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Competitive strategy, structure and firm performance

A comparison of the resource-based view and the contingency approach

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Abstract

Purpose – Decisions about the design of the organization and the competitive strategy of a firm are very important in order to gain competitive advantage and to improve firm performance. The relationship between organizational structure, competitive strategy, and firm performance has usually been analyzed using the contingency approach. The objective of this paper is to extend the relevant empirical literature of the strategy-structure-performance paradigm by comparing the resource-based view (RBV) with contingency theory. To that end, the paper seeks to examine how organizational structure affects firm performance, taking into account the relationship with competitive strategy.

Design/methodology/approach – A sample of large Spanish firms was studied using the partial least squares (PLS) technique.

Findings – The results support both the RBV and the contingency approach, but the RBV is more strongly supported. The findings show that organizational structure does not exert a direct influence on performance, but has an indirect influence through competitive strategy.

Research limitations/implications – The findings are limited to large firms. Therefore, they cannot be generalized to smaller companies. In addition, the use of opinion scales gives the study a subjective character. However, in this respect, most of the characteristics of organizational structure and competitive strategy are difficult to measure with objective data.

Originality/value – Researchers have studied the relationship between strategy and structure for a long time based on contingency theory. This study provides an alternative formulation for organizational design theory, based on the RBV, which makes it possible to reframe the relationships between strategy and structure by analyzing the organizational structure as a valuable resource and a source of competitive advantage.

Keywords Competitive strategy, Organizational structures, Organizational performance, Contingency planning

Paper type Research paper

Introduction

Decisions about the design of the organization and the competitive strategy of a firm are very important in order to gain competitive advantage and to improve firm performance. Researchers have studied the relationship between strategy, and structure, for a long time, based on contingency theory (Chandler, 1962). This approach suggests that the optimal organizational design is contingent on strategy, among other factors. However, there are still some gaps in our understanding of strategy-structure-performance relationships, which need to be addressed.

First, most of the theoretical knowledge in this area is decades old and environmental conditions have changed since Chandler (1962) arrived to the conclusion

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that structure follows strategy. Modern enterprises operate in rapidly changing environments that are hypercompetitive and turbulent (Volberda, 1996), where customer preferences are volatile, and technology is transforming scenarios (Galan and Sanchez-Bueno, 2009). In this context, the resource-based view (RBV) may explain the sources of sustainable competitive advantage better than an externally focused orientation. The definition of a business in terms of internal resources and what it is capable of doing may offer a more durable basis for strategy than a definition based on the needs which the business seeks to satisfy (Grant, 1991). Following the contingency approach, some studies have demonstrated that the external environment and strategic decisions influence the characteristics of organizational structure, in order to implement strategies successfully (Burns and Stalker, 1961; Chandler, 1962; Okumus, 2003). However, the RBV emphasizes the internal attributes and allows researchers to reframe the relationships between strategy and structure by analyzing the organizational structure as a valuable resource and a source of competitive advantage. Apart from being an element in the implementation of a firm's strategy, organizational structure may also be an important source of competitive advantage. This issue has not been addressed in recent research.

Second, previous studies (Chandler, 1962; Galan and Sanchez-Bueno, 2009; Harris and Ruefli, 2000) focus on corporate strategy, and not on competitive strategy, which is the focus of the present paper. The contingency approach may be appropriate for the study of corporate strategy. If a firm wants to develop a strategy of diversification it will probably be necessary to change the organizational structure from a functional form to a divisional one. However, in terms of competitive strategy, the firm can use its internal coordination mechanisms as a valuable resource to achieve competitive advantage. Therefore, the RBV may be more appropriate to analyze the relationship between organizational structure and competitive strategy.

The objective of this paper is to extend the relevant empirical literature of the strategy-structure-performance paradigm, by comparing the RBV with contingency theory. To that end, we examine how organizational structure affects firm performance, taking into account the relationship with competitive strategy.

This work seeks to make several theoretical and methodological contributions. First, our study analyzes the direct and indirect effects that organizational structure has on performance. The RBV constitutes the reference, and the results yielded by the RBV are compared with the results produced by the contingency approach. Second, this paper focuses on competitive strategy rather than corporate strategy. Third, previous studies have generally linked the characteristics of organizational structure and competitive strategy by focusing on the first-order dimensions of each (for instance, differentiation, cost leadership and focus strategies, and formalization, centralization, integration, etc.) (Jansen *et al.*, 2006; Miller, 1988; Miller *et al.*, 1988; Pelham and Wilson, 1996). In contrast with this, the models proposed here utilize second-order factors, which are better able to reflect such multidimensional constructs as structure and strategy. We also consider the dimensions of organizational structure and competitive strategy as having a formative rather than a reflective nature (i.e. they are formative dimensions) (Podsakoff *et al.*, 2006). This makes it possible to examine the linkage between competitive strategy and organizational structure directly, taking into account several dimensions of both strategy and structure at the same time. In this

way, both organizational structure and competitive strategy can be analyzed as single constructs.

The remainder of the paper is organized as follows. After reviewing the theoretical framework, the study methods are described. A presentation and discussion of the results drawn from the statistical analysis follows. The final section presents the main conclusions, some practical and theoretical implications, and some suggestions for future research.

Theory

The early literature on design examined the relationships between organizational design and performance empirically (Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Reimann, 1974). These works introduced the notion of contingency theory, according to which the effectiveness of organizational design arises from a correspondence (or fit) between the context (contingent factors) and the organizational structure. Thus, following Mintzberg (1979), when it comes to designing an organization's structure, contingency factors will determine the characteristics of organizational design. This idea of the contingency approach prevailed among the studies on organizational design throughout the 1960s and 1970s (Negandhi and Reimann, 1972; Pennings, 1975; Tushman, 1979).

Regarding the relationship between structure and strategy and their influence on performance, the more widespread hypothesis proposed by Chandler (1962), confirmed by other research works (e.g. Hamilton and Shergill, 1992; Rumelt, 1974; Suzuki, 1980), claims that changes in firm strategy will cause changes within the organizational structure so that strategy can be properly developed and a higher performance achieved. Therefore, organizational structure becomes an essential element for strategic implementation, an idea, which has spread from numerous studies on strategic management (e.g. Okumus, 2003). Following this approach, it seems that the effect of strategy on firm performance is channeled through organizational structure.

However, Chandler's proposition, according to which structure follows strategy, together with the consideration of the structure exclusively as an element of strategic implementation, has received some criticism. On the one hand, some works (Miller, 1987a; Robbins, 1990) have suggested that all these researchers focused their attention on corporate level strategy, essentially on the diversification strategy, and on the primary level of the structure, leaving the areas of competitive strategy and operational structure practically untouched.

On the other hand, Miller (2002) reports that organizations fail to implement more than 70 percent of their new strategic initiatives. In this sense, one could apply the expression "excellent strategy, bad implementation" in order to describe serious organizational failures. This might be due to the fact that the change from one organizational structure to another is not an instantaneous process but one which often takes many years, because organizational change is slower than strategic change, especially in large firms like those examined in the present study. These organizational failures lead us to suggest that a firm's competitive strategy needs to be supported by the resources and capabilities available to the organization. Many studies claim that successful strategies must be based on the organization's main distinctive capabilities and skills in order to achieve sustainable competitive advantage (Prahalad and Hamel, 1990; Snow and Hrebiniak, 1980). Therefore, organizational structure cannot be

regarded exclusively as an element of strategic implementation. Instead, managers should consider it as an element of strategy formulation, as a resource, which can favor the achievement of competitive advantage, and that will help improve performance.

Therefore, the RBV (Barney, 1991; Wernerfelt, 1984) provides a different approach to the study of strategy-structure-performance relationships. It regards organizational structure as both a resource and an organizational capability. The classifications of firm resources usually include a category called "organizational capital resources" (Barney, 1991) or "organizational resources" (Grant, 1991), which are related with components of organizational structure. For example, Barney (1991) points out that those organizational capital resources include a firm's reporting structure, its formal and informal planning, controlling, and coordinating systems, as well as informal relations among groups within a firm and between a firm and those in its environment. Grant (1991), based on Hofer and Schendel (1978), indicates that one of the main groups of firm resources is organizational-resources, such as quality control systems, short-term cash management systems, and corporate financial models. From the point of view of organizational capabilities, firm capabilities need to be understood mainly in terms of the organizational structures and managerial processes that support productive activity (Teece *et al.*, 1997).

In accordance with these classifications, the organizational structure, can be seen as a meta-resource, or a meta-capability (Collis, 1994; Petts, 1997), that is, as a higher-order resource or capability (Ljungquist, 2007), whose relevance, derives from the fact that, the other resources, and capabilities, owned by the firm, must be organized, and combined properly, so that they can acquire competitive value, and thus help the firm achieve high performance levels (Newbert, 2008).

In order to generate a sustainable competitive advantage, a resource must not only produce economic value, but also be scarce, imperfectly imitable, and imperfectly tradable (Barney, 1986; Dierickx and Cool, 1989; Peteraf, 1993). Powell (1992) explains how a firm's organizational structure can manifest such properties. Scarcity is suggested by the complexity and tacit nature of the intraorganizational relationships that are established by the design of an organization, thanks to which the skills specific to each individual are shared and, at the same time, the firm creates its own capabilities, which will be unique for each organization.

Regarding imperfect imitability, according to Miller and Shamsie (1996), there appear to be two fundamentally different bases of non-imitability: some resources cannot be imitated because they are protected by property rights, such as contracts or patents; other resources are protected by knowledge barriers, that is, by the fact that competitors do not know how to imitate a firm's processes or skills. In other words, imperfect imitability may result from causal ambiguity (Lippman and Rumelt, 1982), that is, the inability of competitors to determine the true source of competitive advantage. Ambiguity may be derived from the complexity of skills and/or resource interactions within competencies and from interaction between competencies. Again, the complexity of the intraorganizational relationships, and coordination mechanisms, which are established, by the design of an organization, cannot be easily imitated by competitors, because they are subtle, and hard to understand outside the organization, and their connection with performance is difficult to discern (Miller and Shamsie, 1996).

Finally, organizational structure is imperfectly tradable for several reasons. Organizational structure is firm specific and thus cannot easily be transferred. This

means that, on the one hand, the organizational structure of a firm can be more valuable to that firm than to its competitors (Dierickx and Cool, 1989; Miller and Shamsie, 1996), and on the other hand, it cannot easily be transferred (Peteraf, 1993) because there is not a "competitive market of organizational structures". If a competitor wants the same organizational structure as another firm, it would require the transfer of the whole organization, with the costs and difficulties that this entails. Moreover, the organization has the ability to absorb employees' skills into its specific organizational capabilities (Grant, 1991), thereby reducing managers' and employees' bargaining power when claiming rents for these skills. Given the foregoing, the organizational design may be important when efforts are made to achieve a sustained competitive advantage.

The main idea of the preceding arguments is that firm resources and capabilities, such as organizational structure, contribute to the development of competitive strategies that seek to satisfy customers' needs better than competitors, and hence improve firm performance. However, resources and capabilities are not valuable in themselves (Newbert, 2008). Resources and capabilities are essentially unproductive in isolation. The key to attaining a competitive advantage is the exploitation of a valuable resource-capability combination (Newbert, 2008). Resources and capabilities are "sources" of competitive advantage, but they do not necessarily contribute to competitive advantage (Bitar and Hafsi, 2007). In order to contribute to competitive advantage, resources and capabilities must contribute to delivering products and services for which customers are willing to pay a profitable price (Ambrosini *et al.*, 2009). Resources and products are two sides of the same coin (Wernerfelt, 1984). The main expression of the business level strategy is competitive advantage, which, according to Fahey's (1989) proposal, refers to the attribute or characteristic that distinguishes a firm from its competitors in the eyes of its customers. Hence, competitive advantage and the competitive attributes of products differ from firm resources and capabilities, since those advantages and attributes are observed and assessed by customers, whereas resources and capabilities are part of the firm's internal aspect which customers do not perceive or value. Therefore, products' competitive advantages and competitive characteristics are based on firm resources; in other words, firm resources are the sources of these competitive attributes.

Thus, organizational structure can influence competitive strategy, but it will not directly influence firm performance. What ultimately influences the performance of firms is their strategy, because strategy directly influences costs and revenues (Eriksen, 2006). This is confirmed by the studies of Beard and Dess (1981), Ebben and Johnson (2005), Edelman *et al.* (2005), Spanos and Lioukas (2001), and White (1986), among others. The relationship between resources/capabilities and performance may be incomplete (Newbert, 2008) if we do not consider the mediating role of competitive strategy. In this respect, although some works have demonstrated the existence of a positive relationship between the firm's resources and performance (e.g. Miller and Shamsie, 1996), these studies have not considered in their analysis whether the relationship is direct or mediated by competitive strategy.

The arguments presented previously lead us to suggest that the influence of organizational structure on firm performance will be exerted indirectly, through competitive strategy (Edelman *et al.*, 2005), according to the RBV.

As stated previously, this paper seeks to compare empirically the validity of the RBV in relation to the relationships between strategy, structure and performance, with

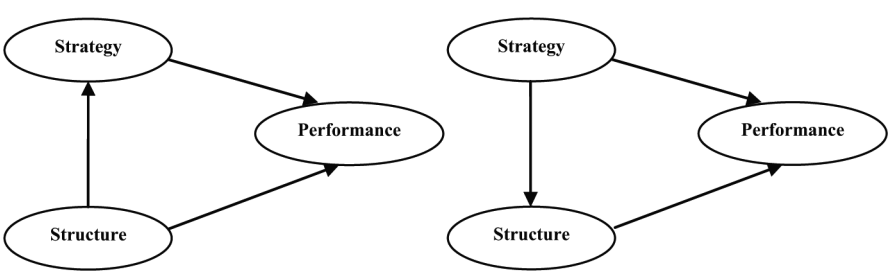
that of the more traditional paradigm proposed by the contingency approach, according to which strategy – among other possible contingent factors – is likely to influence organizational structure. For that purpose, we developed two models. In model A, the organizational structure appears as a meta-resource or meta-capability that may have an impact on strategy. In model B, strategy is presented as a contingent factor that exerts an influence on the organizational structure. Figure 1 presents a comparison between the two models.

Methods

Sample and data collection

Our study focuses on Spanish firms from different sectors, with 250 or more workers (i.e. large firms according to Recommendation 2003/361 of the European Commission). We focus on large firms because we wanted to analyze organizational design policies that were actually a decision of the organization, and not just a consequence of the small size. For instance, a small or medium firm is usually more centralized than a large firm because there are fewer hierarchical levels to decentralize. A total population of 1,903 firms resulted from a search through various databases. The data were collected by sending a mail survey to each company's chief executive officer (CEO), the person who usually has the widest and deepest understanding of the organization as a whole. They are considered the most appropriate respondent in order to describe the structural and strategic characteristics of the organization (Shortell and Zajac, 1990; Zahra and Covin, 1993).

Because of the fact that the variables used in the study were measured using data gathered from a single informant in each firm, a number of measures were adopted to reduce, as far as possible, the potential risk of common method biases due to a single respondent (Podsakoff *et al.*, 2003). First, interviewees remained anonymous and were assured that there were no good or bad answers, asking them to be as sincere and honest as possible. This approach is intended to reduce their fear of being evaluated and to stop them from giving socially desirable or appropriate answers. Second, the items were very carefully constructed to avoid any potential ambiguities. For this purpose, the questionnaire included simple and concise questions as well as definitions of the terms with which interviewees might be less familiar in order to facilitate their understanding. Multiple-item constructs were used in the data analysis. Response biases have been shown to be more problematic at the item level than the construct level (Harrison *et al.*, 1996). This is an area where structural modeling approaches such as PLS (used for the analysis in this study) and LISREL are useful in avoiding problems that might be associated with item-level analysis (Harrison *et al.*, 1996). Data



(a) RBV model **(b)** Contingency model

Figure 1.
Theoretical models

were also examined using Harman's principal components approach. The unrotated solution produced several factors, none of which accounted for the majority of the variance (the factor with the greatest variance accounted for 13.6 percent). This result suggests that the common methods variance may not be substantial.

The preparation of the questionnaire for the survey involved several stages. First, the literature on competitive strategy, organizational design, and firm performance was the object of a thorough review. Then, a preliminary draft was formulated. Next, content validity was ensured, by discussing, and reflecting on, the preliminary draft, with experts in the study matter (Govindarajan, 1988). After that, a pilot test was administered in which personal interviews were held with the CEOs of five firms. Some changes were made to the questionnaire after the development of the pilot test. For instance, we changed the questionnaire structure by altering the order of some questions; we improved the wording of others; and we broke down a couple of questions, which referred to different aspects into several items. Following this step, the questionnaire was deemed to be in its final version. One month after the initial mailing, a follow-up mailing was sent in an attempt to increase the response rate (Dillman, 2000). In the end, 164 firms responded and participated in the study.

Although the response rate to the questionnaire is low (8.61 percent), the sample size is sufficient to apply PLS, the structural equation-modeling tool used for the analysis (Fornell and Bookstein, 1982). Moreover, it is close to the mean for postal surveys in Spain. There is not a strong tradition of collaboration with research centers in Spain (Del Brío *et al.*, 2002; Roca-Puig and Bou-Llusar, 2007; Very *et al.*, 1997).

Because it was not possible to obtain information about all the organizations included in the study population, the representativeness of the sample and the non-response bias were carefully evaluated. Firms that respond later are supposed to be more similar to non-respondents (Armstrong and Overton, 1977); hence, a comparison was made between early (first wave) and late (second wave) respondents for all variables. t tests showed no significant differences between these two groups of firms. The greatest and least values were for marketing differentiation ($t = -0.01, p = 0.99$) and innovation differentiation ($t = 1.82, p = 0.07$).

Measures

Organizational structure. For the organizational structure dimensions (centralization, formalization, and complexity), the study takes as its reference the contributions of Aiken *et al.* (1980), Cruz and Camps (2003), Miller (1992, 1987b), Miller and Dröge (1986), Palmer and Dunford (2002), Pelham and Wilson (1996), and Powell (1992). The study estimates centralization and formalization using multi-item seven-point scales. Two variables are distinguished in the case of formalization: one related to the existence of procedural regulations and job descriptions (existence of formalization), whereas the other referred to the extent to which firms enforce norms and rules (enforcement of formalization). This distinction arose from the prior factor analysis carried out to examine the unidimensionality of all the variables used in the study. The study estimates complexity from five items that were thought to be formative and that were related to the degree of horizontal and vertical differentiation (Burton and Obel, 2005). The subsection on the technique that was used to analyze the data explains what makes a variable formative. Note that, because the study analyzes large firms, where aspects of organizational structure might be present in different degrees of intensity

across departments, it was specified in the questionnaire that answers should focus on whatever was most prevalent in the organization as a whole.

Competitive strategy. Following Miller (1987b, 1988), the study considers three strategic dimensions: low cost, innovation differentiation, and marketing differentiation. All three are measured with multi-item seven-point scales, using a combination of items that has been utilized in earlier studies (Beal, 2000; Govindarajan, 1988; Lee and Miller, 1996; Miller, 1988; Miller *et al.*, 1988; Pelham and Wilson, 1996; Souitaris, 2001).

Firm performance. Given that our study analyzes firms from a number of sectors, a decision was made to apply the subjective approach to measuring performance (Akan *et al.*, 2006; Spanos and Lioukas, 2001; White *et al.*, 2003). A number of authors defend the adequacy of subjective measures as opposed to objective ones (mainly accounting measures of profitability and rates of return) when the study is a multsectorial one (Lukas *et al.*, 2001; Powell and Dent-Micallef, 1997; Venkatraman and Ramanujam, 1986). Objective measures may reveal differences in firm performance that are due solely to the industry and not to real differences among firms. With the works of Govindarajan (1988), Lee and Miller (1996), and Pelham and Wilson (1996) as a basis, this study evaluates firm performance using six items on a seven-point scale that firms assessed for three years in comparison to its main known competitors.

All items are listed in the Appendix.

Control variables. This study uses firm size as a control variable to eliminate whatever effects it might have on firm performance (Spanos and Lioukas, 2001; White *et al.*, 2003). We also used firm size as a variable that may influence organizational structure, because firm size is a contingent factor that often affects organizational design (Miller and Dröge, 1986). Organizational size was measured by the natural logarithm of the number of employees. Because the object of the study is a multi-sectorial sample of firms, any potential effects from the industry, were controlled for, by including dummy variables in the analyses. The sample includes nine high-technology manufacturing firms, 17 medium-high-technology manufacturing firms, 36 knowledge-based service firms, eight medium-low technology-manufacturing firms, 42 low-technology manufacturing firms, and 52 non-knowledge-based service firms.

Analysis

This paper uses partial least squares (PLS) analysis, through version 3.0 of PLSGraph (Chin, 2001), to test the research models. PLS is a structural equation modeling tool that produces loadings and weights between items and constructs and estimates standardized regression coefficients (i.e. β-coefficients) for paths between constructs (Croteau and Bergeron, 2001). One of the main advantages of PLS is that it uses a least squares estimation procedure, which provides the flexibility required to represent both formative and reflective latent constructs (Podsakoff *et al.*, 2006). The formative specification is appropriate when the indicators help to create the construct directly, whereas the reflective specification assumes that indicators reveal various features of an underlying construct (Chin, 1998a). Reflective indicators are determined by the construct and, hence, covary with the level of that construct. A latent variable with formative indicators implies that the construct is expressed as a function of the manifest variables. Because the latent variable is viewed as an effect rather than as a cause of indicator responses, formative indicators do not necessarily correlate with one

another. Rather, each indicator may occur independently of the others (Podsakoff *et al.*, 2006), that is, formative indicators of the same construct can have positive, negative, or no correlation with one another (Haenlein and Kaplan, 2004; Hulland, 1999). Consequently, traditional reliability and validity assessments are deemed inappropriate in the case of formative indicators (Chin, 1998b; Coltman *et al.*, 2008).

In the research models proposed in this paper, the variables of formalization, centralization, low cost, innovation differentiation, marketing differentiation, and performance were measured with reflective indicators. Complexity was measured with formative indicators because this study aims to measure horizontal and vertical differentiation in the same construct, and they do not necessarily correlate with one another. Organizational structure and competitive strategy were represented as second-order factors with formative dimensions, because if they are not modeled with formative dimensions, the second-order construct will fail to capture the total variance in its dimensions and will reflect only the variance that is common to all of the dimensions (Podsakoff *et al.*, 2006).

Results

A PLS model is analyzed and interpreted in two stages:

(1) The assessment of the reliability and validity of the measurement model.

(2) The assessment of the structural model.

This sequence ensures that constructs' measures are valid and reliable before attempting to draw conclusions regarding relationships between constructs (Barclay *et al.*, 1995).

Measurement model

The measurement model, is assessed by examining internal consistency and discriminant validity. These criteria should be applied only to latent constructs with reflective indicators. As previously stated, the criteria are not appropriate for constructs with formative indicators.

Internal consistency. The measures for construct reliability and convergent validity represent measures of internal consistency for reflective indicators. Construct reliability is assessed using the composite reliability measure. This measure can be interpreted using Nunnally's (1978) guidelines: 0.7 as a benchmark for a "modest" reliability applicable in the early stages of research and a more demanding 0.8 level for basic research. In our study, all of the constructs are reliable. They all have measures of composite reliability above 0.8 (see Table I). The assessment of convergent validity requires the examination of the average variance extracted (AVE) measure (Fornell and Larcker, 1981), which provides the amount of variance that a construct obtains from its indicators in relation to the amount of variance due to the measurement error. The average extracted variance should exceed 0.5 (Fornell and Larcker, 1981). This condition is not strictly fulfilled in all of the constructs, but values below 0.5 are actually very close to that threshold (the lowest value is 0.47). Other studies (e.g. Croteau and Bergeron, 2001; Fornell *et al.*, 1990; Zott and Amit, 2008) have also accepted values below 0.5.

Discriminant validity. This indicates the extent to which a construct differs from others. When assessing discriminant validity, AVE should be greater than the variance

	Composite reliability	LC	MD	ID	Cen	EF	UF	Com	P
LC	0.842	0.693							
MD	0.849	0.027	0.708						
ID	0.824	0.092	0.411	0.699					
Cen	0.875	−0.146	−0.090	−0.187	0.688				
EF	0.932	0.276	0.058	0.082	−0.025	0.835			
UF	0.807	0.120	−0.153	−0.115	0.174	0.417	0.751		
Com	[a]	−0.109	−0.121	−0.104	0.086	−0.184	−0.037	[a]	
P	0.868	0.210	0.205	0.462	−0.119	0.120	0.049	−0.120	0.739

Notes: Diagonal elements are the square roots of the average variance extracted. [a]In the "complexity" construct, composite reliability and average variance extracted were not calculated because complexity was measured with formative items. LC = Low cost; MD = Marketing differentiation; ID = Innovation differentiation; Cen = Centralization; EF = Existence formalization; UF = Enforcement formalization; Com = Complexity; P = Performance

Table I.
Correlation of constructs and composite reliability

shared between the construct and other constructs in the model (i.e. the squared correlation between two constructs) (Barclay *et al.*, 1995). The reflective variables of our study fulfill this condition because the diagonal elements of Table I are greater than the off-diagonal elements in the corresponding rows and columns.

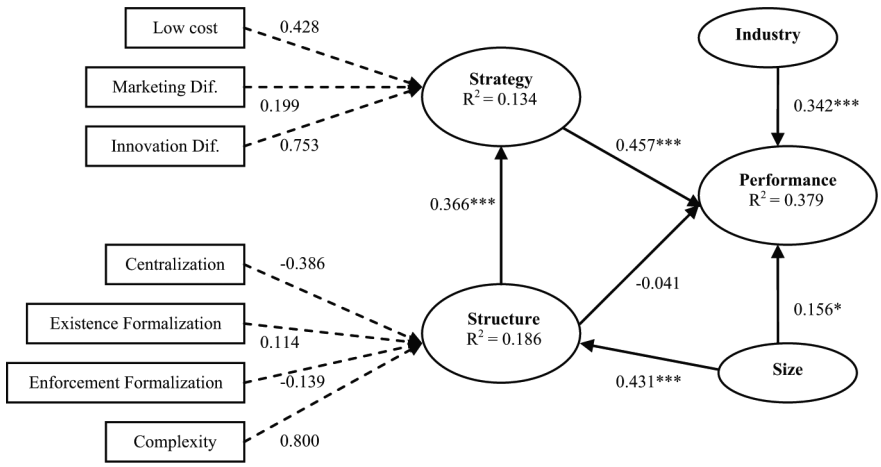
In constructs with formative items (complexity) and second-order factors with formative dimensions (strategy and structure), PLS provides weights that give information about the makeup and relative importance of each item (or dimension) (Chin, 1998b). A concern related to the use of formative measures is the potential multi-collinearity between items (or dimensions) (Diamantopoulos and Winklhofer, 2001). High collinearity among items may exist, producing unstable estimates and making it difficult to single out the distinct effects of individual indicators on the construct. The variance inflation factor (VIF) was calculated using the SPSS program (version 14.0) to examine multi-collinearity. The results show minimal collinearity with the VIF ranging from 1.01 to 1.57. This is far below the common cutoff threshold of 5 to 10 (Mason and Perreault, 1991).

Structural model

No proper overall goodness-of-fit measures exist for models estimated using PLS (Hulland, 1999). The structural model is assessed by examining the variance explained (R^2) in the dependent constructs and the path coefficients (β) for the model, which indicate the relative strengths of relationships between constructs.

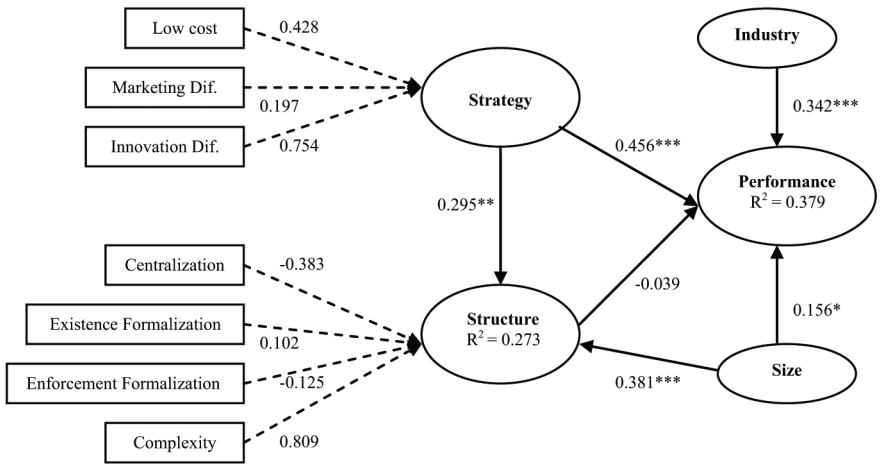
For the global valuation of the models, the results obtained for the performance variable (the only one that acts exclusively as a dependent variable) can be analyzed. In our study, the independent variables that are considered in the models (strategy and structure, and the control variables) explain 38 percent of its variance, in both the RBV (see Figure 2) and contingency (see Figure 3) models.

Figure 2 shows that organizational structure does not exert a direct influence on performance. However, it does have a positive, significant influence on competitive



Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Figure 2.
RBV model



Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Figure 3.
Contingency model

strategy, which in turn has a positive, significant effect on firm performance. We may conclude that the model proposed in Figure 2 supports the RBV, because the influence of organizational structure on firm performance is indirect, via competitive strategy. These results reinforce the value of organizational structure as an important strategic resource that influences the development of competitive strategy.

As may be seen from Figure 3, the contingency model shows that strategy has a significant, positive influence on organizational structure, though less significant than that exerted by organizational structure on strategy (see Figure 2). In other words, the effect of organizational structure on competitive strategy (structure as a strategic resource) is greater than the effect that the competitive strategy has on the structure of the firm (strategy as a contingent factor). Likewise, the influence exerted by the organizational structure on performance is not significant in the contingency model, which reinforces the relevance of structure as an internal resource.

Discussion

The empirical results support both the traditional contingency approach and the RBV. The former treats strategy as a contingent factor that exerts an influence on organizational structure. The latter views organizational structure as a resource or capability that influences the development of competitive strategy for the achievement of competitive advantage. However, although both theories receive empirical support, the RBV receives more support with respect to the strategy-structure relationship. Therefore, the role played by structural variables within the organization goes beyond their traditional formulation as an essential element for the implementation of the strategy (Chandler, 1962; Franko, 1974; Okumus, 2003; Rumelt, 1974). Structure may assume an important role in the achievement of competitive advantage through its influence on competitive strategy.

The results of this study support the thesis developed by Fredrickson (1986) and Hall and Saias (1980), among others, which is consistent with the RBV. Fredrickson (1986) and Hall and Saias (1980) point out that the organizational structure can influence the type and amount of information obtained and distributed by the firm, the knowledge created, and the adoption of strategic decisions, and these characteristics can influence the configuration of the strategy with which the firm competes in the market.

Other recent studies in large firms did not produce the same findings. Galan and Sanchez-Bueno (2009) find that the effect of strategy on structure is stronger that the effect of structure on strategy. Harris and Ruefli (2000) find that firms that held their strategy constant and made only structural changes outperformed firms that changed neither strategy nor structure, and the latter outperformed firms that changed their strategy but held their structure constant. However, it is worth emphasizing that the studies of Galan and Sanchez-Bueno (2009) and Harris and Ruefli (2000) are focused on corporate strategy and multidivisional structure, and not on competitive strategy. Competitive strategy is probably easier to change than corporate strategy, because competitive strategy usually involves fewer resources. In large organizations, with many elaborate systems, tiers and routines, competitive strategy might be also more easily changed than structure.

The findings of this study suggest that the RBV might complement the contingency approach as a theoretical explanation for organizational performance. According to the contingency approach, if a firm changes its competitive strategy, for example from low-cost to differentiation, this may require some changes in the characteristics of the organizational structure to become more flexible and adaptative, in order to implement a differentiation strategy. On the other hand, the organization design, which a firm has been developing over time, may become a valuable resource that can reinforce the competitive advantage of the firm because it can be scarce, imperfectly imitable and imperfectly tradable. Related to this point, Miller and Shamsie (1996) propose a contingent application of the RBV of the firm. These authors point out that whether or not a resource can be valuable will depend as much on the context enveloping an organization as on the properties of the resource itself. In this sense, if a firm operates within a highly dynamic context, which requires constant changes in the product, its competitive strategy will be enhanced by a flexible structure that makes these changes easier. With the passing of time, that organizational design may be improved through a "learning-by-doing" process (Nonaka and Takeuchi, 1995), thanks to which it will be possible to maintain the firm's competitive advantage over time. It may be possible for competitors to develop a similar organizational design, but this normally takes time, and by then, a firm may have gone on to develop its skills further and to learn to use them in different ways (Miller and Shamsie, 1996).

In any case, the organizational structure does not seem to have a direct influence on firm performance, as it is something which remains hidden from the eyes of customers and which they cannot assess. What customers can actually see, perceive and assess to a greater or lesser extent is the products and/or services that the firm offers them with one competitive strategy or another.

The findings of this study are in line with other studies, which defend the appropriateness of the RBV to the study organizational and management decisions (Chmielewski and Paladino, 2007; Sheehan and Foss, 2007). Our findings are also consistent with a recent meta-analysis of the relationship between strategic resources

and performance (Crook *et al.*, 2008), which concludes that the RBV has strong support and that it is managerially relevant and worthy of researchers' attention. Therefore, studies grounded in the RBV (such as ours) may guide managers' investments in strategic resources.

Implications, limitations, and future research directions

Two main theoretical contributions are derived from the results of this paper. First, this study provides an alternative formulation for organizational design theory, based on the RBV, according to which the design of an organization indirectly influences firm performance. This alternative approach does not replace the contingency theory, but complements it, as discussed in the preceding section. Second, this paper focuses on competitive strategy rather than corporate strategy.

In addition, from a methodological point of view, previous studies have generally linked the characteristics of organizational structure and competitive strategy by focusing on their first-order dimensions (e.g. differentiation, cost leadership and focus strategies, and formalization, centralization, integration, etc.) (Jansen *et al.*, 2006; Miller, 1988; Miller *et al.*, 1988; Pelham and Wilson, 1996). In contrast with this approach, the models proposed here utilize second-order factors with formative dimensions. This makes it possible to examine the strategy-structure relationships directly, taking into account several dimensions of both strategy and organizational structure at the same time.

Our study also offers results that may be of interest to managers. The creation and maintenance of a firm's competitive advantage must be based on the organization and management of the firm's resources. Such a RBV leads to a study of the organizational structure. It follows from the analysis presented here that organizational structure is not only important for the implementation and execution of the strategy but also needs to be examined during the stage of strategy formulation, as the success of the strategy can derive from it. It is important for managers to recognize the strategic value of their organizational structure, because it has a direct impact on competitive strategy and an indirect impact on firm performance. The organizational structure can be seen as an historical resource of the firm. That is why the organizational structure can be a scarce, imperfectly imitable, and imperfectly tradable resource. It is not possible to determine from the present study which specific characteristics the organizational structure of firms must have, because it is also contingent on the strategy and the environment. But managers should know that the way they design their organization can become the source of competitive advantage.

Some studies suggest that the current challenge for management lies in implementing strategy, rather than formulating it, because many firms find it very difficult to implement strategy (Okumus, 2003). One of the main factors, which typically intervenes in the implementation of strategy is organizational structure. According to the findings of our study, it can be stated that, before formulating a new strategy, managers should analyze their main organizational design strengths, for two reasons: on the one hand, if the strategy is based on the main strengths of organizational structure, it may be more feasible to achieve a competitive advantage, and on the other hand, the prior analysis of organizational structure is likely to anticipate the difficulties for the implementation of the strategy and prevent the possible eventual failure of a good strategy.

These contributions must be considered in the light of the limitations of our study. First, only data from companies with 250 or more employees were collected. Therefore, the reported results cannot be generalized to smaller companies. Second, the use of opinion scales gives the study a subjective character. However, it should be borne in mind that there is a long tradition of using such scales in this type of research. Most of the characteristics of organizational structure and competitive strategy are difficult to measure with objective data. Similarly, in the case of performance, objective measures may reveal differences in firms' performance, that are due solely to the industry and not to real differences among firms. Therefore, subjective performance measures can be more appropriate when the study is multi-sectorial, as is the case here. Moreover, the measures of organizational structure that were used in the study are fairly traditional and close to those used in the contingency approach, and this made it possible to compare the contingency approach and the RBV. Finally, this paper provides a basis from which future studies may be derived in order to refine the findings of this research. For example, future research could incorporate additional contingent factors in the models, like environmental dynamism and competitiveness, to test the validity of the RBV model. In addition, future research could extend the analysis to small and medium-sized enterprises to examine the validity of the RBV in the strategy-structure relationships.

Conclusions

The objective of this paper was to compare the RBV with the contingency approach by examining the effect of organizational structure on firm performance, taking the relationship with competitive strategy into account. The results of the analysis show that organizational structure does not exert a direct influence on performance, but has an indirect influence through competitive strategy. This reinforces the conception of organizational structure as a strategic resource that contributes to the achievement of competitive advantage. Organizational structure, as a meta-resource, is a part of the firm's internal aspect which customers do not perceive or value. Therefore, organizational structure may be a "source" of competitive advantage.

The contingency model is also supported. However, the vision of structure as a resource that influences the development of strategy receives more support than the consideration of strategy as a contingent factor that affects organizational structure. One can infer from this that the challenge for managers to implement competitive strategy lies, to a large-extent, in an appropriate organizational design. However, to avoid most problems with organizational structure in the implementation of strategy it could be advisable to take into account the organizational design strengths in the formulation of competitive strategy. This finding may arise because of the kind of firms that have been analyzed in this study. In large organizations, with many elaborate systems, tiers and routines, strategy might be more easily changed than structure.

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Appendix. CONSTRUCTS and their items

(1) STRUCTURE (molar second-order factor): first-order dimensions:

- Centralization (reflective items)
  STRUC1: Decisions about work conflicts
  STRUC2: Decisions about overtime
  STRUC3: Decisions about employee recruitment
  STRUC4: Decisions about job assignment
  STRUC5: Decisions about machinery
  STRUC6: Decisions about worker layoffs
  STRUC7: Decisions about order priority
  STRUC8: Decisions about working methods

- Existence of formalization (reflective items)
  STRUC9: Job description for middle managers
  STRUC10: Job description for supervisors
  STRUC11: Job description for office workers
  STRUC12: Job description for the CEO
  STRUC13: Description of production jobs
  STRUC14: Regulations on procedures
- Use of formalization (reflective items)
  STRUC15: Regulations on monitoring work accomplishment
  STRUC16: Monitoring of employees
  STRUC17: Rules of behavior
  STRUC18: Work freedom (inverted)
- Complexity (formative items)
  STRUC19:(of managers
  STRUC20:(of departments
  STRUC21:(of hierarchical levels
  STRUC22: Span of control
  STRUC23: Specialization (a list of 16 functions that the organization performs on a regular basis – so that managers could say if there were individuals specialized in each one of them – served to estimate specialization)

(2) STRATEGY (molar second-order factor): first-order dimensions:

- Low costs (reflective items)
  STRA1: Minimization of general costs
  STRA2: Minimization of production costs
  STRA3: Lower costs than competitors
  STRA4: Economies of scale
  STRA5: Process automation
  STRA6: Productivity improvement
- Marketing differentiation (reflective items)
  STRA7: Intensive promotion
  STRA8: Intensive sales force
  STRA9: Advertising campaigns
  STRA10: Brand image
  STRA11: Complementary services
  STRA12: Advertising costs (percent of total sales)
- Innovation differentiation (reflective items)
  STRA13: Leaders or followers
  STRA14: Frequency of product innovations
  STRA15: Higher quality or performance
  STRA16: Frequency of process innovations
  STRA17: Delivery speed
- PERFORMANCE (reflective items)
  PERF1: Sales growth
  PERF2: Employment growth
  PERF3: Market share growth
  PERF4: Profits before tax
  PERF5: Cash flow
  PERF6: Returns on investment.

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