Entrepreneurial orientation, environmental hostility and SME profitability: a contingency approach

Orientación emprendedora, hostilidad del entorno y la rentabilidad de la Pyme: una propuesta de contingencias

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Abstract:

This study investigates the effect of the entrepreneurial orientation (EO) on SME financial performance. The essay also proposes a contingency model to explore the moderating effects of environmental hostility on the relationship between EO and profitability. The study was conducted using a sample of 121 manufacturing SMEs in Spain. Results confirm the positive influence of EO on a firm's profitability. More importantly, the impact of EO on SME profitability is higher when there is a fit between EO and the external environment.

Keywords:

Entrepreneurial orientation; environmental hostility; SME profitability; Spain.

Resumen:

En este artículo se investiga el efecto de la orientación emprendedora (EO) en el desempeño financiero de las Pymes en un período de tres años, así como una propuesta de un modelo de contingencias para explorar los efectos moderadores de la hostilidad del entorno sobre la relación entre la EO y la rentabilidad. Para examinar las hipótesis propuestas se ha utilizado información de 121 Pymes pertenecientes a la industria manufacturera en España. Los resultados confirman la influencia positiva de la EO sobre la rentabilidad de las empresas, y más importante aún, la influencia es más positiva cuando existe un ajuste entre la EO y el entorno. Implicaciones para la academia y el mundo empresarial, con respecto a la EO en el contexto de las Pymes, son presentadas y discutidas.

Palabras clave:

Orientación emprendedora; hostilidad del entorno; rentabilidad de la Pyme; España.

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1. **INTRODUCTION**

It is well-known that there is a large body of literature regarding aspects of firm performance, however, concerning the findings, this literature provides diverse and often conflicting empirical results. Equally important, the strategy dimensions are recognized as important tools with great impact on firm performance. In this sense, EO has emerged as a major construct within the strategic management and entrepreneurship literature over the years (Basso et al., 2009; Rauch et al., 2009). EO is a strategic construct whose conceptual domain includes certain firm-level resources and management-related preferences. EO is revealed through an organization's exhibition of innovativeness, proactiveness, and risk-taking (Covin et al., 2006).

Several authors, when referring to the firm's strategic posture, do it by using a Resource-based view (RBV) framework, presenting resources and capabilities as essential to gaining sustained competitive advantages (Wernerfelt, 1984; Porter, 1985; Barney, 1991). Consequently, these useful and valuable possessions, combined with other resources, are more likely to generate higher performance for the company (Tecce et al., 1997). Thus, this theoretical approach has become one of the most widely used frameworks in the management literature (e.g., Alvarez and Busenitz, 2001; Tecce, 2007; Ferreira et al., 2011).

Regarding the EO-performance relationship, several authors proposed and documented a positive relationship between them (e.g., Covin and Slevin, 1991; Wiklund, 1999; Lumpkin and Dess, 2001; Wiklund and Shepherd, 2005). Nonetheless, there are some studies that confirmed its purposes only partially (e.g., Lumpking, et al., 2006; Madsen, 2007). Furthermore, some empirical, as well as conceptual, arguments suggest that EO is not equally suitable in all environments (Khandwalla, 1977; Miller and Friesen, 1982; Covin and Slevin, 1989; Robertson and Chetty, 2000; Wiklund and Shepherd, 2005). Namely, the magnitude of the relationship between EO and firm performance is contingent upon the external environment as well as upon internal organizational processes (Tang et al., 2008). Thus, the magnitude of the relationship seems to vary across studies. As stressed by Rauch et al. (2009), while some studies have found that businesses that adopt a strong EO perform much better than do firms that do not adopt an EO, other studies reported lower correlations between EO and performance or were even unable to find a significant relationship. Hence, besides the numerous studies, we can state that the discussion about this relationship is still open.

In this way, this study attempts to fill the research gap in line with suggestions of previous studies, such as: (1) by using potential moderator variables (Rauch et al., 2009), (2) by testing the EO-performance relationship using objective measures of performance (Chow, 2006) and (3) by considering these measures with longitudinal perspective (Chow, 2006; Madsen, 2007; Ferreira et al., 2011).

In regard to measures of financial performance, both subjective (Covin and Slevin, 1989; Covin, 1991; Wiklund, 1999; Madsen, 2007; Tang et al., 2007) and objective measures (Zahra and Covin, 1995; Richard et al., 2009) have been studied, stating that there are many reasons for the increasing interest in understanding the phenomenon of profitability from an entrepreneurial perspective. However, some ambiguity still exists regarding the financial impact of EO (Richard et al., 2009).

Thus, the main objective of this stud is to measure the effects of EO on SME profitability, as well as to explore the moderating effects of the environmental hostility in this relationship. To achieve our aim, we propose a complete analysis of the relationship between EO and SME profitability by using financial information over a three-year period.

To test the proposed hypotheses a sample of Spanish manufacturing SMEs was used.

Our findings support the belief that firms, in general, may gain an advantage through an entrepreneurial behavior. Equally important, the EO-environment fit may play an essential role in the firm's ability to improve its profitability.

Section 2 presents the conceptual framework, which was determinant to formulate the hypotheses, and reviews the related literature on EO-performance relationship. Section 3 describes the research methods. Analysis and results are presented in Section 4. Finally, in Section 5 the conclusions are presented and discussed.

2. THEORETICAL FRAMEWORK, PREVIOUS RESEARCH AND HYPOTHESES

2.1. Entrepreneurial Orientation as a resource

Adopting the Covin and Miles concept (1999, p.48), entrepreneurs are "an individual or individuals who champion new product ideas within a corporate context". Entrepreneurs seek to identify new opportunities, respond to environmental changes, and take appropriate actions to achieve success. At the firm level, entrepreneurship is defined as entrepreneurial philosophy that permeates an entire organization's outlook and operations, and it refers to the firm's actions per se (Chow, 2006). Thus, EO has emerged as an important resource within companies, representing a widely exploited intangible in corporate entrepreneurship. Entrepreneurial values enhance the creation of new businesses within the existing businesses and the renewal or revival of ongoing businesses that have become stagnant or require transformation (Slater and Narver, 1995).

RBV (Wernerfelt, 1984; Barney, 1991) helps to explain how firms derive competitive advantages by channeling resources into the development of new products and processes, responding to changes that occur in its environment, assuming a proactive posture, and so on. In turn, EO suggests a proclivity towards the creation of new products or services, proactiveness and risk-taking propensity (Miller and Friesen, 1982; Miller, 1983), which embodies a bold action-oriented position (Hult et al., 2004). "An entrepreneurial firm is one that engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with proactive innovations, beating competitors to the punch" (Miller, 1983, p.771).

A firm develops innovativeness if it performs product-market innovations. This dimension refers to the poise of an organization to develop creative or novel internal solutions or external offerings (Lumpkin et al., 2006). In other words, innovativeness is the predisposition to engage in creativity through the introduction of new products or services as well as technological leadership via R&D in new processes (Rauch et al., 2009). Proactiveness refers to a posture of anticipating and acting on future wants and needs in the marketplace. It is a forward-looking perspective characterized by the introduction of new products and services ahead of the competition and acting in anticipation of future demand. By consider-

ing that proactiveness involves the capacity of a firm to anticipate changes in its environments and generate a competitive advantage from this posture. Finally, entrepreneurial firms are defined as those willing to take on high-risk projects for the chance of high return, namely, a strong risk-taking propensity by top management under highly uncertain conditions (Covin and Slevin, 1989; Lumpkin and Dess, 1996).

2.2. **EO and firm profitability**

As pointed out before, EO refers to the processes, practices and decision-making activities that characterize the behaviors which a manager engages in to discover and exploit entrepreneurial opportunities (Lumpkin and Dess, 1996). Essentially, it refers to a firm's strategy orientation, capturing the specific entrepreneurial aspect of decision-making styles, methods, and practices (Chow, 2006).

EO reflects a strategic posture, as exhibited by multiple layers of management (Stevenson and Jarillo, 1990). In regard to the financial impact of EO, on the whole, the extant literature provides evidence that allows for a positive relationship. For example, as proposed by Lengnick-Hall (1992), organizations that pioneer the creation and introduction of new products or technologies can achieve superior financial performance. Moreover, firms, through innovativeness, develop a market niche with a new product/service, differentiate themselves and/or substitute incumbents with other means that customers value (Wiklund and Shepherd, 2005), increasing the likelihood that a firm will realize first-mover advantages and generate extraordinary outcomes (Wiklund, 1999). In the same way, proactiveness is synonymous with taking the initiative and competing aggressively with other firms. Proactive firms anticipate wants and needs in emerging markets (Lumpkin and Dess, 1996), thus achieving profitable opportunities. Risk-taking involves taking bold actions by venturing into the unknown (Rauch et al., 2009), it reflects the tendency to assume relatively high levels of risk-seeking profitable opportunities in the face of uncertainty and the achievement of long-term profitability.

In summary, companies that have EO as an important resource to build competitive advantages will probably strengthen the relationship between behavior and performance. In this sense, prior research also supports the position that EO may impact firm profitability. For instance, Richard et al. (2009) found that EO is positively related to ROE in a sample of 579 US banks. In turn, Madsen (2007) notes that focus on entrepreneurial activities could be associated with better financial results in Norwegian SMEs. Hence, in accordance to stated arguments and previous literature we make the following hypotheses:

H1. There is a positive relationship between EO and SME profitability.

Namely:

H1a. The magnitude of EO is positively related to the magnitude of return on assets (ROA);

H1b. The magnitude of EO is positively related to the magnitude of return on sales (ROS);

H1c. The magnitude of EO is positively related to the magnitude of free cash flow (FCF).

2.3. **The moderating role of environmental hostility – a contingency approach**

It is acknowledged that the discovery and exploitation of entrepreneurial opportunities results from prior knowledge about markets and customers (Venkataraman, 1997). Moreover, new information about technology, combined with the prior information on markets and external problems, leads to the discovery of entrepreneurial opportunities (Shane and Venkataraman, 2000). Thus, the external environment is always highlighted as a critical contingency or contextual factor in the EO-performance relationship.

As stated by Galbraith (1973), there is no single way to organize, and there is no strategy which can be applied to any organization. A contingency approach stresses that the firm structure or strategy varies depending on its contextual situation (Chandler, 1962; Lawrence and Lorsh, 1967). Hence, the correct alignment between key elements with the organization's context leads to better outcomes (Garengo and Bititci, 2007). In this sense, the relationship between EO and firm performance is often connected by considering environmental variables (e.g., Covin and Slevin, 1989; Robertson and Chetty, 2000; Tang et al., 2008; Wiklund and Shepherd, 2005).

Several authors stressed the importance of the fit between organization and environment. The importance of proper alignment of the strategy with the environment means that both entrepreneurial and conservative companies must develop characteristics that enable them to cope with their environments (Yeoh and Jeong, 1995).

In this vein, Yamada and Eshima (2009) argued that the external environment may have a strong impact on small firms' viability and growth.

This stream of research draws on Khandwallas's contingency perspective (1972), who pointed out that the performance of a company should not be measured in terms of organizational attribute (structure, management style, etc.), but rather by results from the fit of these dimensions within a specific environment characterized by some degree of hostility and uncertainty. Thus, the classification that would be used in the literature stresses two different scenarios, hostile and benign environments. Hostile environments are described by Khandwalla (1976/77; 1977) as stressful, very risky, with few opportunities. In the same way, Covin and Slevin (1989) added that the hostile environment is characterized by intense competition, overwhelming business climate and relative lack of opportunity for exploitation. Conversely, the non-hostile or benign environment is one that has none of the characteristics above, but rather provides investment opportunities and has a favorable climate for business (Covin and Slevin, 1989; Khandwalla, 1977).

In fact, the classical study of contingent or contextual analysis of the EO-performance relationship is the research by Covin and Slevin (1989), who pointed out that the entrepreneurial strategy changes according to the external environment being hostile or benign. Entrepreneurial firms benefit especially in hostile environments (Covin and Slevin 1989). It is hoped because the success of these firms is generated by their competitive efforts that seek to gain or maintain competitive advantage. In this way, Robertson and Chetty (2000) say that environments characterized by high levels of uncertainty are used to encourage greater levels of innovation and risk-taking, which would imply the adoption of an entrepreneurial posture. On the other hand, in benign environments the relationship between EO and performance may be less significant. Entrepreneurial behavior involves more risk than does a

conservative behavior. Covin and Slevin (1989) argued that in a benign environment it is not necessary to take decisions that create uncertainty or consuming effort or resources to maintain a firm's viability.

To summarize, the proposal is based upon the idea that there is a contingent relationship between EO, and environment and profitability. Thus, the core focus of H2 is illustrated in Figure 1. So, the aforementioned theoretical arguments provide reasonable justification for advancing the following hypotheses:

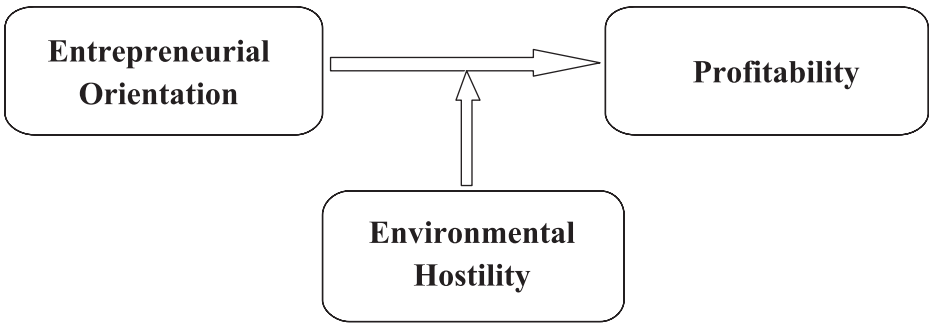
H2. Business profitability will be greater or lower under the fit between EO and environmental hostility. Thus:

H2a. Entrepreneurial SMEs (high EO), operating in a hostile environment, will have better profitability than will entrepreneurial SMEs operating in benign environments.

H2b. Conservative SMEs (low EO), operating in a benign environment, will have better profitability than will conservative SMEs in hostile environments.

Figure 1

EO and environmental hostility: impact on firm profitability



3. RESEARCH DESIGN

3.1. Sample and data collection

The companies included in this study were selected based upon three criteria: First, all firms develop manufacturing activities. Several studies in the literature have investigated manufacturing firms (e.g., Hoque, 2004; Kaynak, and Kuan, 1993; Randolph et al., 1991; Robertson and Chetty, 2000). Second, all companies can be classified as SMEs[1]. In Spain

[1] SMEs - According to the European Union recommendation, in effect from January, 2005: Companies which employ between 10 and 249 employees and whose annual turnover does not exceed €50 million or whose annual balance sheet does not exceed €43 million, are considered SMEs.

about 99% of the companies are SMEs. Moreover, these companies play an important and irreplaceable role in the economy of a country by generating employment and contributing to the GDP. Finally, as many questions refer to decisions or positions taken in the past few years, all companies have been active and are in business for at least the last five years.

The data were collected in two distinct stages. First, we used a questionnaire adapted from the model used in different studies (e.g., Covin and Slevin, 1989; Robertson and Chetty, 2000). The survey is designed to collect the necessary information, which leads to the independent variables *entrepreneurial orientation* and *hostile environment*. The questionnaire is presented using a 7-point Likert scale, and the adapted version was reviewed by a research specialist in strategy management and tested on a manager who participates in strategic decisions. After receiving all comments and suggestions, the questionnaire has been revised and the final version was sent by e-mail to the companies, focusing on the CEO involved in strategic decision-making processes. Although it may be considered imprecise because of the subjectivity in the responses, the use of personal information collected with the same level of authority within each organization reduces the variability of the data (Nasrallah and Qawasmeh, 2009). The selected companies belonging to five representative industries within the manufacturing sector are described in Table 1. The use of different types of firms within a single-sector sampling (manufacturing) is precisely done to capture the potential effects of external environmental forces.

Using the sampling frame of the Iberian System Analysis of Balance (SABI)[2], a total of 1,144 firms were previously selected according to the criteria mentioned above. However, the questionnaires were sent to 703 firms because some companies did not report their e-mail, phone or website to contact. Of these 703 questionnaires, 51 were returned incomplete for the following reasons: the e-mail of potential respondent was incorrect or had changed, or the business had closed. Firms that did not respond to the initial request for data were contacted a second time via telephone one month after the initial contact, and we then sent the questionnaire again. Of the remaining 652 questionnaires, 138 were returned completed (83 primary and 55 secondary), indicating an overall response rate of 21.16% (138/652). The current study focused on 121 firms for which complete data were available on accounting information in the investigated years. The survey was carried out in the winter of 2009. The second step of data collection was performed through companies' publications and annual reports to make annual updates to the database of firms which answered the questionnaire. The financial-statement data are obtained from the SABI of 2007-2009.

Finally, to ensure the absence of bias in the data, we have evaluated the bias of no-response (a sample of 121 firms which did not respond to the questionnaire, has been compared with reference to the ROA and number of employees). The results revealed no significant differences between the two groups. Then, a comparison of the early respondents (i.e., those firms that returned the questionnaire before being contacted a second time) and the late respondents (i.e., those firms that returned the questionnaire only after having been asked a second time) revealed no differences (i.e., $p>.10$) in terms of age, number of

[2] Iberian System Analysis of Balance (SABI) is an online database with detailed financial information about Spanish and Portuguese companies.

employees, or any of the research variables assessed in this study. These results suggest the absence of response bias.

Table 1

Industrial classification of samples selected and returned

Industry	Total number of firms	Samples selected	Returned incomplete	Responses received (valid)	% response rate
Food and beverage manufacturing	212	143	11	37 (33)	28,03
Textile and apparel industry	202	135	9	33 (30)	26,19
Pharmaceutical manufacturing	146	74	5	11 (10)	15,94
Non-metallic mineral products	297	184	13	18 (15)	10,53
Electrical equipment manufacturing	287	167	13	39 (33)	25,32
Total number of firms	1144	703	51	138 (121)	21,16

3.2. **Variables**

A. *Entrepreneurial Orientation*

EO is a variable constructed from three distinct dimensions: innovativeness, pro-activeness and risk-taking propensity. We applied the exploratory factor analysis to assess dimensionality and validity. Statisticians KMO of 0.94 and Bartlett's sphericity test ($p<$ .01) support the idea of the validity of the implementation of factorial analysis and allow us to check whether there were significant correlations between variables. To validate the construct and its dimensions, we carried out a confirmatory factor analysis highlighting the existence of a multidimensional construct (see Appendix 1). Prior research suggests the use of these dimensions and claims that while each dimension focuses on different aspects of strategic orientation, they are related, thus allowing them to consider a single construct (e.g., Covin, 1991; Covin and Slevin, 1989; Wiklund and Shepherd, 2005).

Each dimension was measured using three sets of questions (see Appendix 2). The first dimension tries to identify the company trend towards innovation, while the second and third dimension measure the pro-activeness and the propensity for risk-taking, respectively. The higher the score (minimum 1 and maximum 7), the more entrepreneurial firm strategic orientation is. The scale obtained an average of 4.165. The reliability of the dimensions was investigated by Cronbach's Alpha. On all occasions the reliability coefficient was greater than 70% (see Table 3).

Table 3

Scale reliability

dimension		Standardized Cronbach's Alpha
Innovation	3 items	0.917
Pro-activeness	3 items	0.865
Risk-taking	3 items	0.896

B. *Environmental Hostility (EH)*

EH is measured with a three-item scale (See Appendix 3). This scale was developed by Khandwalla (1977) and was used in several research studies (e.g., Covin and Covin, 1990; Covin and Slevin, 1989; Dimitratos et al., 2004; Robertson and Chetty, 2000). The scores of respondents for each of the three questions are averaged to give a single index of EH. The higher the index (minimum 1 and maximum 7), the more hostile the environment in which the company operates is. The scale obtained an average of 4.419. The reliability of the dimensions presented a Cronbach's Alpha of 0.876.

C. *Financial Performance Measurement*

Following the literature (e.g., Brush et al., 2000; Chen et al., 2009; Jokipii and Vahamaa, 2006; Nasrallah and Qawasmeh, 2009; Prior, 2003; Randolph et al., 1991), the measures of profitability are: ROA, ROS and FCF on total equity (FCF/TE_{t-1}). ROA is used as a measure of profitability in accounting income. ROS is used as an alternative measure of profitability (profit margin). The FCF ratio measures the real cash flow income. According to Griffin et al. (2010), the ratio of FCF is calculated according to the book value of total equity at the end of the prior year to control for the effect of company size. Table 4 summarizes the measures.

Table 4

Measuring profitability

Measures	Definitions
ROA	Operating earnings/Total assets
ROS	Operating earnings/net sales
FCF*	FCF/Total equity^{t-1}

* Calculating the FCF is presented below.

By using different measures we attempted to reduce the problems of using single measures of financial performance. For example, a firm with fully depreciated assets would tend to have a relatively higher ROA than would comparably performing firms with undepreciated assets (Randolph et al., 1991). Similarly, firms with high inventory turnover may have lower ROS figures than might others, but with a higher ROA. By including several measures, the chance of error caused by accounting practices is reduced (Chen, et al., 2009; Donaldson, 2001; Nasrallah and Qawasmeh, 2009).

Free cash flow measurement

The first concept of FCF in the literature comes from the Theory of Agency. Indeed, Jensen (1986) was the first who spoke about cash flow in excess, called by the author free cash flow, and points out the destination of FCF as one cause of conflict between principal and agent. Similarly, Griffin et al. (2010) also define FCF as the net excess cash flow, which is especially required for new investments.

In this study we assume for the calculation of the FCF a model considering aspects such as increasing or decreasing stocks, increasing or decreasing accounts with suppliers or clients and decisions on investments in fixed assets (Jokipii and Vahamaa, 2006; Prior, 2003). We understand that this model is closely connected with the movement of cash in addition to providing aspects that can be directly linked to the strategy adopted by the company.

To calculate the FCF, we have used information in times *T* and *T-1*. Namely, to measure the change in trade receivables and creditors or changes in stock and fixed assets it is necessary to consider the accounting report from the preceding year.

D. *Control variables*

To explain firm performance, the model requires information about firm size. In the literature on performance it is common to find variables used to monitor the effect of company size and the probable influence of economies of scale on profitability indicators (e.g., Brush et al., 2000; Chen et al., 2009; Dewenter and Malatesta 2001; Griffin et al., 2010; Kaynak and Kuan, 1993). To represent firm size, variables such as number of employees, total sales, and total assets have been introduced. Then, the variable which best fits the model was number of employees, used in logarithmic form (lnSize). Also rates of leverage (gearing) receive special attention when explaining the firm's financial performance (Chen et al., 2009; Dewenter and Malatesta, 2001). We also include the variable leverage (Lev) to capture effects of capital structure; this ratio is calculated from the sum of total current debt and long-term debt divided by total assets. For the control variables (size and leverage), the average of the period (2007-2009) was considered.

4. **ANALYSIS AND RESULTS**

According to the perception of the executives surveyed, companies were classified as entrepreneurial or conservative considering the magnitude of their entrepreneurial orientation. The environment was classified as benign or hostile, depending on the degree of uncertainty observed.

The EO index is located between one and seven, with the highest score indicating more entrepreneurial behavior. The mid-point for the EO index was four. Thus, an entrepreneurial firm had an EO index greater than or equal to four, and a conservative firm had an EO index less than four. By using these cut-off points, from the 121 useable replies, 71 were classified as entrepreneurial firms, and 50 firms were classified as being conservative. The same approach was used to classify the level of hostility of the environment. Thus, the environment is considered to be hostile when the index is greater than or equal to four, and is considered benign when the index is less than four. At the moment the survey was done, a third part of the SMEs considered their environment as benign, especially companies in the food and beverage industry. Conversely, two-thirds of the SMEs saw their environment as hostile. For example, in the pharmaceutical manufacturing industry, all companies considered their environment as stressful and very risky.

Table 5 summarizes the main statistics (i.e., mean scores and SDs) and the correlation matrix of key variables considered in the study. The correlation among the independent variables are all less than $r = .50$, suggesting that multicollinearity was not a serious problem in the regression analyses (Hair et al., 1998).

The research hypotheses were tested using multiple regression models. The analysis is structured in three steps. The first step is the base model, taking only the control variables into consideration (size and leverage). The influence of firm size is not significant in any model. However, leverage is significant to predict return on assets (ROA) and sales margin (ROS), but not significant to predict FCF.

Table 5

Summary of statistics and correlation coefficients for key variables

Variables	Mean	SD	ROA	ROS	FCF	EO	EH	lnSize	Lever.
ROA	.05	.150	1.00						
ROS	.05	.138	.711**	1.00					
FCF	.05	.176	.501**	.327**	1.00				
EO index	4.193	1.394	.330**	.248**	.331**	1.00			
EH index	4.377	1.306	.086	.049	.017	.292**	1.00		
lnSize	3.92	.855	-.028	.075	.024	.128	-.055	1.00	
Leverage	.483	.243	-.259**	-.340**	-.149	-.043	.043	-.103	1.00

Note: * p<0.05; ** p<0.01.

In the first model, we suggest a function [1] that attempts to verify the first hypothesis – *H1: In general, there is a significant and positive relationship between EO and SME profitability in a three-year period*.

[1] $$profitability = \beta_0 + \beta_1 \ln Size_{it} + \beta_2 Lev_{it} + \beta_3 EO_i + \in$$

where:

profitability is the set of financial ratios (ROA; ROS and FCF), *lnSize* is a control variable representing the firm size, *Lev* is a control variable that represents the ratio of lever-

age of the firm and *EO* is a construct used as an independent variable and assumes values between one and seven.

The model [1] shown in Table 6 (Step 2) suggests that overall EO has a significant and positive impact on SME profitability (ROA = 0.332, *p<.01*; ROS = 0.233, *p<.05*; FCF = 0.329, *p<.01*). These results reveal that the EO construct plays an important role in SME financial performance, presenting a positive effect on most of the ratios (supporting sub-hypotheses H1a, H1b and H1c).

Then, in the third step, we propose a function [2], which allows one to observe the financial performance variability by considering different scenarios in a contingent relationship between EO and EH. Four categories of dummy variables were used to examine Hypothesis 2 (H2a and H2b). Three categories were introduced in the function [2]. So, we omitted category *dCO_HE* (coded 1 for conservative firms doing business in a hostile environment, and 0 in other cases) from the function; nonetheless, the regression results are interpreted considering the category removed. As predicted, and not surprisingly, these conservative SMEs operating in hostile environments have presented the worst performance among all firms in the sample.

[2] $profitability = \beta_0 + \beta_1 \ln Size_{it} + \beta_2 Lev_{it} + \beta_3 dEO\_HE_i + \beta_4 dCO\_BE_i + \beta_5 dEO\_BE_i + \in$

where:

variable	definition
profitability	is the set of profitability ratios (ROA; ROS and FCF);
lnSize	is a variable to prevent possible effects of firm size and is expressed by the average number of employees in the period (2007-2009) in logarithmic form;
Lev	used as control variable and represents the ratio of leverage of the company, and is calculated from the sum of total current debt and long-term debt divided by total assets;
dEO_HE	dummy variable coded 1 for firms with an entrepreneurial orientation doing business in a hostile environment, and 0 in other cases;
dCO_BE	dummy variable coded 1 for firms with a conservative orientation doing business in a benign environment, and 0 in other cases;
dEO_BE	dummy variable coded 1 for firms with a conservative orientation doing business in a benign environment, and 0 in other cases.

By using this model we can consider the full sample in the regression analysis, which is statistically more consistent to support hypotheses H2a and H2b. The regression results using Model [2] are presented in Table 6 (Step 3).

As predicted in Hypothesis 2, the fit between EO and EH plays an important role in SME performance. Namely, as Model [2] in Table 6 shows, the EO-EH relationship is significant and has a positive impact on SME profitability. For example, H2a –*Confirmed*. Further, entrepreneurial SMEs doing business in a hostile environment present higher performance in all ratios than do entrepreneurial SMEs doing business in a benign environment (e.g., ROA: *EO_HE* = .526 and *EO_BE* = .188; ROS: *EO_HE* = .463 and *EO_BE* = .145; FCF: *EO_HE* = .770 and *EO_BE* = .297).

By observing the performance of conservative firms, it is possible to analyze directly with the excluded dummy variable. Thus, as predicted, H2b – *Confirmed*. Conservative SMEs have higher financial performance in a benign environment than in a hostile one (*CO_BE > CO_HE*). For example, conservative firms operating in a benign environment present a ROA of 0.252 ($p<.05$), ROS of 0.218 ($p<.05$) and a FCF index of 0.324 ($p<.01$), higher than do conservative firms in a hostile environment.

Table 6.

Results of Regression Analyses

	ROA			ROS			FCF		
	Step 1	Step 2	Step 3	Step1	Step2	Step 3	Step1	Step2	Step 3
Step 1: Controls									
Size(lnE)	-.056	-.097	-.070	.040	,011	.029	.009	-.032	-.011
	(.016)	(.015)	(.015)	(.014)	(.014)	(.013)	(.019)	(.018)	(.016)
Leverage (DR)	-.265**	-.225**	-.239**	-.335***	-.328***	-.313***	-.148	-.139	-.106
	(.055)	(.052)	(.051)	(.049)	(.048)	(.047)	(.066)	(.063)	(.055)
Step 2: Independ.									
EO		.332***			.233**			.329***	
		(.009)			(.008)			(.011)	
Step 3: Fit EO-EH									
dEO_HE			.526***			.463***			.770***
			(.034)			(.031)			(.037)
dCO_BE			.252**			.218**			.324***
			(.039)			(.036)			(.047)
dEO_BE			.188*			.145			.297***
			(.044)			(.040)			(.046)
Model R^2	.070	.178	.222	.117	.170	.237	.022	.129	.336
Adjusted R^2	.054	.157	.188	.102	.149	.204	.006	.107	.307
F value	4.454**	8.458***	6.554***	7.810***	7.994***	7.140***	1.353	5.779***	11.653***

Note: N = 121 * p<0.10; ** p<0.05; *** p<0.01. The entries in the table are standardized coefficients.
The numbers in brackets are standard errors.

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5. **DISCUSSION AND CONCLUSIONS**

This study addresses the impact of EO on SME profitability and key effects of external environment in a contingency model. We thereby fill a significant gap, namely, this study contains two important novelties with regard to previous research. First, our contribution consists of the variable to be explained, focusing the analysis on objective measures from book value of financial ratios, attending a limitation of past empirical research as stressed by Chow (2006). Second, three accounting ratios were used to measure SME profitability. Thus, besides traditional ratios such as ROA and ROS, we proposed FCF as an alternative measure to understand the variability in the cash flow in SMEs. Hence, if FCF is positive the company not only has met its commitments and operational requirements, but also money is left to reduce debt, pay dividends to their shareholders or expand its business. Otherwise, a negative FCF means that the company will sell part of its investment or increase its debt. Our findings confirm the existence of a positive and significant relationship between EO and FCF, as well as the importance of the influence of low versus high environmental hostility.

Overall, our findings provide more evidence about the existing relationship between strategic attributes and performance with certain contingencies from the firm's operating environment. A similar conceptual model has been applied in previous literature (Covin and Slevin; 1989; Robertson and Chetty, 2000; Yeoh and Jeong, 1995).

Consistent with previous findings, we pointed out a strong positive relationship between EO and performance (e.g., Moreno and Casillas, 2008; Tang et al., 2008; Wiklund and Shepherd, 2005). Our results also indicate that the effect of EO on business performance is greater or lower, according to high or low environmental hostility, supporting, thus, findings highlighted in previous studies (e.g., Covin and Slevin, 1989; Lumpking and Dess, 2001; Robertson and Chetty, 2000).

In general, evidence from this study underscores the importance of a firm's operational environment, as stressed in other studies but, nonetheless, contrary to that presented by Chow (2006), who confirms the link between EO and financial performance but has not found a significant interaction between environmental variables and EO concerning business profitability.

A central message from the evidence provided is that entrepreneurial SMEs have the ability to operate in both hostile and benign external environments (overall results highlighted that entrepreneurial SMEs are more profitable than are conservative ones). It can therefore be concluded that entrepreneurial firms have more freedom to make strategic choices than do conservative firms, supporting the view held by Robertson and Chetty (2000). Nevertheless, we have argued that conservative SMEs operating in a benign environment presented results as equally well as entrepreneurial SMEs in the same operating environment. Namely, these results lead us to conclude that the crucial need for product innovation, proactive behavior and risk-taking propensity is more clearly in firms which operate in hostile environments.

In conclusion, our findings emphasize that the strategic orientation of the firm should not be considered in isolation, but rather within its environmental context. In the current economic context, this finding represents an important implication for managers in manufacturing SMEs. Thus, in an uncertain environment where an atmosphere of high risk

predominates, few opportunities, and with tremendous competitiveness, an entrepreneurial posture of the firm is specially recommended. This result could be explained by the characteristics required by the hostile environment (i.e., companies with an entrepreneurial profile, which often are the first to introduce new products, services or administrative techniques, and typically assume a very competitive posture). Hence, the task for CEOs is to design and implement a culture that embodies product innovation, technological leadership via R&D, and a posture of anticipating and acting on future wants and needs in the marketplace.

This study advances our understanding of the complex EO-performance relationship, however, it should be emphasized that this research does have some limitations. First, an aspect that should be considered is that this study was realized with a specific sample of SMEs and in a specific region of Spain, so results may vary in other contexts or industries. It would be interesting to replicate similar studies in distinct contexts, but more important should be a cross-cultural study. Second, there is a possibility of endogenous problems. That is, in this study we have focused on the EO-performance relationship; it is possible that the companies' (more or less) entrepreneurial behavior was affected by the resources or circumstances of each organization. In this way, an alternative would be to measure the EO in a particular period and apply the results of the following periods as performance indicators. Finally, another limitation to emphasize is concerned with the independent variable EO that was measured in a specific period. That is, keeping track of the EO variable could be an interesting extension of the research because it would make it possible to see the sustainability of the impact of EO on firm performance, as well as the changes in entrepreneurial orientation over time.

In general, the present results are encouraging to entrepreneurship scholars. Thus, another observation to future research is that examining the EO-performance relationship in different countries with additional moderating variables, as well as additional cultural hypotheses, can be interesting to research in this field. For example, specific EO dimensions (such as competitive aggressiveness) may be less valid in certain cultural contexts that frown upon high competitiveness.

We have also seen that SMEs have different FCF levels according to their entrepreneurial posture and operating environment. Thus, we also suggest that an interesting extension of this study would be a cross-time analysis based on strategic investments made by entrepreneurial companies, which present a high FCF rate, in order to assess whether these companies correctly invest their cash flow in excess, connecting the literature on entrepreneurship and the concept of agency problem by Jensen (1986).

Future research will hopefully test this EO-EH-performance relationship using novel methodologies, such as Structural Equation Modeling or similar (e.g., Moreno and Casillas, 2008), to measure the relationships between these constructs, which would also allow for the approach of new hypotheses to be tested.

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Appendix 1. **CONFIRMATORY FACTOR ANALYSIS (CFA) – EO CONSTRUCT**

Model fit – EO construct

	Recommended level	CFA level
CFI	Close to 1	0.999
GFI	Close to 0.9	0.957
AGFI	Close to 0.9	0.919
RMR	Less than 0.08	0.062
RMSEA		0.015

Chi-square 24.60 df. 24 probability level = .427.

Appendix 2. **EO SCALE MEASUREMENT AND RELIABILITY**

	No. of items	Type of measure	Cronbach's Alpha
Innovativeness	3		0.917
Strong emphasis on marketing products and services that have been recently developed through R&D.		Likert 1-7	
New lines of products or services.		Likert 1-7	
Changes in product or service lines.		Likert 1-7	
Proactiveness	3		0.865
Typically initiates actions to which competitors then respond.		Likert 1-7	
Often is the first to introduce new products, services, administrative techniques, operating technologies, etc.		Likert 1-7	
Typically adopts a very competitive posture.		Likert 1-7	
Risk-taking	3		0.896
Strong tendency for high risk projects (high return).		Likert 1-7	
Relieves that bold acts is necessary, to achieve objectives.		Likert 1-7	
Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.		Likert 1-7	

Appendix 3. **EH SCALE MEASUREMENT AND RELIABILITY**

	No. of items	Type of measure	Cronbach's Alpha
Environmental hostility **How would you characterize the external environment (both domestic and international) within which your firm operates?**	3		0.859
Very safe/risky		Likert 1-7	
There is an abundance/very few marketing opportunities and investment		Likert 1-7	
An environment that my firm can control and manipulate/dominating environment which my firm's initiatives count for very little against tremendous competitive.		Likert 1-7	