or answers based on their contextual situation (Ocasio, 2011, 2012). In this research, we propose that formal firms' perception of a high number of formal competitors can moderate the direct effect of informal competition on PES adoption. Previous studies have shown that the level of competition may act as a situational factor in the relationship between informal competition and new product development and exporting (Deb et al., 2020; McCann & Bahl, 2017). Therefore, we investigate whether the perception of many formal competitors moderates the relationship between informal competition and PES adoption (Bergen & Peteraf, 2002; Marcel et al., 2011; Porac & Thomas, 1994).

Formal firms may categorize market competition among formal and informal firms based on geographic scope, resources (Baum & Lant, 2003; Bergen & Peteraf, 2002; Reger & Palmer, 1996: 33; Clark Bruce, 1999: 80); and basic strategy (Clark Bruce, 1999: 80). These factors guide their strategic planning (Ghoshal & Westney, 1991: 24).

Regarding geographic scope and resources, formal firms tend to pay less attention to informal competitors when they perceive many formal competitors because they can compete across multiple markets, from local to global, using equivalent resources such as formal financing and qualified personnel (Assenova & Sorenson, 2017). At the same time, informal firms predominantly operate at a local scale due to their status and capabilities (Boafo et al., 2022) and often rely on support from family and friends to obtain resources (Boudreaux et al., 2022; Phanel et al., 2016).

Regarding the basic strategy, the formal firm acknowledges that many other formal competitors may cater to a diverse range of customers, including government agencies and B2B clients (Assenova & Sorenson, 2017; Bergen & Peteraf, 2002) and can implement extensive marketing strategies to reach a wider audience (Phanuel et al., 2016). On the other hand, informal firms struggle to access a diverse customer base, and they rely on word-of-mouth as their marketing strategy due to their status (Bu & Cuervo-Cazurra, 2020; Assenova & Sorenson, 2017; Phanuel et al., 2016).

We argue that the similarities in geographic scope, resources, and basic strategy in which formal firms operate, plus the perceived lower threat from informal competitors, lead formal firms to overlook informal competitors when there is a high presence of formal rivals (Clark Bruce, 1999; Porac et al., 1995). Thus, we propose the following hypothesis:

**Hypothesis 2:** The positive relationship between informal competition and the adoption of PES weakens when formal firms face a high number of formal competitors.

Finally, the third premise of ABV describes categories of attention regulators: "rules of the game, key players, structural positions and resources"(Ocasio, 1997: 192) that generate a distribution focus of attention. We argue that a CEO with industry experience can exert influence in their attention regarding informal firms and their impact on PES adoption through two attention regulators: the CEO's "relevant players" and "structural position" (Ocasio, 1997).

The impact of the CEO's years of experience on PES adoption shows conflicting views from scholars. While some argue for a positive influence (Bansal, 2005; Kumar & Paraskevas, 2018; Seroka-Stolka & Fijorek, 2020), others claim that it does not affect PES adoption (Aguilera-Caracuel et al., 2012; Reimann et al., 2014). Furthermore, CEOs play a crucial role in regulating attention and shaping the perception and interpretation of competition by defining its relevance

and legitimacy and potentially invalidating certain competitors (Galbreath, 2018: 744; Ocasio, 1997: 197; Porac & Thomas, 1990). This regulating attention is based on CEOs' perceptions of peers in similar cohorts or with similar tenure and functional backgrounds (Thatchenkery, 2017, p. 110), as well as tangible attributes of firms such as geographic scope, performance, and size (Reger & Palmer, 1996: 33), number of employees, and production capacity (Clark Bruce, 1999: 80), among others.

CEOs, as a structural position, can influence the firm's attention regulators through their specific "skills, values, and beliefs" (Ocasio, 1997: 197). Experienced CEOs in a particular sector use fewer attributes to categorize competitors than less experienced ones (Clark Bruce, 1999). The CEO's experience reveals competitors who are more significant based on their distinctive knowledge about the industry, which derives from their mental models of past interactions and experiences (Baum & Lant, 2003: 147; Hossein Nejad, 2014; Thatchenkery, 2017) resulting in certain managers may possess outdated competitive mental frameworks (Baum & Lant, 2003) that focus on obvious competitors rather than peripheral. Additionally, CEOs with significant industry expertise comprehensively understand their respective sectors, including competitive landscapes, regulatory protocols, technological advancements, and consumer behavior patterns (Cho & Hambrick, 2006; Kor & Misangyi, 2008; Miocevic et al., 2022). However, this extensive industry knowledge can lead to CEO overconfidence in his skills and predictions (Camerer et al., 1999; Hayward et al., 2006; Zhang, 2017).

Overconfidence may result from competitive actors failing to consider their opponents' perspective (Menkhoff, Schmidt, & Brozynski, 2006; Zajac & Bazerman, 1991: 43). Accordingly, CEOs with greater experience, influenced by overconfidence, as well as similarities

in "firm attributes" among competitors (Reger & Palmer, 1996), may classify informal firms as historically unproductive, having low skills, varying resources and a lack of market overlap (Distinguin et al., 2016). Furthermore, the CEO with more experience, as perceived through "CEO similarity" (Thatchenkery, 2017, p. 110), categorized informal firms as a distinct "CEO cohort" and "functional background" (Thatchenkery, 2017: 133). Consequently, the CEO with greater experience in a formal firm acknowledged that informal firms do not pose a significant threat, resulting in reduced attention towards them.

Thus, informal firms are not perceived as a threat by CEOs with extensive experience, which leads to a lack of motivation to search for new strategies (Hu et al., 2023), as well as reluctance to pursue "new projects" (Barnett, 2008). As a result, CEOs remain embedded in their current practices and avoid taking action, such as adopting PES (Hambrick et al., 1993; Gibbons & O'Brien, 2001). This narrow perspective of behavior or cognitive rigidity can hinder responsiveness and a willingness to challenge the status quo. Thus, we propose the following hypothesis:

**Hypothesis 3:** The positive relationship between informal competition and the adoption of PES weakens with the number of years of manager's sector experience.

## 5 | METHOD

In this methodological section, we first show the data and sample process. Then, we explain the operationalization and justification of the dependent, the independent, and the control variables. Finally, we detailed the econometric approach used.

### 5.1 | Data and sample

The European Bank for Reconstruction and Development (EBRD), The European Investment Bank (EIB), and the World Bank (W.B.) deployed The Business Environment and Enterprise Performance Survey (BEEPS) in 2018-2020. The survey encompasses 41 economies in the

European Union, Eastern Europe, Central Asia, the Middle East, and North Africa (<https://www.beeeps-ebrd.com/>). The survey is a standardized instrument for CEOs or firm owners to answer, ensuring comparability between countries (Krammer & Jimenez, 2020). The data follows a stratified sampling by size, sector, and country (Krammer & Jimenez, 2020; Krammer, 2019).

We tested our hypotheses using data obtained from the 2019 BEEPS, which includes a green economy module suitable for investigating the influence of firm characteristics, government environmental policy, and competition on PES adoption (Fernandez, 2022). We followed Hoskisson, Wright, Filatotchev, & Peng, (2013) latest categorization scheme for emerging economies, which recognizes a level of institutional and factor market-based improvement and sophistication.

We used Hoskisson et al., (2013) classification to the 2019 data reported by the World Bank, allowing for the classification of 25 European and Central Asia countries as emerging economies: Albania, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia FYR, Moldova, Poland, Portugal, Romania, Russian Federation, Slovak Republic, Slovenia, Tajikistan, Turkey, Ukraine, and Uzbekistan. The sample shows an average informal economy of 33.7% from 1991-2015, with a minimum of 16.6% in the Slovak Republic and a maximum of 64.9% in Georgia (Medina & Schneider, 2017).

Among the different sectors, we focused on manufacturing firms as they exhibit a greater propensity towards adopting PES when contrasted with the service and retail sectors (Etzion, 2007; Taiyuan Wang, 2012). The database included 9975 observations, and after debugging, our final sample comprised 7436 manufacturing firms across 20 industries: Food; Tobacco; Textiles;

Garments; Leather; Wood; Paper; Publishing, Printing, and Recorded Media; Refined Petroleum Product; Chemicals; Plastics and Rubber; Nonmetallic Mineral Products; Basic Metals; Fabricated Metal Products; Machinery and Equipment; Electronics; Precision Instruments; Transport Machines; Furniture; and Recycling.

## 5.2 | Measures

**5.2.1 | Proactive environmental strategies.** We focus on operational practices such as upgrading machines, managing energy and water, or implementing pollution prevention measures. The adoption of these practices is strategic as it enables a firm to differentiate itself from its competitors (Graafland, 2016; Frank, 2017; Porter, 1996), minimize its impact on the natural environment (Elkhwesky, 2022; González-Benito & González-Benito, 2006; Potrich et al., 2019), and its adoption is voluntary (Aragón-Correa & Rubio-López, 2007). Thus, aligning with our definition of PES.

The BEEPS green economy module, particularly the management and environment submodule, was employed to capture the strategy and proactive element. The module includes a survey question that asks, 'Over the last three years, did this establishment adopt any of the following measures?' The question encompasses 10 dichotomous variables related to operational environmental practices, as described by Nguyen et al., (2022): "heating and cooling improvements; more climate-friendly energy generation on-site; machinery and equipment upgrades; energy management; waste minimization, recycling, and waste management; air pollution control measures; water management; upgrades of vehicles; improvements to lighting systems; and other pollution control measures."

We define PES as a discrete variable that takes the value of zero if the firm did not implement PES and 10 if the firm applies all PES (refer to Table 1). Our operationalization approach closely aligns with Chan, Lai, & Kim, (2022: 2134), which includes four activities:

"PES1: Development of new technologies aimed at reducing the amount of energy and materials consumed", "PES2: Voluntarily taking initiatives aimed at preventing pollution at source", "PES3: Integrating environmental issues into strategic planning", PES4: "Development of new technologies to prevent any contaminant and/or toxic emission at source". Furthermore, our approach to operationalizing PES also aligns with Nguyen et al., (2022) methodology, which encompasses the same ten operational environmental practices mentioned previously. Additionally, Nguyen et al. (2022) used organizational strategies, including climate change objectives and an environmental manager, as well as planning variables such as external audits, water and energy monitoring, CO2 emissions, and target setting as dependent variables. The study also considered a combination of planning, organizational, and operational factors.

**5.2.2 | Informal competition.** The BEEPS module on Degree of Competition presented a question regarding informal competition: "To what degree are practices of competitors in the informal sector an obstacle to the current operations of this establishment?". This variable is measured on a Likert scale with options ranging from 0 (No Obstacle) to 4 (Very Severe Obstacle). (Table 1). Our operationalization follows the measures McCann & Bahl, (2017) used to account for the degree of informal competition as an obstacle.

**5.2.3 | Formal competition.** The BEEPS module on the degree of competition includes a question on the self-reported perceptions of the CEOs or owners on the number of competitors they face in their main market. Using the survey question, "In fiscal year for the main market in which this establishment sold its main product, how many competitors did this establishment's main product face?" as presented in Table 1. We created a categorical variable that takes three values: 0 if the firm does not face competitors (monopoly), 1 if the number of competitors is within the range [1 - 10] (oligopoly), 2 if the number of competitors is within the range [11 - 50]

(moderate competition), and 3 if the number of competitors is larger than 50 (high competition). Our measure is a proxy that captures the perceived competitive level (Aliasghar et al., 2022; Dwibedy, 2022; Nguyen et al., 2022). For example, Deb et al., (2020: 190) use a categorical variable to capture the level of formal competition ranging from 0 to 4. A value of 0 represents the range of 0 to 50 competitors, 1 represents the range of 50 to 100 competitors, 2 represents the range of 100 to 500 competitors, 3 represents the range of 500 to 1000 competitors, and 4 represents more than 1000.

**5.2.4 | CEO experience.** The BEEPS module on general information includes a question regarding "How many years of experience working in this sector does the Top Manager have?" as presented in Table 1. We define the third independent variable, "Top Manager" sector experience, as the logarithm of the number of years of experience in the sector as measured by McCann & Bahl, (2017). CEO years of experience is a standard measure as a resource and relevant player in the literature (Bansal, 2005; Kumar & Paraskevas, 2018).

**5.2.5 | Control variables.** Here, we include variables that have been considered in previous research, and that may influence PES adoption. Firms belonging to a business group positively influence the implementation of corporate sustainability strategies and performance in emerging economies (Ray & Ray, 2018). This dichotomic variable takes the value 1 if the firm belongs to a business group and zero otherwise. Policy environmental instruments, typically mandatory environmental protection rules and government enforcement (i.e., sanctions), positively affect firms' environmental strategies (Aragon-Correa et al., 2020; Hoffman, 1999). This dichotomic variable takes the value 1 if the firm was subject to a mandatory energy performance standard in its operations and zero otherwise. Additionally, we control for the logarithm of age and firm size (the number of workers) (Adomako et al., 2021; Bansal, 2005; Hart & Dowell, 2011). Large

firms adopt PES in their processes to increase efficiency and reduce the use of raw materials and energy (Hoogendoorn et al., 2015). We also control for industry type and country to consider any unobserved heterogeneity across firms and countries. We provide a detailed summary of the operationalization of each variable in Table 1.

-----  
Insert Table 1 around here  
-----

### **5.3 | Analytical approach**

We used a Negative Binomial model to test the hypotheses because the dependent variable, PES, is a discrete variable that displays overdispersion (variance greater than the mean) and ranges from zero to 10 (Cameron & Trivedi, 2022). We included the following control variables: MEPSO = mandatory energy performance standard in its operations, BUSGRP = firm belongs to a business group, AGE = age, FIRM\_SIZE = firm size. The independent variables are INF\_COM = informal competition, FC = formal competition, and CEOEXP = CEO experience. In addition, we consider the error terms  $\epsilon_1$  to  $\epsilon_5$ . The equations used to test the three hypotheses can be found in Appendix 1.

### **5.4 | Robustness test**

We performed two robustness tests to ensure the validity of our findings. First, we tested a more restricted version of PES (McCann & Bahl, 2017). Specifically, we test the robustness of our results in three scenarios: excluding only 'water management' measures, excluding only 'energy management' measures, and excluding both 'water management' and 'energy management' measures. Second, (Balasubramanian et al., 2021: 1412) suggest that environmental models should consider age, size, and ownership in tandem. Therefore, we tested our results by considering different types of ownership (family ownership, government ownership, foreign ownership, and other type of ownership) as control variables.

## 6 | RESULTS

Table 2 shows the descriptive statistics of the sample. On average, firms engaged in over 3 PES by firm. The threat of competition from informal firms to formal firms represents an average of 1.26, between a minor and moderate obstacle. The level of formal competition is within the [11 - 50] competitors. On average, 41 % of firms belong to a business group. The average experience of the CEO is high (20 years). On average, 16.3 % of firms are under a mandatory energy performance standard in their operations. Most are established firms (an average of 20 years in business). Finally, on average, the number of workers in business is 101.

-----  
Insert Table 2 around here  
-----

Table 3 shows that multicollinearity is not a problem because the correlation between control and independent variables is less than the limit threshold of 0.5 (Abbas et al., 2022; Deligianni et al., 2019; Willam Judge, 1998).

-----  
Insert Table 3 around here  
-----

Table 4 reports the results of the three hypotheses. Model 1, the base model, includes the dependent, independent, and control variables, except for informal competition. Model 2 includes the effect of informal competition on PES alone. Model 3 includes the moderator effect of informal competition with formal competition on PES alone; Model 4 includes the moderator effect of informal competition with CEO experience on PES alone. Finally, Model 5 includes the impact of informal competition and the interaction terms between informal firm competition with formal competition and CEO years of experience on PES simultaneously. In addition, in Table 4, we rejected the hypothesis that there is no overdispersion; the mean is different from the variance in the five models because the  $\ln\_alpha$  is statistically significant ( $p < 0.001$ ) (Cameron & Trivedi, 2022). Therefore, we correctly select a Negative Binomial Model (Cameron & Trivedi, 2009;

Cameron & Trivedi, 2022).

-----  
Insert Table 4 around here  
-----

According to our results, all the hypotheses are supported. Regarding the first hypothesis (model 2 in Table 4), we found that informal competition has a significant positive effect on PES adoption (0.0579,  $p < 0.001$ ). We found that the perceived level of formal competition significantly and negatively moderated the impact of informal competition on PES (-0.0206,  $p < 0.05$ ). Thus, supporting our second hypothesis (model 3 in Table 4). Finally, our third hypothesis is supported (model 4 in Table 4), as we found that the CEO sector experience significantly and negatively moderated the effect of informal competition on PES (-0.0314,  $p < 0.001$ ).

Regarding the control variables, our findings are consistent with previous research. We found that mandatory energy performance standards, firms belonging to a business group, and large firms have a positive influence on PES adoption (Aragon-Correa et al., 2020; Hoogendoorn et al., 2015; Ray & Ray, 2018), while age is not statistically significant (Balasubramanian et al., 2021).

## **7 | DISCUSSION**

In this paper, we assessed the impact of informal competition on adopting PES in emerging economies. We also analyzed the extent to which the level of formal competition and CEO sector experience moderate this relationship. As we mentioned, there is little evidence exploring the role of informal competition on environmental actions. Thus, it is difficult to frame our results in previous evidence. In a broader sense, our findings align with Zhao et al. (2022), who found that informal competition incentivizes firms to decrease energy intensity in China.

Our results suggest that the level of formal competition weakens the positive effect of

informal competition on PES as firms divert their attention from their informal counterparts. This change of attention is consistent with prior research indicating that formal competition diminishes the attention from informal competition on new product development (McCann & Bahl, 2017). However, according to Deb et al., (2020), formal competition did not moderate the positive effect of informal competition on exporting activities by formal firms. Our results reinforce that formal competition may be a contingent moderator factor that affects the direct impact of informal competition on specific outcomes (product development or PES) but not on others (exporting).

In contrast to prior research that proposed CEO competence as a mitigating factor for the adverse impact of product market competition on environmental responsibility in developed economies (Tsendsuren et al., 2021), our findings indicate that CEOs with greater experience are less likely to respond to threats from informal firms. CEOs with more experience view informal firms as a group with fewer skills to devote attention (Distinguin et al., 2016; Thatchenkery, 2017). Therefore, this lack of attention will not foster the search process for new strategies or the development of new projects, such as PES adoption, against competition from informal firms (Barnett, 2008; Hu et al., 2023).

### **7.1 | Theoretical Implications**

Our results contribute to the existing literature on PES adoption. Multiple literature reviews on PES indicated the impact of regulation (Balasubramanian et al., 2021; Bhatt & Ghuman, 2022; Elkhwesky, 2022; Etzion, 2007; Liu et al., 2015; Potrich et al., 2019), internal factors (Balasubramanian et al., 2021; Bhatt & Ghuman, 2022; Elkhwesky, 2022), and firm characteristics (Balasubramanian et al., 2021; Etzion, 2007; González-Benito & González-Benito, 2006) on PES adoption. Other evidence relates PES adoption with stakeholder pressure and personal factors (Balasubramanian et al., 2021; Etzion, 2007; González-Benito & González-

Benito, 2006; Liu et al., 2015). Therefore, the proposed model contributes to the PES literature by emphasizing the significance of informal competition as a novel external factor influencing PES adoption.

Second, our finding enables us to advance the literature on informal competitors (McGahan, 2012; Webb et al., 2013). This study adds to the existing literature on informal competition, which primarily centers on innovation (McCann & Bahl, 2017; Miocevic et al., 2022). Our results suggest that PES adoption may be an effective way for formal firms to differentiate from informal firms. For instance, formal firms can reduce energy consumption by improving their heating and cooling systems, lighting, and energy management (Denis Boatfield, 1984; Zhao et al., 2022). They can also cut costs by reducing waste and upgrading their machinery and equipment (Denis Boatfield, 1984; Shrivastava & Hart, 1995). Additionally, by implementing PES, formal firms can access new markets with higher environmental requirements, such as government or foreign markets (Ambec & Lanoie, 2008; George et al., 2015).

Third, we contribute to the existing literature on competition on PES (Bhatt & Ghuman, 2022; Etzion, 2007; González-Benito & González-Benito, 2006) that examines explicitly formal competition. Previous studies have indicated a negative impact of high formal competition on adopting PES in China (Chen et al., 2015; Guo et al., 2022). However, the negative effect weakens when firms use a differentiation strategy (Duanmu et al., 2018). Our findings demonstrate that the type of competitor, specifically informal competitors, significantly influences the adoption of PES in developing economies.

Finally, this article empirically tests and explains the factors influencing firms' attention to PES adoption. Specifically, we examine the impact of top manager experience (structural distribution of attention) on the regulation of attention to competition from informal firms when

formal firms adopt PES. Thus, we contribute to answering the call to understand the cognitive factors that influence a CEO's focus on competition, particularly concerning informal firms (Chen & Miller, 2012). Previous research has investigated the influence of CEOs' characteristics, such as their education, functional background, and industry experience, on the decision-making process and its impact on various outcomes, including the status quo and search process (Geletkanycz & Black, 2001; Gibbons & O'Brien, 2001; Hambrick et al., 1993; Hu et al., 2023). However, the impact of competitive actions on the CEOs' response has been neglected (Chen & Miller, 2012; Schwenk, 1995).

## **7.2 | Practical Implications**

Our results suggest that managers competing with informal firms may incorporate PES as a distinguishing factor to sustain their competitive edge, reduce operational expenses, and reduce the cost advantage that informal firms possess. Using PES enables formal firms to avoid the strategies employed by their informal counterparts. Previous studies have found that when competing with informal firms, formal firms may adopt corrupt practices (Iriyama et al., 2016), evade taxes (Gokalp et al., 2017), provide reduced employee training (Vivas, 2023), and fail to innovate (Mendi & Costamagna, 2017). Such practices could compromise the reputation of formal firms, expose them to fines or even shut down, and erode their competitive advantage in the long run. On the contrary, we suggest that PES could be a viable alternative to contend with competition from informal firms.

On the other hand, our findings suggest that CEOs with more experience tend to disregard competition from informal firms. Nevertheless, certain informal firms prioritize growth, disproving the prevailing notion that such firms only emerge due to necessity or lack of skills. These growth-oriented informal firms exhibit innovative capabilities and are inclined towards formalizing (Heredia et al., 2023). Therefore, a CEO with extensive experience should be

mindful of external competitive forces, including informal firms that could pose a considerable threat (Bergen & Peteraf, 2002).

Finally, the adoption of PES by formal firms in emerging economies is driven by competition from informal firms, and all firms must transition to more friendly management of the natural environment. Policymakers should create mechanisms for cooperation between informal and formal firms. For example, the government may help informal firms adjust their operations to integrate into the value chains of formal firms (Narula, 2019).

### **7.3 | Limitations and Directions for Future Research**

This study has several limitations that have implications for future research. First, we found that CEO sector experience can weaken the positive effect of informal competition on PES adoption. Unfortunately, our data does not show the type of CEO experience. Therefore, future research could consider the impact of specific types of expertise of the top manager, i.e., supply chain (Anupam Kumar, 2018) and operational experience (Nilanjana Dutt, 2019), that modify the CEO's attention. In addition, researchers need to study in depth the impact of other external and internal moderators on the relationship of informal competition on PES, such as firm age, type of ownership (Balasubramanian et al., 2021), industry taxonomy (Heredia Pérez et al., 2018), and the level of the institutional development (Xie et al., 2018).

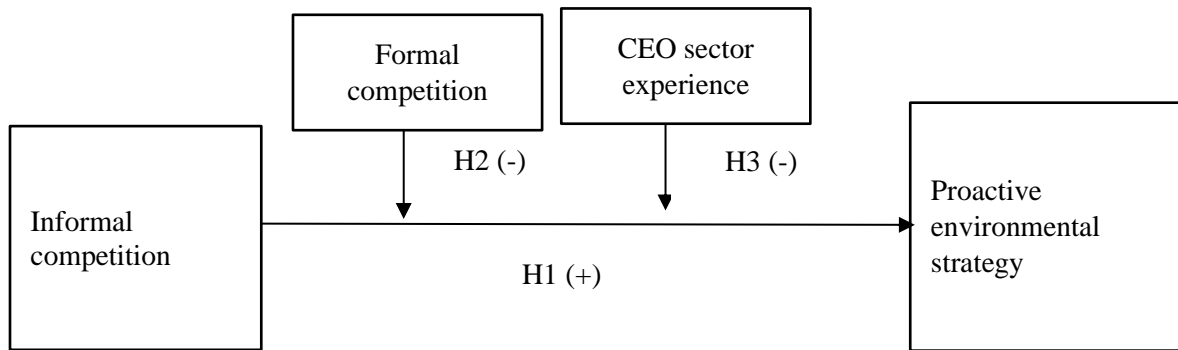
Second, our findings are cross-sectional and focus on emerging economies in Europe and Central Asia. Future research can contemplate a longitudinal study, including other emerging economies from Latin America, Asia, and Africa (Hoskisson et al., 2000) where the level of the informal economy is also high, e.g., Brazil, 37.6 %, India, 20.3%, China, 11.2% (Medina & Schneider, 2017).

Third, we exclusively examined pollution prevention strategies at the process operations level of PES (Hoogendoorn et al., 2015; Potrich et al., 2019). Therefore, future research could

consider other strategies, including product stewardship, green innovation (Hart & Dowell, 2011; Sharma & Henriques, 2005), communication strategies (Potrich et al., 2019), and upcycling (Martín et al., 2021) as potential dependent variables. In addition, we suggest exploring the interrelationship between the variables mentioned above since the implementation of some may or may not favor the implementation of others.

## **8 | CONCLUSION**

Our results show that informal competition drives PES adoption by formal firms, but the high perception of formal competition and the CEO's industry experience may reduce its impact. Our findings suggest that it is important for experienced CEOs to be cautious not to discount opportunities or threats by overlooking informal firms, as some of them may be more growth-oriented and likely to formalize.



**Figure 1: Proposed Model**

**Table 1. Summary of Variables: The Descriptions of The Variables Come from The Enterprise Survey of 2019**

Category	Sub-Category	Description	Scales	References
Proactive environmental strategies	Eco-efficiency	"Heating and cooling improvements"	Dichotomous	(Chan et al., 2022; Nguyen et al., 2022)
		"More climate-friendly energy generation on site"	Dichotomous	
		"Machinery and equipment upgrades"	Dichotomous	
		"Energy management"	Dichotomous	
	Recirculation	"Waste minimization, recycling and waste Management"	Dichotomous	
	Control pollution	"Air pollution control measures"	Dichotomous	
	Eco-efficiency	"Water management"	Dichotomous	
		"Upgrades of vehicles"	Dichotomous	
Control pollution	"Improvements to lighting systems"	Dichotomous		
Control pollution	"Other pollution control measures"	Dichotomous		
Competition feature	Informal competition	"To what degree are practices of competitors in the informal sector an obstacle to the current operations of this establishment?"	Likert scale (0-4)	McCann & Bahl, (2017)
	Formal competition	"In fiscal year for the main market in which this establishment sold its main product, how many competitors did this establishment's main product face?"	Numerical	Deb et al., (2020)
Firm feature	CEO experience	"How many years of experience working in this sector does the Top Manager have?"	Numerical	McCann & Bahl, (2017)
Control variables	Belong to business a group	"Is this firm part of a business membership organization, trade	Dichotomous	(Ray & Ray, 2018)

---

	association, guild, chamber of commerce, or other business support group?"		
Mandatory energy standard operation	"In fiscal year was this establishment subject to an energy performance standard in its operations?"	Dichotomous	(Aragon-Correa et al., 2020; Hoffman, 1999)
Age	"In what year did this establishment begin operations?"	Numerical	(Adomako et al., 2021; Bansal, 2005; Hart & Dowell, 2011)
Firm size	"At the end of fiscal year how many permanent, full-time individuals worked in this establishment?"	Numerical	(Hoogendoorn et al., 2015)

---

Source: Own elaboration based on the World Bank Enterprise Survey 2019

**Table 2. Descriptive Statistics.**

Variable	Obs	Mean	Std. Dev.	Min	Max
Proactive Environmental Strategies	9582	3.363	2.887	0	10
Impact of Informal Sector Competition on Firms Operations	9302	1.257	1.337	0	4
Market formal competition	8747	1.953	1.039	0	3
Top Manager's Sector-specific Experience	9675	20.069	11.607	1	70
Firm's Association with Business Membership Organization	9901	.41	.492	0	1
Mandatory Energy Performance Standards	9383	.163	.369	0	1
Firm age	9866	19.823	16.011	1	202
Full-Time Employees in the Establishment	9886	101.143	344.884	1	20000

Source: Own elaboration based on the World Bank Enterprise Survey 2019

**Table 3. Correlation Matrix.**

---

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Proactive environmental strategies	1.000							
(2) Informal competition	-0.017	1.000						
(3) Formal competition	-0.152***	0.259***	1.000					
(4) CEO experience (log)	0.011	0.027*	-0.003	1.000				
(5) Belong business group	0.125***	0.036**	-0.031**	0.197***	1.000			
(6) Mandatory Energy Performance Standards	0.317***	-0.030*	-0.012	-0.049***	0.020	1.000		
(7) Age (log)	0.084***	-0.001	-0.075***	0.472***	0.182***	0.000	1.000	
(8) Firm size (log)	0.290***	-0.160***	-0.109***	0.109***	0.254***	0.118***	0.292***	1.000

---

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 4. Results.**

Variables	DV= Proactive environmental strategies				
	Model 1	Model 2	Model 3	Model 4	Model 5
Mandatory Energy Performance Standards	0.532** (0.0251)	0.538** (0.0257)	0.538** (0.0257)	0.539** (0.0257)	0.538** (0.0257)
Firm belongs to a business group	0.246** (0.0226)	0.237** (0.0233)	0.235** (0.0233)	0.235** (0.0233)	0.234** (0.0233)
Formal competition	-0.0373** (0.00965)	-0.0520** (0.0101)	-0.0286* (0.0130)	-0.0516** (0.0101)	-0.0283* (0.0130)
Age (Log)	-0.0140 (0.0151)	-0.0229 (0.0155)	-0.0238 (0.0155)	-0.0227 (0.0155)	-0.0235 (0.0154)
Firm size (Log)	0.144** (0.00778)	0.152** (0.00807)	0.152** (0.00807)	0.151** (0.00807)	0.151** (0.00806)
CEO experience (Log)	0.0641** (0.0143)	0.0652** (0.0147)	0.0659** (0.0146)	0.102** (0.0183)	0.102** (0.0182)
Informal competition		0.0579** (0.00795)	0.0996** (0.0166)	0.144** (0.0269)	0.185** (0.0305)
Informal competition =1 # Formal competition			-0.0206* (0.00717)		-0.0204* (0.00717)
Informal competition =1 # CEO experience				-0.0314** (0.00937)	-0.0312** (0.00937)
Industry fixed effects	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES
Constant	0.723** (0.0906)	0.601** (0.0932)	0.545** (0.0951)	0.513** (0.0967)	0.459** (0.0985)
/					
Inalpha	-1.038** (0.0367)	-1.058** (0.0381)	-1.060** (0.0381)	-1.062** (0.0381)	-1.064** (0.0382)
Log likelihood	-17200.8	-16299.4	-16295.3	-16293.8	-16289.7
Observations	7830	7436	7436	7436	7436

Standard errors in parentheses

+ p &lt; 0.1, \* p &lt; 0.05, \*\* p &lt; 0.001

## **Appendix 1.**

Models and Equations to Test the Three Hypotheses.

Model 1: Base Model

Equation 1:

$$PES = \beta_0 + \beta_1 MEPSO + \beta_2 BUSGRP + \beta_3 FC + \beta_4 AGE + \beta_5 FIRM\_SIZE + \beta_6 CEOEXP + \varepsilon_1$$

Model 2: Hypothesis 1

Equation 2:

$$PES = \beta_0 + \beta_1 MEPSO + \beta_2 BUSGRP + \beta_3 FC + \beta_4 AGE + \beta_5 FIRM\_SIZE + \beta_6 CEOEXP + \gamma_7 INF\_COM + \varepsilon_2$$

Model 3: Hypothesis 2

Equation 3:

$$PES = \beta_0 + \beta_1 MEPSO + \beta_2 BUSGRP + \beta_3 FC + \beta_4 AGE + \beta_5 FIRM\_SIZE + \beta_6 CEOEXP + \beta_7 INF\_COM + \beta_8 (INF\_COM \times FC) + \varepsilon_3$$

Model 4: Hypothesis 3

Equation 4:

$$PES = \beta_0 + \beta_1 MEPSO + \beta_2 BUSGRP + \beta_3 FC + \beta_4 AGE + \beta_5 FIRM\_SIZE + \beta_6 CEOEXP + \beta_7 INF\_COM + \beta_8 (INF\_COM \times CEOEXP) + \varepsilon_4$$

Model 5: Full model

Equation 5:

$$PES = \beta_0 + \beta_1 MEPSO + \beta_2 BUSGRP + \beta_3 FC + \beta_4 AGE + \beta_5 FIRM\_SIZE + \beta_6 CEOEXP + \beta_7 INF\_COM + \beta_8 (INF\_COM \times FC) + \beta_9 (INF\_COM \times CEOEXP) + \varepsilon_5$$

## **Chapter 3**

### **ARTICLE 2. PROACTIVE ENVIRONMENTAL STRATEGIES ADOPTION BY FAMILY FIRMS IN DEVELOPING COUNTRIES: THE ROLE OF INFORMALITY AND ENVIRONMENTAL POLICY STRINGENCY**

**Proactive environmental strategies adoption by family firms in developing countries: The role of informality and environmental policy stringency.**

**Abstract**

Family firms represent a large share of the private sector in emerging economies. A key feature of family firms is that their behavior is driven by factors other than financial, making them more prone to adopt proactive environmental strategies (PES). Our objective is to assess the relationship between the firms' degree of family ownership and PES adoption through the lens of Socio-Emotional Wealth (SEW). We also investigate the moderating effect of informal firms' competition level and the degree of policy stringency in adopting PES. Our results suggest that family firms are more likely to adopt PES. However, both moderating variables tend to weaken this effect. Managers aiming to implement PES should consider external factors, such as the prevalence of informal firms, rather than focusing solely on internal drivers. Policymakers, meanwhile, should recognize that new environmental regulations alone are insufficient for achieving sustainable production.

**KEYWORDS:** family firms, proactive environmental strategies, informal competition, environmental policy stringency, emerging economies.

**1 | INTRODUCTION**

Over the past decade, two-thirds of global economic growth has been attributed to emerging economies, representing nearly 60% of global CO<sub>2</sub> emissions (Nguyen et al., 2018; Morris et al., 2023). This accelerated economic growth has come along with significant environmental footprint; thus, it is crucial for firms in emerging economies to implement proactive environmental strategies (PES) to mitigate its environmental burden (de Abreu et al., 2023; Fan et al., 2021; González-Benito & González-Benito, 2006; Potrich et al., 2019; Rodríguez-González

et al., 2022) and contribute to the Sustainable Development Goals (SDGs). For example, firms can contribute to SDG 12, which concerns responsible consumption and production, by reducing waste, recycling, or implementing waste management and water management practices. Furthermore, firms can contribute to SDG 13 (Climate Action) by adopting more climate-friendly energy generation on-site and implementing energy management practices.

In emerging economies, family firms represent "60 percent of private-sector companies with revenues of \$1 billion" (Björnberg & Pandit, 2015, p. 1), supporting the livelihoods of many workers (Broccardo et al., 2019). Further, family firms are closely tied to the social system (Berrone et al., 2022), and their behavior is driven by factors other than financial (i.e., family identification or family bonds), which make them more prone to adopt PES (Berrone et al., 2010, 2012; Broccardo et al., 2019; Gomez-Mejia et al., 2011; Li et al., 2023; Swab et al., 2020), making them a keystone for reducing private sector environmental footprint in developing countries.

Most of the research on family firms and the adoption of PES has focused on developed economies and China (Berrone et al., 2010; Block & Wagner, 2014; Fan et al., 2021; Gibb Dyer & David Whetten, 2006; Miroshnychenko & De Massis, 2022; Rees & Rodionova, 2015). The evidence is inconclusive: some authors found a positive effect of family firms on the adoption of PES (Bendell, 2022; Berrone et al., 2010; Block & Wagner, 2014), others a negative effect (El Ghouli et al., 2016; Fan et al., 2021; Miroshnychenko & De Massis, 2022; Rees & Rodionova, 2015), whereas other authors found no effect (Gibb Dyer & David Whetten, 2006). This study sheds light on this matter by assessing the relationship between the degree of

firms' family ownership and PES adoption in emerging economies.

Researchers suggest the existence of contingent factors that may affect the relationship between the degree of family ownership and PES adoption, such as the firm's long-term focus (Dou et al., 2019), firm characteristics (Graafland, 2020), and external factors like competition (Yu et al., 2021), customers (Huang et al., 2009) and formal and informal institutions (El Ghouli et al., 2016; Fan et al., 2021). Regarding the later, formal institutions are legal structures, such as laws and rules imposed by the government at the country level (Aguilera-Caracuel et al., 2013; Liao & Liu, 2024; North, 1991). Informal institutions, by contrast, consist of unwritten societal norms, customs, beliefs, values, and codes of conduct at the social level that guide the firm behavior (Aguilera-Caracuel et al., 2013; Liao & Liu, 2024; North, 1991).

Selecting emerging economies as a research context presents challenges due to the unique institutional contexts in which family firms operate (Gomez-Mejia et al., 2020; Krueger et al., 2021). The institutional context in emerging economies significantly influences firms' decisions and operations (de Abreu et al., 2023; Peng et al., 2009). Within the formal institution realm, laws and regulations are enacted to determine whether the economic activity of firms is legal or illegal (Webb, Tihanyi, Ireland, Sirmon, et al., 2009). On the contrary, in the informal institution realm, firms' economic activities can be perceived as legitimate or illegitimate (Webb, Tihanyi, Ireland, Sirmon, et al., 2009). It is worth noting that firms may be perceived as legitimate, even though they conduct illegal activities according to the laws and regulations enacted by the formal institutional framework (Webb, Tihanyi, Ireland, Sirmon, et al., 2009).

The discrepancy between the legal and illegal labels assigned to the economic activities by formal institutions and the perception of legitimacy or illegitimacy held by informal institutions drives the emergence of economic activities conducted by informal firms (Webb et al., 2009, 2013). For example, while Nike sells legal products through authorized channels and is considered legitimate, some informal firms may sell a legal product (i.e., dairy) through illicit practices, such as tax evasion or selling without receipts (Webb, Tihanyi, Ireland, Sirmon, et al., 2009). Despite these illicit practices, such firms enjoy legitimacy from customers who purchase from them (Williams & Horodnic, 2016; Williams & Martinez-Perez, 2014).

The informal sector represents 35 % of the Gross Domestic Product (GDP) (Torkington, 2024) in emerging economies. It is defined as "the set of illegal yet legitimate to some large groups of the population- activities through which actors recognize and exploit opportunities" (Webb, Tihanyi, Ireland, & Sirmon, 2009, p. 492). These illegal activities are present in several sectors, including apparel (Sweet, 2023), printing (Darbi & Knott, 2016), dairy (Alexopoulou-Giannakitsa, 2011), and electric apparatus (Siqueira & Bruton, 2010), among others.

Although the influence of competition from informal firms on PES adoption by formal firms has been explored (Heredia et al., 2024), ownership types such as family firms have not been assessed. In emerging economies, informal firms are predominantly micro or small and often managed by family owners (Losby et al., 2002). As a result, family and informal firms may share similar characteristics, including size and access to finance (Alvaro González & Francesca Lamanna, 2007; Distinguin et al., 2016) making informal firms' serious competitors that

disproportionately affect family firms. Moreover, unlike non-family firms, family firms often tend to balance financial considerations (the investment required to implement PES) and non-financial considerations (such as ensuring income and welfare for the extended family, strengthening family identification, or enhancing their relationship with the local community through PES), which could affect their response to competition from informal firms (Berrone et al., 2010, 2012, 2023; Dayan et al., 2019; Gomez-Mejia et al., 2014, 2023; Khavul et al., 2009; Liu et al., 2023; Souder et al., 2017). Therefore, we suggest that the degree of competition from informal firms may condition the relationship between family firms on PES adoption.

Another critical factor that may condition the relationship between family firms and PES adoption is the environmental policy stringency (EPS) at the country level (Aragon-Correa et al., 2020). EPS can function as a double-edged sword: it may encourage firms to reduce their pollution to avoid sanctions and loss of legitimacy, but on the other hand, it may result in increased operational costs and may threaten their flexibility due to the process modification required (Aragon-Correa et al., 2020). Governments in emerging economies increasingly attempt to reduce environmental impacts by enhancing environmental regulations (L. Shi et al., 2021; Wolde-Rufael & Mulat-Weldemeskel, 2021). Environmental regulations include regulatory clarity, flexibility, innovation, leadership, and consistency (Aguilera-Caracuel et al., 2013). We focus on the EPS because it captures "the degree to which environmental policies impose an explicit or implicit price on polluting or environmentally harmful behavior" (Miroshnychenko et al., 2024, p. 9). It reflects the fines for non-compliance and

new environmental standards that influence firms' compliance costs and strategies (Aguilera-Caracuel et al., 2013). For family firms, the degree of EPS could present a trade-off in their non-financial considerations: on the one hand, EPS aligns their long-term perspective and enhances their reputation (Fan et al., 2021), but on the other hand, it may result in a loss of control because adopting PES requires new knowledge, financing, and staff (Arena & Michelon, 2018). The impact of EPS on family firms' adoption of PES remains inconclusive, with some researchers finding a positive effect (Fan et al., 2021; Miroshnychenko et al., 2024; Yu et al., 2021), while others finding a negative effect (Agostino & Ruberto, 2021; Huang et al., 2009) and some identified no impact (Flores-Rivera et al., 2024).

Our objective is assessing the relationship between the firms' degree of family ownership and PES adoption through the lens of the Socio-Emotional Wealth (SEW) theory. Additionally, we investigate the moderating effect of the level of informal firms' competition and formal institutions (through the EPS) on the adoption of PES. We assess our hypothesis using data from 9,975 manufacturing firms in 25 emerging economies, as captured by the World Bank Enterprise Survey 2019. We test the hypotheses using a negative-binomial model.

This study contributes to the existing literature on PES adoption by providing new evidence, specific to developing economies, considering contextual factors such as the high level of family ownership common in businesses within these economies. In doing so, we shed some light on the unique idiosyncratic behavior of family firms in emerging economies (Berrone et al., 2022), regarding the adoption of PES under the SEW theory. Additionally, we examine two contextual factors: competition from informal firms and EPS, extending the scope of previous

literature (Battisti et al., 2023; Berrone et al., 2010; Dekker & Hasso, 2016; Dou et al., 2019; Graafland, 2020).

The following sections present the theoretical framework (Section 2), the hypothesis (Section 3), the methods (Section 4), the results (Section 5), the discussion, the implications, and limitations and future research (Section 6).

## **2 | THEORETICAL FRAMEWORK**

### **2.1 | The SEW perspective of family firms in emerging economies**

Unlike non-family firms, family firms consider non-financial factors when making decisions (Berrone et al., 2012; Gomez-Mejia et al., 2011; Swab et al., 2020). The SEW is a peculiar endowment of family firms that focuses on non-financial factors, which are captured by the FIBER framework, which includes "family control and influence (F), identification of family members with the firm (I), binding social ties (B), emotional attachment of family members (E), and renewal of family bonds to the firm through dynastic succession (R)" (Berrone et al., 2012, p. 259; Swab et al., 2020).

The SEW is based on the Behavior Agency Model, which posits that decisions are made to avoid the loss of "existing endowments" (Samara et al., 2018; Wiseman & Gomez-Mejia, 1998). The concept of SEW suggests that family firms may try to avoid making decisions that could negatively impact their SEW endowments (Berrone et al., 2012). For instance, family firms prevent loss of family control and influence by avoiding strategic decisions like the implementation of international and corporate diversification, research and development (R&D) investment, or acquisitions, among other strategies (Gómez-Mejía et al., 2007; Gomez-Mejia et al., 2011).

Notably, in emerging economies, the effect of family firms on those strategies

is often more pronounced because family firms usually operate within contexts of high Family Business Legitimacy (FBL), which is the process by which family firms gain acceptance and validation from key stakeholders (Berrone et al., 2022, p. 1156). Berrone et al. (2022) argue that in countries where FBL is high, family firms prioritize their SEW endowments more than in countries where FBL is low. The evidence suggest that family firms in emerging economies are more likely to have high FBL, which means that they are more aware of prioritizing their SEW than in countries with low FBL (Berrone et al., 2022).

Regarding PES adoption, some of the research in emerging economies, mainly in Asia, suggests that family firms may prevent losses of SEW identity and succession by prioritizing reputation and maintaining their long-term projection through implementing PES (Dayan et al., 2019; Li et al., 2023; Nikolakis et al., 2022). However, the evidence from developed economies (i.e., the US, Australia, and the European Union) and China (Dou et al., 2019) also states that the PES adoption by family firms is moderated by internal contextual factors (i.e. "social embeddedness"; marketing budgets; firm commitment, long-term orientation, and firm size) (Battisti et al., 2023; Berrone et al., 2010; Dekker & Hasso, 2016; Dou et al., 2019; Graafland, 2020).

Scholars have paid more attention to internal factors, but contextual factors in emerging economies are also relevant and influence firms' strategies (de Abreu et al., 2023; Peng et al., 2009). In particular, informal competition and EPS may moderate the relationship of family firms on the adoption of PES, as both represent unique features of the business landscape in emerging economies.

First, most informal firms in emerging economies are small and are managed

and operated as family firms (Losby et al., 2002). For this reason, we suggest that family firms may possess similar characteristics in terms of size, access to finance (Alvaro González & Francesca Lamanna, 2007; Distinguin et al., 2016), or outdated equipment (Ben et al., 2018) as informal firms, making informal firms direct competitors to formal family firms. This perception influences family firms' responses and strategies, as informal firms often have cost advantages (Gokalp et al., 2017), strong community ties (Khavul et al., 2009), and sometimes satisfy customers' needs better than formal firms (Williams & Horodnic, 2016).

Second, regarding EPS, it encapsulates the degree of stringency or coerciveness of the legal framework in terms of imposing direct or indirect costs on firms' operations, making it an essential factor for firms to consider when deciding whether to adopt PES (Aguilera-Caracuel et al., 2013; Aguilera-Caracuel & Ortiz-de-Mandojana, 2013; Aragon-Correa et al., 2020; Fan et al., 2021; Huang et al., 2009; Yu et al., 2021). Specially, for family firms, EPS may be perceived in two opposite directions. First, it represents an increase in their reputation (Fan et al., 2021), or it could impose a risk of control loss due to the need for new expertise or resources (Arena & Michelon, 2018) and may affect their flexibility due to requiring a change in their productive process (Aragon-Correa et al., 2020).

### **3 | HYPOTHESES**

#### **3.1 | The Effect of the Degree of Family Ownership on PES Adoption.**

Firms with high degree of family ownership (i.e., family firms) prioritize non-financial factors, encapsulated by SEW (Berrone et al., 2012). Therefore, family firms are more inclined to safeguard or improve their reputation and strengthen their identification with the firm by implementing PES, which can enhance their performance (Davila et al., 2023).

Results in the US suggests that family firms have a positive effect on environmental performance, which suggests that family firms strengthen their identification with the firm and long-term orientation by adopting PES as a means of gaining legitimacy (Berrone et al., 2010; Block & Wagner, 2014). Additionally, in Italy, researchers have found that family identity increases family firm environmental disclosure (Arena & Michelon, 2018). Similar results are reported in other Asian countries but associated to the adoption of sustainable products and processes (Dayan et al., 2019). Additionally, in India, researchers found that family firms SEW positively influence environmental initiatives (Nikolakis et al., 2022).

Another aspect of SEW is the formation of binding social ties with stakeholders and the community (Berrone et al., 2023). Family firms in the context of low property rights embrace a community logic to gain legitimacy by adopting "norm-conforming environmental practices" such as obtaining ISO 14001 certification (Berrone et al., 2023, p. 1924) to strengthen their commitments with their different stakeholders and protect their SEW (Berrone et al., 2023). Furthermore, the renewal of family bonds through succession ensuring the long-term survival of the firm for future generations may also influence the adoption of PES in family firms (Broccardo et al., 2019). Therefore, based on the above-mentioned evidence, we propose the following hypothesis:

**Hypothesis 1:** In emerging economies, the greater the degree of family ownership in firms, the more likely they are to adopt PES.

### **3.2 | The role of informal firms' competition as a moderator in the relationship between family firms and PES adoption**

The discrepancy between the legal and illegal labels, associated with formal institutions, and the perception of legitimacy or illegitimacy related to informal institutions foster the emergence of informal firms (Webb, Tihanyi, Ireland, & Sirmon, 2009; Williams & Vorley, 2015). Competition from informal firms poses a threat to formal firms by capturing market share and undermining their income (Bu et al., 2022). Informal firms enjoy cost and time advantages because they do not pay taxes or comply with regulations (Gokalp et al., 2017). These firms often have strong social ties within their communities (Khavul et al., 2009) and receive support from customers, who buy from them not solely because of price but also due to social support and dissatisfaction with the formal economy in terms of reliability, service, and availability (Williams & Horodnic, 2016; Williams & Martinez-Perez, 2014). Additionally, most of the informal firms in emerging economies are family-owned (De Castro et al., 2014; Khavul et al., 2009; Losby et al., 2002). These conditions make informal firms a relevant competitor threat, especially to formal family-owned firms in emerging markets.

Some authors suggest that formal firms that compete with informal firms resemble them (Alvaro González & Francesca Lamanna; 2007). We posit that family firms facing competition from informal firms are likely to exhibit similar features to them, such as smaller size and credit constraint (Distinguin et al., 2016a; Murro & Peruzzi, 2019), lack of professionalization (Dayan et al., 2019; Piyasinchai et al., 2024), and outdated equipment (Ben et al., 2018; Dekker & Hasso, 2016). These firm features not only mirror those of informal firms but also

pose significant barriers to PES adoption. Consequently, we argue that when family firms perceive high competition from informal firms, they tend to survive by imitating their informal competitors, concentrating on core activities and disregarding PES as a competitive response. Therefore, we propose the following hypothesis.

**Hypothesis 2:** In emerging economies, higher levels of informal competition faced by family firms weaken the positive relationship between family ownership and PES adoption.

### **3.3 | The role of Environmental Policy Stringency (EPS) as moderator of family firms PES adoption**

A lack of consensus persists regarding the influence of EPS on the likelihood of family firms adopting PES (Fan et al., 2021; Miroshnychenko et al., 2024; Yu et al., 2021). Some scholars posit that EPS improves the internal control mechanisms of family firms, thereby increasing the likelihood of PES adoption (Fan et al., 2021; Miroshnychenko et al., 2024). In addition, family firms are more likely to implement PES when government regulation is more stringent, to safeguard their identity and reputation (Fan et al., 2021; Yu et al., 2021). Nevertheless, some studies have indicated that family firms are less responsive to external stakeholders such as government environmental regulation, because they prioritize internal stakeholders due to their unique “organizational cultures and family core values” (Agostino & Ruberto, 2021; Huang et al., 2009, p. 320). This may indicate that family firms perceive government regulations as a threat to their family control, preferring their family interests over compliance with external regulatory demands (Agostino & Ruberto, 2021). Other authors have found no

significant effect of government environmental regulation on family firms' adoption of PES (Flores-Rivera et al., 2024).

Given the unclear impact of EPS and PES adoption by family firms, it is essential to consider their unique context in emerging economies. These firms are more concerned with protecting their SEW dimensions (Berrone, 2022), which may increase their likelihood of avoiding loss of control and binding social ties when facing high levels of EPS that pressure them to adopt PES. For instance, in the face of an increase in the EPS level (i.e., new environmental standards, and higher fines) firms must make significant changes in their firm's production process (Aragon-Correa et al., 2020) and acquire new knowledge and funding. For family firms, the high investment may mean a loss of control as they need additional capital, external knowledge, and new staff (Arena & Michelon, 2018). This potential loss of control has a negative impact on their willingness to adopt the new EPS requirements (Chen et al., 2022).

Family firms also have strong ties and long-term relationships with their customers (Pereira et al., 2024). In general, the evidence suggest that manufacturing industries may be more reluctant to adopt new environmentally friendly inputs because doing so may change product characteristics potentially failing to affect the business-customer relationship (Schillebeeckx et al., 2022). Based on the above, we argue that family firms may be more averse to adopt new environmentally friendly inputs, imposed by new regulations, because these new inputs could alter product characteristics and strain their relationships with customers. Therefore, we propose the following hypothesis.

**Hypothesis 3:** In emerging economies, higher levels of EPS weaken the

positive relationship between family ownership and the adoption of PES.

See the proposed theoretical model in Figure 1.

-----  
Insert Figure 1 around here  
-----

## **4 | METHODS**

### **4.1 | Data**

The database comprised 9,975 observations, and following the implementation of a debugging process, the final sample consisted of 6,862 manufacturing firms from the World Bank Enterprise Survey conducted in 2019. This survey is a standardized instrument, with samples stratified by country, size, and sector, that requests responses from chief executive officers (CEOs) or owners of firms across the globe (Krammer & Jimenez, 2020; Krammer, 2019). For this study, we selected 25 emerging countries based on Hoskisson classification of emerging economies (Hoskisson et al., 2013). Albania, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, the Kyrgyz Republic, Latvia, Lithuania, North Macedonia, Moldova, Poland, Portugal, Romania, the Russian Federation, Slovakia, Slovenia, Tajikistan, Turkey, Ukraine, and Uzbekistan. Among the different sectors, we selected the manufacturing industry as it is more often prone to engage in environmental strategies (Etzion, 2007).

### **4.2 | Measures**

**4.2.1 | Proactive Environmental Strategies.** Following Heredia et al. (2024), we have constructed a discrete variable for PES, ranging from 0 (indicating non-adoption of PES) to 10 (representing complete adoption of PES). We employed the survey question "Over the last three years, did this establishment adopt any of

the following measures?" The firms respond YES or NO to ten questions: "heating and cooling improvements; more climate-friendly energy generation on-site; machinery and equipment upgrades; energy management; waste minimization, recycling, and waste management; air pollution control measures; water management; upgrades of vehicles; improvements to lighting systems; and other pollution control measures".

**4.2.2 | Degree of Family Ownership.** Following Samara et al., (2018); Tsao et al., (2016) we used the survey question "What percentage of the firm is owned by the same family?". This is a continuous variable ranging from 0 to 100 but is divided by 100 to account for the scale of other variables when running the regression models.

**4.2.3 | Competition Level.** Following McCann & Bahl, (2017) we used the survey question "To what degree are practices of competitors in the informal sector an obstacle to the current operations of this establishment?". This is a discrete ordinal variable from 0 (No Obstacle) to 4 (Very Severe Obstacle).

**4.2.4 | Environmental Policy Stringency Level.** Following Yan et al., (2021) we use the average perception of environmental stringency by country. It is a continuous variable derived from the World Bank (World Bank, 2017).

#### **4.2.5 | Control variables**

We include control variables that may influence the adoption of PES. Firm membership in a business group (Ray & Ray, 2018) is a dichotomous variable, coded as 1 if the firm belongs to a business group and 0 otherwise. The level of market formal competition (Bansal, 2005; Deb et al., 2020) is a categorical variable with four levels based on the number of competitors: 0 (Monopoly): No

competitors; 1 (Oligopoly): 1–10 competitors; 2 (Moderate competition): 11–50 competitors; 3 (High competition): More than 50 competitors. Additionally, we control for the logarithm of the firm's age (Bansal, 2005; Hoogendoorn et al., 2015), the logarithm of the number of employees as a measure of firm size, and the logarithm of the CEO's years of experience as a relevant decision-maker (McCann & Bahl, 2017). Industry and country fixed effects are also included.

#### 4.3 | Methodology

We used a Negative Binomial model because the dependent variable, PES, is a discrete variable that can take on values from 0 (no adoption of PES) to 10 (full adoption of all PES practices). The PES variable also presents overdispersion, meaning that the mean is different from the variance. The model to test our hypothesis is:

$$\begin{aligned}
 \text{PES}_i = & \beta_0 + \beta_2 \text{Business\_group}_i + \beta_3 \text{Formal\_competition}_i + \beta_4 \text{AGE}_i + \\
 & \beta_5 \text{FIRM\_SIZE}_i + \beta_6 \text{CEOEXPERIENCE}_i + \beta_7 \text{Informal\_competition}_i + \\
 & \beta_8 \text{Environmental\_Policy\_Strigency (EPS)}_i + \beta_9 \text{Family\_ownership}_i + \\
 & \beta_{10} (\text{Family\_ownership} \times \text{Informal\_competition})_i + \beta_{11} (\text{Family\_ownership} \times \text{EPS})_i \\
 & + \varepsilon_i
 \end{aligned}$$

### 5 | RESULTS

Table 1 presents the descriptive statistics for the sample. On average, firms were involved in more than 3 PES per firm. The average level of competition from informal firms is 1.26, indicating a moderate to minor obstacle. The level of EPS is moderately strict, with an average score of 4. Formal market competition is also moderate, averaging 1.95. On average the Chief Executive Officer has a considerable amount of experience, approximately 20 years. The mean proportion

of firms that are members of a business group is 41%. Most of these firms have been in operation for an average of 20 years. The mean number of employees in a firm is 101. Finally, the average degree of family ownership is 42.6%.

-----  
Insert Table 1 around here  
-----

In Table 2, we present the correlations of the variables used in the theoretical model. All correlations are less than 0.5, so there is no problem with multicollinearity.

-----  
Insert Table 2 around here  
-----

We present the results in Table 3, in which Model 1 incorporates all the independent and control variables and is used to test H1, which posits that the degree of family ownership has a positive influence on the adoption of PES. In this case, H1 is supported (0.129,  $p < 0.001$ ). Model 2 considers H2 (the level of informal competition is a moderator in the relationship between family firms and PES adoption). H2 is supported as the level of informal competition weakens the positive effect of family ownership and PES adoption, (-0.0355,  $p < 0.05$ ). Model 3 considers H3 (interaction between the level of EPS and the degree of family ownership). The results of the H3 is supported by the finding that the level of EPS weakens the positive effect of family ownership and PES adoption (-0.0851,  $p < 0.05$ ).

-----  
Insert Table 3 around here  
-----

## **5.1 | Robustness test**

Three robustness tests were performed. In the first test, the degree of family ownership was modified. We consider a threshold of 20% ownership with a value of 1 assigned to a family firm and 0 otherwise (Agostino & Ruberto, 2021). Also, a threshold of 10% of ownership was used, with a value of 1 assigned to a family firm and 0 otherwise (Agostino & Ruberto, 2021; Fan et al., 2021; Liu et al., 2023). The second robustness we incorporated different types of ownership, government, foreign, and other forms of ownership (Balasubramanian et al., 2021). Third, we consider two alternative measures of Environmental Policy Stringency (EPS). One is the Enforcement of Environmental Regulations (EER) and the other is the self-perception of Environmental Regulations as an Obstacle (ERO) to operational activities (Agostino & Ruberto, 2021; Aragon-Correa et al., 2020). The results of all analyses were found to be consistent with the main results. Please refer to the following tables 4, 5, 6, 7, and 8 for further details in the Appendices section.

## **6 | DISCUSSION AND THEORETICAL CONTRIBUTIONS, PRACTICAL CONTRIBUTIONS, LIMITATIONS AND FUTURE RESEARCH**

### **6.1 | Discussion and theoretical contributions**

This study examines how family firms in emerging economies adopt PES and the moderating role of informal competition and EPS. By analyzing both contextual variables, we offer insights into how family firms respond to these pressures, generating valuable information for scholars, as we provide evidence supporting the validity of SEW theory in new contexts, as well as practitioners and policymakers Overall, we think that our results may inform policies (corporate and public), allowing for a smoother transition towards more sustainable business

practices.

Our findings are in line with previous research assessing the relationship between family firms and PES adoption, particularly in Asia (Dayan et al., 2019; Li et al., 2023; Nikolakis et al., 2022). Further, our study contributes to the literature on family firms in emerging economies, a little-explored sample setting, by highlighting the influence of SEW dimensions on the adoption of PES.

Regarding the impact of informal competition, we found that this institutional factor reduces PES by family firms. This finding contradicts previous work that found that informal competition drives PES adoption (Heredia et al., 2024) or decreases energy intensity (Zhao et al. 2022) among firms in general. Contrary to earlier research, our study highlights that the response to competition from informal firms depends on ownership and their idiosyncratic characteristics. Specifically, when family firms perceive a high threat of informal competition, they focus on their current activities rather than on PES because they make trade-offs regarding investments that represent PES adoption and gains in reputation through PES (Heredia et al., 2024; Liu et al., 2023; Zhao et al., 2022). In scenarios where some of these family firms mirror informal firms in terms of size, financing, and professionalization, family firms may prefer to ensure stability in income for their extended families (Alvaro González & Francesca Lamanna 2007; Distinguin et al., 2016; Gomez-Mejia et al., 2024; Khavul et al., 2009). Therefore, these family firms may tend to avoid investments in PES to secure the income or welfare of their extended families (Berrone et al., 2012; Gomez-Mejia et al., 2024; Khavul et al., 2009) by concentrating on their core business activities. In this study, we contribute an alternative explanation of the adoption of PES by family firms based

on SEW theory in the context of informal competition, while previous research considers the moderating role of formal competition (Bendell, 2022) from a stakeholder perspective.

Regarding EPS, our findings are in line with (Agostino & Ruberto, 2021; Huang et al., 2009), who found that EPS has a negative effect. While our findings align with Huang et al., (2009) which offer explanations based on stakeholder theory. In this study, we suggest that the adoption of PES by family firms may represent a loss of control in terms of acquiring new knowledge, financing, and staff (Arena & Michelon, 2018; Chen et al., 2022). Additionally, we propose that high environmental requirements may threaten the ties between family firms and their customers, influencing their decisions to disregard the adoption of PES.

## **6.2 | Practical contributions**

Managers of family firms in emerging economies that want to implement PES in their operations should not focus solely on their internal drivers. Instead, they may consider the high prevalence of informal firms that can pose a threat (Heredia et al., 2024). Additionally, managers should understand the influence of environmental regulations on their non-financial dimensions of control and binding social ties. Further, it is important for managers and directors of family firms operating in emerging markets to integrate PES as a priority in their strategic decisions, if family firms are looking to expand internationally, the adoption of PES is likely to enable them to expand more effectively.

Policymakers in emerging economies, in their endeavor to transition to more environmentally friendly practices, must recognize that imposing new environmental regulations alone is not sufficient (Aragon-Correa et al., 2020).

Instead, policymakers should understand that family firms, which are predominant in these economies (Gomez-Mejia et al., 2024), consider various non-financial dimensions when deciding to adopt certain environmental policies. These firms may require a more gradual transition to the adoption of PES. Furthermore, understanding the impact of informal competition on family firms may suggest a tailored approach to help them address such competitors in emerging economies. For example, policymakers may provide them with resources (i.e., finance and training) to adopt PES.

We believe transitioning to a more sustainable business practice requires a coherent regulatory setting. In this sense, regulators and public authorities should create appropriate and collaborative regulatory frameworks to facilitate mechanisms to assist family firms in emerging markets in adopting PES and, with these regulatory frameworks, limit the proliferation of competition from informal firms. In addition, these authorities should create appropriate incentives (i.e., subsidies) to encourage environmentally responsible behavior in family firms, as EPS alone is insufficient.

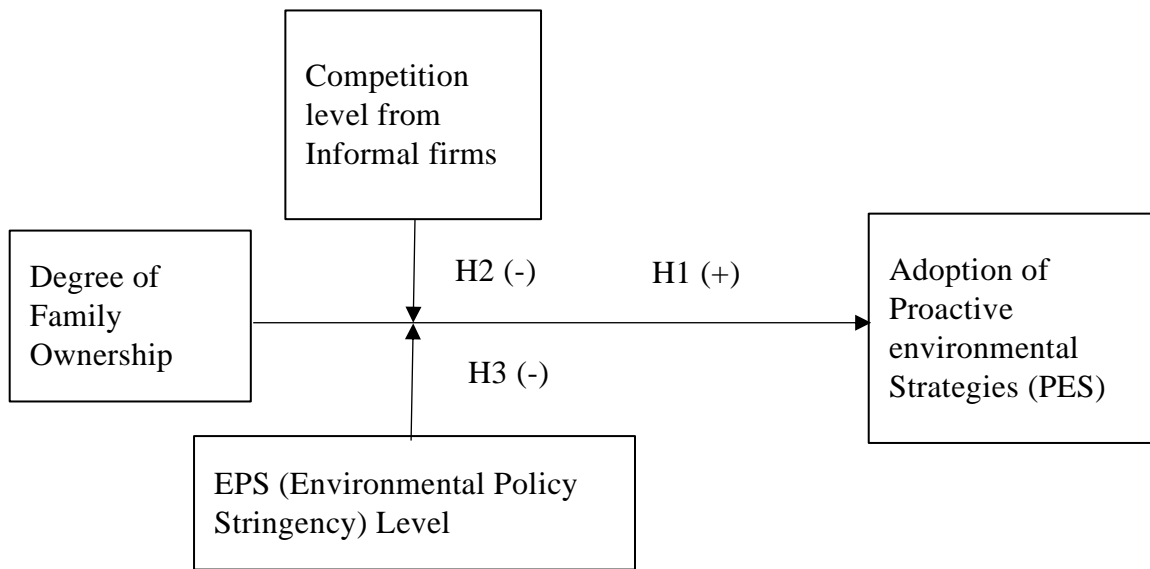
### **6.3 | Limitations and future research**

The present study examines family firms in emerging markets within the manufacturing sector. Further research could explore family firms across a range of sectors within these emerging markets. Additionally, future studies could compare family firms in developed versus emerging markets and evaluate whether the patterns and mechanisms that explain the impact of the degree of family business ownership on PES adoption are maintained or modified.

Although EPS and informal competition are two essential moderating

factors in emerging economies that influence the relationship between the degree of family ownership and PES adoption, there are other variables that future research could explore. For example, the moderating role of innovation at the country level, such as patents, R&D, and university-industry collaboration among others called “institutional innovation” (Ahmadova et al., 2023). If a country has a high national level “institutional innovation” (Ahmadova et al., 2023), does it create a more conducive environment for the adoption of PES by family firms in emerging economies? Another relevant variable in emerging economies that may moderate the relationship between the degree of family ownership and the adoption of PES is the level of corruption in the country (Heredia et al., 2023). In a corrupt environment, family firms may be disincentivized to adopt PES, as the PES would have no effect regardless of EPS.

This study provides relevant insights into the specific context of emerging economies where family firms are predominant. However, due to the cross-sectional nature of the dataset, we cannot make causal claims. Future research could conduct longitudinal analysis. Finally, we concentrated on the impact of family firms on the adoption of PES within their operations. However, there is limited research on the impact of family ownership on more advanced environmental protection practices, such as biodiversity conservation.



**Figure 1.** Proposed theoretical model

**Table 1** Descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
Proactive environmental strategies	9582	3.363	2.887	0	10
Impact of informal sector competition on firms operations	9302	1.257	1.337	0	4
Environmental Policy Stringency (EPS)	9158	4.029	.673	2.86	5.38
Market formal competition	8747	1.953	1.039	0	3
Top Manager's sector-specific experience	9675	20.069	11.607	1	70
Firm's association with business membership organization	9901	.41	.492	0	1
Firm age	9866	19.823	16.011	1	202
Full-time employees in the establishment	9886	101.143	344.884	1	20000
Family ownership	9762	42.604	47.048	0	100

**Table 2** Correlation table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Proactive environmental strategies	1.000								
(2) Informal competition	0.014	1.000							
(3) Environmental Policy Stringency (EPS)	0.073***	-0.136***	1.000						
(4) Formal competition	-0.150***	0.249***	-0.116***	1.000					
(5) CEO experience (log)	0.063***	-0.005	0.177***	-0.026*	1.000				
(6) Belong business group	0.134***	0.019	0.110***	-0.045***	0.204***	1.000			
(7) Age (log)	0.140***	-0.032**	0.176***	-0.108***	0.459***	0.178***	1.000		
(8) Firm size (log)	0.300***	-0.167***	-0.010	-0.119***	0.111***	0.245***	0.280***	1.000	
(9) Family ownership	0.061***	0.018	0.337***	-0.063***	0.158***	0.119***	0.108***	-0.116***	1.000

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 3** Regression results of firm's adoption of PES.

	DV = proactive environmental strategies			
	Model 1	Model 2	Model 3	Model 4
Firm belongs to a business group	0.253** (0.0262)	0.253** (0.0262)	0.250** (0.0262)	0.251** (0.0262)
Formal competition	-0.0563** (0.0115)	-0.0576** (0.0115)	-0.0565** (0.0115)	-0.0581** (0.0115)
Age (log)	-0.0108 (0.0177)	-0.0109 (0.0177)	-0.0105 (0.0177)	-0.0107 (0.0177)
Firm size (log)	0.179** (0.00911)	0.179** (0.00911)	0.178** (0.00912)	0.177** (0.00912)
CEO experience (log)	0.0768** (0.0172)	0.0769** (0.0172)	0.0771** (0.0172)	0.0773** (0.0172)
Informal competition	0.0603** (0.00878)	0.0758** (0.0115)	0.0602** (0.00878)	0.0792** (0.0116)
Environmental Policy Stringency (EPS)	-0.116* (0.0448)	-0.115* (0.0448)	-0.0624 (0.0512)	-0.0509 (0.0513)
Family ownership	0.129** (0.0266)	0.179** (0.0358)	0.467* (0.159)	0.599** (0.167)
Industry fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Informal competition # Family ownership		-0.0355* (0.0172)		-0.0436* (0.0174)
EPS # Family ownership			-0.0851* (0.0394)	-0.103* (0.0400)
Constant	0.801** (0.225)	0.780** (0.225)	0.607* (0.242)	0.540* (0.244)
Inalpha	-0.833** (0.0364)	-0.834** (0.0364)	-0.834** (0.0364)	-0.836** (0.0365)
Log-likelihood	-14996.3	-14994.2	-14994.0	-14990.8
Observations	6862	6862	6862	6862

Standard errors in parentheses

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.001$

## Appendices

### Appendix 1.

**Table 4** Regression results of firm's adoption of PES at family ownership 20 %.

	DV = proactive environmental strategies			
	Model 1	Model 2	Model 3	Model 4
Firm belongs to a business group	0.251** (0.0262)	0.252** (0.0262)	0.250** (0.0262)	0.251** (0.0262)
Formal competition	-0.0555** (0.0115)	-0.0569** (0.0115)	-0.0560** (0.0115)	-0.0577** (0.0115)
Age (log)	-0.0111 (0.0177)	-0.0111 (0.0177)	-0.0113 (0.0177)	-0.0113 (0.0177)
Firm size (log)	0.178** (0.00907)	0.178** (0.00907)	0.177** (0.00908)	0.177** (0.00908)
CEO experience (log)	0.0764** (0.0172)	0.0765** (0.0172)	0.0765** (0.0172)	0.0767** (0.0172)
Informal competition	0.0601** (0.00878)	0.0786** (0.0117)	0.0599** (0.00878)	0.0818** (0.0118)
Environmental Policy Stringency (EPS)	-0.118* (0.0449)	-0.119* (0.0448)	-0.0702 (0.0529)	-0.0549 (0.0532)
Family firm_20	0.130** (0.0254)	0.184** (0.0340)	0.392* (0.154)	0.540** (0.163)
Industry fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Informal competition # Family firm_20		-0.0383* (0.0161)		-0.0455* (0.0165)
EPS # Family firm_20			-0.0668+ (0.0389)	-0.0882* (0.0396)
Constant	0.807** (0.225)	0.782** (0.225)	0.634* (0.247)	0.549* (0.248)
Inalpha	-0.834** (0.0364)	-0.835** (0.0364)	-0.835** (0.0364)	-0.837** (0.0365)
Log-likelihood	-14995.1	-14992.2	-14993.6	-14989.8
Observations	6862	6862	6862	6862

Standard errors in parentheses

+ p < 0.1, \* p < 0.05, \*\* p < 0.001

**Appendix 2.**

**Table 5** Regression results of firm's adoption of PES at family ownership 10 %.

	DV = proactive environmental strategies			
	Model 1	Model 2	Model 3	Model 4
Firm belongs to a business group	0.251** (0.0262)	0.252** (0.0262)	0.250** (0.0262)	0.251** (0.0262)
Formal competition	-0.0554** (0.0115)	-0.0567** (0.0115)	-0.0559** (0.0115)	-0.0576** (0.0115)
Age (log)	-0.0120 (0.0177)	-0.0119 (0.0177)	-0.0122 (0.0177)	-0.0121 (0.0177)
Firm size (log)	0.178** (0.00906)	0.178** (0.00906)	0.177** (0.00907)	0.177** (0.00907)
CEO experience (log)	0.0767** (0.0172)	0.0768** (0.0172)	0.0769** (0.0172)	0.0771** (0.0172)
Informal competition	0.0600** (0.00878)	0.0781** (0.0118)	0.0597** (0.00877)	0.0812** (0.0119)
Environmental Policy Stringency (EPS)	-0.121* (0.0449)	-0.121* (0.0448)	-0.0714 (0.0533)	-0.0568 (0.0535)
Family firm_10	0.139** (0.0255)	0.191** (0.0342)	0.402* (0.156)	0.546** (0.165)
Industry fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Informal competition # Family firm_10		-0.0373* (0.0162)		-0.0443* (0.0165)
EPS # Family firm_10			-0.0675+ (0.0393)	-0.0882* (0.0401)
Constant	0.811** (0.225)	0.788** (0.225)	0.635* (0.247)	0.553* (0.249)
Inalpha				
Constant	-0.835** (0.0364)	-0.836** (0.0365)	-0.836** (0.0365)	-0.838** (0.0365)
Log-likelihood	-14993.3	-14990.7	-14991.9	-14988.2
Observations	6862	6862	6862	6862

Standard errors in parentheses

+ p < 0.1, \* p < 0.05, \*\* p < 0.001

### Appendix 3.

**Table 6** Regression results of firm's adoption of PES with different types of ownership.

	DV = proactive environmental strategies			
	Model 1	Model 2	Model 3	Model 4
Firm belongs to a business group	0.254** (0.0263)	0.255** (0.0263)	0.252** (0.0263)	0.253** (0.0263)
Formal competition	-0.0536** (0.0115)	-0.0550** (0.0115)	-0.0538** (0.0115)	-0.0556** (0.0115)
Age (log)	-0.0153 (0.0178)	-0.0156 (0.0178)	-0.0150 (0.0178)	-0.0154 (0.0178)
Firm size (log)	0.176** (0.00941)	0.175** (0.00941)	0.175** (0.00942)	0.174** (0.00942)
CEO experience (log)	0.0828** (0.0173)	0.0831** (0.0173)	0.0830** (0.0173)	0.0833** (0.0173)
Informal competition	0.0612** (0.00880)	0.0779** (0.0116)	0.0611** (0.00880)	0.0811** (0.0116)
Environmental Policy Stringency (EPS)	-0.114* (0.0447)	-0.114* (0.0447)	-0.0648 (0.0511)	-0.0524 (0.0513)
Family ownership	0.133** (0.0267)	0.186** (0.0359)	0.445* (0.159)	0.586** (0.168)
Government ownership	0.420 (0.388)	0.435 (0.388)	0.388 (0.388)	0.399 (0.387)
Private foreign ownership	0.0963* (0.0431)	0.0961* (0.0431)	0.0928* (0.0432)	0.0917* (0.0431)
Other ownership	0.280* (0.118)	0.281* (0.118)	0.282* (0.118)	0.283* (0.118)
Industry fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Informal competition # Family ownership		-0.0381* (0.0172)		-0.0459* (0.0175)
EPS # Family ownership			-0.0786* (0.0395)	-0.0978* (0.0401)
Constant	0.785** (0.225)	0.763** (0.225)	0.606* (0.242)	0.534* (0.243)
Inalpha	-0.843** (0.0367)	-0.844** (0.0368)	-0.844** (0.0368)	-0.846** (0.0368)
Log-likelihood	-14864.5	-14862.1	-14862.5	-14859.1
Observations	6817	6817	6817	6817

Standard errors in parentheses

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.001$

**Appendix 4.**

**Table 7** Regression results of firm's adoption of PES with enforcement of environmental regulations.

	DV = proactive environmental strategies			
	Model 1	Model 2	Model 3	Model 4
Firm belongs to a business group	0.253** (0.0262)	0.253** (0.0262)	0.249** (0.0262)	0.250** (0.0262)
Formal competition	-0.0563** (0.0115)	-0.0576** (0.0115)	-0.0567** (0.0115)	-0.0585** (0.0115)
Age (log)	-0.0108 (0.0177)	-0.0109 (0.0177)	-0.0108 (0.0177)	-0.0110 (0.0177)
Firm size (log)	0.179** (0.00911)	0.179** (0.00911)	0.178** (0.00911)	0.177** (0.00911)
CEO experience (log)	0.0768** (0.0172)	0.0769** (0.0172)	0.0773** (0.0172)	0.0776** (0.0172)
Informal competition	0.0603** (0.00878)	0.0758** (0.0115)	0.0602** (0.00877)	0.0801** (0.0116)
Enforcement of Environmental Regulation (EER)	-0.146* (0.0566)	-0.146* (0.0566)	-0.0585 (0.0642)	-0.0438 (0.0644)
Family ownership	0.129** (0.0266)	0.179** (0.0358)	0.619** (0.172)	0.764** (0.180)
Industry fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Informal competition # Family ownership		-0.0355* (0.0172)		-0.0458* (0.0174)
EER# Family ownership			-0.135* (0.0467)	-0.157** (0.0474)
Constant	0.887** (0.257)	0.866** (0.257)	0.589* (0.277)	0.512+ (0.278)
Inalpha Constant	-0.833** (0.0364)	-0.834** (0.0364)	-0.836** (0.0365)	-0.837** (0.0365)
Log-likelihood	-14996.3	-14994.2	-14992.1	-14988.7
Observations	6862	6862	6862	6862

Standard errors in parentheses

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.001$

**Appendix 5.**

**Table 8** Regression results of firm's adoption of PES with environmental regulations as an obstacle.

	DV = proactive environmental strategies			
	Model 1	Model 2	Model 3	Model 4
Firm belongs to a business group	0.242** (0.0236)	0.244** (0.0236)	0.242** (0.0236)	0.243** (0.0235)
Formal competition	-0.0526** (0.0104)	-0.0540** (0.0104)	-0.0529** (0.0103)	-0.0541** (0.0104)
Age (log)	-0.00917 (0.0158)	-0.00908 (0.0158)	-0.00881 (0.0158)	-0.00882 (0.0158)
Firm size (log)	0.177** (0.00841)	0.176** (0.00841)	0.176** (0.00841)	0.176** (0.00841)
CEO experience (log)	0.0789** (0.0151)	0.0790** (0.0151)	0.0787** (0.0151)	0.0789** (0.0151)
Informal competition	0.0531** (0.00823)	0.0742** (0.0108)	0.0526** (0.00823)	0.0713** (0.0109)
Environmental regulation as obstacles (ERO)	0.00989 (0.00947)	0.00945 (0.00947)	0.0290* (0.0127)	0.0237+ (0.0129)
Family ownership	0.135** (0.0241)	0.197** (0.0316)	0.175** (0.0300)	0.220** (0.0345)
Industry fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Informal competition #		-0.0476*		-0.0421*
Family ownership		(0.0156)		(0.0160)
ERO # Family ownership			-0.0412* (0.0184)	-0.0306 (0.0188)
Constant	0.416** (0.0979)	0.388** (0.0983)	0.398** (0.0982)	0.378** (0.0984)
Inalpha	-1.003** (0.0369)	-1.006** (0.0369)	-1.005** (0.0369)	-1.007** (0.0370)
Log-likelihood	-15986.8	-15982.2	-15984.3	-15980.9
Observations	7096	7096	7096	7096

Standard errors in parentheses

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.001$

## **Chapter 4**

### **CONCLUSION**

The dissertation's general objective is to examine the internal and external factors that limit or foster proactive environmental behavior at the firm level in emerging economies. The two empirical studies of this dissertation extend the literature on PES in emerging economies by integrating informal firms an often-overlooked stakeholder and family firms in these institutional challenges contexts from emerging economies. This thesis offers a holistic perspective by analyzing external factors such as formal and informal competition, regulatory environmental stringency, and internal factors including family ownership and managerial experience.

In the first empirical study, informal firm competition acts as an independent external factor that influences PES adoption by formal firms, while managerial experience and formal competition in the sector serve as moderating factors of this relationship. The second empirical study shows that family firms operating in emerging economies are essential for PES adoption, yet their impact on PES is moderated by environmental regulatory stringency and informal competition.

Theoretically, this dissertation extends the application of the ABV perspective to PES adoption in emerging economies, thereby complementing the more commonly used theoretical perspectives in this field. Additionally, drawing on SEW theory, this research addresses a gap in the literature by incorporating contextual factors rather than focusing solely on internal contingent factors.

This dissertation provides some practical implications. Managers should adopt PES to strengthen competitiveness and surpass the cost and time advantages enjoyed by informal firms. At the same time, experienced managers should not disregard informal

competitors, as some may possess the capabilities to transition into the formal sector, presenting a potential threat. In the context of family firms, implementing PES becomes relevant for anticipating and adapting to regulatory changes and mitigating risks posed by informal firms. Finally, policymakers should consider introducing targeted interventions and supportive measures specifically tailored to the needs of family firms.

Future research opportunities in regions such as Latin America, where the informal sector is prevalent, could shed new light on the competitive dynamics between formal and informal firms. Additionally, exploring other internal factors (i.e., age, training) and external factors (i.e., institutional development, stakeholders) may help explain the dynamics of PES adoption in emerging economies. Future research could also investigate other sectors, such as retail or services, and more advanced environmental practices such as green innovation, green supply chain, and biodiversity conservation initiatives that extend beyond firm boundaries. Finally, the main limitation of this dissertation is the use of cross-sectional data, which does not allow for causal claims; therefore, future studies might consider employing longitudinal designs.

## **REFERENCES**

- Abbas, S., Adapa, S., Sheridan, A., & Azeem, M. M. (2022). Informal competition and firm level innovation in South Asia: The moderating role of innovation time off and R&D intensity. *Technological Forecasting and Social Change*, 181(November 2020), 121751. <https://doi.org/10.1016/j.techfore.2022.121751>
- Aboelmaged, M. (2018). The drivers of sustainable manufacturing practices in Egyptian SMEs and their impact on competitive capabilities : A PLS-SEM model. *Journal of Cleaner Production*, 175, 207–221. <https://doi.org/10.1016/j.jclepro.2017.12.053>
- Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., & Overy, P. (2016). Sustainability-oriented Innovation: A Systematic Review. *International Journal of Management Reviews*, 18(2), 180–205. <https://doi.org/10.1111/ijmr.12068>
- Adomako, S., Ning, E., & Adu-Ameyaw, E. (2021). Proactive environmental strategy and firm performance at the bottom of the pyramid. *Business Strategy and the Environment*, 30(1), 422–431. <https://doi.org/10.1002/bse.2629>
- Agostino, M., & Ruberto, S. (2021). Environment-friendly practices: Family versus non-family firms. *Journal of Cleaner Production*, 329. <https://doi.org/10.1016/j.jclepro.2021.129689>
- Aguilera-Caracuel, J., Hurtado-Torres, N. E., & Aragón-Correa, J. A. (2012). Does international experience help firms to be green? A knowledge-based view of how international experience and organisational learning influence proactive environmental strategies. *International Business Review*, 21(5), 847–861. <https://doi.org/10.1016/j.ibusrev.2011.09.009>
- Aguilera-Caracuel, J., Hurtado-Torres, N. E., Aragón-Correa, J. A., & Rugman, A. M. (2013). Differentiated effects of formal and informal institutional distance between countries on the environmental performance of multinational enterprises. *Journal of Business Research*, 66(12), 2657–2665. <https://doi.org/10.1016/j.jbusres.2013.04.002>
- Aguilera-Caracuel, J., & Ortiz-de-Mandojana, N. (2013). Green Innovation and Financial Performance: An Institutional Approach. *Organization and Environment*, 26(4), 365–385. <https://doi.org/10.1177/1086026613507931>
- Ahmadova, G., Delgado-Márquez, B. L., & Aguilera-Caracuel, J. (2023). Reporting of environmental policies and internationalization of Asia–Pacific firms: the moderating role of innovation as a source of legitimacy. *Asian Business and Management*, 22(4), 1243–1273. <https://doi.org/10.1057/s41291-022-00203-4>
- Alexopoulou-Giannakitsa. (2011). *Informal economy and development. The case of the dairy sector in Mwanza, Tanzania: Present status and possible pro-poor interventions*. (Issue November). Utrecht University.
- Aliasghar, O., Rose, E. L., & Asakawa, K. (2022). Sources of knowledge and process innovation: The moderating role of perceived competitive intensity. *International Business Review*, 31(2). <https://doi.org/10.1016/j.ibusrev.2021.101920>
- Alvaro González, & Francesca Lamanna. (2007). Who Fears Competition from Informal Firms ? Evidence from Latin America. In *Policy ReseaRch WoRking PaPeR* (Issue August).
- Ambec, S., & Lanoie, P. (2008). Does It Pay to Be Green ? A Systematic Overview. *Academy of Management Perspectives*, 22(4), 45–62. <https://www.jstor.org/stable/27747478>
- Amin, M. (2023). Does competition from informal firms hurt job creation by formal manufacturing SMEs in developing and emerging countries? Evidence using firm-level survey data. *Small Business Economics*, 60(4), 1659–1681. <https://doi.org/10.1007/s11187-022-00672-z>
- Andersén, J. (2022). An Attention-Based View on Environmental Management: The Influence of Entrepreneurial Orientation, Environmental Sustainability Orientation, and Competitive

- Intensity on Green Product Innovation in Swedish Small Manufacturing Firms. *Organization and Environment*, 35(4), 627–652. <https://doi.org/10.1177/10860266221101345>
- Anupam Kumar, J.-P. P. (2018). A Proactive Environmental Strategy: Analyzing the Effect of SCM Experience, Age, and Female Representation in TMT. *Journal of Supply Chain Management*, 54(4), 20–41. <https://doi.org/10.1111/jscm.12179>
- Aragón-Correa, J. A., & A. Rubio-López, E. (2007). Proactive Corporate Environmental Strategies: Myths and Misunderstandings. *Long Range Planning*, 40(3), 357–381. <https://doi.org/10.1016/j.lrp.2007.02.008>
- Aragon-Correa, J. A., Alfred A, M., & Vogel, D. (2020). The effects of mandatory and voluntary regulatory pressures on firms' environmental strategies : a review and recommendations for future research. *Academy of Management Annals*, 14(1), 339–365.
- Aragón-Correa, J. A., Hurtado-Torres, N., Sharma, S., & García-Morales, V. J. (2008a). Environmental strategy and performance in small firms: A resource-based perspective. *Journal of Environmental Management*, 86(1), 88–103. <https://doi.org/10.1016/j.jenvman.2006.11.022>
- Aragón-Correa, J. A., & Sharma, S. (2003). A Contingent Resource-Based View of Proactive Corporate Environmental Strategy. *The Academy of Management Review*, 28(1), 71. <https://doi.org/10.2307/30040690>
- Arena, C., & Michelon, G. (2018). A matter of control or identity? Family firms' environmental reporting decisions along the corporate life cycle. *Business Strategy and the Environment*, 27(8), 1596–1608. <https://doi.org/10.1002/bse.2225>
- Assenova, V. A., & Sorenson, O. (2017). Legitimacy and the benefits of firm formalization. *Organization Science*, 28(5), 804–818. <https://doi.org/10.1287/orsc.2017.1146>
- Balasubramanian, S., Shukla, V., Mangla, S., & Chanchaichujit, J. (2021). Do firm characteristics affect environmental sustainability? A literature review-based assessment. *Business Strategy and the Environment*, 30(2), 1389–1416. <https://doi.org/10.1002/bse.2692>
- Banerjee, R., Gupta, K., & McIver, R. (2019). What matters most to firm-level environmentally sustainable practices: Firm-specific or country-level factors? *Journal of Cleaner Production*, 218, 225–240. <https://doi.org/10.1016/j.jclepro.2019.02.008>
- Bansal, P. (2005). Evolving Sustainably: A Longitudinal Study of Corporate Sustainable Development. *Strategic Management Journal*, 26(3), 197–218. <https://doi.org/10.1002/smj.441>
- Barnett, M. L. (2008). An Attention-Based View of Real Options Reasoning. In *Source: The Academy of Management Review* (Vol. 33, Issue 3).
- Battisti, E., Nirino, N., Leonidou, E., & Salvi, A. (2023). Corporate social responsibility in family firms: Can corporate communication affect CSR performance? *Journal of Business Research*, 162. <https://doi.org/10.1016/j.jbusres.2023.113865>
- Baum, J. A. C., & Lant, T. K. (2003). Hits and misses: Managers'(mis) categorization of competitors in the Manhattan hotel industry. In *Geography and Strategy* , 119–156. [https://doi.org/10.1016/S0742-3322\(03\)20004-8](https://doi.org/10.1016/S0742-3322(03)20004-8)
- Ben, A., Boubaker, S., & Omri, A. (2018). Entrepreneurship and sustainability : The need for innovative and institutional solutions. *Technological Forecasting & Social Change*, 1–10. <https://doi.org/10.1016/j.techfore.2017.11.003>
- Bendell, B. L. (2022). Environmental investment decisions of family firms—An analysis of competitor and government influence. *Business Strategy and the Environment*, 31(1), 1–14.

- <https://doi.org/10.1002/bse.2870>
- Bergen, M., & Peteraf, M. A. (2002). Competitor identification and competitor analysis: A broad-based managerial approach. *Managerial and Decision Economics*, 23(4–5), 157–169. <https://doi.org/10.1002/mde.1059>
- Berkowitz, H., Bocquet, R., Delacour, H., & Demil, B. (2024). Scaling Perspectives on Grand Challenges in Management and Organization Studies. *Management (France)*, 27(3), 1–9. <https://doi.org/10.37725/mgmt.2024.10797>
- Berrone, P., Cruz, C., & Gomez-Mejia, L. R. (2012). Socioemotional Wealth in Family Firms: Theoretical Dimensions, Assessment Approaches, and Agenda for Future Research. In *Family Business Review* (Vol. 25, Issue 3, pp. 258–279). <https://doi.org/10.1177/0894486511435355>
- Berrone, P., Cruz, C., Gomez-Mejia, L. R., & Larraza-Kintana, M. (2010). *Socioemotional Wealth and Corporate Responses to Institutional Pressures: Do Family-Controlled Firms Pollute Less?*
- Berrone, P., Duran, P., Gómez-Mejía, L., Heugens, P. P. M. A. R., Kostova, T., & van Essen, M. (2022). Impact of informal institutions on the prevalence, strategy, and performance of family firms: A meta-analysis. *Journal of International Business Studies*, 53(6), 1153–1177. <https://doi.org/10.1057/s41267-020-00362-6>
- Berrone, P., & Gomez-Mejia, L. R. (2009). Environmental Performance and Executive Compensation: An Integrated Agency-Institutional Perspective. In *Source: The Academy of Management Journal* (Vol. 52, Issue 1). <https://www.jstor.org/stable/40390278>
- Berrone, P., Gomez-Mejia, L. R., & Xu, K. (2023). The Role of Family Ownership in Norm-Conforming Environmental Initiatives: Lessons from China. *Entrepreneurship: Theory and Practice*, 47(5), 1915–1941. <https://doi.org/10.1177/10422587221115362>
- Bhatt, Y., & Ghuman, K. (2022). Corporate environmental responsiveness: a bibliometric and content analysis. *Management Review Quarterly*. <https://doi.org/10.1007/s11301-022-00275-8>
- Björnberg, E., & Pandit. (2015). Joining the family business: An emerging opportunity for investors. In *McKinsey on Investing* (Issue 2, pp. 1–11).
- Blackman, A. (2000). Informal Sector Pollution Control: What Policy Options Do We Have? *World Development*, 28(12).
- Block, J. H., & Wagner, M. (2014). The effect of family ownership on different dimensions of corporate social responsibility: Evidence from large US firms. *Business Strategy and the Environment*, 23(7), 475–492. <https://doi.org/10.1002/bse.1798>
- Boafo, C., Owusu, R. A., & Guiderdoni-Jourdain, K. (2022). Understanding internationalisation of informal African firms through a network perspective. *International Small Business Journal: Researching Entrepreneurship*, 40(5), 618–649. <https://doi.org/10.1177/02662426211054099>
- Boudreaux, C., Clarke, G., & Jha, A. (2022). Social capital and small informal business productivity: the mediating roles of financing and customer relationships. *Small Business Economics*, 59, 955–976. <https://doi.org/10.1007/s11187-021-00560-y>
- Brielmaier, C., & Friesl, M. (2023). The attention-based view: Review and conceptual extension towards situated attention. *International Journal of Management Reviews*, 25(1), 99–129. <https://doi.org/10.1111/ijmr.12306>
- Broccardo, L., Truant, E., & Zicari, A. (2019). Internal corporate sustainability drivers: What evidence from family firms? A literature review and research agenda. In *Corporate Social Responsibility and Environmental Management* (Vol. 26, Issue 1, pp. 1–18). John Wiley

- and Sons Ltd. <https://doi.org/10.1002/csr.1672>
- Bu, J., & Cuervo-Cazurra, A. (2020). Informality costs: Informal entrepreneurship and innovation in emerging economies. *Strategic Entrepreneurship Journal*, 14(3), 329–368. <https://doi.org/10.1002/sej.1358>
- Bu, J., Luo, Y., & Zhang, H. (2022). The dark side of informal institutions: How crime, corruption, and informality influence foreign firms' commitment. *Global Strategy Journal*, 12(2), 209–244. <https://doi.org/10.1002/gsj.1417>
- Buyl, T., Boone, C., & Wade, J. B. (2015). Non-CEO executive mobility: The impact of poor firm performance and TMT attention. *European Management Journal*, 33(4), 257–267. <https://doi.org/10.1016/j.emj.2015.02.001>
- Camerer, C., Lovallo, D., Taylor, S. E., & Brown, J. D. (1999). Overconfidence and Excess Entry: An Experimental Approach. *American Economic Review*, 89(1), 306–318.
- Cameron, A. C., & Trivedi, P. K. (2009). Chapter 15 Multinomial models. In *Microeconometrics Using Stata*.
- Cameron, C. A., & Trivedi, P. K. (2022). *Microeconometrics Using Stata : Volume II: Nonlinear Models and Causal Inference Methods* (Vol. 2). <https://www.routledge.com/Microeconometrics-Using-Stata-Second-Edition-Volume-II-Nonlinear-Models/Cameron-Trivedi/p/book/9781597183628>
- Carneiro-Da-Cunha, J. A., & Rossetto, D. E. (2015). Mapping entrepreneurs' types in a Brazilian informal clothes retailing cluster. *International Journal of Entrepreneurship and Small Business*, 26(1), 21–42. <https://doi.org/10.1504/IJESB.2015.071318>
- CDP Global Supply Chain Report. (2021). *Transparency to Transformation: A Chain Reaction* (Issue February). <https://www.cdp.net/en/research/global-reports/transparency-to-transformation>
- Chan, R. Y. K., Lai, J. W. M., & Kim, N. (2022). Strategic motives and performance implications of proactive versus reactive environmental strategies in corporate sustainable development. *Business Strategy and the Environment*, 31(5), 2127–2142. <https://doi.org/10.1002/bse.3011>
- Chen, H., Zeng, S., Lin, H., & Ma, H. (2015). Munificence, Dynamism, and Complexity: How Industry Context Drives Corporate Sustainability. *Business Strategy and the Environment*, 26(2), 125–141. <https://doi.org/10.1002/bse.1902>
- Chen, M. J., & Miller, D. (2012). Competitive Dynamics: Themes, Trends, and a Prospective Research Platform. *Academy of Management Annals*, 6(1), 135–210. <https://doi.org/10.1080/19416520.2012.660762>
- Chen, X., Pan, X., & Sinha, P. (2022). What to green: Family involvement and different types of eco-innovation. *Business Strategy and the Environment*, 31(5), 2588–2602. <https://doi.org/10.1002/bse.3045>
- Cho, T. S., & Hambrick, D. C. (2006). Attention as the mediator between top management team characteristics and strategic change: The case of airline deregulation. *Organization Science*, 17(4), 453–469. <https://doi.org/10.1287/orsc.1060.0192>
- Clark Bruce, D. M. (1999). Managerial Identification of Competitors. *Journal of Marketing*, 63(3), 67–83.
- Dangelico, R. M., & Pujari, D. (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. *Journal of Business Ethics*, 95(3), 471–486. <https://doi.org/10.1007/s10551-010-0434-0>
- Darbi, W. P. K., & Knott, P. (2016). Strategising practices in an informal economy setting: A case of strategic networking. *European Management Journal*, 34(4), 400–413.

- <https://doi.org/10.1016/j.emj.2015.12.009>
- Darnall, N., Henriques, I., & Sadorsky, P. (2010). Adopting proactive environmental strategy: The influence of stakeholders and firm size. *Journal of Management Studies*, 47(6), 1072–1094. <https://doi.org/10.1111/j.1467-6486.2009.00873.x>
- Davila, J., Duran, P., Gómez-Mejía, L., & Sanchez-Bueno, M. J. (2023). Socioemotional wealth and family firm performance: A meta-analytic integration. *Journal of Family Business Strategy*, 14(2). <https://doi.org/10.1016/j.jfbs.2022.100536>
- Dayan, M., Ng, P. Y., & Ndubisi, N. O. (2019). Mindfulness, socioemotional wealth, and environmental strategy of family businesses. *Business Strategy and the Environment*, 28(3), 466–481. <https://doi.org/10.1002/bse.2222>
- de Abreu, M. C. S., Soares, R. A., Daniel-Vasconcelos, V., & Crisóstomo, V. L. (2023). Does board diversity encourage an environmental policy focused on resource use, emission reduction and innovation? The case of companies in Latin America. *Corporate Social Responsibility and Environmental Management*, 30(3), 1161–1176. <https://doi.org/10.1002/csr.2411>
- De Castro, J. O., Khavul, S., & Bruton, G. D. (2014). Shades of grey: How do informal firms navigate between macro and meso institutional environments? *Strategic Entrepreneurship Journal*, 8(1), 75–94. <https://doi.org/10.1002/sej.1172>
- Deb, R., Samalia, H. V., & Prusty, S. K. (2020). The role of informal competition in driving export propensity of emerging economy firms: An attention based approach. *International Journal of Sociology and Social Policy*, 40(1–2), 184–203. <https://doi.org/10.1108/IJSSP-06-2019-0131>
- Dekker, J., & Hasso, T. (2016). Environmental Performance Focus in Private Family Firms: The Role of Social Embeddedness. *Journal of Business Ethics*, 136(2), 293–309. <https://doi.org/10.1007/s10551-014-2516-x>
- Deligianni, I., Voudouris, I., Spanos, Y., & Lioukas, S. (2019). Non-linear effects of technological competence on product innovation in new technology-based firms: Resource orchestration and the role of the entrepreneur’s political competence and prior start-up experience. *Technovation*, 88(December 2018), 102076. <https://doi.org/10.1016/j.technovation.2019.05.002>
- Delmas, M. A., & Toffel, M. W. (2008). Organizational responses to environmental demands: Opening the black box. In *Strategic Management Journal* (Vol. 29, Issue 10, pp. 1027–1055). <https://doi.org/10.1002/smj.701>
- Denis Boatfield. (1984). Energy Cost Saving Starts on the Shop Floor. *Long Range Plannig*, 17(1), 73–77.
- Dietz, T., Ostrom, E., & Stern, P. C. (2003). The Struggle to Govern the Commons. *Science*, 302, 1907–1912.
- Distinguin, I., Rugemintwari, C., & Tacneng, R. (2016). Can Informal Firms Hurt Registered SMEs’ Access to Credit? *World Development*, 84, 18–40. <https://doi.org/10.1016/j.worlddev.2016.04.006>
- Dou, J., Su, E., & Wang, S. (2019). When Does Family Ownership Promote Proactive Environmental Strategy? The Role of the Firm’s Long-Term Orientation. *Journal of Business Ethics*, 158(1), 81–95. <https://doi.org/10.1007/s10551-017-3642-z>
- Duanmu, J. L., Bu, M., & Pittman, R. (2018). Does market competition dampen environmental performance? Evidence from China. *Strategic Management Journal*, 39(11), 3006–3030. <https://doi.org/10.1002/smj.2948>
- Dubey, R., Gunasekaran, A., & Samar Ali, S. (2015). Exploring the relationship between

- leadership, operational practices, institutional pressures and environmental performance: A framework for green supply chain. *International Journal of Production Economics*, 160, 120–132. <https://doi.org/10.1016/j.ijpe.2014.10.001>
- Dwibedy, P. (2022). Informal competition and product innovation decisions of new ventures and incumbents across developing and transitioning countries. *Journal of Business Venturing Insights*, 17, 1–14. <https://doi.org/10.1016/j.jbvi.2022.e00306>
- Eklund, J. C., & Mannor, M. J. (2021). Keep Your Eye on the Ball or on the Field? Exploring the Performance Implications of Executive Strategic Attention. *Academy of Management Journal*, 64(6), 1685–1713. <https://doi.org/https://doi.org/10.5465/amj.2019.0156>
- El Ghouli, S., Guedhami, O., Wang, H., & Kwok, C. C. Y. (2016). Family control and corporate social responsibility. *Journal of Banking and Finance*, 73, 131–146. <https://doi.org/10.1016/j.jbankfin.2016.08.008>
- Elkhwesky, Z. (2022). A systematic and major review of proactive environmental strategies in hospitality and tourism: Looking back for moving forward. *Business Strategy and the Environment*, 31(7), 3274–3301. <https://doi.org/10.1002/bse.3076>
- Etzion, D. (2007). Research on Organizations and the Natural Environment, 1992-Present: A Review. *Journal of Management*, 33(4), 637–664. <https://doi.org/10.1177/0149206307302553>
- Fan, Y., Zhang, F., & Zhu, L. (2021). Do family firms invest more in pollution prevention strategy than non-family firms? An integration of agency and institutional theories. *Journal of Cleaner Production*, 286. <https://doi.org/10.1016/j.jclepro.2020.124988>
- Fernandez, V. (2022). Environmental management: Implications for business performance, innovation, and financing. *Technological Forecasting & Social Change*, 121797.
- Flammer, C. (2014a). Does product market competition foster corporate social responsibility? Evidence from trade liberalization. *Strategic Management Journal*, October, 1–43. <https://doi.org/10.1002/smj>
- Flammer, C. (2014b). Does product market competition foster corporate social responsibility? Evidence from trade liberalization. *Strategic Management Journal*, October, 1–43. <https://doi.org/10.1002/smj>
- Flores-Rivera, C., Serrano-Bedia, A. M., & García-Piqueres, G. (2024). Motivations and outcomes of environmental corporate sustainability in family and non-family Mexican firms: The mediating role of eco-innovation strategy. *Corporate Social Responsibility and Environmental Management*, 31(1), 357–374. <https://doi.org/10.1002/csr.2574>
- Forgione, A. F., & Migliardo, C. (2022). Panel VAR study on the effects of technical efficiency, market competition, and firm value on environmental performance. *Journal of Cleaner Production*, 359. <https://doi.org/10.1016/j.jclepro.2022.131919>
- Frank, T. R. (2017). *Strategic Management* (3rd Edition, Ed.; Frank.). Me. Graw Hill.
- Fu, X., Mohnen, P., & Zanello, G. (2018). Innovation and productivity in formal and informal firms in Ghana. *Technological Forecasting and Social Change*, 131, 315–325. <https://doi.org/10.1016/j.techfore.2017.08.009>
- Gadonne, D. L., Kennedy, J., & McKeiver, C. (2009). An empirical study of environmental awareness and practices in SMEs. *Journal of Business Ethics*, 84(1), 45–63. <https://doi.org/10.1007/s10551-008-9672-9>
- Galbreath, J. (2018). Do Boards of Directors Influence Corporate Sustainable Development? An Attention-Based Analysis. *Business Strategy and the Environment*, 27(6), 742–756. <https://doi.org/10.1002/bse.2028>
- Gariel, C., & Bartel-Radic, A. (2024). Tidying Up the Concept of Grand Challenges: A

- Bibliometric Analysis. *Management (France)*, 27(3), 58–79. <https://doi.org/10.37725/mgmt.2024.8884>
- Geletkanycz, & Black. (2001). Bound by the past? Experience-based effects on commitment to the strategic status quo. *Journal of Management*, 27(1), 0149–2063.
- George, G., Howard-Grenville, J., Joshi, A., & Tihanyi, L. (2016). Understanding and tackling societal grand challenges through management research. *Academy of Management Journal*, 59(6), 1880–1895. <https://doi.org/10.5465/amj.2016.4007>
- George, G., Schillebeeckx, S. J. D., & Liak, T. L. (2015). The management of natural resources: An overview and research agenda. *Academy of Management Journal*, 58(6), 1595–1613. <https://doi.org/10.4337/9781786435729.00009>
- Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, 114, 11–32. <https://doi.org/10.1016/j.jclepro.2015.09.007>
- Ghoshal, S., & Westney, D. E. (1991). Organizing Competitor Analysis Systems. *Strategic Management Journal*, 12, 17–31.
- Gibb Dyer, W., & David Whetten, J. A. (2006). Family Firms and Social Responsibility: Preliminary Evidence from the S&P 500. *Entrepreneurship Theory and Practice*, 30(6), 785–802. <http://www.kld.com>
- Gibbons, & O'Brien. (2001). Socialisation and chief executive commitment to the status quo. *Irish Business and Administrative Management*, 22(2), 143–172.
- Godfrey, P. C. (2011). *The Academy of Management Annals Toward a Theory of the Informal Economy*. January 2015, 37–41. <https://doi.org/10.1080/19416520.2011.585818>
- Gokalp, O. N., Lee, S. H., & Peng, M. W. (2017). Competition and corporate tax evasion: An institution-based view. *Journal of World Business*, 52(2), 258–269. <https://doi.org/10.1016/j.jwb.2016.12.006>
- Gomez-Mejia, L., Basco, R., Gonzalez, A. C., & Muller, C. G. (2020). Family business and local development in Iberoamerica. In *Cross Cultural and Strategic Management* (Vol. 27, Issue 1, pp. 51–66). Emerald Group Holdings Ltd. <https://doi.org/10.1108/CCSM-02-2020-223>
- Gomez-Mejia, L. R., Campbell, J. T., Martin, G., Hoskisson, R. E., Makri, M., & Sirmon, D. G. (2014). Socioemotional Wealth as a Mixed Gamble: Revisiting Family Firm R&D Investments With the Behavioral Agency Model. *Entrepreneurship: Theory and Practice*, 38(6), 1351–1374. <https://doi.org/10.1111/etap.12083>
- Gomez-Mejia, L. R., Cruz, C., Berrone, P., & de Castro, J. (2011). The Bind that ties: Socioemotional wealth preservation in family firms. In *Academy of Management Annals* (Vol. 5, Issue 1, pp. 653–707). <https://doi.org/10.1080/19416520.2011.593320>
- Gómez-Mejía, L. R., Haynes, K. T., Núñez-Nickel, M., Jacobson, K. J. L., & Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly*, 52(1), 106–137. <https://doi.org/10.2189/asqu.52.1.106>
- Gomez-Mejia, L. R., Mendoza-Lopez, A., Cruz, C., Duran, P., & Aguinis, H. (2023). Socioemotional wealth in volatile, uncertain, complex, and ambiguous contexts: The case of family firms in Latin America and the Caribbean. *Journal of Family Business Strategy*. <https://doi.org/10.1016/j.jfbs.2022.100551>
- Gomez-Mejia, Mendoza-Lopez, A., Cruz, C., Duran, P., & Aguinis, H. (2024). Socioemotional wealth in volatile, uncertain, complex, and ambiguous contexts: The case of family firms in Latin America and the Caribbean. *Journal of Family Business Strategy*, 15(1). <https://doi.org/10.1016/j.jfbs.2022.100551>

- González-Benito, J., & González-Benito, Ó. (2006). A review of determinant factors of environmental proactivity. In *Business Strategy and the Environment* (Vol. 15, Issue 2, pp. 87–102). <https://doi.org/10.1002/bse.450>
- Graafland, J. (2020). Family business ownership and cleaner production: Moderation by company size and family management. *Journal of Cleaner Production*, 255. <https://doi.org/10.1016/j.jclepro.2020.120120>
- Graafland, J. J. (2016). Price competition, short-termism and environmental performance. *Journal of Cleaner Production*, 116, 125–134. <https://doi.org/10.1016/j.jclepro.2015.12.045>
- Grimm, M., Knorringa, P., & Lay, J. (2012). Constrained Gazelles: High Potentials in West Africa's Informal Economy. *World Development*, 40(7), 1352–1368. <https://doi.org/10.1016/j.worlddev.2012.03.009>
- Guo, Y., Fan, L., & Yuan, X. (2022). Market Competition, Financialization, and Green Innovation: Evidence From China's Manufacturing Industries. *Frontiers in Environmental Science*, 10, 1–16. <https://doi.org/10.3389/fenvs.2022.836019>
- Hambrick, D. C., Geletkanycz, M. A., & Fredrickson, J. W. (1993). Top Executive Commitment to the Status Quo: Some Tests of Its Determinants. In *Management Journal* (Vol. 14, Issue 6). <https://about.jstor.org/terms>
- Hart, S. L., & Dowell, G. (2011). A natural-resource-based view of the firm: Fifteen years after. *Journal of Management*, 37(5), 1464–1479. <https://doi.org/10.1177/0149206310390219>
- Hayward, M. L. A., Shepherd, D. A., & Griffin, D. (2006). A hubris theory of entrepreneurship. *Management Science*, 52(2), 160–172. <https://doi.org/10.1287/mnsc.1050.0483>
- Heredia, J., Yang, X., Bai, O., Flores, A., & Heredia, W. (2019). How Does Competition By Informal Firms Affect The Innovation In Formal Firms? *International Studies of Management and Organization*, 49(2), 173–190. <https://doi.org/10.1080/00208825.2019.1608402>
- Heredia Pérez, J. A., Kunc, M. H., Durst, S., Flores, A., & Geldes, C. (2018). Impact of competition from unregistered firms on R&D investment by industrial sectors in emerging economies. *Technological Forecasting and Social Change*, 133(January), 179–189. <https://doi.org/10.1016/j.techfore.2018.03.028>
- Heredia, W., Lecuna, A., Heredia, J., Geldes, C., & Flores, A. (2023). Effect of corruption and crime on growth-oriented informal firms. *International Entrepreneurship and Management Journal*, 19, 2065–2091. <https://doi.org/https://doi.org/10.1007/s11365-023-00884-z>
- Heredia, W., Ponce Oliva, R. D., & Vásquez-Lavín, F. (2024). The effect of competition from informal firms on proactive environmental strategies in emerging economies. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.3815>
- Hoffman, A. J. (1999). Institutional evolution and change: Environmentalism and the U.S. chemical industry. *Academy of Management Journal*, 42(4), 351–371. <https://doi.org/10.2307/257008>
- Hoogendoorn, B., Guerra, D., & van der Zwan, P. (2015). What drives environmental practices of SMEs? *Small Business Economics*, 44(4), 759–781. <https://doi.org/10.1007/s11187-014-9618-9>
- Hoskisson, R. E., Eden, L., Lau, C. M., Wright, M., & Hoskisson, R. E. (2000). Strategy in Emerging Economies. *The Academy of Management Journal*, 43(3), 249–267.
- Hoskisson, R. E., Wright, M., Filatotchev, I., & Peng, M. W. (2013). Emerging Multinationals from Mid-Range Economies: The Influence of Institutions and Factor Markets. *Journal of Management Studies*, 50(7), 1295–1321. <https://doi.org/10.1111/j.1467-6486.2012.01085.x>

- Hossein Nejad, M. (2014). *Attention to Competition: The Role of Managerial Cognition in Shaping the Response to Competitive Actions*.  
<https://ir.lib.uwo.ca/etd><https://ir.lib.uwo.ca/etd/2328>
- Hu, S., Gentry, R. J., Quigley, T. J., & Boivie, S. (2023). Who's in the Driver's Seat? Exploring Firm-Level vs. CEO-Level Effects on Problemistic Search. *Journal of Management*, 49(4), 1187–1212. <https://doi.org/10.1177/01492063211063823>
- Huang, Y.-C., Ding, H.-B., & Kao, M.-R. (2009). Salient stakeholder voices: Family business and green innovation adoption. *Journal of Management & Organization*, 15(3), 309–326. <https://doi.org/10.1017/s1833367200002649>
- Iriyama, A., Kishore, R., & Talukdar, D. (2016). Playing dirty or Building Capability? Corruption and HR Training as competitive actions to threats from informal and foreign firm rivals. *Strategic Management Journal*, 37(10), 2152–2173.
- Joseph, J., & Wilson, A. (2018). The Growth of the firm: an attention-base view. *Strategic Management Journal*, 39(6), 1779–1800.
- Khavul, S., Bruton, G. D., & Wood, E. (2009). Informal family business in Africa. *Entrepreneurship: Theory and Practice*, 33(6), 1219–1238. <https://doi.org/10.1111/j.1540-6520.2009.00342.x>
- King, A., & Lenox, M. (2002). Exploring the Locus of Profitable Pollution Reduction. *Management Science*, 48(2), 289–299.
- Klassen, R. D., & Vachon, S. (2003). Collaboration and evaluation in the supply chain: The impact on plant-level environmental investment. In *Production and Operations Management* (Vol. 12, Issue 3, pp. 336–352). Wiley-Blackwell. <https://doi.org/10.1111/j.1937-5956.2003.tb00207.x>
- Kor, Y. Y., & Misangyi, V. F. (2008). Outside directors' industry-specific experience and firms' liability of newness. *Strategic Management Journal*, 29(12), 1345–1355. <https://doi.org/10.1002/smj.709>
- Kouakou, D. C. M. (2022). Competing against 'invisibles': the effect of competition from informal firms on formal firms' R&D. *Eurasian Business Review*, 1–20. <https://doi.org/10.1007/s40821-022-00217-0>
- Krammer, S., & Jimenez, A. (2020). Do political connections matter for firm innovation? Evidence from emerging markets in Central Asia and Eastern Europe. *Technological Forecasting and Social Change*, 151, 1–12. <https://doi.org/https://doi.org/10.1016/j.techfore.2019.05.027>
- Krammer, S. M. S. (2019). Greasing the Wheels of Change : Bribery , Institutions , and New Product Introductions in Emerging Markets. *Journal of Management*, 45(5), 1889–1926.
- Krueger, N., Bogers, M. L. A. M., Labaki, R., & Basco, R. (2021). Advancing family business science through context theorizing: The case of the Arab world. *Journal of Family Business Strategy*, 12(1). <https://doi.org/10.1016/j.jfbs.2020.100377>
- Kumar, A., & Paraskevas, J. P. (2018). A Proactive Environmental Strategy: Analyzing the Effect of SCM Experience, Age, and Female Representation in TMTs. *Journal of Supply Chain Management*, 54(4), 20–41. <https://doi.org/10.1111/jscm.12179>
- Lee, H. H., Nunez, M., & Cruz, J. (2018). Competition for limited critical resources and the adoption of environmentally sustainable strategies. *European Journal of Operational Research*, 264(3), 1130–1143. <https://doi.org/10.1016/j.ejor.2017.07.022>
- Li, J., Wang, Y., Yao, N., & Cui, X. (2023). Exploring the effects of socioemotional wealth on environmental strategies of family firms in China: An integrative perspective. *Business Strategy and the Environment*, 32(8), 5368–5381. <https://doi.org/10.1002/bse.3425>

- Li, Q., & Smith, K. E. N. G. (2013). Top Management Attention to Innovation: The Role of Search Selection and Intensity in New Product Introductions. *Academy of Management Journal*, 56(3), 893–916.
- Liao, Z., & Liu, Y. (2024). Confucian culture, environmental innovation, and family firms' performance: The moderating role of market competition. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.3953>
- Liu, B., Qian, G., & Au, K. Y. F. (2023). Family Influence and Environmental Proactiveness of Family Firms in China: A Mixed Gamble Perspective. *Management and Organization Review*, 19(2), 348–371. <https://doi.org/10.1017/mor.2022.21>
- Liu, Y., Guo, J., & Chi, N. (2015). The antecedents and performance consequences of proactive environmental strategy: A meta-analytic review of national contingency. *Management and Organization Review*, 11(3), 521–527. <https://doi.org/10.1017/mor.2015.17>
- Lloret, A. (2012). Opportunities for a Sustainable Informal Economy: The Case of México. In *Academy of Management Proceedings Briarcliff Manor, NY 10510: Academy of Management.*, 1–24.
- Losby, J. L. , Else, J. F. , Kingslow, M. E. , Edgcomb, E. L. , Malm, E. T. , & Kao, V. (2002). Informal Economy Literature Review. *ISED Consulting and Research*, 1–55.
- Marcel, J. J., Barr, P. S., & Duhaime, I. M. (2011). The influence of executive cognition on competitive dynamics. *Strategic Management Journal*, 32(2), 115–138. <https://doi.org/10.1002/smj.870>
- Martín, G., Castro, D., & Salvado, J. A. (2021). “Deconstructing Environmental Strategies in the New Era of Corporate Environmentalism: From Reactors to Upcyclers.” In *Academy of Management Proceedings*, 1–40.
- Mccann, B. T., & Bahl, and M. (2016). The influence of competition from informal firms on new product development. *Strategic Management Journal*, 38(7), 1518–1535. <https://doi.org/10.1002/smj>
- McCann, B. T., & Bahl, M. (2017). The influence of competition from informal firms on new product development. *Strategic Management Journal*, 38(7), 1518–1535. <https://doi.org/10.1002/smj.2585>
- McGahan, A. M. (2012). Challenges of the Informal Economy for the Field of Management. *Academy of Management Perspectives*, 26(3), 12–21.
- Medina, L., & Schneider, F. G. (2017). Shadow Economies Around the World: New Results for 158 Countries Over 1991-2015. In *Center for Economic Studies and ifo Institute (CESifo), Munich* (Issue 6430). <https://doi.org/10.2139/ssrn.2965972>
- Mendi, P., & Costamagna, R. (2017). Managing innovation under competitive pressure from informal producers. *Technological Forecasting and Social Change*, 114, 192–202. <https://doi.org/10.1016/j.techfore.2016.08.013>
- Meng, X. H., Zeng, S. X., Xie, X. M., & Qi, G. Y. (2016). The impact of product market competition on corporate environmental responsibility. *Asia Pacific Journal of Management*, 33(1), 267–291. <https://doi.org/10.1007/s10490-015-9450-z>
- Menkhoff, L., Schmidt, U., & Brozynski, T. (2006). The impact of experience on risk taking, overconfidence, and herding of fund managers: Complementary survey evidence. *European Economic Review*, 50(7), 1753–1766. <https://doi.org/10.1016/j.eurocorev.2005.08.001>
- Mercier-Roy, M., & Mailhot, C. (2024). Collective Action for a Multispecies World: A Compositionist Approach to Grand Challenges. *Management (France)*, 27(3), 45–57. <https://doi.org/10.37725/mgmt.2024.8881>

- Miocevic, D., Arslanagic-Kalajdzic, M., & Kadic-Maglajlic, S. (2022). Competition from informal firms and product innovation in EU candidate countries: A bounded rationality approach. *Technovation*, 110(May), 102365. <https://doi.org/10.1016/j.technovation.2021.102365>
- Miroshnychenko, I., & De Massis, A. (2022). Sustainability practices of family and nonfamily firms: A worldwide study. *Technological Forecasting and Social Change*, 174. <https://doi.org/10.1016/j.techfore.2021.121079>
- Miroshnychenko, I., Miller, D., De Massis, A., & Le Breton-Miller, I. (2024). Are family firms green? *Small Business Economics*. <https://doi.org/10.1007/s11187-024-00907-1>
- Mishra, P., & Yadav, M. (2021). Environmental capabilities, proactive environmental strategy and competitive advantage: A natural-resource-based view of firms operating in India. *Journal of Cleaner Production*, 291, 125249. <https://doi.org/10.1016/j.jclepro.2020.125249>
- Morris, S., Aguilera, R. V., Fisher, G., & Thatcher, S. M. B. (2023). Theorizing From Emerging Markets: Challenges, Opportunities, and Publishing Advice. *Academy of Management Review*, 48(1), 1–10. <https://doi.org/10.5465/amr.2022.0527>
- Murro, P., & Peruzzi, V. (2019). Family firms and access to credit. Is family ownership beneficial? *Journal of Banking and Finance*, 101, 173–187. <https://doi.org/10.1016/j.jbankfin.2019.02.006>
- Narula, R. (2019). Enforcing higher labor standards within developing country value chains: Consequences for MNEs and informal actors in a dual economy. *Journal of International Business Studies*, 50(9), 1622–1635. <https://doi.org/10.1057/s41267-019-00265-1>
- Nguyen, C. P., Nhi, N. A., Schinckus, C., & Dinh, T. S. (2018). The Ambivalent Role of Institutions in the CO2 Emissions : The Case of Emerging Countries. *International Journal of Energy Economics and Policy*, 8(5), 7–17.
- Nguyen, H. T., Vu, T. T. D., Nguyen, H. M., & Troege, M. (2022). Political embeddedness and the adoption of environmental management practices: The mediating effects of institutional pressures. *Corporate Social Responsibility and Environmental Management*, 29(4), 965–983. <https://doi.org/10.1002/csr.2248>
- Nikolakis, W., Olaru, D., & Kallmuenzer, A. (2022). What motivates environmental and social sustainability in family firms? A cross-cultural survey. *Business Strategy and the Environment*, 31(5), 2351–2364. <https://doi.org/10.1002/bse.3025>
- Nilanjana Dutt, J. J. (2019). Regulatory Uncertainty , Corporate Structure , and Strategic Agendas : Evidence from the U . S . Renewable Electricity Industry. *Academy of Management Journal*, 62(3), 800–827.
- North, D. C. (1991). Institutions in Economics. *Journal of Economic Perspectives*, 5(1), 97–112. <https://doi.org/10.1215/00182702-28-3-527>
- Nyaware, B. (2019). Technology Acquisition and Innovations in Kenya ’ s Informal Sector. In *Kipra*.
- Nyberg, D., & Wright, C. (2022). Climate-Proofing Management Research. *Academy of Management Perspectives*, 36(2), 713–728. <https://doi.org/10.5465/amp.2018.0183>
- Ocasio, W. (1997). Towards an Attention-Based View of the Firm. *Strategic Management Journal*, 18(S1), 187–206. <https://doi.org/https://www.jstor.org/stable/3088216>
- Ocasio, W. (2011). Attention to Attention. *Organization Science*, 22(5), 1286–1296. <https://doi.org/10.1287/orsc.1100.0602>
- Ocasio, W. (2012). *Situated Attention, Loose and Tight Coupling, and the Garbage Can Model* (pp. 293–317). [https://doi.org/10.1108/s0733-558x\(2012\)0000036014](https://doi.org/10.1108/s0733-558x(2012)0000036014)
- Ohnsorge, F., & Shu Yu. (2022). *The long shadow of informality Challenges and Policies*.

- World Bank Publications. <https://doi.org/doi:10.1596/978-1-4648-1753-3>.
- Peng, M. W., Sun, S. L., Pinkham, B., & Chen, H. (2009). The Institution-Based View as a Third Leg for a Strategy Tripod. *Academy of Management Perspectives*, 23(3), 63–81.
- Pereira, V., Laker, B., Bamel, U., Sharma, G. D., & Paul, H. (2024). Customer engagement strategies within family businesses in emerging economies: A multi-method study. *Journal of Business Research*, 174. <https://doi.org/10.1016/j.jbusres.2024.114508>
- Phanuel, W., Darbi, K., Hall, C. M., & Knott, P. (2016). The Informal Sector : A Review and Agenda for Management Research. *International Journal of Management Reviews*, 00, 1–24. <https://doi.org/10.1111/ijmr.12131>
- Phanuel, W., & Knott, P. (2016). Strategising practices in an informal economy setting : A case of strategic networking. *European Management Journal*, 34, 400–413. <https://doi.org/10.1016/j.emj.2015.12.009>
- Piperopoulos, P., Kafouros, M., Aliyev, M., Liu, E. Y., & Au, A. (2021). How does informal entrepreneurship influence the performance of small formal firms? A cross-country institutional perspective. *Entrepreneurship and Regional Development*, 33(7–8), 668–687. <https://doi.org/10.1080/08985626.2021.1887371>
- Piyasinchai, N., Thananusak, T., & Hughes, M. (2024). Effects of Family Ownership and Professionalization on Firms’ Financial Performance and Sustainability Reputation. *Entrepreneurship: Theory and Practice*, 48(3), 856–880. <https://doi.org/10.1177/10422587231206573>
- Porac, J. F., & Thomas, H. (1990). Taxonomic Mental Models in Competitor Definition. In *Source: The Academy of Management Review* (Vol. 15, Issue 2).
- Porac, J. F., & Thomas, H. (1994). Cognitive Categorization and Subjective Rivalry Among Retailers in a Small City. In *Journal of Applied Psychology* (Vol. 79, Issue 1).
- Porac, J. F., Thomas, H., Wilson, F., Paton, D., & Kanfer, A. (1995). Rivalry and the Industry Model of Scottish Knitwear Producers. In *Source: Administrative Science Quarterly* (Vol. 40, Issue 2). [http://www.jstor.orgURL:http://www.jstor.org/stable/2393636http://www.jstor.org/stable/2393636?seq=1&cid=pdf-reference#references\\_tab\\_contents](http://www.jstor.orgURL:http://www.jstor.org/stable/2393636http://www.jstor.org/stable/2393636?seq=1&cid=pdf-reference#references_tab_contents)
- Porter, M. E. (1996). *What Is Strategy?*
- Potrich, L., Cortimiglia, M. N., & de Medeiros, J. F. (2019). A systematic literature review on firm-level proactive environmental management. In *Journal of Environmental Management* (Vol. 243, pp. 273–286). Academic Press. <https://doi.org/10.1016/j.jenvman.2019.04.110>
- Ray, S., & Ray, B. (2018). Business Group Affiliation and Corporate Sustainability Strategies of Firms : An Investigation of Firms in India. *Journal of Business Ethics*, 153(4), 955–976. <https://doi.org/10.1007/s10551-018-3917-z>
- Rees, W., & Rodionova, T. (2015). The influence of family ownership on corporate social responsibility: An international analysis of publicly listed companies. *Corporate Governance: An International Review*, 23(3), 184–202. <https://doi.org/10.1111/corg.12086>
- Reger, R. K., & Palmer, T. B. (1996). Managerial Categorization of Competitors: Using Old Maps to Navigate New Environments. *Organization Science*, 7(1), 22–39.
- Reimann, F., Rauer, J., & Kaufmann, L. (2014). MNE Subsidiaries ’ Strategic Commitment to CSR in Emerging Economies : The Role of Administrative Distance , Subsidiary Size , and Experience in the Host Country. *Journal Business Ethics*. <https://doi.org/10.1007/s10551-014-2334-1>
- Rodríguez-González, R. M., Maldonado-Guzman, G., & Madrid-Guijarro, A. (2022). The effect

- of green strategies and eco-innovation on Mexican automotive industry sustainable and financial performance: Sustainable supply chains as a mediating variable. *Corporate Social Responsibility and Environmental Management*, 29(4), 779–794. <https://doi.org/10.1002/csr.2233>
- Russo, M. V, Fouts, P. A., & Russo, M. V. (1997). A Resource-Based Perspective on Corporate Environmental Performance and Profitability. *Academy of Management Journal*, 40(3), 534–559.
- Salvi, E., Belz, F. M., & Bacq, S. (2022). Informal Entrepreneurship: An Integrative Review and Future Research Agenda. *Entrepreneurship: Theory and Practice*, 0(0), 1–39. <https://doi.org/10.1177/10422587221115365>
- Samara, G., Jamali, D., Sierra, V., & Parada, M. J. (2018). Who are the best performers? The environmental social performance of family firms. *Journal of Family Business Strategy*, 9(1), 33–43. <https://doi.org/10.1016/j.jfbs.2017.11.004>
- Schillebeeckx, S. J. D., Kautonen, T., & Hakala, H. (2022). To Buy Green or Not to Buy Green: Do Structural Dependencies Block Ecological Responsiveness? *Journal of Management*, 48(2), 472–501. <https://doi.org/10.1177/0149206320977896>
- Schwenk, C. R. (1995). Strategic Decision Making. In *Journal of Management* (Vol. 21, Issue 3).
- Seroka-Stolka, O., & Fijorek, K. (2020). Enhancing corporate sustainable development: Proactive environmental strategy, stakeholder pressure and the moderating effect of firm size. *Business Strategy and the Environment*, 29(6), 2338–2354. <https://doi.org/10.1002/bse.2506>
- Sharma, P., & Sharma, S. (2011). Drivers of Proactive Environmental Strategy in Family Firms. *Business Ethics Quarterly*, 21(2), 309–334. <https://doi.org/10.5840/beq201121218>
- Sharma, S., & Henriques, I. (2005). Stakeholder influences on sustainability practices in the Canadian forest products industry. *Strategic Management Journal*, 26(2), 159–180. <https://doi.org/10.1002/smj.439>
- Sharma, S., & Ruud, A. (2003). On the path to sustainability: integrating social dimensions into the research and practice of environmental management. *Business Strategy and the Environment*, 12(4), 205–214. <https://doi.org/10.1002/bse.366>
- Shi, H., Peng, S. Z., Liu, Y., & Zhong, P. (2008). Barriers to the implementation of cleaner production in Chinese SMEs: government, industry and expert stakeholders' perspectives. *Journal of Cleaner Production*, 16(7), 842–852. <https://doi.org/10.1016/j.jclepro.2007.05.002>
- Shi, L., Liu, J., Wang, Y., & Chiu, A. (2021). Cleaner production progress in developing and transition countries. *Journal of Cleaner Production*, 278, 123763. <https://doi.org/10.1016/j.jclepro.2020.123763>
- Shrivastava, P. (1995). Industrial/environmental crises and corporate social responsibility. *Journal of Socio-Economics*, 24(1), 211–227. [https://doi.org/10.1016/1053-5357\(95\)90036-5](https://doi.org/10.1016/1053-5357(95)90036-5)
- Shrivastava, P., & Hart, S. (1995). Creating sustainable corporations. *Business Strategy and the Environment*, 4(3), 154–165. <https://doi.org/10.1002/bse.3280040307>
- Siqueira, A. C. O., & Bruton, G. D. (2010). High-Technology Entrepreneurship in Emerging Economies: Firm Informality and Contextualization of Resource-Based Theory. *IEEE Transactions on Engineering Management*, 57(1), 39–50.
- Souder, D., Zaheer, A., Sapienza, H., & Ranucci, R. (2017). How family influence, socioemotional wealth, and competitive conditions shape new technology adoption.

- Strategic Management Journal*, 38(9), 1774–1790. <https://doi.org/10.1002/smj.2614>
- Swab, R. G., Sherlock, C., Markin, E., & Dibrell, C. (2020). “SEW” What Do We Know and Where Do We Go? A Review of Socioemotional Wealth and a Way Forward. *Family Business Review*, 33(4), 424–445. <https://doi.org/10.1177/0894486520961938>
- Sweet, S. (2023). Exploring the environmental and social impact of informal market practices in the apparel industry. In *The Informal Sector and the Environment* (pp. 64–80). <https://doi.org/10.4324/9781003223856-4>
- Taiyuan Wang, P. B. (2012). Social responsibility in new ventures: profiting from a long-term orientation. *Strategic Management Journal*, 33(10), 1135–1153. <https://doi.org/10.1002/smj>
- Tang, Y. K., & Konde, V. (2021). Which resource acquisition acts drive growth of informal firms? Evidence from Zambia. *Journal of Small Business and Enterprise Development*, 28(6), 888–907. <https://doi.org/10.1108/JSBED-11-2020-0420>
- Thatchenkery. (2017). *Competitive Intelligence: Drivers And Consequences Of Executives’ Attention To Competitors In Enterprise Software* [[Doctoral dissertation, Stanford University]. Stanford Digital Repository.]. <http://purl.stanford.edu/sy229vw0598>
- Torkington, S. (2024). *What is the informal economy and how many people work in it?* <https://www.weforum.org/agenda/2024/06/what-is-the-informal-economy/>
- Tsao, C. W., Chen, S. J., & Wang, Y. H. (2016). Family governance oversight, performance, and high performance work systems. *Journal of Business Research*, 69(6), 2130–2137. <https://doi.org/10.1016/j.jbusres.2015.12.020>
- Tsendsuren, C., Yadav, P. L., Han, S. H., & Kim, H. (2021). Influence of product market competition and managerial competency on corporate environmental responsibility: Evidence from the US. *Journal of Cleaner Production*, 304. <https://doi.org/10.1016/j.jclepro.2021.127065>
- Uhlaner, L. M., Berent-Braun, M. M., Jeurissen, R. J. M., & de Wit, G. (2012). Beyond Size: Predicting Engagement in Environmental Management Practices of Dutch SMEs. *Journal of Business Ethics*, 109(4), 411–429. <https://doi.org/10.1007/s10551-011-1137-x>
- Vachon, S., & Klassen, R. D. (2008). Environmental management and manufacturing performance: The role of collaboration in the supply chain. *International Journal of Production Economics*, 111(2), 299–315. <https://doi.org/10.1016/j.ijpe.2006.11.030>
- Vivas, V. (2023). *Influencia de la competencia de mercado en la inversión en capital humano de las Mype en el Perú para el año 2017*. [Tesis de licenciatura, Universidad Nacional del Callao]. Repositorio Institucional Digital de la Universidad Nacional del Callao. <https://hdl.handle.net/20.500.12952/7845>
- Webb, J. W., Bruton, G. D., Tihanyi, L., & Ireland, R. D. (2013). Research on entrepreneurship in the informal economy : Framing a research agenda. *Journal of Business Venturing*, 28(5), 598–614. <https://doi.org/10.1016/j.jbusvent.2012.05.003>
- Webb, J. W., Tihanyi, L., Ireland, R. D., & Sirmon, D. G. (2009). You say illegal, i say legitimate: Entrepreneurship in the informal economy. *Academy of Management Review*, 34(3), 492–510. <https://doi.org/10.5465/AMR.2009.40632826>
- Webb, J. W., Tihanyi, L., Ireland, R. D., Sirmon, D. G., Ireland, R. D., Webb, J. W., & Sirmon, D. G. (2009). You Say Illegal, I Say Legitimate: Entrepreneurship in the Informal Economy. *Academy of Management Review*, 34(3), 492–510.
- Weigelt, C., & Shittu, E. (2016). Competition , Regulatory Policy , and Firms ’ Resource Investments : The Case of Renewable Energy Technologies. *Academy of Management Journal*, 59(2), 678–704.

- Whiteman, G., Walker, B., & Perego, P. (2013). Planetary Boundaries: Ecological Foundations for Corporate Sustainability. *Journal of Management Studies*, 50(2), 307–336. <https://doi.org/10.1111/j.1467-6486.2012.01073.x>
- William Judge, T. D. (1998). Performance implications of incorporating natural environmental issues into the strategic planning process: an empirical assessment. *Journal of Management Studies*, 35(2), 0022–2380.
- Williams, C. C., & Kosta, B. (2020). Evaluating the impact of informal sector competitors on the performance of formal enterprises: Evidence from Bosnia and Herzegovina. *Journal of Developmental Entrepreneurship*, 25(02), 2050014.
- Williams, C. C., & Horodnic, I. A. (2016). Evaluating the multifarious motives for acquiring goods and services from the informal sector in Central and Eastern Europe. *Journal of Contemporary Central and Eastern Europe*, 24(3), 321–338. <https://doi.org/10.1080/0965156X.2016.1259915>
- Williams, C. C., & Martinez-Perez, A. (2014). Why do consumers purchase goods and services in the informal economy? *Journal of Business Research*, 67(5), 802–806. <https://doi.org/10.1016/j.jbusres.2013.11.048>
- Williams, N., & Vorley, T. (2015). Institutional asymmetry: How formal and informal institutions affect entrepreneurship in Bulgaria. *International Small Business Journal: Researching Entrepreneurship*, 33(8), 840–861. <https://doi.org/10.1177/0266242614534280>
- Wiseman, R. M., & Gomez-Mejia, L. R. (1998). A Behavioral Agency Model of Managerial Risk Taking. In *Source: The Academy of Management Review* (Vol. 23, Issue 1). <https://www.jstor.org/stable/259103>
- Wolde-Rufael, Y., & Mulat-Weldemeskel, E. (2021). Do environmental taxes and environmental stringency policies reduce CO 2 emissions? Evidence from 7 emerging economies. *Environmental Science and Pollution Research*, 28, 22392–22408. <https://doi.org/10.1007/s11356-020-11475-8/Published>
- World Bank. (2017). *Stringency of environmental regulations*, 1-7. <https://prosperitydata360.worldbank.org/en/indicator/WEF+TTCI+EOSQ160>
- Xie, X., Qi, G., & Xiaoguo, K. (2018). Corruption and New Product Innovation: Examining Firms' Ethical Dilemmas in Transition Economies. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-018-3804-7>
- Yan, S., Almandoz, J., & Ferraro, F. (2021). The Impact of Logic (In)Compatibility: Green Investing, State Policy, and Corporate Environmental Performance. *Administrative Science Quarterly*, 1–42. <https://doi.org/10.1177/00018392211005756>
- Yu, B., Zeng, S., Chen, H., Meng, X., & Tam, C. (2021). Doing more and doing better are two different entities: Different patterns of family control and environmental performance. *Business Strategy and the Environment*, 30(1), 1–20. <https://doi.org/10.1002/bse.2605>
- Zajac, E. I., & Bazerman, M. H. (1991). Blind Spots In Industry And Competitor Analysis: Implications Of Interfirm (Mis)Perceptions For Strategic Decisions. *Academy of Management Review*, 16(1), 37–56.
- Zhang, S. Z. Z. W. X. Z. M. (2017). Effects of institutional support on innovation and performance: roles of dysfunctional competition. *Industrial Management & Data Systems*, 117(1), 50–67.
- Zhao, N., Liu, X., & Zhang, Z. (2022). Does competition from the informal sector affect firms' energy intensity? Evidence from China. *Structural Change and Economic Dynamics*, 62, 130–142. <https://doi.org/10.1016/j.strueco.2022.04.008>

- Zhu, Q., Sarkis, J., & Lai, K. hung. (2013). Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices. *Journal of Purchasing and Supply Management*, 19(2), 106–117. <https://doi.org/10.1016/j.pursup.2012.12.001>
- Zhu, Qinghua, Q. L. (2015). Eco-design planning in a Chinese telecommunication network company Benchmarking its parent company. *Benchmarking: An International Journal*, June 2010. <https://doi.org/10.1108/14635771011049344>