

Business Environment and Firms Performance in Developing Countries

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Received Sep. 1, 2009; Revised May 25, 2010; Accepted Jun. 10, 2010

ABSTRACT

This article investigates the sources of firms' performance in developing countries. To this aim, this study considers performance models for Réunion Island firms, an ultra-peripheral territory of the European Union. First, different theoretical approaches dealing with performance are presented. Then, a study examining 118 of the 250 largest Reunionese firms is described. With the collected data, we identify management factors. These are analyzed using a typological regression algorithm based on the GUIROEM genetic algorithm. This article analyzes the relationships governing performance levels, economic sectors, and implemented strategies. It shows firms' reticence towards adopting partnerships to help develop performance. Some limitations of this study are described, and potential avenues for development are presented.

Keywords: *Business Environment, Performance, Developing Country*

INTRODUCTION

The search of performance has always been a fundamental issue for firms. That is why studies on corporate performance were prioritized in the groundbreaking works of strategic management researchers (Drucker, 1954; Chandler, 1962; Ansoff, 1965; Andrews, 1971). Nonetheless, results were not always convincing. For instance, Peters & Waterman's 1982 study, *In Search of Excellence*, suggested that the firms that performed best were those who sold good products and were well-positioned in the market. Years later however, it was noted that more than half of these so-called "excellent" firms met different fates; most of them suffered numerous setbacks (Miller, 1990). Tarondeau (1993) and Dunning (1995) attribute this phenomenon to new developments in technology and the manner in which the global competition structure had evolved.

For their part, Hamal and Prahalad (1994) argue that the firms who achieve sustainable performance are those who control unique and hard-to-access key market resources. So, how does one explain corporate performance? Why do firms perform differently? What are the causes behind corporate performance? The first studies on this phenomenon were those of American researchers (Schmalensee, 1985; Rumelt, 1991; McGahan and Porter, 1997; Mauri and Michaels, 1998). Most researchers cite both the impact of the industry as well as resources and skills as being the main factors that influence corporate performance. However, those studies examined only American firms; moreover, few comparative studies were available. Ngobo and Stephany's 2001 study on French firms of the SBF 250 (the SBF 250 index contains 250 values – the most representative of each sector of the Paris Stock Exchange) provides a basis for such a comparison. In their research on the differences between French firms' performances, these authors posit conclusions similar to those of most American authors.

Nonetheless, the French authors disagree with previous researchers on certain points, and also offer new perspectives on the matter. This diversity of perspectives shows that the perception of differences between firms is highly dependent on the context in which they develop. This is the problematic underlying our research, which looks at Réunion Island's most important firms, and studies the performance and competitiveness of geographically isolated firms. This isolation is due to the distance that separates these firms from the activity centre on which they rely politically and economically. In this context, there is usually a small domestic market, high economic-based costing, insufficient capital, a lack of qualified workers in the labor force, and a strong external reliance (Boyer & al., 2004). For firms evolving in this regional context, constraints are related not only to changes at the international level but also to geographical limitations.

The purpose of this study is to further our understanding of the notion of performance in this context. To this aim, it is important to better understand the different strategies implemented by comparing management and performance indicators. This article is structured in three parts. The first part summarizes the groundbreaking works dealing with corporate performance. The next section deals with methodology. An explanation of the study methodology for the ECER study is provided. Finally, the third section exposes the results of our research. Regression models for each class are outlined and commented upon. The conclusion describes the main results of the study as well as research perspectives.

LITERATURE REVIEW

Research identifies two main sources for corporate performance: an external one, where performance is linked to the industry and an internal one where it is linked to skills and resources.

Corporation's Position in The Industry as a Factor Influencing Performance

In the United States, the first studies on performance results emphasized the industrial sector (Schmalensee, 1985; Rumelt, 1991). These studies reflect the paradigm of the industrial economy dominant at the time. They investigate the influence of both the industrial sector and the heterogeneity of firms on performance. The first results tend to confirm the impact of the industrial sector on performance. This is clearly shown by Schmalensee's (1985) and Wernerfelt and Montgomery's (1988) results. According to this paradigm of the industrial economy, a firm's capacity to obtain a profit rate superior to capital costs depends on two factors: the appeal of the industry in which it operates and the establishment of a competitive advantage over its competitors (Porter, 1980; 1985).

Consequently, according to this approach, competitive advantages are determined by a firm's position within a certain industry. Moreover, this method presupposes that all firms have a relatively unrestricted access to the resources that influence market forces. This explanation of how a firm secures a competitive advantage is empirically weak (Rumelt, 1991). In fact, most studies on this theme fail to establish significant links between an industry's general characteristics and the profitability of its constituent firms (Rumelt, Schendel & Teece, 1991; Rumelt, 1991; Hansen & Wernerfelt, 1989). For instance, Rumelt's 1991 works show that performance discrepancies between individual firms within the same industry are significantly more important than those that exist between different industries (an industry's performance is perceived as representing the calculated mean of performances of an industry's firms).

This conclusion suggests that competitive advantages may not always result from a firm's position, as suggested by Porter, but may

also stem from internal factors such as a firm's distinct skills and resources.

Corporation's Focusing on Skills and Resources as Factor Influencing Performance

Skills and resources are composed of the entire assets (tangible and intangible) associated in a quasi-permanent manner to a firm (Barney, 1991). The skills and resources approach stipulates that the implementation of a firm's skills and resources can lead to a sustainable competitive advantage and, consequently, to superior performance. This approach is grounded in Ricardian rent research rather than the exploitation of monopoly rent (as favored by classic industrial economy). Thus, according to this approach, a competitive advantage based on skills and resources is contingent on the concomitant existence of three characteristics: the strategic value of a firm's skills and resources (Barney, 1991; Grant, 1991), the rarity of the skills and resources (Barney, 1991; Collis & Montgomery, 1995) and skills and resources that can't be imitated or substituted (Dierickx, Cool & Barney, 1989).

Rarity refers to the situation where skills and resources are distributed heterogeneously among an industry's firms. When resources are shared between several competing firms, this situation does not result in steady competitive advantages. Resources should be owned by a restricted number of firms - one, ideally, according to Barney (1991). Moreover, a skill or a resource should be hard to imitate perfectly and hard to substitute (Barney, 1991). Concepts of non-imitation and non-substitution of skills and resources (Dierickx, Cool & Barney, 1989) indicate that a firm's skills and resources are immobile (cannot be imitated or substituted by a firm's competition) either because obtaining a competitive advantage is ambiguous (causal ambiguity), or the application of skills and resources requires complex interactions within a firm (social complexity), or because skills and

resources have emerged through unique historical development (historical factor).

With regards to imitation, skills or resources must be hard to imitate, thereby keeping the competition from imitating a firm's strategy (Dierickx, Cool & Barney, 1989). In general, a firm's production processes are hard to imitate when the factors that enable superior performance are not clearly identifiable and when the mobility of factors of production is imperfect because certain specific assets are associated with either implicit know-how or exclusive property rights (Barney, 1991). In the same vein, if a skill or a resource is to maintain its strategic value, it must be hard to substitute (Barney, 1991; Collis & Montgomery, 1995).

Some studies confirm the importance of skills and resources in a firm's performance. Roquebert et al (1996) show that diversification accounts for 17.9% of observed differences whereas sector accounts for 10% of observed differences. In their 1997 study, McGahan and Porter (1997) reveal that the differences observed between firms account for 31.71% of the variation, whereas 4.33% is explained by diversification and 18.68% by sector. According to Mauri and Michaels (1998), differences between firms account for 18.55% to 29.84% of variations in performance. Recently, Ngobo and Stéphanie (2001) have shown that a firm's heterogeneity accounts for 37.1% to 52% of variations in performance, whereas diversification and sector account for 2.3% to 6.3%, and 18.4% to 23.69%, respectively. The impact of resources in a firm's performance has thus been measured in many studies and in different contexts.

Methodologically, however, measuring and explaining performance still gives rise to numerous debates (see for instance Raymond (2002) and Carrier et al (2002), for a synthesis in the field of information systems). In our study, the objective is to further comprehend the models applied by entrepreneurs. Objective measurement of performance is of no interest here. The aim of this exploratory study is

to identify the models used by different classes of entrepreneurs. A sufficient indicator is thus an entrepreneur's perception of the evolution of his/her firm's performance, since this reveals the links between a perceived performance and factors in different management fields. Moreover, since the aim is not to identify existing models, the explanatory factors taken into account are derived from perceptual data and were developed in the ECER study that follows.

METHODOLOGY

Context of the Study

This study focuses on Réunion Island firms and is part of a wider research project called the Competitive Study of Reunionese Enterprises (ECER), the Study of Competitiveness amongst Réunion Island firms. The first step in this study mobilized the GREGEOI-FACIREM researchers from September 2001 to June 2003. The aim was to identify the general characteristics of Réunion Island's most important firms. The insular context, on the one hand, and remoteness from the metropolis, on the other, constrains firms to adopt different and even original operation modalities. In order to identify the most interesting elements with regards to competitiveness, it was necessary to understand how these "successful" firms operate.

After this first step, a report on financing sources and partner firms was completed. The synthesis document contains the different results for each work theme (as previously identified by Boyer M. & al 2002). The results presented below were obtained from the data compiled in this first step.

Perimeter of the Study

The list of firms was taken from the SIRENE file (a data bank of firms belonging to the *Institut national de la statistique et des études économiques*, INSEE, France). The study looks at Réunion Island's 250

largest firms. The criteria used to select participating firms are the number of employees and the firm's sales. All the firms' headquarters are located on Réunion Island. However, some of the firms' activities take place elsewhere. This is the case in particular of many groups whose activities take place in the Indian Ocean (for instance Mauritius, Madagascar, Mayotte) and the Metropolitan (French) territories.

Of the 250 firms contacted, 118 agreed to participate in the ECER study. The principal characteristic of these firms is that they are young: more than 53 % have been operating for less than 20 years. Accordingly they are small: firms have an average of 144 employees and 30.5 % of them have less than 50 employees.

Table 1 Sample composition

	Industry	Construction	Commercial	Service	Total
ECER % breakdown	16.9%	12.7%	30.5%	39.8%	100%
INSEE % breakdown	10.6%	12.6%	30.9%	45.9%	100%
Gap (Sample/ICS)	6.4	0.1	-0.3	-6.1	
Comments	Over- represented	Well- represented	Well- represented	Under- represented	

a. Designing and managing the questionnaire

In order to obtain a proper comparison between firms, the research team created a questionnaire that focused on the main areas of management: marketing, strategy, information systems, human resources management, logistics, and finance. Considering the numerous fields to include as well as the exploratory nature of this study, the research team voluntarily limited the number of questions. Thus, the indicators that were retained do not attempt to measure a precise concept; in fact, they seek to qualify the main managerial fields within large Reunionese firms. A number of professionals - economic

experts - filtered the indicators. At the end of this process, slightly more than 100 effectiveness indicators were selected to cover, in a pertinent fashion, the different management fields in the Reunionese context.

Questionnaires were administered by interview with a firm's CEO or representative and one of the lab's researchers. When this process ended, 118 questionnaires had been answered which represents a rate superior to 47%.

Variables

The questionnaire contained more than 150 items. For the scope of this article, we limited ourselves to items directly related to our subject matter.

Dependent variables: the following performance indicators were used:

- Sales Figures evolution: "Will sales figures increase or decrease next year?"
- Operating results evolution: "Will operating results increase or decrease next year?"
- Indebtedness evolution: "Will indebtedness increase or decrease next year?"

These indicators were coded on a 7 point scale, ranging from 1 (very strong decrease) to 7 (very strong increase). We must note that these variables are perceptual data provided by the firm's representative. The use of these variables for the purpose of this research is motivated by the fact that we had limited access to accounting data. During the interview process, permission was asked to consult financial statements and research was also undertaken in legal databases. However, ultimately, collected data was insufficient for statistical treatment. Insular context is not favorable to information disclosure, and the number of shareholders who possess

this information is limited by capital structure. Consequently, the following results do not concern themselves with explaining the evolution of indicators (sales figures, operating results, and indebtedness) but show, rather, how the evolution of these indicators is perceived by the firm's representative.

Explanatory factors

a. Factorization criteria

Descriptors used cover five wide areas: Information Systems, Strategy and Management, Human Resources Management, Competitive Intelligence Practices and Improvement Practices. These descriptors were factorized using the likelihood maximum method, thereby reducing the quantity of indicators to interpret.

The implementation of this factorization technique required testing the adequacy of data coverage. This verification was carried out both at a global level and for individual factors. At the global level, sample appropriateness was evaluated using Bartlett's sphericity test (Chi-square between random distribution and variables, 0 significance) and Kaiser-Mayer-Olkin's MSA (Measure of Sampling Adequacy) test, calculated at the global level (measure KMO in SPSS). The MSA test was also used for individual factors. In both cases – at the global and local levels – the test value had to be superior to 0.5. The factors considered were those whose eigenvalues were superior to 1 (Kaiser's rule).

b. Factors obtained

Based upon the tests mentioned above, different indicators were deleted. The remaining indicators helped identify seven factors which are presented below (with their indicators) in order of priority:

- F1 Dynamism and Partnership: factor focusing on the number of partners and initiative measurement.
- F2 Inward-Looking Dynamism: factor focusing on initiative measurement versus the number of partners.
- F3 Clientele Orientation: factor focusing on client satisfaction studies and satisfaction re pricing of main product versus initiative measurement and number of partners.
- F4 Product Orientation: factor focusing on main product price satisfaction, main product and equipment improvement, performance measurement, product quality satisfaction versus client satisfaction studies and initiative measurement.
- F5 Technical Improvement: factor linked to equipment and main product improvement, client satisfaction studies, R&D (research and development) versus main product price satisfaction, number of types of partners, and initiative measurement.
- F6 Competitive Intelligence and Anticipation: factor linked to analysis of commercial reports, competitive analysis, number of alliance areas and forecasting tools versus main product price satisfaction, number of types of partners, and client satisfaction studies.
- F7 Research and New Technology: factor linked to Internet use, R&D, price satisfaction, equipment improvement versus quality measurement, client satisfaction studies, number of alliance areas, and power relationships with competitors.

These factors were used as explanatory factors in the performance study. The approach used is described below.

Approach

Processed Datum

This study aims to characterize different conceptions of performance as expressed by CEOs' of firms who participated in the ECER study. The suggested approach retains three indicators related to perceived performance: perceived evolution of sales, operating results and indebtedness. The classical approach identifies a common factor to these three dimensions and bases its analysis on this factor. We, however, adopt a different approach which consists of identifying regression models that account for the performance indicators applied.

Dependent variables are those listed hereinbefore: evolution of sales figures, operating results, and indebtedness. Explanatory factors are those selected: Dynamism and Willingness to Partnership, Inward-oriented Dynamism, Clientele Orientation, Product Orientation, Technical Improvements, Competitive Intelligence and Anticipation, and Research and New Technology.

Instead of applying a regression model that explains the evolution of sales, a second one explaining the evolution of operating results, and a last one for indebtedness evolution, another approach is selected. This approach researches classes of models that can explain the three types of dependent variables concomitantly. For each observation, three records are established. They share the same explanatory variables but do not share dependent variables. In total, this provides $3 \times 118 = 354$ records which will be treated concomitantly with a typological regression procedure. As mentioned below, this procedure seeks to establish homogeneous classes, each with its specific regression model, thus minimizing the overall prediction error.

This approach is rich in that it characterizes different situations and interprets the manner in which classes are established. In fact, these indicators reflect performance, yet they may also intervene in a different way. For instance, during interviews, the CEOs of firms expressed a dual perception of indebtedness. Indebtedness can be linked to bad management, and thus be associated to weak performance, or, on the other hand, it can indicate development, and thus be associated to strong performance. This reflects an entrepreneur's aspirations as it relates to indebtedness (Julien and Marchesnay 1996). Given that, in typological regression, regression is not constrained to a specific type of indicator, it is possible to identify

record classes that share a regression model, irrespective of the type of dependent variable used.

Typological Regression Procedure

This approach seeks to identify observation classes that share the same regression model. Many approaches are available to carry out this typological regression (Wedel and Steenkamp, 1989; Wedel and De Sarbo, 1995; Kamakura and Wedel 1997; Vermunt 2000, 2003, 2004, on the Web). Each approach presents certain limitations that can be overcome by using the typological regression GUIROEM algorithm, which automatically researches classes using an error minimizing criteria. Classes are established according to dependent variable prediction. This approach is advantageous in that it guides the construction of classes by determining the dependent variable instead of relying on structural properties (like the k means method, for instance). Each identified class corresponds to a regression model that allows an estimation of the dependent variable.

Based on genetic algorithm (GA) (Holland J.H., 1975; Goldberg D.E., 1989), this algorithm researches classes to minimize prediction error (SSE: Sum of Square Error) or regression models' proportion of variance explained (R²). The GA is combined to a method that obtains linear regression (method of least squares, neural networks...). A hybrid approach such as this is advantageous because it associates robustness, rapidity, and simultaneous exploration of solution space while limiting data fit analysis to parametric constraints. For a complete presentation, see Cucchi & Ouedraogo (2004).

This algorithm was used on the 354 (118*3) records obtained during the ECER research project. Different configurations, ranging from 1 to 4 classes, were tested. For each one, the algorithm was repeated ten times. It was therefore possible to estimate the configuration's stability by observing performance variation. Moreover, observations were standardized in order to avoid scale difference issues. This manner of choosing the preferred solution is applied in the following paragraphs.

RESULTS

Global Results

The indicators used to measure regression quality on the global level were the sum of the squares of the errors (SSE), the multiple correlation coefficients R^2 , and the Fisher-Snedecor test for all coefficients.

1. Solution comparison

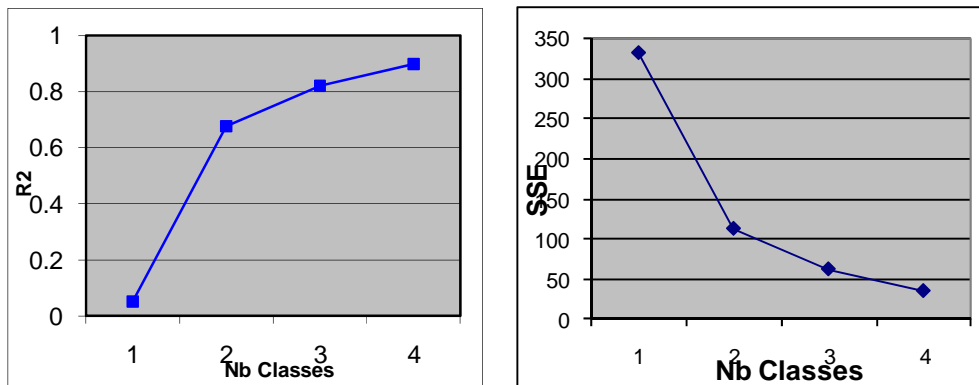


Figure 1: R^2 and SSE evolution against the solution's number of classes.

The evolution curve of the SSE allows us to visualize performance improvement against number of classes. With an SSE superior to 300, it is obvious that simple regression of all coefficients is unsatisfactory. Two class (SSE = 113), three class (SSE = 63) and four class (SSE = 36) solutions prove more satisfactory in this regard. For the R^2 , the graph shows a net improvement between dimensions 1 and 2. After that, the R^2 evolves favorably, yet the range of improvement is smaller. It seems reasonable, for thriftiness reasons, to limit the number of classes to two or three.

Table 2 R² adjusted by class according to solution dimension

	R ² adjusted / class			
	Cl1	Cl2	Cl3	Cl4
Sol in 2 Cl.	0.273	0.499	-	-
Sol in 3 Cl.	0.759	0.800	0.783	-
Sol in 4 Cl.	0.936	0.741	0.852	0.863

An observation of this table shows that the two class solution, albeit satisfactory at the global level, makes it impossible to obtain high R² levels for each class (0.273 for class 1, and 0.499 for class 2). Although this configuration strongly lessens the SSE and improves the R², it does not enable us to obtain regression models that account for variances in each class. For these reasons, we chose to develop a solution in three classes

Results in Three Classes

Results in classes can be termed in the following manner:

- Class 1 “Dynamic -”: firms whose dynamism is inferior to the sample mean. These firms are associated with the industry and construction sectors and practice a relatively high number of activities. Their main clients are usually SME type enterprises with more than 10 employees, and they tend to practice partnership.
- Class 2 “Dynamic +”: firms whose dynamism is superior to the sample mean. They are associated with the commercial sector and practice a relatively limited number of activities. Their main clients are, on one hand, the public in general and, on the other, public sector organizations and larger firms. They tend not to enter into partnerships and do not tend to disperse, whether in their activities or partnerships.

- Class 3 “Dynamic M”: firms that are within the sample mean. They are associated with the service sector and practice one to three activities. Their main clients are also the public in general on the one hand and public sector organization, large firms on the other hand. They are moderate partnership firms (between 0 and 4) and have the most average profile.

To better understand the different elements of this dynamic, it is necessary to interpret results specific to each class.

Description of regression models

a. Class 1 of “ Dynamic - ” firms

The table below is obtained with the use of the SPSS software after selection of class 1 records. Detailed results are annexed. Class 1 represents the cases where dependent variable value is significantly lower than the sample mean. In this case, perceived evolution of performance indicators is least favourable than the sample mean.

Regression coefficients are as follows. In this table, all coefficients are significant and four (4) are positive: Dynamism and Partnership (0.751), Inward-Looking Dynamism (0.396), Competitive Intelligence/Anticipation (0.146), Research and New Technology (0.145). This means that firms in this class perceive improvements in performance when they show evident dynamism, particularly toward external partners but also internally. The coefficients of Intelligence, Internet and R&D activities are perceived as being less influential. Three coefficients are negative: Technical Improvement (-0.546), Clientele Orientation (-0.246), Product Orientation (-0.240). When these factors increase, perceived performance decreases. From this we may interpret that as factors increase, the more a firm will struggle. It

is important to note that these factors reflect internal processes and principles in the fields of production, clientele, and product.

Table 3 “Dynamic - ” regression coefficients

Model		Non-Standardized coefficients		Standardize dcoefficients	t	Signification
		B	Standard Error	Bêta		
(constant)		-.605	.050		-12.224	.000
Partnership and Dynamism	F1	.683	.045	.751	15.161	.000
Inward-Looking Dynamism	F2	.346	.042	.396	8.200	.000
Clientele Orientation	F3	-.278	.056	-.240	-4.945	.000
Product Orientation	F4	-.303	.059	-.246	-5.133	.000
Technical Improvement	F5	-.700	.062	-.546	-11.217	.000
Competitive Intelligence/ Anticipation	F6	.172	.055	.146	3.105	.002
Research and New Technology	F7	.199	.064	.145	3.106	.002

a Dependent Variable : Y

b Exclusive selection of observations for which sol 3cl Cluster R2 = 1.00

This class’s model shows the importance of dynamism in general and partnership in particular. This factor had been identified previously within the framework of correspondence analysis. Evolving mainly in industry and construction, firms in this class tend to associate performance improvement to dynamism evaluation and relational approaches. From a strategic standpoint, the actors associated with this class (omitting internal resources) try to mobilize external resources to improve performance. Relational strategies are greatly valued as a means of improving performance. Thus, relational skills, in Persais’ (2004) sense of the word, act as a fundamental tool in the implementation of this strategy. The nature of this class’s activities helps explain this strategy. Often, industry relies on a network of subcontractors and partners to obtain a finished product. In the same vein, the construction sector often relies on a number of partner-enterprises from different trades for construction projects. This explains why this class is closest to “SME + 10 employees” type clients

because it is involved in many sub-contracting and co-contracting activities.

To summarize, this model illustrates a strategy that, without neglecting the use of internal resources, relies strongly on partnership resources to improve perceived performance.

b. Class 2 of “ Dynamic + ” firms

This second class, “dynamic + ” reflects observations where the dependent variable is significantly higher than the sample mean.

Table 4 “ Dynamic + ” regression coefficients

		Non- standardized coefficients		Standardized coefficients	t	Signification
Model 1		B	Standard Error	Bêta		
(constant)		-.00144	.039		-.037	.971
Partnership and Dynamism	F1	-.634	.044	-.684	-14.402	.000
Inward-Looking Dynamism	F2	-.512	.039	-.580	-13.033	.000
Clientele Orientation	F3	.354	.045	.355	7.822	.000
Product Orientation	F4	-.379	.046	-.383	-8.181	.000
Technical Improvement	F5	-.295	.043	-.306	-6.916	.000
Competitive Intelligence/ Anticipation	F6	.159	.050	.140	3.195	.002
Research and New Technology	F7	-.138	.053	-.115	-2.615	.010

a Dependent Variable : Y

b Exclusive selection of observations for which sol 3cl Cluster R2 = 3.00

All coefficients are significant. Two are positive: Clientele Orientation (0.355) and Competitive Intelligence (0.140). This means that greater focus on clientele and competition positively influences a firm’s level of perceived performance. Five coefficients are negative: Dynamism and Partnership (-0.684), Inward-Looking Dynamism (-0.580), Product Orientation (-0.383), Technical Improvement (-0.306), Research and New Technology (0.115). This signifies that efforts relating to willingness to partnership, monitoring dynamism and

product and technical aspects are associated with a decrease in perceived performance.

The model for this class reveals the strategy of commercial firms which tend to focus on a smaller number of activities. Their main client is either the general public, or public sector and large firms. Beyond products, competitive advantage is based on identifying and understanding clientele and monitoring competition. These factors are perceived as being essential assets for improving performance. Inversely, because of the nature of activities, technical and technological capacities linked to production do not reinforce perceived performance.

To summarize, this model reflects a commercial strategy that develops expertise centered on understanding clientele and competitive environment.

c. Class 3 of “ Dynamic M ” firms

This class consists of records with a variable dependent within the sample mean. The coefficients are synthesized below.

Of the seven coefficients, two are not significant (Clientele Orientation, Inward-Looking Dynamism). Three are positive: Dynamism and Partnership (0.681), Technical Improvement (0.488), and Product Orientation (0.379). This reveals that for entrepreneurs, monitoring dynamism, openness to partnership, technical improvements and product orientation are associated with performance improvement. Inversely, research and Internet use (-0.289) and competitive intelligence (-0.215) are associated with a decrease in performance.

This model reveals a strategy focused on product and technical improvements, combined with a firm's dynamism and openness to partnership. This class is associated to the service sector. Technical proficiency and know-how on the one hand, and networking on the

other are seen as factors that contribute to performance improvement. As in the preceding case, clientele orientation is not associated with performance improvement. To summarize, this class's strategy is a combination of knowledge accumulation and a partnership-oriented approach.

Table 5: “ Dynamic M ” regression coefficients

		Non- standardized coefficients	Standard Error	Standardized coefficients	t	Signification
Model 1		B		Bêta		
(constant)		.531	.046		11.474	.000
Partnership and Dynamism	F1	.857	.055	.681	15.539	.000
Inward-Looking Dynamism	F2	-.0727	.053	-.059	-1.382	.170
Clientele Orientation	F3	.0218	.047	.019	.464	.644
Product Orientation	F4	.455	.050	.379	9.165	.000
Technical Improvement	F5	.669	.058	.488	11.607	.000
Competitive Intelligence/ Anticipation	F6	-.278	.053	-.215	-5.237	.000
Research and New Technology	F7	-.457	.065	-.289	-7.001	.000

a Variable dépendante : Y

b b Exclusive selection of observations for which sol 3cl Cluster R2 = 2.00

DISCUSSION

Research has shown that Réunion Island firms adopt three types of performance strategies:

Symbiotic strategy: Class 1 “ Dynamism - ” consists of firms with a dynamism inferior to the sample mean. They interact with the industrial and construction sectors and practice a relatively high number of activities. Main clients are mostly SME firms with more than 10 employees. Their performance improvement strategy relies on internal resources dynamism and partnerships. The Class 1 strategy is

consistent with the works of Huselid (1995), and Becket and Gerhart (1996), which show that the manner in which firms manage human resources can explain performance. The insular context makes it necessary for firms in this category to find solutions to isolation and remoteness. In order both to remain essential and to improve their performance, they tend to value internal skills and to form partnerships with exterior firms.

Determinist strategy: Class 2 “Dynamism +” consists of firms with a dynamism superior to the sample mean. This class is associated with the commercial sector and has a limited number of activities. Main clients are the general public, on the one hand, as well as public sector and large firms on the other. They are not partnership-oriented. They tend not to disperse, neither in their activities or partnerships. Their development strategy is centered on understanding their clientele and competitive environment. They rely strongly on their environment to build competitive advantage. What is more, as these firms’ main clients are the general public, large firms and public administration, they tend to manage their relationship with their environment, thereby acquiring a kind of monopoly in their domestic market. This strategy relates to the works of Venkatraman and Prescott (1990) on aligning environment and strategy, as well as to those of Slater and Narver (1994) on market orientation and organizational performance.

Productive strategy: Class 3 “Dynamism M” consists of firms with a dynamism within the sample mean. This class is associated with the service sector and practices, on average, between one and three activities. Main clients are the general public, on the one hand, as well as public sector and large firms on the other. They tend to practice partnership in moderation (between 0 and 4). Their performance development strategy focuses on associating product and production processes. Class 3 relies on development of new technology to boost

organizational performance as shown by Delaney and Huselid (1996) and Dean and Snelle (1996). However, according to Meredith and McTavish (1992), developing new technologies cannot, on its own, guarantee performance. Technological development must be accompanied by significant improvements in human resources skills which are necessary for creating knowledge within a firm (Nonaka 1994).

IMPLICATIONS AND CONCLUSION

The objective of this empirical study, based on a survey of 118 Réunion Island firms, is to further our understanding of performance related issues for geographically isolated firms. In this aim, seven explanatory factors were used: Dynamism and Partnership, Inward-Looking Dynamism, Clientele Orientation, Product Orientation, Technical Improvement, Competitive Intelligence/Anticipation, Research and New Technology. These factors were established to predict three performance indicators: perceived evolution of sales figures, perceived evolution of exploitation results, and perceived evolution of indebtedness. The process consisted of a typological regression procedure that used seven factors as independent variables and three performance indicators as dependent variables. This approach allowed us to identify classes that share the same regression model. For this, we used the GUIROEM genetic algorithm. An interpretive section analyses the content of these regression models as well as the way the classes are linked to exogenous factors (areas of job activity, capital structure).

These classes are not significantly linked to types of performance indicators (SF evolution, results evolution, indebtedness evolution). This reveals that, because the different conceptions attached to these indicators are not sufficiently defined by CEOs, autonomous models cannot be justified. The concept of performance includes, at different

levels, sales figures, exploitation results and indebtedness. Furthermore, a description of obtained models shows significant differences: they are varied and contain much useful information on corporate behavior.

Many results are noteworthy. From a methodological standpoint, the GUIROEM typological regression algorithm allowed for the identification of classes with particular regression models. In this manner, the heterogeneity of situations was respected. By creating emerging classes, this heterogeneity identified models that can help us interpret the phenomena that is of interest to us. This approach helped us identify different performance development strategies. Thus, for this sample, with the factors used, a unique regression model does not exist that can explain different performance aspects. Classes correspond to different situations, and each has a particular model.

From a managerial standpoint, this study provides new insight to the notion of performance. Whereas most studies are based on accounting data or other types of data, this work uses CEOs' perception on different management and performance indicators. The classification we have obtained as well as its associated models increase our comprehension of the strategies used to improve performance. This classification is associated to different performance levels and different activity sectors. Moreover, each regression model that explains performance with the help of management indicators enables us to identify a strategy specific to each class. Thus, this work allows us to highlight such explanatory dimensions of performance as the role of the activity sector and the implementation of strategy. Departing from the works mentioned in the first half of this article, we identify the source of performance as being exogenous elements, such as the activity sector and endogenous elements, such as operative strategy. On the other hand, the nature of the data and the implemented methodology makes it impossible to identify the relative importance of these dimensions. The results cannot indicate if strategy

takes precedence over the activity sector or vice versa. This is one of the limitations of this study. Although not specific to this work, another limitation concerns the nature of the resources used by firms. The results we present constitute a qualitative step forward because they reveal combinations of different management indicators that explain performance. Thus, they succeed in making explicit the mind processes of CEOs' in devising strategy. On the other hand, they cannot explain the nature of the resources that are at the root of competitive intelligence, since these tend to be tacit, informal and hardly transparent.

The nature and size of our sample urges us to exert caution. The contingent character of the data and environment allows for a better understanding of Reunionese firms' behavioral habits. Any generalizations would therefore be premature. Complementary studies that examine these firms' accounting data are presently being done. Although this data contains biases, it nonetheless allows us to realize a performance study based on non-perceptual data, thus revealing the result of implemented strategies. Moreover, as Allègre (2002) points out, by selecting the most important Reunionese firms, we have limited ourselves to studying the strategies of successful firms. This probably accounts for the homogeneity in the implemented strategy of each sector. Studying firms with heterogeneous success rates would surely help us refine the nature of implementation strategies since we could differentiate the pertinent ones from those that do not work well or do not work at all. Finally, a thorough study of the tourism industry (ECER 2) should enable us to obtain a refined identification of performance models and of resources specific to this sector's firms.

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