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Entrepreneurial Orientation and Growth of SMEs: A Causal Model

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The literature existing on entrepreneurship implicitly assumes that entrepreneurial orientation (EO) and growth orientation are positively related with each other. However, few studies, whether theoretical or empirical, analyze such relation in an explicit manner. Instead, most previous works have focused on the EO-performance relation, even though growth and profitability do not always correlate positively. This work has been carried out on a sample of 434 SMEs, and contributes two novelties with regard to previous research: (1) the analysis focuses on the EO-growth relation; and (2) it uses a flexible method (Partial Least Squares) which allows the study of several simultaneous relationships. The results reveal the complexity of the relationships between EO, strategy, environment, resources and growth.

Introduction

Recent years have brought an increased interest in better understanding the phenomenon of firm growth (Brown, Davidsson, & Wiklund, 2001; Correa, Acosta, González, & Medina, 2003; Littunen & Tohmo, 2003; Delmar, Davidsson, & Gartner, 2003). There are many reasons for this expanding interest. From the economic and social point of view, there is the fact that firms that grow more are the ones that generate more new jobs (Birch, Haggerty, & Parsons, 1994; Littunen & Tohmo, 2003). Also, from the academic point of view, growth constitutes one of the least studied dimensions of performance within the field of management, as compared to other variables such as profitability (Porter, 1980, 1985; Rumelt, 1991).

High growth tends to be associated with a firm's entrepreneurial behavior (Brown et al., 2001; Stevenson & Jarillo, 1990). Thus, growth tends to be considered a logical consequence of innovative, proactive and risk-taking behavior on the part of the firm, as these are the dimensions which define an entrepreneurial orientation (EO). The relationship between the EO of the firm and its performance has been thoroughly investigated, from both a conceptual (Covin & Slevin, 1991; Lumpkin & Dess, 1996) and an empirical

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point of view (Covin & Slevin, 1989; Lumpkin & Dess, 2001; Wiklund & Shepherd, 2005). However, many questions remain unanswered. The existing literature has two important limitations.

First of all, the empirical research undertaken thus far has examined the relationship between EO and firm performance, despite the multidimensionality of the latter concept. The performance averages combine indicators associated with profitability and growth, although both of these dimensions are sometimes contradictory (Delmar et al., 2002). Therefore, it is worthwhile to ask the following question: Is there a positive relation between the firm's EO and its growth? Second, most authors emphasize the complexity of the relations between EO and performance (Wiklund & Shepherd, 2005). Such complexity involves a confluence of direct, mediating, and moderating relations among external and internal dimensions. Thus, the following question arises: Which variables influence such relation? What kind of effect do they have?

This study seeks to take an important step toward an overall understanding of the influence of a firm's EO on its growth, making progress in the two directions discussed earlier. The analysis concentrates only on the study of growth and does not examine other dimensions of firm performance. The design of the research project also attempts to capture the complexity of the phenomenon being studied. Instead of analysis methodologies based on regression, we have used a structural-equations model of an exploratory nature. Said model attempts to integrate, through causal relations, the influence of the environment, firm resources, and firm strategy on the relation between EO and the growth of the firm.

The article is structured as follows: After the introduction is a section that summarizes the most relevant literature upon which the conceptual model and hypotheses are based. Then comes a description of the methodology used in the empirical research. In the following section, the main findings are set forth, with the discussion of such results being left for the sixth section. The article ends with a brief sketch of the implications for scholars and practitioners, the limitations and future lines of research and final conclusions.

Review of Literature, Conceptual Model, and Hypotheses

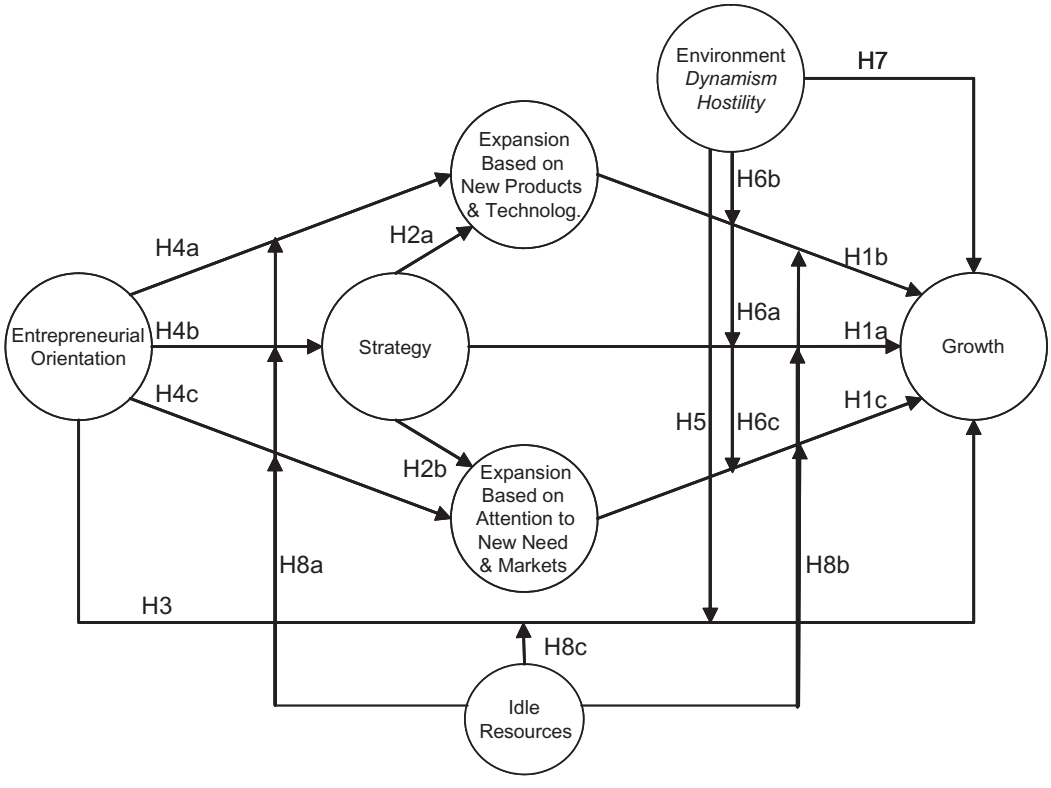
EO and Firm Growth

The literature on the relation between the EO of a firm and performance, although quite extensive, is dominated by two types of work. On the one hand, there are studies that set forth general models describing the nature of said relation, identifying the moderating and mediating variables and attempting to establish wide-reaching propositions (Covin & Slevin, 1991; Dess, Lumpkin, & McGee, 1999; Lumpkin & Dess, 1996). On the other hand, a broad range of studies have attempted to empirically verify partial models of said relation. This line of work incorporates, in an isolated and independent manner, some of the moderating variables, those related either to the environment (Lumpkin & Dess, 2001) or to the firm's internal dimensions (Wiklund & Shepherd, 2005).

Parting from an analysis of both of these lines of research, our work takes on the analysis framework set forth in Figure 1. Such a model, which is of configurational orientation, understands the growth of a firm to be derived from a certain strategic behavior, which is influenced by the degree to which the firm maintains an entrepreneurial style of management. This process of relations is moderated by both external and internal factors.

Figure 1

Conceptual Framework



Strategy and Firm Growth

The few projects undertaken on the role strategy plays in the relation between EO and firm performance have produced quite a confusing situation. This confusion can be attributed to different aspects: (1) the strategy typology used and (2) the type of influence the strategy has on the relation between the EO and performance.

Types of Strategy and Growth. Regarding the first aspect, no consensus exists as to which of the numerous strategy typologies found in the literature is the most appropriate for influencing the relationship between the two dimensions. Thus, various studies use the Porter (1980) typology, which distinguishes between leadership in costs and leadership in differentiation (Dess, Lumpkin, & Covin, 1997; Baum, Locke, & Smith, 2001). However, Durand and Coeurderoy (2001) prefer to use the Miller (1986) typology, a variation of Porter's strategies, which distinguishes between the strategies of differentiation in marketing and differentiation in innovation. But, along with these authors, others working in this field consider entrepreneurial behavior itself to be a strategy (Borch, Huse, & Senneseth, 1999; Covin & Slevin, 1989). In our opinion these typologies are not the most suitable for the case at hand, for the following reasons.

First, the well-known strategies of Porter (1980) and Miller (1986) are business-level strategies and not corporate-level strategies, while decision making on questions of

growth is mainly situated at the corporate level. Second, the strategies of leadership in cost and differentiation are strategies that seek to obtain a sustainable competitive advantage, which will allow the business unit to obtain exceptional levels of profitability. In other words, they are strategies more oriented toward the objective of profitability than toward that of growth.

Compared to these strategy typologies, two others seem to us to be more suited to the objective set for this study. We are referring to the strategic patterns of Miles and Snow (1978) and to the growth strategies of Ansoff (1965). The typology of the former is based upon Child's (1972) vision of strategic choices (the strategic-choice approach), according to which the main decisions made by the directors define the relationship of the organization with its environment. This type of approach can be fully integrated in the literature on the subject of the relationship between EO and performance (Lumpkin & Dess, 1996). Miles and Snow (1978, p. 29) differentiate among four strategic patterns: (1) prospector strategy; (2) defender strategy; (3) analyzer strategy; and (4) reactor strategy.

The other relevant typology, given the aim of this study, is that established by Igor Ansoff (1965), who proposes various types of corporate-level strategies aimed at explaining the growth of the firm. Ansoff (1965) understands corporate strategy to be the set of rules and guidelines for decision making that are concerned with guiding the expansion of the enterprise. Although corporate strategy typically refers to diversification, mergers and acquisitions, alliances, joint ventures, and so forth, it is also associated with the sort of strategic decision that most organizations face when considering the widening of a range of products or services or a move in geographical area (Johnson & Scholles, 1984, p. 9). Corporate strategy is not only applicable to large conglomerates, but it is also useful, when appropriate, to describe the expansion processes in the case of small and medium enterprises (Burgelman, 1984; Gibbons & O'Connor, 2005; Miller & Toulouse, 1986; Mitchell, 1988). Such strategies are based on two different dimensions Ansoff (1965): (1) growth through new products or new technologies; and (2) growth through attention to new needs or new markets.

Type of Influence the Strategy has on The EO–Growth Relation. The second question upon which existing studies do not coincide is the type of influence that the strategy has on the relation between EO and performance. Two alternatives are defended. The first posits that the strategy is a moderating variable (Dess et al., 1997). The second posits that the strategy is a mediating variable (Borch et al., 1999). Our opinion is closer to the second alternative. That is, we believe that the strategy of the firm is an intermediate variable between EO and performance, in the sense that firms with a greater entrepreneurial orientation will tend to develop certain types of strategies and this type of strategy will lead to different rates of growth.

With regard to the strategies of Miles and Snow (1978), we must observe the degree to which each of the four strategic patterns is aimed more at growth as opposed to efficiency (whether this be through profitability, productivity, etc.). Only the prospector strategy is seen to be totally and explicitly devoted to innovation, the search for opportunities and growth, even at the expense of losing efficiency. Next to this strategy is the analyzer strategy, which offers one aspect aimed at efficiency and another at growth. Unlike these two strategies, the defender strategy is absolutely centered on the optimization of resources in a stable environment. Finally, the reactor strategy does not aim at a defined objective, it being difficult to identify any connection whatsoever between it and performance. Thus prospector firms are the only ones that pursue growth in a direct way.

The work of Ansoff (1965) suggests that strategies involving the development of new products or technological processes and/or those aimed at the satisfaction of new needs and markets are more risk-taking than the others, so the strategy of market penetration becomes the safest option as compared to diversification, the most risk-taking alternative. Therefore, firms that want to grow at an exceptional rate (higher than the average growth of the firms of the same sector) will tend to escape or broaden the traditional product–market sphere, through expansion via development of new products–technologies or via attending to new needs–markets, or both at the same time (diversification). We propose the following hypothesis:

Hypothesis 1: There will be a relation between the growth of the firm and the type of strategy used. This hypothesis can be divided into three subhypotheses:

Hypothesis 1a: The growth of the firm will be greater when the dominant strategic pattern is prospector.
Hypothesis 1b: The growth of the firm will be greater when the degree of development of new products–technologies is greater.
Hypothesis 1c: The growth of the firm will be greater when the degree of attention to new needs–markets is greater.

But if we want to complete the relations among the variables set forth, we cannot ignore the relation between the strategic patterns proposed by Miles and Snow (1978) and the growth strategies of Ansoff (1965). On this matter, Miles and Snow (1978) state that prospector firms will tend to grow through product-development and market-development strategies, defender firms will prefer to grow through the strategy of market penetration and, finally, analyzer firms will tend to balance both types of growth strategies. To summarize:

Hypothesis 2a: The degree of expansion through the launching of new products–technologies will be very high in the case of prospector firms, moderate in the case of analyzer firms, and low in the case of defender firms.
Hypothesis 2b: The degree of expansion through the attention to new needs–markets will be very high in the case of prospector firms, moderate in the case of analyzer firms, and low in the case of defender firms.

EO, Strategy and Firm Growth

Covin and Slevin (1991) describe entrepreneurial firms as firms with strategies oriented toward innovation and growth through their capacity to assume relevant risks. But it is the studies based on the work of Stevenson (1983) that have most supported this thesis. Indeed, in later studies, Stevenson connects orientation toward growth to the entrepreneurial culture of the firm (Stevenson & Jarillo, 1986, 1990). More recently, Brown et al. (2001) propose that one of the defining dimensions of a firm's entrepreneurial management is precisely its orientation toward growth. According to this conception, then, the search for rapid growth is another dimension of entrepreneurial behavior (Brown et al., 2001), or is closely linked to the other dimensions (Borch et al., 1999; Covin & Slevin, 1991). Following this reasoning, we propose:

Hypothesis 3: There will be a positive relation between the entrepreneurial orientation of the firm and the firm's rate of growth.

However, most of the theoretical and empirical proposals tend to consider the relation between the two dimensions mentioned to be indirect (Baum et al., 2001; Covin & Slevin,

1989; Lumpkin & Dess, 1996). Thus, the positive relation between EO and growth can be mediated by the strategic behavior of the firm (Borch et al., 1999). The more entrepreneurial firms will tend to engage in strategies oriented toward growing, while nonentrepreneurial firms will opt for strategies more focused on the maximization of efficiency in their operations (Stevenson & Jarillo, 1990); Brown et al., 2001).

Miller (1983) views an entrepreneurial firm as 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). These conceptualizations of entrepreneurship are close to the definition of Miles and Snow in relation to the prospector strategic pattern (Miles & Snow, 1978). These firms are oriented toward change; they create new environments and generate uncertainty (Miles & Snow, 1978).

With regard to Ansoff's (1965) strategies, Lumpkin and Dess (1996) propose that entrepreneurial firms are quick to identify opportunities derived from technological development and, if we add proactiveness to this propensity for innovation, they will also be likely to exploit this type of opportunity through the design and marketing of new products, even though this behavior involves a certain degree of risk. Different empirical studies have underlined the importance of innovativeness in the area of marketing when it comes to correctly understanding the nature of entrepreneurial behavior (Smart & Conant, 1994). Similarly, Miles and Arnold (1991) found a positive correlation between market orientation and entrepreneurial orientation. Therefore:

Hypothesis 4: There will be a relationship between the entrepreneurial orientation of the firm and the type of strategy used. This hypothesis can be divided into three subhypotheses:

Hypothesis 4a: The greater the firm's entrepreneurial orientation, the more likely it will be to engage in a prospector strategy.
Hypothesis 4b: The greater the firm's entrepreneurial orientation, the greater will be the degree of launching of new products–technologies.
Hypothesis 4c: The greater the firm's entrepreneurial orientation, the greater will be the degree of attention to new needs–markets.

The Influence of The Environment

Most of the research suggests that the environment moderates the relation between EO and firm performance. Two dimensions are commonly used (Zahra and Garvis, 2000; Lumpkin & Dess, 2001; Wiklund & Shepherd, 2005): dynamism and hostility.

As for the dynamism of the environment, the most usual argument is that the influence of EO on performance becomes more intense when the firm acts in a dynamic environment. Lumpkin and Dess (2001) show that in this type of environment, firms that behave more proactively and aggressively will achieve better performance. In the case of hostility, various studies argue that entrepreneurial behavior constitutes a good alternative for small and medium enterprises when they face hostile environments (Covin & Slevin, 1989; Miller & Friesen, 1983; Miller, 1983). Summing up the arguments set forth we can make the following hypothesis:

Hypothesis 5: The dynamism and hostility of the environment will moderate the relation between entrepreneurial orientation and the growth of the firm, in such a way that the firm's entrepreneurial orientation will have a more intense influence on growth when the firm moves in a dynamic and/or hostile environment.

Wiklund and Shepherd (2005) defend the idea that the dimensions of the environment will also influence the relations between the firm's strategy and growth. This is a matter of maintaining the contingent or configurational logic according to which the environment is a moderating variable between strategy and performance (Eisenhardt, 1989; Hough & White, 2003). Thus, with regard to the strategic patterns of Miles and Snow (1978), better performance can be expected from those firms that decide to use a prospector strategy when they are acting in dynamic and hostile environments. Similarly, in stable and benign sectors, where it is easy to predict the competitive dynamics, technological development, consumption patterns, and so on, a prospector strategy has fewer chances of being successful. In stable and benign environments, defender and analyzer strategies seem to be more appropriate, in order to maximize efficiency in operations and to obtain gradual growth. On the other hand, in dynamic and hostile environments, the opportunities that can be derived from the development of new products and technologies and from access to new markets are much greater. This type of environment makes a good framework for carrying out radical and strategic innovations, in accordance with the life-cycle models of the sectors (Porter, 1985). Summing up these suggestions, we propose the following general hypothesis:

Hypothesis 6: The dynamism and hostility of the environment will moderate the relationship between strategy and firm growth. This hypothesis can be divided into three subhypotheses:

Hypothesis 6a: The use of a prospector strategy will have a more intense influence on growth when the environment is more dynamic and hostile.

Hypothesis 6b: The development of new products–technologies will have a more intense influence on growth when the environment is more dynamic and hostile.

Hypothesis 6c: The attention to new needs–markets will have a more intense influence on growth when the environment is more dynamic and hostile.

Finally, we must incorporate the possible direct and independent influence of the environment on firm growth. Lumpkin and Dess (1996) highlight the existence of this type of influence, without underestimating the moderating influence described earlier. Baum et al. (2001) propose that firm growth will tend to be greater when the firm moves in stable, simple, and benign environments. For this reason we believe the corresponding hypothesis should be set forth as follows:

Hypothesis 7: There will be a negative relation between the dynamism and hostility of the environment in which the firm moves and its rate of growth in a certain period of time.

The Availability of Resources

The configuration of the resources existing at a given time affects the perceptions of managers and the speed of growth (Wernerfelt, 1984). The quantity and type of resources, assets, capabilities, routines, and knowledge controlled by a firm become an essential factor explaining firm growth (Barney, 1991). Recent studies have updated and revitalized the original approach of Penrose (Borch et al., 1999; Pettus, 2001; Baum et al., 2001).

According to Penrose (1959), firm growth is a result of the existence of idle resources, those not used by the firm. These resources exist mainly because it is impossible to acquire

them in the exact amount needed, given their indivisibility. Some recent studies on the relation between EO and performance or on the phenomenon of firm growth, have incorporated, albeit in a sporadic and isolated fashion, variables to represent resources and capabilities. Thus, in connection with resources, Borch et al. (1999) incorporate various types of resources as explanatory variables, along with entrepreneurial and strategic behavior and the firm's results. Finally, the recent study published by Wiklund and Shepherd (2005) is perhaps the first that specifically introduces access to financial resources as a moderating variable relevant to the relation between EO and results. In our model, the availability of resources will act as a moderator of three different relations: (1) the relations between EO and firm strategies; (2) the relations between strategies and growth; and (3) the relation between EO and growth.

Covin and Slevin (1991) affirm that entrepreneurial behavior requires the consumption of large quantities of resources, so having access to these resources should facilitate the use of strategies derived from entrepreneurial behavior (Wiklund & Shepherd, 2005). In addition, the availability of resources will increase the likelihood that said strategies will be put into practice in better conditions. That is, the success of a certain strategy will also depend on the amount of unused resources available to the organization (Covin & Slevin, 1991).

In short, we can summarize the arguments set forth earlier by saying that the availability of financial resources will moderate the relations between entrepreneurial orientation and growth, between entrepreneurial orientation and strategy, and between strategy and growth. With this idea as a starting point, we propose the following three hypotheses:

Hypothesis 8a: The availability of resources will moderate the EO–firm strategies relation, in such a way that the availability of resources will allow the most entrepreneurial firms to make more intense use of a prospector strategy, of strategies involving the development of new products–technologies, and of the strategy of attending to new needs–markets.

Hypothesis 8b: The availability of resources will moderate the strategy–firm growth relation, in such a way that it will allow firms engaged in a prospector strategy and in strategies aimed at the development of new products–technologies and at attending to new needs–markets to obtain higher growth rates.

Hypothesis 8c: The availability of resources will moderate the EO–firm growth relation, in such a way that the availability of resources will allow the most entrepreneurial firms to obtain higher growth rates.

Methodology

Sample

The sample was obtained from a public database—Centra—that includes the economic and financial information of more than 4,735 Spanish firms throughout the last 4 years (1998–2001). This database was previously refined in order to make data more homogeneous. In the refinement process firms were eliminated if there was a lack of information relevant to the study (sales volume during the period, name of general director, address, etc.). Also, we excluded firms that could be considered large.[1] This

1. The figure of six million euros was chosen as the cut-off point because this was the figure used by our data source as the threshold between medium and small-sized enterprises.

Table 1

Description of the Sample

	No. firms	Percentage
Size of firms (employees)		
More than 100 employees	14	3.23
Between 26 and 100 employees	37	8.53
Between 26 and 50 employees	119	27.42
Between 11 and 25 employees	170	39.17
10 employees or less	94	21.66
Age of firms (years)		
More than 50 years	15	3.46
Between 26 and 50 years	55	12.67
Between 16 and 25 years	88	20.28
Between 11 and 15 years	76	17.51
Between 6 and 10 years	104	23.96
5 years or less	96	22.12
Sector		
Agriculture	12	2.76
Industry	142	32.72
Building	52	11.98
Service sector	228	52.53
Total	434	100

source is the largest database of companies in Andalusia (the "*Central de Balances de Andalucía*"), that it is a database developed by the regional government and contains financial and economic information on both public and private companies; the vast majority of which are unquoted, private companies. The information held in the Central de Balances is taken from the registers in which all companies are obliged to enter their annual accounts every year.

After this process the number of firms was 4.330. Once the database was refined, a postal questionnaire was sent to the highest-ranking director of the firm. A total of 446 questionnaires were received, which represents a response rate of 10.3% and is a typical figure for this type of research (Baum et al., 2001); Zahra and Garvis, 2000; Wiklund and Shepherd, 2005). Subsequently, 12 questionnaires were eliminated because they were not complete, so the final sample being thus comprised of 434 firms.[2] Table 1 summarizes the main characteristics of the firms surveyed. It uses enterprises with an average of 30.5 employees and an average age of 15.9 years, and the average annual growth rate is 15.7%. Finally, we note that the sample is balanced by sector, with a slight predominance of enterprises belonging to the service sector.

Variables

Firm Growth. To measure firm growth we have used two different indicators, combining subjective and objective measures, according to the recommendation of

2. There were no significant differences between the final sample and the population in relation to sectorial distribution, sales, assets, and number of employees.

Weinzimmer et al. (1998). The first of these (Grow-Sub), measures growth by considering the perceptions of the firm's director and is thus a subjective indicator. We asked the director of the firm what the firm's rate of growth had been during the last 4 years compared to other firms in the sector, using a seven-point Likert-scale. Along with this variable, we have used a second indicator (Grow-Ind), objective in this case, using information from the firms' annual accounts. This indicator has been measured first by calculating the percentage of growth in sales for each company between 1998 and 2001, in accordance with previous studies (Delmar et al., 2003).[3] We have calculated the difference between the rate of growth in sales experienced by the firm in the past 4 years and the median of growth in its respective sector. This second indicator has been called "Grow-Obj". Both indicators—Grow-Sub and Grow-Obj—are a formative part of the final endogenous construct of the (Growth) model. Finally, in order to homogenize the scales, the latter variable has been recoded in an interval scale with seven levels.

Entrepreneurial Orientation of the Firm. With respect to entrepreneurial orientation, we have utilized a questionnaire used in various previous research projects (Lumpkin & Dess, 2001; Lumpkin, 1998). The EO dimensions of innovativeness, risk taking and proactiveness were measured using a scale developed by Lumpkin (1998) based on the scales developed and tested for reliability by Khandwalla (1977), Miller and Friesen (1983), Covin and Slevin (1989), and Covin and Covin (1990). Lumpkin adds four new items to these earlier scales: two innovativeness items, one risk-taking item, and one proactiveness item. These new items are as follows: Innov4: "my firm prefers to design its own unique new processes and methods of production," versus "my firm prefers to adapt for our own use methods and techniques that others have developed and proven"; Innov5: "in general, the top managers of my firms favor experimentation and original approaches to problem solving," versus "imitating methods other firms have used for solving their problems"; Rsk3: "in general, the top managers of my firm prefer to study a problem thoroughly before deploying resources to solve it," versus "are quick to spend money on potential solutions if problems are holding us back"; and Prc3: "the top managers of my firm have a strong tendency to 'follow the leader' in introducing new products or ideas," versus "a strong tendency to be ahead of other competitors in introducing novel ideas or products." Like other questionnaires used in similar studies (Mustakallio & Autio, 2002; Wiklund & Shepherd, 2005; Wiklund, 1999), the method of semantic differentials was used in the questions. In other words, the persons surveyed were offered two opposite phrases, and they rated their orientation on the matter on a Likert scale from 1 to 7.

Strategy of the Firm. In connection with Miles and Snow's (1978) strategic patterns, we used "paragraph" type descriptions of each of the four strategies—defender, prospector, analyzer, and reactor—and asked the director to classify the firm according to the similarity of the description and the firm's behavior (Snow and Hrebiniak, 1980; Segev, 1987; Zahra, 1987). The responses of the persons surveyed were tabulated using three dummy variables.

3. The use of a single indicator instead of a multiple measure is appropriate in the case of high correlation between measures (Delmar et al., 2003). In this case all the correlation between sales growth, assets growth, and employment growth was over 0.5 and significant ($p > .001$).

As for Ansoff's (1965) growth strategies, two strategies, not mutually exclusive, have been considered, corresponding to the two axes of the growth matrix. The first dimension consists of expansion through the development of new products and technologies. This strategy was measured by means of three indicators measured in a Likert scale with 7 points. Each of them measures the degree to which the firm has engaged in recent years in three types of behaviors: *GrowPrd1* (development and launching of new products/services); *GrowPrd2* (development of new processes); and *GrowPrd3* (incorporation of new business activities). On the other hand, the strategy of growth through attention to new needs or new markets has been measured with two items: *GrowMrk1* (geographical expansion in the national market); and *GrowMrk2* (geographical expansion in the international market).

Environment (Hostility and Dynamism). For the two environmental dimensions included in the analysis (hostility and dynamism), we have used a total of eight indicators, all used in previous studies (Lumpkin & Dess, 2001; Lumpkin, 1998). As with the indicators described previously, the type of question used was semantic differentials, with a Likert scale of seven points.

Resources and Capabilities. With respect to resources, we have differentiated between unused physical resources and financial resources. The first have been measured by looking at the turnover or rotation of the firm's assets (sales divided by total assets), considering that the turnover reflects the degree of efficiency with which a firm's assets are used. However, rotation is an indicator that can be influenced by the firm's sector of activity. For this reason we have relativized the indicator for each firm, by subtracting from it the value corresponding to the median turnover of the firms in the same sector. As an indicator of the unused physical resources we have used the variable: *Rot-Ind*: difference between firm's turnover and the median turnover in that sector.

For financial resources, we have used two ratios related to the availability of the firm's financial resources. These indicators are: (1) solvency *(Solv)*: This measures the capacity of the firm to meet all of its debt obligations. It is determined by dividing total assets by borrowed resources; and (2) immediate liquidity *(InmLiq)*: This measures the capacity of the firm to meet its most immediate payment obligations. It is the quotient of available assets plus receivables divided by current liability.

Statistical Tool

The statistical tool used to test the model and the hypotheses proposed is the multivariate analysis technique partial least squares (PLS). PLS is a causal-predictive method of analysis in which the problems explored are complex and the theoretical knowledge about them is limited (Wold, 1985; Chin, 1998b). PLS, as a Structural Equation Model—SEM—is a second-generation technique which has overcome some of the principal limitations of first-generation techniques, such as regression-based approaches (e.g., multiple regression analysis, discriminant analysis, logistic regression, analysis of variant), and factor or cluster analysis (Haenlein & Kaplan, 2004, pp. 283–284): (1) the postulation of a simple model structure (at least in the case of regression analysis); (2) the assumption that all variables can be considered as observable; and (3) the conjecture that all variables are measures without error. PLS allows the simultaneous modeling of relationships among multiple independent and dependent constructs and enables the researcher to construct unobservable variables measured by indicators (items).

Along with first order constructs, the model proposed includes second order constructs—entrepreneurial orientation, resources, and environment—and also constructs representative of the effects in interaction (Chin, Marcolin, & Newsted, 2003). For this reason, the process of model estimation has required two stages. In the first stage, using the method of hierarchical components, the complete model was estimated utilizing only the first-order constructs. Subsequently, in the second stage, we created the constructs representative of the effects in interaction, the items of which are obtained through the product of the items corresponding to the constructs involved in the interaction effect, once standardized (Chin et al., 2003).

Findings and Discussion

Measurement and Structural Model

The analysis and interpretation of a PLS model is a two-staged process: First, we must analyze the assessment of the reliability and validity of the measurement model and, secondly, the assessment of the structural model must be observed (Barclay, Higgins, & Thompson, 1995). In order to improve the construction process of the initial model, the first step consisted of analyzing the constructs of a reflective nature, through the reliability of scales analysis (Cronbach's alpha). With respect to entrepreneurial orientation, the preliminary analysis revealed certain weaknesses in the internal reliability of the three dimensions comprising it. We therefore undertook an analysis of principal components. With respect to entrepreneurial orientation, the preliminary analysis revealed certain weaknesses in the internal reliability of the three dimensions comprising it. We therefore undertook an analysis of principal components. The results suggested that the first construct be divided into two in a way similar to that described by Lumpkin (1998) and Lumpkin and Dess (2001): the first construct related to product innovations, which integrate items innov2 (measure of the number of new lines of products or services) and innov3 (measure of the nature of changes in product or services lines—minor nature versus dramatic), and the second related to process innovations, which is integrated by innov1 (related to the marketing versus R&D emphasis of top managers) and innov4 (measure of managers' preference to design their own unique new processes, versus to adapt processes that others have developed). In addition, two items were eliminated. The first item was the innovativeness construct (innov5: Top managers of my firms favor experimentation and original approaches to problem solving, versus imitating methods other firms have used for solving their problems), and the second item was proactivity (proac1: my firm typically responds to action which competitors initiate, versus typically initiates actions which competitors then respond to). The reliability analysis performed on the dynamism and hostility of the environment recommended the elimination of three items, two related to dynamism (and the third to hostility).

In the rest of the constructs, because they are of the formative type, it was only necessary to analyze the variance inflation factor (VIF), in order to confirm that there was no colinearity between the different indicators. In all cases, the values remained below the recommended maximum value, which is around 5 (Kleinbaum et al., 1998). The main parameters corresponding to the measurement model appear in Table 2.

The table describes, first, the loadings (reflective items) and weights (formative items) of each of the items in order to analyze their individual reliability. Second, the reliability of the reflective constructs is represented, by means of the composite reliability, the value of which must be higher than 0.7 (Fornell & Lacker, 1981). Third, it includes the convergent validity of these latent variables, measured using the Average Variance

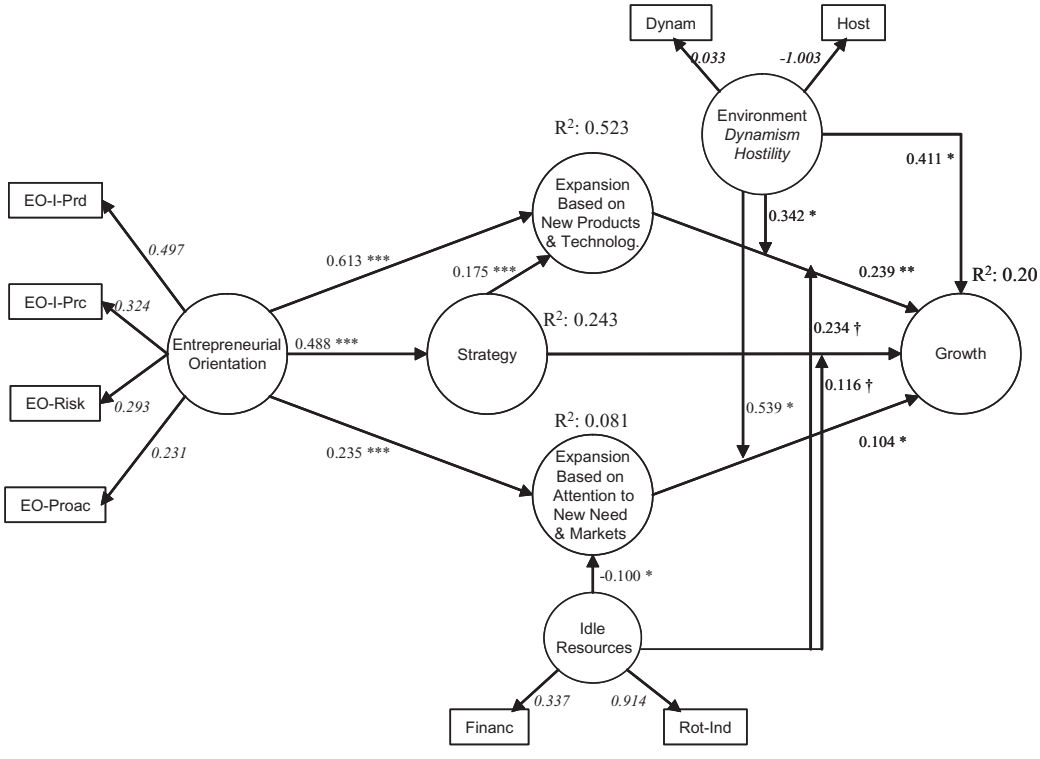
Table 2

Parameters of the Model

Construct	Weight	VIF	Loading	Composite reliability (CR)	Average variance extracted (AVE)
Latent variables of 1st model					
EO-I-Prd				.903	.827
Ipt1			.9075		
Ipt2			.9071		
EO-I-Prc				.796	.661
Ipr1			.7964		
Ipr2			.8293		
EO-Risk				.824	.610
Rsk1			.7214		
Rsk2			.7791		
Rsk3			.8375		
EO-Proac				.935	.877
Prc1			.9448		
Prc2			.9285		
Env-Dynam				.754	.608
Dyn1			.8689		
Dyn2			.6795		
Env-Host				.771	.632
Host1			.9039		
Host2			.6689		
FINANZ					
Solv	.5960	1.291			
Inmliq	.7810	1.102			
Latent variables of final model					
Rot-Ind					
Growth					
Grow-Sub	.8090				
Grow-Ind	.4672				
Strat-Pattern					
Est-Atac	.2642				
Est-Def	−.9952				
Est-Ana	−.3745				
Strat-Prdt					
GrowPrd1	.6727				
GrowPrd2	.2836				
GrowPrd3	.2215				
Strat-Mrk					
GrowMrk1	.8423				
GrowMrk2	.3265				
OE					
EO-I-Prd	.4967				
EO-I-Prc	.3241				
EO-Risk	.2903				
EO-Proac	.2311				
Environment					
Env-Dynam	.0329				
Env-Host	−1.0030				
Resources					
Financial	.3370				
Rot-Ind	.9114				

Figure 2

Contrasted Model



Extracted (AVE), which must be higher than 0.5 (Fornell & Lacker, 1981). And, finally, the discriminant validity must be analyzed, which measures whether the constructs are really different. For this purpose, AVE should be greater than the variant shared between one construct and other construct in the model. For adequate discriminant validity, the diagonal elements should be significantly greater than the off-diagonal elements in the corresponding rows and columns (Barclay et al., 1995). All of our constructs satisfy this condition. Once the measurement model had been analyzed and the new second order constructs generated, the new constructs representative of the moderating effects of the environment and resources were created. Once they were generated, the complete model was estimated again.

All structural models attempt to respond to two basic questions (Falk & Miller, 1992): (1) what amount of the variance of the endogenous variables can be explained by the latent variables that predict it; and (2) to what extent do the predictive variables contribute to the variance explained of the endogenous variables. To answer to both of these questions, two basic indicators are usually used: R^2 and the standardized path coefficients, β.

As a measure of the predictive power, the R^2 can be interpreted in the same way as those obtained in a multiple regression analysis. On this matter, Falk and Miller (1992) establish that suitable values are those that are equal to or greater than 0.1. Figure 2 shows the variance explained (R^2) in the dependent constructs and the path coefficients (β) for

Table 3

Hypotheses and Results

Hypothesis	Relationship	Conclusion	Commentaries
H1	Strategy—growth	Partially confirmed	Confirmed as to the influence of Ansoff's (1965) strategies. The relation between the prospector strategy (Miles and Snow, 1978) and growth is not significant.
H2	Miles and Snow's (1978) strategies—Ansoff's (1965) strategies	Partially confirmed	Miles and Snow's (1978) prospector strategy influences the product-technology expansion strategy, although the relation with the market expansion strategy is not significant.
H3	EO—growth	Not confirmed	The direct influence between both variables is not significant.
H4	EO—strategies	Confirmed	The relations are significant in the proposed direction.
H5	Environment moderating of the EO—growth relation	Not confirmed	The relations are not significant.
H6	Environment moderating of the strategy—growth relation	Partially confirmed	The relations are significant in the proposed direction for dynamism and in the opposed direction for hostility.
H7	Environment—growth	Confirmed	The relation is significant in the proposed direction.
H8a	Resources as EO—strategy moderating	Not confirmed	The relations are not significant.
H8b	Resources as strategy—growth moderating	Partially confirmed	The relations are slightly significant with regard to two of the three strategy-related variables (prospector strategy and product expansion strategy), but not to the third one (market expansion).
H8c	Resources as EO—growth moderating	Not confirmed	The relations are not significant.

the model. Consistent with Chin (1998a) bootstrapping (1,000 resamples) was used to generate standard errors and *t*-statistics. By using this technique, it is possible to estimate the standard error and *t* values of the parameters. In line with the recommendations of Davidson and MacKinnon (2000), we have applied a total of 1,000 resamples.

The data show that, of the four endogenous constructs, three reach the level of 0.1. Of all of them, the maximum predictive power corresponds to the degree to which the firm engages in a strategy of expansion based on the development of new products–technologies ($R^2 = 52.81\%$). The variance explained of firm growth is 20%. Chin (1998a) establishes that standardized path coefficients must take on a value of at least 0.2 to be considered significant. Thus, of the twelve relations that are shown to be significant (to a greater or lesser extent), eight reach this threshold. Table 3 summarizes the relation between the results obtained and the hypotheses proposed in the third section.

Findings

The results reveal, first of all, that firm growth is explained by the use of strategies of expansion through new products and markets, in accordance with hypothesis 1. However, the influence on growth is much more intense when a strategy of expansion through new product–technologies is used (hypothesis 1b) than when a strategy of market expansion is used (hypothesis 1c). As for Miles and Snow's (1978) prospector strategy, although the coefficient of the relationship is consistent with the one proposed in the conceptual model, the results are not significant, because hypothesis 1a cannot be confirmed.

On the other hand, only one of the two suggested relationships between the Miles and Snow (1978) and Ansoff (1965) typologies of strategy is significant. Results confirm hypothesis 2a, such that those firms that develop prospector strategic behavior demonstrate a greater degree of expansion through the launching of new products–technologies ($\beta = .175$, $p < 0.001$). Nevertheless, the relationship proposed in hypothesis 2b, between the degree of expansion through the attention to new needs–markets and the typology of strategies of Miles and Snow (1978) could not be confirmed in the structural model.

Similarly, the direct influence between EO and firm growth is not significant, because hypothesis 3 cannot be confirmed. This result underlines the complexity of the relationships between the constructs examined in the model, because the literature on enterprising behavior tends to assume that this behavior pursues growth, either implicitly or explicitly, compared to other behaviors more oriented toward profitability. Nevertheless, the structural equation model, while it supports this idea, suggests the relationship is not direct but indirect, via the mediating and moderating role of other variables such as strategy, the environment, or resources of the firm.

A greater EO favors the use of strategies aimed at expansion Ansoff (1965), as hypothesis 4 proposed, especially through product and process innovations (hypothesis 4b) and, to a lesser extent, through entry into new markets (hypothesis 4c). Similarly, the EO promotes a prospector strategic behavior (Miles & Snow, 1978), in accordance with hypothesis 4a, which in turn reinforces the strategy of expansion based on the launching of new products–technologies.

At this point we can analyze the influence of the environment as perceived by the firm. First of all, results do not confirm hypothesis 5, which proposes that the environment moderates the relationship between EO and firm growth. Nevertheless, the results show that firm growth is favored in dynamic environments that are not very hostile. Furthermore this influence is both direct and indirect, moderating the influence of growth strategies Ansoff (1965) on growth. Hypothesis 7 therefore proposed a direct link between dynamism and environmental hostility and firm growth, a relationship that is seen to be significant in the model ($\beta = 0.411$, $p < .01$). Hypothesis 6 also proposed that the dynamism and hostility of the environment will moderate the relationship between strategy and firm growth. In this case, the results are significant with respect to their moderating role on the relationship between Ansoff's strategies and growth. So, in a more dynamic and hostile environment, strategies of expansion through new products and markets give rise to higher rates of growth (hypothesis 6b confirmed with $\beta = .342$ and $p < .01$). Likewise, in this environment type, expansion strategies based on attention to new needs and markets allow greater growth rates to be achieved (hypothesis 6b confirmed with $\beta = .539$ and $p < 0.01$). It can also be observed that the direction of influence is the same both when the relationship is directly on growth and when the environment moderates the relationships between the strategies and the growth of the firm.

Finally, the firm's resources exert two types of influence on the model: direct and moderating. First, the availability of resources has an effect on the strategy of market expansion. The findings show that the availability of financial resources and the level of turnover of its assets (scarcity of unused resources) negatively influence the use of a market expansion strategy. Second, the availability of resources also moderates the relationship between two of the types of strategic behavior and growth. But in this case the influence is of the opposite nature. In other words, the prospector strategy and the strategy of expansion through new products–technologies affect growth more when the firm has a greater asset turnover (scarcity of unused resources) and a greater availability of financial resources (hypothesis 8a, partially confirmed). The influence of these types of strategic behaviors on growth is favored by the firm's capacity to optimize its resources (assets) and

by a sufficiently strong financial situation. The availability of financial resources, while it does not seem to be a necessary condition for the development of these types of strategic behaviors, does have an effect on the results, which may derive from it (growth). Also, the capacity of the firm to optimize the use of its assets improves the results of those firms that engage in prospector strategies and strategies based on product or process innovation. Nevertheless, results related to hypothesis 8a, which proposed the moderating role of resources on the relationship between EO and firm strategies, and results related to hypothesis 8c, which proposed that resources moderate the relationship between EO and firm growth, were not significant, so these two hypotheses could not be confirmed.

Discussion

In short, we can point out that, generally considered, the model supports the central idea of preceding studies on the positive relationship between EO and firm performance, in our case, measured through growth (Covin & Slevin, 1989; Naman & Slevin, 1993; Zahra & Covin, 1995; Dess, Lumpkin, & Covin, 1997; Wiklund & Shepherd, 2005). The model supports the contingent ideas set forth regarding the relation between the EO and a firm's growth. However, as Lumpkin and Dess (1996) noted, the model incorporates different types of effects in explaining the relations among the different variables (independent effects, mediating effects and effects in interaction).

So, for example, the firm's environment influences, directly and in interaction with, the type of strategy used by the firm, while the type of strategic behavior shows itself to be an intermediate variable between entrepreneurial orientation and growth, in line with the work of Baum et al. (2001). In contrast, our research fully supports the moderating and independent influence of the characteristics of the environment (Covin & Slevin, 1990; Lumpkin & Dess, 2001; Wiklund & Shepherd, 2005). However, when the performance variable considered is firm growth, the availability of unused physical and financial resources constitutes a relevant explanatory factor, as set forth in various studies undertaken from the perspective of the Theory of Resources and Capabilities (Penrose, 1959; Pettus, 2001).

Finally, since Lumpkin and Dess' (1996) work, various authors have defended the multidimensionality of EO and the independence of the dimensions comprising it (Lumpkin & Dess, 2001; Lumpkin, 1998). The results of our work clearly support this idea. Furthermore, to increase our certainty, once the second order construct "entrepreneurial orientation (EO)" was generated, we tried including each one of the first-order variables, corresponding to the four dimensions that define it, as reflective indicators. In consequence, in the final model, we considered the EO construct, of second order, to be of a formative nature. Additionally, we can confirm that the weights of the four indicators are quite different from one another when explaining their influence on firm growth, being higher in the case of propensity for innovation than in the case of proactiveness or propensity for risk taking. We can therefore say that it is the first dimension of entrepreneurial orientation that most promotes the use of strategies aimed at growth.

Conclusions

This research has analyzed the relation between EO and firm growth. Based on the literature developed in the field of Entrepreneurship and on the Theory of Resources and Capabilities, a contingent model has been proposed in which EO affects growth through

the strategic behavior (mediating variable). These relations are moderated by the external context (dynamism and hostility in the environment) and the internal context (resources). The model has been estimated using PLS, on a sample of 434 SMEs.

The results make it clear that EO and growth are positively related, although their relationship is complex. The propensity for innovation is the dimension of EO that exercises the greatest influence on the type of expansion strategy used by the firm, encouraging the development of new products–technologies through a prospector-strategic behavior. These strategic behaviors are the principal driving force behind growth. But along with them, the conditions of the environment (highly dynamic and not very hostile) and the availability of resources favor the rapid growth of the firm. However, the direction of the influence of resources on growth depends on the nature of such resources (financial versus nonfinancial) and on the type of relationship being considered (direct versus moderating).

This study contains two important novelties with regard to previous research projects. The first consists of narrowing the sphere of the variable to be explained, focusing the analysis on growth (as opposed to performance). In this way, the relations identified gain in clarity, because growth is not necessarily correlated with other dimensions of performance (e.g., profitability). The second is related to the methodology used. We have used a causal-predictive model of structural equations, namely PLS. This technique has made it possible to analyze the phenomenon in all of its complexity, in accordance with the configurational approach (Wiklund & Shepherd, 2005), incorporating direct, mediating, and moderating relations simultaneously (Lumpkin & Dess, 1996).

Nonetheless, the research does have some limitations. First, despite the complexity of the model, we believe it is necessary to consider additional dimensions, such as those related to the environment and to the firm's capabilities. Similarly, in order to maintain an acceptable level of parsimony, we have not included any control variable, such as size, the age of the firm or its sector of activity, in the model. The use of a single respondent is a third limitation of the study. And, finally, although PLS is a good tool for complex models in which the theory is not sufficiently developed, we are aware of the exploratory and predictive nature of the technique, as opposed to other tools of a confirmatory type (LISREL, AMOS, etc.).

These limitations represent, in any case, opportunities to advance in our efforts to better understand the relation between EO and growth. So, in the first place, it would be interesting to incorporate into the model variables related to capabilities, especially management capabilities (Pettus, 2001; Castanias & Helfat, 2001). Second, this model could be replicated, replacing the final variable with other indicators of performance, such as profitability. It would then be possible to check to what extent the EO affects the various types of firm performance in different ways.

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