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The interplay between firms' capabilities and ownership in explaining environmental performance

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Abstract

Purpose – This study empirically assesses the effects of two key types of organizational and managerial capabilities—dynamic capabilities, and coordination and cohesion capabilities—on environmental performance, considering the moderating effect of family ownership. By applying the tenets of the natural resource-based view and the dynamic capabilities theory, this paper offers new insights into the topic.

Design/methodology/approach – The article presents empirical evidence from a survey of 1,019 firms operating in the Spanish tourism sector analyzed using multiple linear regression.

Findings – Overall, our results show that both dynamic capabilities and coordination and cohesion capabilities have direct and synergetic positive effects on environmental performance. In addition, the results confirm recent studies that report conflicting evidence on how family ownership affects environmental performance: family ownership is found to exert a distinct direct effect on environmental performance and on the development and application of the capabilities required to improve such performance.

Originality/value – This article sheds light on the conceptual frontiers between the different types of capabilities, as well as provides practical ways of measuring them. The article also brings evidence to bear on the debate concerning the direct and moderating effect that family ownership exerts on the relationship between both types of capabilities over environmental performance. The results of this analysis confirm the complexity of the family ownership effect on this aspect, and provide important insights for both business practitioners and academics.

Keywords Environmental performance, Dynamic capabilities, Coordination and cohesion capabilities, Family business, Tourism sector

Paper type Research paper

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1. Introduction

Environmental performance has taken centre stage in organizational strategy and politics as the impacts of modern consumerism and industrialization on the climate become clearer (United Nations, 2020; Leonidou *et al.*, 2015). A variety of actions fall within the scope of environmental performance; they include efforts to prevent environmental pollution, waste reduction, minimizing the consumption of materials, energy and water, enhancing the efficiency of equipment, maximizing the use of renewables, extending product life and ensuring that resources and products can be recycled (Forés, 2019; Amui *et al.*, 2017).

A growing number of studies show that firms improve their economic performance when they take into account ecological and interrelated social issues (e.g. Hang *et al.*, 2018), due to the strong relationships created with their stakeholders, cost containment, enhanced productivity, employee motivation and satisfaction, access to new markets, innovation, and a greater ability to take on environmental and societal challenges (Leonidou *et al.*, 2015).

Therefore, it is no longer a question of reacting to customers' demands or responding to legal requirements; rather, firms adopt an internal focus and strategy to integrate environmental concerns into their culture and management and operational principles, in order to ensure long-term economic viability and a sustained competitive advantage (Hart and Dowell, 2011; Hart, 1995).

In the sustainability and environmental performance literature, dynamic capabilities are attracting growing attention (Felsberger *et al.*, 2022; Duarte-Alonso *et al.*, 2020; Mousavi *et al.*, 2018; Amui *et al.*, 2017; Albort-Morant *et al.*, 2016). Given the highly dynamic and complex context in which firms deal with different emerging environmental issues (Forés, 2019; Aragón-Correa and Sharma, 2003), some recent studies suggest that a focus on dynamic capabilities can help us to better understand how firms change their organizational and managerial processes and routines to transition towards a sustainable industry (Eikelenboom and de Jong, 2019; Mousavi *et al.*, 2018).

To date, however, dynamic capability research has mainly sought to identify the effect of such capabilities on economic performance (Wu *et al.*, 2013). The literature has revealed how different processes that constitute dynamic capabilities – sensing, seizing and reconfiguring – (Teece, 2007) affect sustainability (Mousavi *et al.*, 2018). However, according to authors such as Eikelenboom and de Jong (2019), Mousavi *et al.* (2018) and Amui *et al.* (2017), there is still a need for more empirical research on how these dynamic capabilities, and their interaction with other managerial and organizational capabilities such as coordination and cohesion capabilities (Camisón and Villar-López, 2014; Camisón, 2005), impact environmental performance.

Coordination and cohesion capabilities comprise the managerial and organizational processes needed to activate, leverage and boost the efficiency and quality of the firm's existing resources and functional capabilities (Camisón and Villar-López, 2014; Camisón, 2005); they also represent a key source of advantage in terms of firms' environmental performance (Singh *et al.*, 2019; Fernández *et al.*, 2003), gradually adapting them to changes in the environment.

These capabilities include management skills related to the creation and communication of a strategic vision, and the development of a mission and culture that bolster cooperation, commitment, flexibility, an orientation towards quality and continuous improvement, and the transfer of knowledge (Camisón and Villar-López, 2014; Camisón, 2005; Lado *et al.*, 1992). Building this participatory, trust-based culture requires different organizational design mechanisms and procedures to define jobs, tasks and objectives, to organize teamwork, and to channel communication in all directions within the firm.

Environmental studies to date have primarily centred on manufacturing firms, with the tourism sector (and the service sector more generally) receiving far less attention (Reyes-Santiago *et al.*, 2019; Shang *et al.*, 2019). Nevertheless, tourism firms are heavily dependent on

water, energy and non-renewable resources, with potentially harmful effects on the environment and on competing tourism products (Sakshi *et al.*, 2019).

Family-owned firms dominate the tourism sector globally (Memili *et al.*, 2018), thus necessitating their analysis in this context. To that end, there is a need to consider the specific influence of family ownership structure and governance on both sustainability issues (e.g. Memili *et al.*, 2018) and dynamic capabilities (e.g. Chirico and Salvato, 2016), considering that the literature on these topics is generally scarce (Daspit *et al.*, 2019) but of particular importance for family firms.

Given that the sustainability and competitiveness of the tourism sector strongly depend on business owners' efforts to generate new development patterns, this study draws on the resource-based view (Barney, 1991) and its recent extensions the dynamic capabilities theory (DCT) (Teece *et al.*, 1997) and the natural resource-based view (NRBV) (Hart, 1995) to shed light on these crucial issues. To that end, the analysis involves developing and testing a model of the determinants of tourism firms' environmental performance relating to different types of managerial and organizational capabilities; namely, dynamic capabilities and coordination and cohesion capabilities.

This analysis adds to the literature on the topic as, to our knowledge, there is no study to date that empirically analyzes the effect of both types of capability on environmental performance. Moreover, this paper examines how family ownership may directly affect the achievement of environmental outcomes, or indirectly affect it through an influence on dynamic capabilities and coordination and cohesion capabilities. The analysis specifically addresses two main research questions:

RQ1. How do dynamic capabilities and coordination and cohesion capabilities impact and interact to determine environmental performance in the tourism business?

RQ2. How does family ownership directly influence environmental performance and moderate the relationship between the above capabilities and environmental performance?

Using cross-sectional data from 1,019 Spanish tourism firms, this study extends the literature on managing capabilities for environmental performance, making both theoretical and empirical contributions.

2. Hypotheses

2.1 Managerial and organizational capabilities and environmental performance

2.1.1 The direct effect of dynamic capabilities. Sensing capabilities are needed to identify environmental problems and the underlying environmental needs, and to gather information about the possible solutions accounting for customers' needs, suppliers' requirements, competitors' performance, the evolving regulatory framework and potential technological opportunities (Mousavi *et al.*, 2018).

The more varied the external sources from which the company identifies innovative and profitable answers to environmental problems, the greater the impact on environmental performance (Mousavi *et al.*, 2018; Dangelico *et al.*, 2017). For instance, green technology can depend on the cooperation between governments, specialized technological companies, energy suppliers and citizens.

Seizing involves the mobilization of resources and capabilities in order to apply the knowledge acquired to create valuable products/services, technologies and processes (Teece, 2007). Outsourcing and cooperation alliances with a variety of partners (Dangelico *et al.*, 2017), training programmes for product development and R&D staff (Dangelico *et al.*, 2017) and continuous experimentation with new clean technologies (Wu *et al.*, 2013) are examples of innovation processes that can put sensed knowledge into use.

Reconfiguring processes enables the renewal of resources and capabilities by combining them in different ways to meet the environmental requirements of the changing competitive arena (Mousavi *et al.*, 2018). Reconfiguration processes also allow firms to reinvent or modify the technology according to their needs.

According to Dangelico *et al.* (2017), reconfiguring could involve creating a new green division, integrating environmental specialists and radically changing the relationships along the supply chain. Wu *et al.* (2013) also point to the importance of boosting this capacity by performing audits and risk analysis focused on the potential factors that cause environmental impacts, and by introducing standard environmental management systems such as ISO 9000 and ISO 14001.

Although most studies analyzing the effect of dynamic capabilities on environmental performance are theoretical reviews (e.g. Amui *et al.*, 2017), exploratory studies or qualitative analyses (e.g. Wu *et al.*, 2013), there has been a growing number of empirical studies on the topic in the last five years. However, to the best of our knowledge, there are no such studies to date focusing on the tourism sector.

Albort-Morant *et al.* (2016) empirically demonstrate that dynamic capabilities can shape sustainable innovation performance by reconfiguring the learning that occurs between the organization and its customers.

Dangelico *et al.* (2017) find that external and internal resource integration and reconfiguration allows firms to develop new or significantly improved green products and processes, minimizing manufacturing emissions or energy and increasing the recyclability and remanufacturability of products.

Mousavi *et al.* (2018) demonstrate that sensing, seizing and reconfiguring capabilities have an important effect on innovation, helping to improve sustainability. These results are particularly notable for sensing activities.

Finally, Eikelenboom and de Jong (2019) empirically show that "external integrative dynamic capabilities", related to processes that integrate the resources and capabilities of parties outside the organizations such as suppliers and customers, are positively related to environmental performance.

In light of the above arguments, we posit the following hypothesis:

H1. There is a positive relationship between a firm's dynamic capabilities and its environmental performance.

2.1.2 The direct effect of coordination and cohesion capabilities. Good environmental performance may be achieved by creating new resources and capabilities, applying dynamic capabilities (hypothesis 1), and/or extending or modifying existing ones in more efficient ways.

Coordination and cohesion capabilities could introduce organizational changes and modifications of the firm's resources and capabilities in ways that could impact environmental performance: for example, in the acquisition of knowledge, the design and launch of a product or service, and the improvement of equipment and process efficiency.

Top management support can influence environmental performance by promoting employee empowerment to drive cultural changes, implementing systems to encourage desired behaviours through rewards or incentives, providing training, and stimulating cooperation and coordination throughout the organization (Roscoe *et al.*, 2019; Fernández *et al.*, 2003).

When employees are empowered to make their own decisions, they are given the autonomy to identify and quickly rectify damaging activities in a firm's operations (Leonidou *et al.*, 2015; Fernández *et al.*, 2003). In addition, employees can be given the opportunity to carry out audits of their own processes and those of their colleagues to encourage a culture of continuous environmental improvement (Roscoe *et al.*, 2019).

Although commitment from top management is essential, its efficacy depends on the constant flow of information between management and employees (Fernández *et al.*, 2003).

Through teamwork and cross-functional mechanisms, an organization can also develop a shared collective vision and commitment to environmental matters (Leonidou *et al.*, 2015).

Moreover, once a firm is committed to achieving environmental aims, it should also provide the appropriate resources to support training that reinforces employees' concerns about and emotional involvement in environmental issues (Fernández *et al.*, 2003). Ideally, such training would involve interactive skills, benchmarking, team building and consensus-building (Fernández *et al.*, 2003). These skills are crucial to implementing this environmental knowledge and creative solutions.

Specifically focusing on the hospitality and tourism sector, Chan *et al.* (2018) claim that employees' environmental attitudes are key to successful green technology implementation in hotels. Sakshi *et al.* (2019) also demonstrate that environmental policy and training enhances communication on environmental issues and promotes recycling and resource and energy conservation, with a clear impact on environmental performance.

Therefore, we hypothesize the following:

H2. There is a positive relationship between a firm's coordination and cohesion capabilities and its environmental performance.

2.1.3 The moderating effect of coordination and cohesion capabilities on the relationship between dynamic capabilities and environmental performance. The literature underlines the value of coordination and cohesion capabilities for the effective and efficient application of dynamic capabilities to improve environmental performance (Shang *et al.*, 2019). These coordination and cohesion capabilities can provide firms with flexible organizational structures that allow them to apply the innovation processes underlying dynamic capabilities to environmental purposes (Roscoe *et al.*, 2019; Shang *et al.*, 2019).

In order to innovate in environmental issues, it is essential for firms to avoid conventional thinking and clichéd practices (Eikelenboom and de Jong, 2019). Top-level management can play a key role in this regard: indeed, authors such as Eikelenboom and de Jong (2019) report that if managers feel a need to adjust their business to environmental requirements, they will foster the development of dynamic capabilities.

By increasing the frequency and quality of the interactions with external actors, coordination and cohesion capabilities could support the sensing capabilities linked to scanning, searching and exploring markets and technologies for opportunities related to environmental performance (Mousavi *et al.*, 2018; Leonidou *et al.*, 2015).

The seizing of new environmental knowledge and practices entails a major shift in technology, equipment and procedures, which could not be implemented without support from the firm's employees (Leonidou *et al.*, 2015). In this vein, coordination and cohesion capabilities enhance the seizing processes involved in the exploitation of new knowledge, lending legitimacy to environmental performance improvement. Within this seizing process, cooperation also facilitates the sharing of problem-solving expertise, which can reduce the risks and investment involved in producing environmental outputs (Mousavi *et al.*, 2018).

Coordination and cohesion capabilities can also reinforce the reconfiguring capabilities needed to adapt existing processes and resources, through cross-functional teams, steering committees and employee training (Mousavi *et al.*, 2018) for environmental purposes.

Therefore, we posit the following hypothesis:

H3. Coordination and cohesion capabilities exert a positive moderating effect on the relationship between dynamic capabilities and environmental performance.

2.2 Family ownership and environmental performance

2.2.1 The direct effect of family ownership. The family business literature has recently been focusing more attention on environmental performance (Dangelico *et al.*, 2019; Berrone *et al.*, 2010),

due to the important role it plays in the success of the business and the survival of the economic system (Samara *et al.*, 2018). According to recent literature, family businesses are more likely to implement sustainability practices that go beyond regulations and external pressure (Le Breton-Miller and Miller, 2016; Berrone *et al.*, 2012; Sharma and Sharma, 2011). Family businesses show an increased awareness of environmental responsibility as they seek to preserve their Socioemotional Wealth (SEW) (Samara *et al.*, 2018; Gómez-Mejía *et al.*, 2007).

Since environmental performance is key to the long-term prosperity of a business, family businesses may pursue the design of products and services that demonstrate environmental awareness and help to build customer loyalty by developing an image of quality associated with the family name (Memili *et al.*, 2018) and family-based values of trust, care and support (Bammens and Hünermund, 2020). In addition, family businesses are more likely to be motivated by long-term financial benefits (Dangelico *et al.*, 2019), providing patient capital for environmental performance. They are also more likely to feel burdened by institutional pressures such as environmentally friendly policies (Le Breton-Miller and Miller, 2016).

Some empirical studies demonstrate that family businesses tend to show better environmental performance (e.g. Bammens and Hünermund, 2020; Gómez-Mejía *et al.*, 2019; Berrone *et al.*, 2010) with less volatility than other firms. They are also more likely to adopt proactive environmental strategies (e.g. Sharma and Sharma, 2011), obtain environmental certifications and publish a variety of reports about their environmental activities (e.g. Campopiano and De Massis, 2015).

Specifically, family businesses in the tourism sector show greater environmental awareness due to their strong dependence on their surrounding natural environment, and high degree of embeddedness in the local community (Bammens and Hünermund, 2020; Dekker and Hasso, 2014; Berrone *et al.*, 2010).

However, as pointed out above, there is still relatively little literature examining the relationship between family business ownership and environmental performance, and the findings are contradictory (Graafland, 2020). In this respect, studies such as that by Cruz *et al.* (2014) do not report a significant relationship between the two constructs. Graafland (2020) finds that the relationship between family ownership and environmental performance is stronger in smaller companies that also have a combination of family and non-family members in managerial positions.

Other researchers such as Le Breton-Miller and Miller (2016) argue that family members' desire for control over the firm may trigger conservatism instead of efforts to revitalize the firm. This claim is in line with empirical research showing that family businesses underperform their non-family counterparts in environmental performance (Dal Maso *et al.*, 2020).

Despite this contradictory evidence in the emerging literature, we hypothesize the following:

H4. There is a positive relationship between family ownership and environmental performance.

2.2.2 The moderating effect of family ownership on the relationship between dynamic capabilities and environmental performance. The above-mentioned controversy about the effect of family ownership on sustainability performance also extends to the study of the impact of family ownership on one of the main antecedents of such performance: dynamic capabilities. Despite the growing interest in the study of dynamic capabilities in family businesses (e.g. Chirico and Salvato, 2016) due to their key role in ensuring ongoing adaptation to a shifting environment and long-term competitiveness (Barros *et al.*, 2016), the results are not conclusive.

Some studies point to family businesses as being particularly innovative, dynamic and proactive (e.g. Chirico and Salvato, 2016). Viewed from this perspective, family dynamics enhance the generation and sharing of specific tacit knowledge (Barros *et al.*, 2016; Chirico and Salvato, 2016), among family members and non-family stakeholders such as suppliers or community members, allowing superior orchestration of resources and capabilities to improve environmental performance (Shang *et al.*, 2019).

Conversely, other scholars suggest that the desire to protect family wealth for future generations and the emotional attachment to family-endowed resources lead to risk-aversion (e.g. König *et al.*, 2013; Naldi *et al.*, 2007) and the avoidance of strategic change (e.g. Carnes and Ireland, 2013).

Even when family owners have the power, legitimacy and authority to develop and apply dynamic capabilities, they might hesitate to enforce these new capabilities if they require capital investment, external resources and dependence on external professionals, and if they may adversely affect SEW by reducing family control (Memili *et al.*, 2018).

In addition, highly committed family leaders might view their firms as personal fiefdoms, and thus be unwilling to accept novel thinking and new combinations of resources that deviate from previous paths and strategies (König *et al.*, 2013), perceiving them to be a violation of family traditions and culture. Emotional ties to existing assets and organizational structures can also reduce family businesses' creativity and willingness to rapidly adopt new technology and processes needed for dynamic capabilities (König *et al.*, 2013), limiting their scope and application to environmental aims.

The above arguments lead to the following hypothesis:

H5. Family ownership exerts a negative moderating effect on the relationship between dynamic capabilities and environmental performance.

2.2.3 The moderating effect of family ownership on the relationship between coordination and cohesion capabilities and environmental performance. Similarly, the review of the family business literature does not yield conclusive results on the effect that family ownership can have on coordination and cohesion capabilities and their application to environmental concerns. The family business is characterized by a structure based on the close interaction of kinship ties and reciprocal trust between family members (Berrone *et al.*, 2012). The alignment between ownership and management in family firms fosters organizational flexibility (e.g. Dangelico *et al.*, 2019), top management (e.g. Dangelico *et al.*, 2019) and employee commitment to continuously share and incorporate specialized knowledge to promote action (e.g. Daspit *et al.*, 2019).

These family business characteristics and alignment of goals and resources can thus enhance the quality and efficiency of internal knowledge exchange, existing processes and technologies, which in turn can be directed at improving environmental performance (Samara *et al.*, 2018; Le Breton-Miller and Miller, 2016; Berrone *et al.*, 2012). Previous studies show that family businesses behave much more responsibly than their non-family counterparts and continuously seek new ways to manage and organize their resources and capabilities in a manner that protects and preserves the natural environment in which the firm is embedded (Sharma and Sharma, 2011; Berrone *et al.*, 2010).

However, family involvement in ownership and management can also be associated with less desirable behaviours such as nepotism and the entrenchment of family members (Carnes and Ireland, 2013). Such behaviour may lead family members to act opportunistically to secure private benefits and generate intra-family conflicts, which can restrict the ability of family businesses to pursue environmental aims (Samara *et al.*, 2018; Le Breton Miller and Miller, 2016). Ultimately, these situations can lead to suboptimal use of the organization's resources and to family members neglecting their responsibilities to improve the

environmental sustainability of the community in which the company is embedded (Le Breton-Miller and Miller, 2016).

Despite these conflicting arguments, we expect family ownership to enhance the effect of coordination and cohesion capabilities on environmental performance. Thus, we hypothesize the following:

H6. Family ownership exerts a positive moderating effect on the relationship between coordination and cohesion capabilities and environmental performance.

The conceptual model shown in Figure 1 summarizes the above hypotheses.

3. Methodology

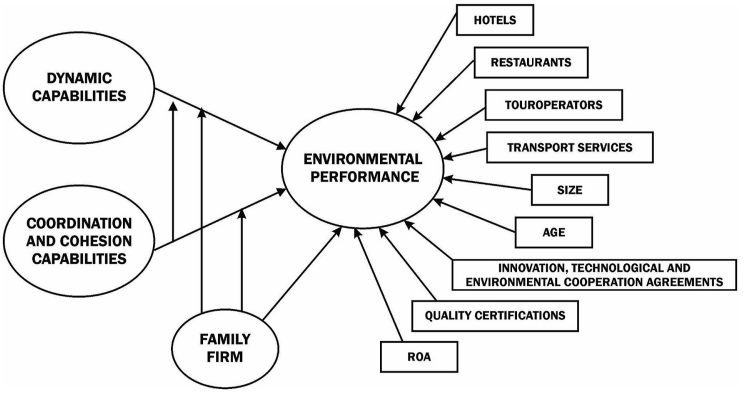
3.1 Data

The database for this study consists of 1,019 firms, of which 748 are family businesses and 271 non-family businesses, operating in the Spanish tourism sector; relative to the total population, this represents a margin of error of ±3.1% (confidence interval 95.5%). Data used to create the database were obtained using a questionnaire administered to the firm's owner, CEO or general manager. A modified version of Dillman's Total Design Method (Dillman, 1978) was applied in order to deal with issues commonly associated with surveys and questionnaires as a means of collecting data. Before employing the final questionnaire, it was pretested on five specialist scholars in the fields of tourism and strategy.

The data collected from the questionnaire were then completed with information from SABI (Iberian Balance Sheet Analysis System) database. The fieldwork was conducted from December 2009 to March 2010.

3.2 Variables

Environmental performance, coordination and cohesion capabilities and dynamic capabilities were measured using 7-point multi-item scales, reflecting managers' perception of their firm's performance and its endowment of capabilities. In each question, respondents had to compare their firm's position and strength to that of competitors in their specific subsector (from 1 = "much worse" to 7 = "much better"). The measurement of these variables has been shown to be consistent and reliable, with Cronbach's Alpha well above the 0.7 threshold proposed by Hair *et al.* (1998).



Source(s): own elaboration

Figure 1.
Conceptual framework

These three variables were introduced into the model as the arithmetic mean of the items included in their respective measurement scales. This procedure has long been used in strategic research, and offers advantages over other methods (such as using factor scores after summarizing the information through an exploratory factor analysis of the items of each scale) because it maintains the comprehensive definition of the domain of the constructs.

3.2.1 Dependent variable. 3.2.1.1 Environmental performance (ENVPERF). This variable comprises five items adapte from previous studies (e.g. Zhu and Sarkis, 2007) also validated in recent literature (e.g. Forés, 2019) (Table A1).

3.2.2 Independent variables. 3.2.2.1 Family ownership of the business (FB). To evaluate the family ownership of the business, we used the following question: "Is this a family business?" This question is the basis of the dummy variable FB, which takes a value of 1 if the firm self-identifies as a family business. Recent studies such as that by Dekker and Hasso (2014) also employ this self-reported family firm classification.

3.2.2.2 Dynamic capabilities (DYNCAP). The construct was formulated to include the three aspects identified by Teece (2007), which were similarly applied in later literature on this issue (Fitz-Koch and Nordqvist, 2017) (Table A1).

3.2.2.3 Coordination and cohesion capabilities (COORCAP). The measurement of this variable was based on a 12-point scale adapted from Camisón and Villar-López (2014) and Camisón (2005), and also validated in recent empirical studies (e.g. Medase and Abdul, 2021; Chraratsari *et al.*, 2018; González-Cruz *et al.*, 2018). The measurement of the variable included items to capture the cooperation and teamwork inside the firm; the flexibility of approaches employed to organize the work; employees' commitment to the firm's values, mission and goals; and managerial support for employees' initiatives (Table A1).

3.2.3 Control variables. We also included a number of control variables based on previous related studies by Berrone *et al.* (2010) and Dekker and Hasso (2014), which could have an effect on environmental performance.

As profitable firms may be better able to concentrate on environmental issues, we decided to control this factor (Hang *et al.*, 2018; Dekker and Hasso, 2014; Berrone *et al.*, 2010). We operationalized this item using the mean of the **Return on Assets** (ROA) estimated with information from the SABI database. It is measured as the average annual ROA over the period 2014–2010.

Size (SIZE) affects the ability of a firm to achieve economies of scale related to innovation. As such, it is often considered a predictor of environmental performance (e.g. Berrone *et al.*, 2010). We measured size as the total number of employees.

Age (AGE) can influence a firm's proactive environmental management and public visibility (Wang *et al.*, 2015) by drawing on the accumulated experience. We measured it as the number of years since the first establishment was opened.

Four dummy variables were included to capture the various **subsectors of tourist firms** in the sample, which presumably display different patterns of environmental performance. They are accommodation firms (HOTEL), restaurants (RESTA), travel agencies and tour operators (TOUR), and transport organizations (TRANSP), with complementary firms as the reference subsector.

We also controlled the number of **quality management certifications (QMC)**, considering the sum of the total number of ISO 14001, EMAS and other environmental norms, due to their important impact on environmental initiatives (Forés, 2019).

Finally, we introduced the **number of cooperation agreements (COOP)** established on innovation, and technological and environmental management issues, due to their reported effect on emissions reduction and pollution prevention (Albino *et al.*, 2012).

Table 1 shows the descriptive statistics and correlations among the study variables. There is a low level of correlation (below 0.6) between the variables (see Table 1) (Podsakoff *et al.*, 2003), which confirms the discriminant validity of the model.

Table 1.
Descriptive statistics and correlations of the study variables

VARIABLES	μ	σ^2	1	2	3	4	5	6	7	8	9	10	11	12	13
1. ENVPERF	3.618	1.386	1.000												
2. HOTEL	0.300	0.458	0.108***	1.000											
3. RESTA	0.378	0.485	−0.119***	−0.512***	1.000										
4. TOUR	0.109	0.312	0.097***	−0.230***	−0.274***	1.000									
5. TRANSP	0.039	0.194	0.074***	−0.132***	−0.158***	−0.071**	1.000								
6. SIZE	42.091	237.733	0.113***	0.147***	−0.101***	0.008	0.005	1.000							
7. AGE	18.551	19.880	0.082***	0.145***	−0.042*	−0.066**	0.003	0.022	1.000						
8. QMC	0.183	0.411	0.196***	0.207***	−0.116***	−0.086***	0.042*	0.176***	0.104***	1.000					
9. COOP	0.229	0.578	0.139***	0.149***	−0.149***	0.076***	−0.044*	0.205***	0.025	0.174***	1.000				
10. ROA	3.894	1.021	0.130***	0.067**	−0.062**	0.037	0.024	0.044*	−0.011	0.054**	0.101***	1.000			
11. DYNCAP	3.721	1.254	0.412***	0.105***	−0.168***	0.139***	−0.003	0.101***	−0.042*	0.210***	0.242***	0.193***	1.000		
12. COORCAP	3.552	1.367	0.213***	0.044*	−0.085***	0.049*	0.097***	0.099***	0.080***	0.217***	0.222***	0.233***	0.221***	1.000	
13. FB	0.734	0.442	0.062**	0.021	0.095***	−0.065**	0.042*	−0.094***	0.073**	−0.043*	−0.047*	−0.068***	−0.49*	−0.171***	1.000

Note(s): *** Correlation significant at the 0.01 level (bilateral)
** Correlation significant at the 0.05 level (bilateral)
* Correlation significant at the 0.1 level (bilateral)
Source(s): Own elaboration

3.3 Method of analysis

To test the research hypotheses, we ran a hierarchical regression analysis using SPSS 25.0. Before incorporating the moderating effects, the main variables were mean-centred to reduce multicollinearity (Cohen *et al.*, 2003; Aiken *et al.*, 1991). The variance inflation factors (VIF) confirmed that multicollinearity is not a problem: the highest VIF is 2.050, i.e. far below the threshold of 10 (Cohen *et al.*, 2003) (Table A2 contains the tests for residual analysis, homoscedasticity and sample normality).

4. Results

Table 2 displays the results of the model for each of the relationships under analysis. As can be seen, the F-test of significance is acceptable for all the models estimated. For the complete model including both direct and moderating effects, the value of R^2 indicates that it explains 23.4% of the variance in environmental performance.

Model 1 illustrates the relationship between control variables and environmental performance. The analysis of the control variables reveals that economic profitability, size and age all have small but positive significant effects on environmental performance (0.1, $p < 0.05$; 0.051, $p < 0.1$; 0.060, $p < 0.1$, respectively). Quality management certifications and cooperation agreements also report positive and significant coefficients (0.153, $p < 0.01$; 0.073, $p < 0.05$, respectively). Regarding the subsector variables, only hotels (0.106, $p < 0.05$), tour operators (0.145, $p < 0.01$) and transport (0.097, $p < 0.01$) report positive and significant effects on environmental performance, compared to the complementary offer subsector.

		Model I		Model II		Model III	
		(1)	(2)	(1)	(2)	(1)	(2)
	Constant	10.988**(3)	2.594	12.672***(3)	3.204	12.703***(3)	3.226
1	Hotel	0.106**	2.480	0.081**	2.030	0.086**	2.170
2	Resta	0.032	0.764	0.038	0.957	0.040	1.023
3	Tour	0.145***	3.978	0.094***	2.768	0.093***	2.738
4	Transp	0.097***	2.976	0.079***	2.600	0.082***	2.708
5	Size	0.051*	1.652	0.051*	1.773	0.044	1.510
6	Age	0.060*	1.957	0.068**	2.394	0.069**	2.426
7	QMC	0.153***	4.853	0.078***	2.609	0.073**	2.441
8	Coop	0.073**	2.320	−0.004	−0.132	−0.003	−0.115
9	ROA	0.100***	3.308	0.030	1.032	0.034	1.171
5	Dyncap			0.356***	11.775	0.347***	11.418
6	Coorcap			0.105***	3.433	0.098***	3.183
7	FB			0.100***	3.490	0.101***	3.473
10	Dyncap × FB					−0.070**	−2.398
11	Coorcap × FB					0.001	0.049
12	Dyncap × Coorcap					0.059**	2.024
	F	11.451***		24.261***		20.391***	
	R^2	0.093		0.224		0.234	
	Adjusted R^2	0.085		0.215		0.222	
	Changes in R^2	–		0.132		0.009	

Note(s): (1) Standardized regression coefficients
(2) *t*-values
(3) Non-standardized beta
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$
Source(s): Own elaboration

Table 2.
Estimation results

Model 2 incorporates the direct effects of the explanatory variables on dynamic capabilities, coordination and cohesion capabilities and family ownership. The empirical results show that both dynamic capabilities and coordination and cohesion capabilities have positive significant effects on environmental performance (0.356, $p < 0.01$; 0.105, $p < 0.01$, respectively), supporting our first two hypotheses.

Model 2 also includes the direct effect that family ownership exerts on environmental performance. The empirical results confirm the positive and significant effect of family ownership on environmental performance (0.100, $p < 0.01$). Therefore, hypothesis 4 is also empirically supported.

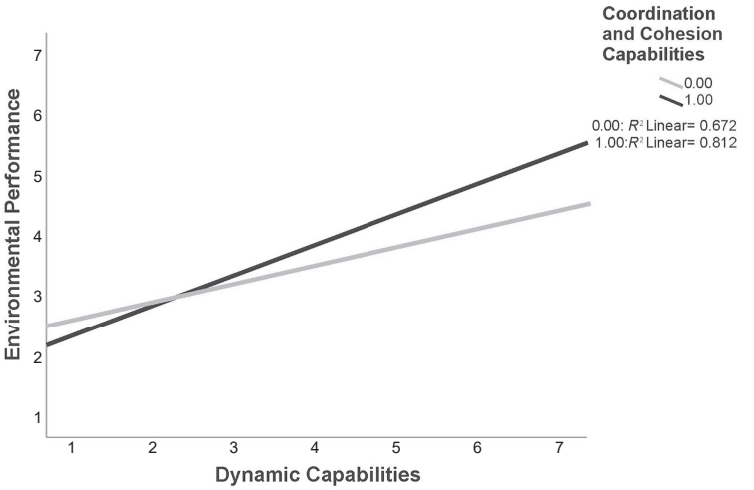
The results from Model 3 allow us to explore the interaction terms. Although it is a small effect, empirical results confirm the positive and significant moderating effect exerted by coordination and cohesion capabilities on the relationship between dynamic capabilities and environmental performance (0.059, $p < 0.05$).

Results also show that family ownership exerts a negative and significant moderating effect on the relationship between dynamic capabilities and environmental performance (−0.070, $p < 0.05$), as predicted in hypothesis 5. Conversely, it has a non-significant positive moderating effect on the relationship between coordination and cohesion capabilities and environmental performance (0.001; $p > 0.1$). Therefore, we cannot accept hypothesis 6.

However, the model does not make it clear how the significant moderating effects exert their influence on environmental performance. In this respect, Aiken *et al.* (1991) suggest graphing the main effects given the conditional effect under study.

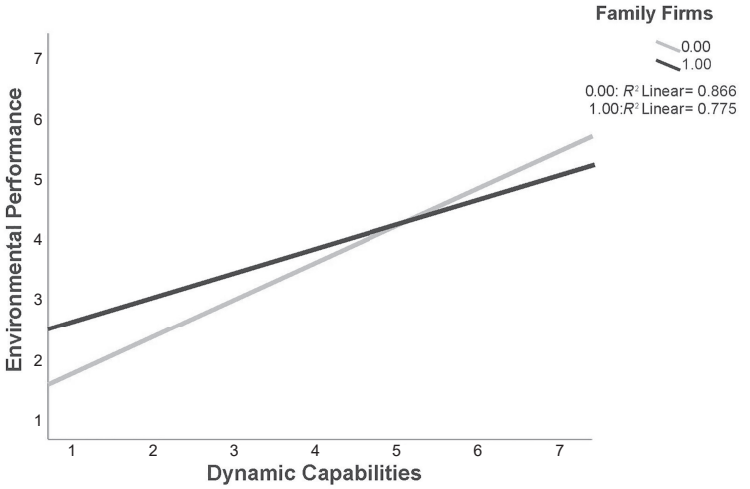
As shown in Figure 2, the positive moderating effect of coordination and cohesion capabilities on the relationship between dynamic capabilities and environmental performance is significant even for very low levels of dynamic capabilities (a threshold of 2, equivalent to a dynamic capabilities endowment of 28%), thus supporting hypothesis 3.

Figure 3 depicts the family ownership effect on the relationship between dynamic capabilities and environmental performance. The figure shows that family-owned firms achieve lower levels of efficiency in the application of dynamic capabilities to enhance environmental performance compared to their non-family counterparts, up to a relatively



Source(s): Own elaboration

Figure 2.
Moderating effect of coordination and cohesion capabilities on the relationship between dynamic capabilities and environmental performance



Source(s): Own elaboration

Figure 3.
Moderating effect of family ownership on the relationship between dynamic capabilities and environmental performance

high level of dynamic capabilities endowment (a threshold of 5, equivalent to a dynamic capabilities endowment of 71%). Below this threshold, it can be seen that the effect of dynamic capabilities on environmental performance is higher for family-owned firms compared to their non-family counterparts. These findings partially support our hypothesis 5 and deserve further examination.

4.1 Robustness test

In addition to the common tests for the quality of fit and performance, which support the acceptability of our estimates, we performed a robustness check of our moderated model. Specifically, we conducted a moderation analysis using the PROCESS macro 2 that Hayes (2017) introduced in the SPSS software. The tool uses a conditional process analysis to examine the relationship between dynamic capabilities and environmental performance under the moderation of two variables: coordination and cohesion capabilities and family ownership. As the moderating effect between coordination and cohesion capabilities and family ownership is not significant (see Table 2) and the PROCESS macro does not offer a specific model to test the three moderating effects, we take model 2 as the most appropriate one.

When conducting this analysis, we take into account the Lower Limit Confidence Interval (LLCI) and the Upper Limit Confidence Interval (ULCI). For the interaction between dynamic capabilities and coordination and cohesion capabilities, we obtain an LLCI value of 0.007 and ULCI of 0.104; therefore, both are different to 0, and the output is based on a p-value ($p < 0.05$) to indicate a significant moderating effect, as described in hypothesis 3 and also shown in the hierarchical regression (Table 2).

We also confirm the moderating effect that family ownership exerts on the relationship between dynamic capabilities and environmental performance, with an LLCI value of −0.359 and ULCI of −0.061, ($p < 0.05$), confirming the results obtained for hypothesis 5 (see also Table 2).

For this model, the value of overall R^2 indicates that it explains 25.81% of the variance in environmental performance. Table 3 confirms that both coordination and cohesion capabilities

Model summary						
R	*R*-sq	MSE	F	df1	df2	p
0.508	0.258	1.565	520.321	5	748	0.000

Model	coeff	se	t	p	LLCI	ULCI
constant	3.418	0.088	38.706	0.000	3.245	3.591
DYNCAP	0.629	0.065	9.627	0.000	0.501	0.757
COORCAP	0.100	0.036	2.762	0.006	0.029	0.172
FB						
DYNCAPXCOORCAP	0.056	0.025	2.259	0.024	0.007	0.104
DYNCAPXFB	−0.210	0.076	−2.761	0.006	−0.359	−0.061

Source(s): Own elaboration

Table 3. Results of moderation analysis using PROCESS macro (Model 2 with two interactions)

and family ownership are significant moderators (beta = 0.056, $p < 0.05$; beta = −0.21, $p < 0.05$, respectively) of the effect of dynamic capabilities on environmental performance.

5. Discussion

Firms are being called on to be both increasingly competitive and more environmentally responsible. In this context, the ability to generate competitive advantages associated with environmental performance is paramount for firms' survival (Wang *et al.*, 2015), particularly tourism firms (Chan *et al.*, 2018).

Drawing on the NRBV (Hart and Dowell, 2011; Hart, 1995) and the DCT (Teece, 2007; Teece *et al.*, 1997), this study contributes to the discussion on the topic. It presents an empirical analysis of two key managerial and organizational capabilities – dynamic capabilities and coordination and cohesion capabilities – and ownership structure, linked to family involvement in the business.

Previous research has illustrated the role of dynamic capabilities in innovation aimed at achieving environmental outcomes both in manufacturing (e.g. Felsberger *et al.*, 2022; Eikelenboom and de Jong, 2019; Mousavi *et al.*, 2018) and, recently, in the tourism sector (e.g. Duarte-Alonso *et al.*, 2020; Reyes-Santiago *et al.*, 2019; Leonidou *et al.*, 2015), which is the focus of analysis of this research.

However, these studies do not reveal the interactions with other important managerial and organizational capabilities, such as coordination and cohesion ones, in the development of new, more environmentally friendly processes and products. Furthermore, they do not take into consideration the effect of family ownership. Family-owned firms dominate the tourism sector globally (Memili *et al.*, 2018), making it essential to study the effect of family ownership on these issues.

The results of this study confirm that both dynamic capabilities and coordination and cohesion capabilities have a direct positive impact on environmental performance. The results also show that coordination and cohesion capabilities have a moderating effect on the capacity of dynamic capabilities to improve environmental performance. In this vein, managers should be aware that the deployment of dynamic capabilities is a continuous process.

Moreover, the results of this analysis show that family ownership has a complex effect on environmental performance. This supports recent theoretical and empirical research pointing to the ambivalence of the findings regarding the influence of family ownership on environmental performance (e.g. Graafland, 2020; Cruz *et al.*, 2014).

On the one hand, the results show that family ownership exerts a significant and positive direct effect on environmental performance, a result that lends support to the tenets of SEW theory, suggesting that continuity concerns can help family firms improve environmental performance (e.g. Bammens and Hünermund, 2020; Gómez-Mejía *et al.*, 2019; Berrone *et al.*, 2010).

However, this effect may be confounded by the impact that dynamic capabilities appear to have on environmental performance. In this regard, the results obtained support previous studies which find that family ownership may suppress the improvement of environmental performance if it requires innovation capabilities and a degree of risk (e.g. Carnes and Ireland, 2013). That said, this negative moderating effect only seems to hold for high levels of dynamic capabilities.

The state of the research thus suggests that the relationship between family ownership and innovation is more complex than initially supposed. Chrisman and Patel (2012) show that perceived threat to SEW is linked to higher marginal increases in R&D investments in family businesses than in other firms. Authors such as Diéguez-Soto *et al.* (2016) also point out that family managers may become risk tolerant and react strongly when the long-term consequences of technological innovation outcomes for firm performance are not adequate, thus becoming more effective at leveraging the family firm's unique resources.

Therefore, our results support previous studies framed in the behavioural theory logic, suggesting that conservative, risk-averse attitudes in family businesses (e.g. König *et al.*, 2013) might be reversed when the business and, more specifically, family SEW is under significant threat (Memili *et al.*, 2018; Chrisman and Patel, 2012; Gómez-Mejía *et al.*, 2007).

In this vein, we suggest that in firms with a low or medium endowment of dynamic capabilities, where the family's socioemotional capital (Barros *et al.*, 2016) and long-run sustainability of the family business are under threat (Berrone *et al.*, 2012), decision-makers may favour strategies that balance continuity and innovation aimed at the protection of the environment and ensuring the welfare of the local community (Berrone *et al.*, 2010).

In these situations, managers can forgo short-term gains and develop patient capital and long-term investments that support environmental innovation, as good environmental performance may boost the firm's image and reputation, that is the quest for legitimacy in the eyes of stakeholders to operate, and support the family's affective needs (Dekker and Hasso, 2014).

However, the opposite may occur when the family business has a large endowment of dynamic capabilities, as indicated by our results. In this scenario, firms might perceive that they maintain their competitive position in the market thanks to their innovation advantages and differentiation, and pursue the achievement of objectives that go beyond non-economic, environmental goals. Family businesses with a high level of dynamic capabilities may focus more on securing economic benefits from those capabilities, being driven by the logic of capitalism or the market, rather than using them to protect their SEW and improve environmental performance.

The non-significant moderating effect of family ownership on the relationship between coordination and cohesion capabilities and environmental performance confirms the inconclusive results of previous research. This finding suggests that family businesses should develop some strategies and invest in governance mechanisms supporting the professionalization process of the management team and the family members.

As for the control variables, this study confirms previous results reported by Dekker and Hasso (2014) and Berrone *et al.* (2010) showing that economic profitability, size and age have a positive effect on environmental performance, as expected. The results also show the

significant positive effect of quality certifications and cooperation agreements on environmental performance, confirming previous studies by Forés (2019) and Albino *et al.* (2012), respectively. Lastly, according to the results of this study, the most environmentally conscious companies are found to be tour operators and travel agencies, hotels and transport companies.

5.1 Managerial and public implications

In order to compete in the tourism sector, managers have to formulate strategies to renew, adapt, improve and even discard their resource base by means of dynamic capabilities that incorporate new knowledge and capacities into the firm (Teece, 2007). Moreover, these strategies should seek to mitigate the negative impact of their products, services and operations on the natural environment (Hart and Dowell, 2011; Hart, 1995). The need to promote the generation of dynamic capabilities is even greater for the tourism sector, especially since the survival of its business model involves extreme safety measures to prevent the spread of the COVID-19 pandemic.

Family owners should thus bear in mind that although innovation pays off in the market, their environmental performance is also an essential value in this new competitive arena, and one which supports their *raison d'être*: intergenerational succession.

Given the synergies that emerge between dynamic capabilities and coordination and cohesion capabilities, managers should promote two-pronged strategies when it comes to investing in the development of capabilities to achieve maximum efficiency and effectiveness in the firm's response to environmental challenges.

Managers of family firms should be especially concerned with the importance of training to empower employees to participate in environmental improvement and protection. Family firms should also invest in developing governance mechanisms that ensure they have the level of professional competence needed to deal with dynamic environmental requirements.

This study also has implications for policymakers, pointing to the importance of public policy in stimulating environmental performance through investments in environmental R&D, hiring specialists with environmental capabilities, and collaborative projects among supply chain members (Chan *et al.*, 2018).

5.2 Limitations and avenues for future research

This study is not free from limitations. Regarding the database, the fact that this was a cross-sectional survey means that causality cannot be inferred; we thus recommend conducting future studies using longitudinal methodologies.

Moreover, our conclusions should be extrapolated with care, as they centre on a single economic sector. Although our findings can be of value to the Spanish tourism sector, future studies could attempt to check whether they apply to other sectors and countries.

With respect to the measurement instruments, the scales were based on managerial self-assessment. Admittedly, this technique has attracted criticism; that said, we believe our rigorous approach to data collection has helped address the problems associated with this methodology, as reflected in the reliability and validity measures.

In addition, the results obtained underline the need for future studies to explore a non-linear moderation effect of family ownership on the relationship between dynamic capabilities and environmental performance.

Future studies should also examine how the relationship between investment in dynamic capabilities and their impact on environmental performance is influenced by the heterogeneity of the family business in terms of its commitment to its stakeholders, its long-term orientation and its corporate governance and management structure.

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Appendix

Construct	Items
Dynamic capabilities	$\alpha = 0.931$
	Sensing capability
	The firm continually expands its portfolio of technological competencies
	The firm promotes internal knowledge development through R&D&I
	The firm works to identify and acquire external knowledge
	The firm continuously scans the environment to identify trends in its relevant technologies
	The firm is able to process and assimilate external knowledge and combine it with internal knowledge to usefully apply it to new applications
	Seizing capability
	The firm has the capacity to exploit and apply knowledge to the development of product innovations
	The firm has the capacity to exploit and apply knowledge to the development of process innovations
	The firm effectively integrates new technological knowledge with the existing knowledge base
	Transforming capability
	The firm continually renews its innovation management approaches and practices to improve its competitiveness
	The firm strives to improve its innovation management in order to increase its ability to adapt to changes in the environment
	The firm continuously analyzes the redesign and reconfigurations of its technology management processes to optimize their alignment with changes in the environment
	The firm continuously adjusts its management of R&D&I to meet the needs and opportunities arising from new technologies or new markets
Coordination and cohesion capabilities	$\alpha = 0.941$
	The firm has introduced systems to enrich the experience of working, such as variety in the work, autonomy in the preparation and undertaking of the work, information about results of the work, extension of tasks, or rotation of jobs
	The firm encourages internal cooperation and teamwork
	Employees do not feel a sense of personal commitment to quality*
	There is an interest in the training and development of staff members
	The firm has introduced flexible ways of organizing that enhance employees' autonomy and encourage decentralization in decision-making
	Organizational processes are elastic and flexible
	Members of the firm identify with its values and culture
	Managers continually support employees' initiatives and suggestions
	There is intense horizontal and inter-functional communication in the firm
	Staff members are generally committed to the achievement of the firm's mission, objectives and strategy
	Staff are aware of the firm's mission and objectives
	The firm encourages cross-functional or interdepartmental teams to solve specific problems
Environmental performance	$\alpha = 0.897$
	Reduction in the consumption of materials for service provision
	Reduction in energy consumption for service provision
	Reduction in the time required for service provision
	Reduction in the environmental impact
	Improvement of equipment efficiency

Source(s): Own elaboration

Table A1. Measurement of the variables

	Minimum	Maximum	Mean	Std. deviation
Predicted value	1.6391	6.0289	3.6187	0.67041
Residual	−3.67029	3.95986	0.00000	1.21402
Std. predicted value	−2.953	3.595	0.000	1.000
Std. residual	−3.001	3.238	0.000	0.993

Table A2.
Residual analysis

Source(s): Own elaboration

Homocedasticity

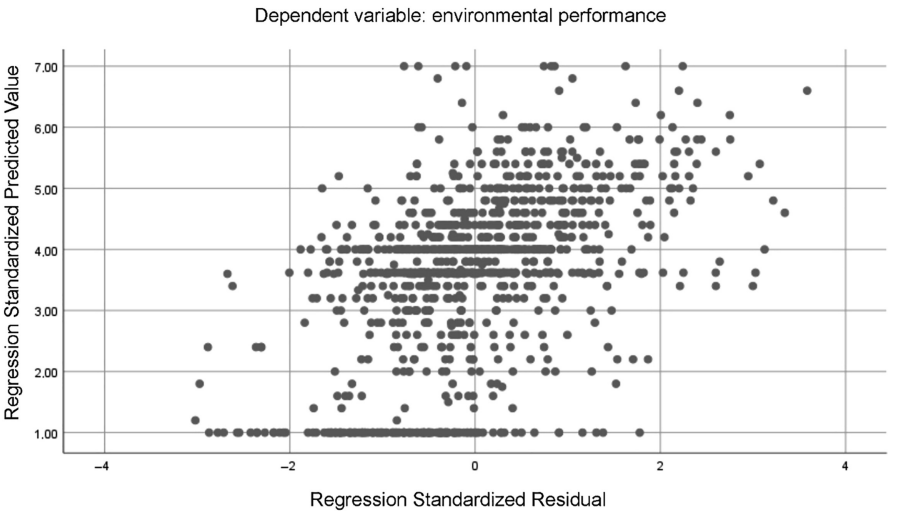
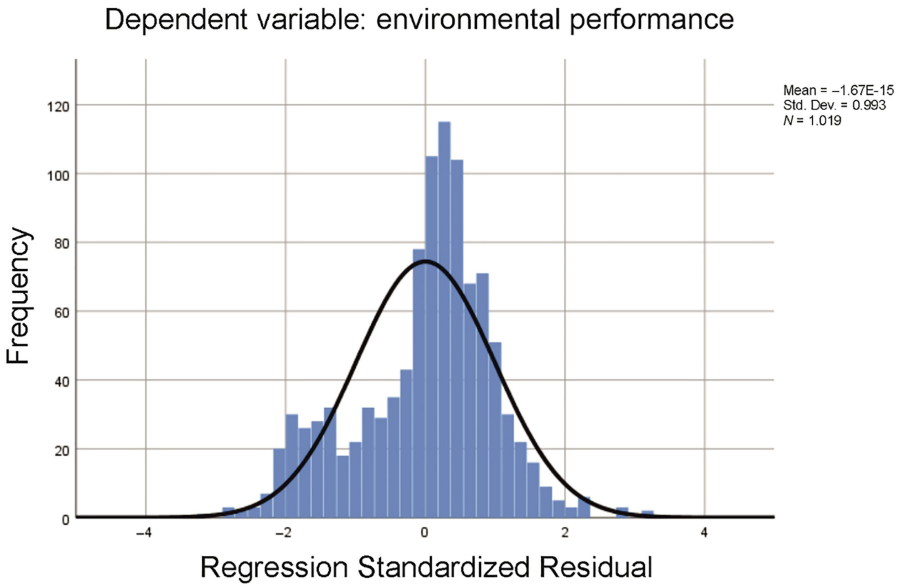


Figure A1.
Scatterplot of standardized predicted value by standardized residual

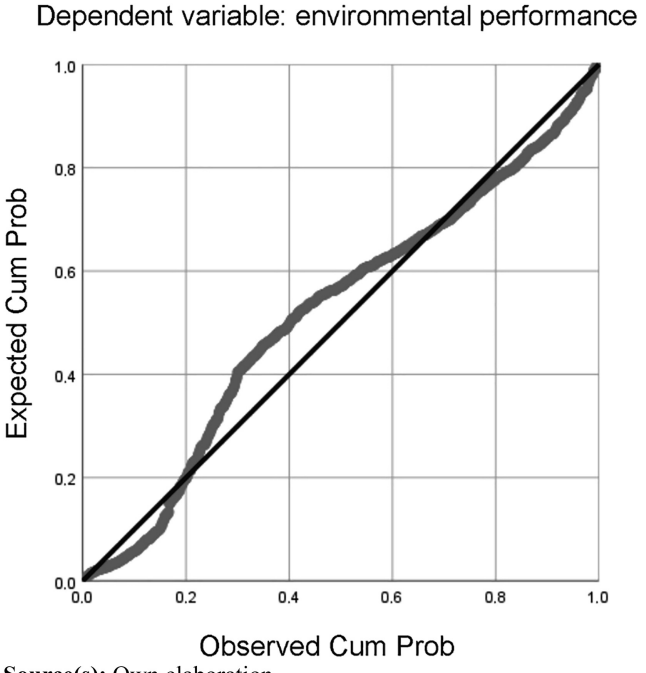
Source(s): Own elaboration

Normality



Source(s): Own elaboration

Figure A2. Histogram of standardized residual



Source(s): Own elaboration

Figure A3. Normal probability plot of standardized residual