Intangible Resources as Drivers of Performance: Evidences from a Spanish Study of Manufacturing Firms

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Introduction

The purpose of this paper is to try to expound a conceptual framework which, following the resource-based-view (RBV) of the firm, enables us to know the significance of a group of intangible resources (company reputation, product reputation, human capital and organisational culture) in relation to business performance. In addition, we will test the descriptive power of the proposed model by empirically studying a sample of Spanish manufacturing firms holding the ISO 9000:1994 certificate of quality.

Theory Development: Background

One of the first attempts to define the firm as a unique and organised collection of resources (in contrast to the traditional conceptualisation of the neoclassical approach, which used to identify the firm with the production function) was made by Edith Penrose (1959). Despite this fact, the resource-based-view literature only recognises the role deployed by Wernerfelt (1984) as one of the pioneers of the perspective. We acknowledge that some of the basic RBV postulates were introduced by Penrose in 1959 who established a relationship between organisational resources and firm growth.

The main contribution of Penrose (1959) does not lie only in the definition of the firm, but also in explaining its growth process and stating what are the boundaries of that growth. According to Penrose, the boundaries of growth are to be sought "inside" the firm and not just in the external environment. Throughout their history, firms could generate resources internally, or acquire in the markets those they needed for developing their activity. But these resources are often underused, i.e. firms hold a larger volume than they strictly need to keep on developing the same activity using the same intensity. Thus,

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organisations can continue developing, as they hold idle resources, for which they try to find new applications. The use of these unused resources in most cases can lead to new complementary uses, which enables firms to exploit the idle resources, and this would make it possible for them to find new underused resources and, therefore, to perpetuate this process (Penrose, 1959).

The main concepts of the resource-based-view, i.e. the definitions of resources and capabilities, have given rise to some controversy (see for example Amit and Shoemaker, 1993, or Priem and Buttler, 2001). Aaker's (1989) and Hall's (1992) papers suggested that assets would be what firms "have" and capability, competence and ability would be what organisations "do". Itami (1987) added that capabilities, competences or abilities are people dependent, just as Hall (1993) classified. According to Cuervo (1999), competences are "interactions" among resources and capabilities would be the "abilities" to develop resources and competences.

According to Grant (1991a), resources can be also considered as "inputs" of the productive process that constitute the basic unit of the analysis. He suggested that individual assets are not going to be productive by themselves, owing to the fact that productivity requires co-operation and co-ordination of resources; thus introducing the concept of capabilities: a group or equipment of resources carrying out a particular "task or activity". Therefore, the single addition of individual resources does not constitute a unit; a collective guidance is required, which leads us to the concept of complex patterns of co-ordination between resources and persons. Introducing the concept of "organisational routines" (Nelson and Winter, 1982) is the best way to explain this. "Organisational routines" are regular, predictable activity patterns made up through sequences of actions co-ordinated by persons who act because of a motivation or a specific problem. Presenting the concept of "organisational routines" serves as a convergence between the evolutionary or ecological perspective and that of resources (Montgomery, 1995). Routines have the same meaning for firms as genes do for the human being. The ability of firms to reach co-operation and co-ordination in work teams is a critical component in the relationship between resources and capabilities, taking the learning into account as a key concept in order to achieve them, and this leads us to the learning school (Mintzberg et al., 1998).

The development of sustainable competitive advantages that usually transmit long-term rents to organisations, as Wernerfelt (1984) proposed, is based on selected company resources. Not all company resources have the strategic potential to be able to carry out such tasks as long-term rents, so it is necessary to assess what resources, capabilities and different routes of knowledge in organisations should be chosen and to analyse why these resources can boost organisations. Not all researchers agree when proposing a name for these driving resources of organisational success. Thus, "critical resources" for Wernerfelt (1984) mean the same as "strategic factors" for Barney (1991) and "strategic assets" or "inputs" for Amit and Shoemaker (1993), which, according to Conner (1991), are "able to produce sustainable rents". There is no agreement on the requirements

that inputs must meet to let us classify them as "strategic" (Grant, 1991a; Barney, 1991; Amit and Shoemaker, 1993; Peteraf, 1993; Tampoe, 1994; Hamel and Prahalad, 1998). Most of these papers are centred on two features that provide the strategic potential of resources: replicability and transferability (Fernández et al., 1997). The criteria proposed in RBV literature for those inputs having sustainable competitive advantage are not the most appropriate for empirical research, maybe because they are not sensitive to the context in which they act. This can be seen in the revision of the bibliography on RBV.

Intangible Resources as Potential Rent Drivers

As we mentioned before, and according to the RBV, resources are the decisive factors in the competitive advantage of firms and their performance and, therefore, the main concern of the executives should be the selection, acquirement and management of "competitively" superior resources. The RBV prescribes that only those resources having certain peculiarities are able to generate superior levels of economic rents (Amit and Shoemaker, 1993); therefore, the property of or control over these strategic assets will determine which of the firms obtain superior profits and which do not.

We can often find very restrictive definitions of assets, including those that can be valued, such as physical assets (Jacobson, 1992). This restrictive conceptualisation determines that a significant group of intangible resources may not be seen in balance sheets or in the financial statements of firms. A group of relevant researchers, including Itami (1987), lean towards this, and they point out that the intangible assets of organisations have the ability to create competitive advantages. Some empirical studies that have tried to measure the capability of tangible assets in order to explain the differences of profitability obtained by firms had great spread. However, very few researchers have tried to determine the role that intangible resources can play. According to some RBV researchers, there are certain difficulties in defining intangible resources and capabilities separately; however, the common underlying connection between these two concepts, just as Fernández et al. (1997) defend, is based on the fact that both routes of knowledge have different levels of complexity that are held or controlled by firms.

According to Hall (1992), intangible resources must be considered as "assets", since they are "things that you have", and most of them are often legally protected. In the RBV context, intangible resources are considered as decisive factors of the competitive advantage of firms and, therefore, of their performance (Grant, 1996). Consequently, this RBV prescription is considered for us as a key reference for the empirical study developed in this piece of work: "intangible" resources are the decisive factors of the competitive advantage of firms and their performance.

In this paper, a limited number of intangible resources are studied separately and in depth, and this allows us to empirically check them later. There exist some other ways of considering and assessing intangible resources of organisations, for example models of intellectual capital (Edvinsson, 1997). Generally, intellectual

capital is broken down in several stocks of intangible resources, for which a group of indicators is proposed in order to capture the value generated by the immaterials contemplated in each of these frameworks.

There exists plenty of literature on classification of resources and the underlying criteria of each author are very dissimilar (Hall, 1992; Markides and Williamson, 1994; Grant, 1996). Two taxonomies of resources will be used for our empirical study: those of Grant (1991b) and Hall (1992). Intangible resources (Hall, 1992) can be divided as assets or abilities. Brands, patents, copyrights, registered designs, contracts, trade secrets, reputation and networks are included in "asset" intangible resources. Abilities are human capital and culture. However, Grant (1991b) does not consider human capital as intangible and proposes a specific category: human resources. According to Hall (1992), intangible resources can also be classified as dependent on persons or independent of them. Intangible resources dependent on people include human capital (employees, distributors, suppliers, etc.), as well as organisational culture, reputation and networks. Intangible resources independent from people are contracts, licences, trade secrets, intellectual property rights of patents and data bases.

Empirical Study and Results

The main prescription of the RBV perspective is that strategic assets are decisive factors of the competitive advantage and performance of firms. Based on the definition of strategic assets and on resource-based-view logic, it can be assumed that strategic assets are intangible resources and, consequently, starting from Aaker's (1989), Hall's (1992) and Grant's (1991b) studies, a relationship among intangible resources in the model proposed is established ("company reputation", "product or service reputation", "human capital" and "organisational culture" with "organisational performance").

In the empirical model, the four intangible resources are considered indirect variables of the potential value of the intangibles observed. The subjective nature of managers' perceptions is often seen as a problem for the research. Perceptions do not necessarily have to correspond to an objective assessment; however, their influence becomes clearer when managers take decisions. In spite of these weaknesses, other authors have established that even when "more objective" indicators are available, executives' perceptions have been used as worthwhile alternatives in different empirical pieces of work developed according to the RBV (Powell, 1996; Vicente-Lorente, 2001; Wilcox and Zeitgaml, 2001).

The valuation of company performance (response variable) has been the subject of a detailed description in the literature of strategic management (Chakravarthy, 1986; Venkatraman and Ramanuhan, 1986; Camisón and Guia, 1999), without having agreed on which is the most relevant measure of the performance. Some of the most recent research carried out according to the RBV distinguishes two classifications of indicative elements when assessing the organisational performance: market position or growth and profitability (Pettus, 2001). The first classification, market position or growth, considers sales, market share, change in sales, change in market share, change in number of employees

and change in total assets. The second classification, profitability, contemplates return on assets, return on equity, profit margin and net profits. In the empirical study, the return on assets was adopted for each company of the sample as a proxy variable of the organisational performance. The calculation of the return on assets was performed as an average of the period 1994–97. This alternative shows certain advantages, as it enables the smoothing of the data and, therefore, the correction of possible transitional effects derived from any anomalous activity in any of the years taken into account (Hill et al., 1992). Besides, it enhances the normality of the distribution, which is necessary in order to be able to analyse it with some minimum statistical significance (Hair et al., 1992).

As a result of his research, Hall (1992) found out that the intangible resources that most influence the potential capability of firms to generate competitive advantages are: company reputation, product reputation, human capital and organisational culture; in keeping with this research, our proposed model considers these four resources as the independent variables that can explain organisational performance. These four constructs were measured with multiple-item 7-point Likert scales. However, these variables are latent and, therefore, they cannot be directly observed, and, as its measurement is essential, it will be calculated through factorial analysis.

In the "company reputation" variable, the conceptualisation made by Weigelt and Camerer (1988) is used to measure the three descriptive factors; quality of the management team, financial position and social responsibility. For its part, the quality of the management team is measured through the four items following Doppler and Lauterburg (1998). The item used by Weigelt and Camerer (1988) is proposed to assess the dimension of social responsibility. Also, the only item suggested by Weigelt and Camerer (1988) is taken into account in order to assess the dimension of the financial position of firms.

Hypothesis of company reputation.

H_1: The better the assessment assigned to the company reputation by a manager, the higher the organisational performance achieved will be.

The "product reputation" variable depends on the perception of quality, according to Weigelt and Camerer (1988); consequently, and assuming this perspective, evaluating this dimension would require studies directed at assessing users' opinion on the quality of products of different firms or, failing that, researching the association between quality and brand for different organisations. Both alternatives are rejected, since they were difficult to adopt, and managers' opinions on the impact that owning a superior quality product would have was analysed instead.

Hypothesis of product reputation.

H_2: The better the assessment assigned to the product reputation by a manager, the higher the organisational performance achieved will be.

The "human capital" variable is composed of three items adopted from Grant (1991b): focus on training, adaptability of employees and social-collaborative skills of employees.

Hypothesis of human capital.
H_3: The better the assessment assigned to the human capital by a manager, the higher the organisational performance achieved will be.

For the last explanatory variable, "organisational culture", we follow Hall (1993: 617). He identified five attributes of organisational culture that lead the firms possessing those attributes to achieve sustainable competitive advantages: 1) ability to innovate, 2) perception of high quality standards, 3) perception of high standards of customer service, 4) team working ability and 5) participative management style. With regard to the second dimension, "perception of high quality standards", Juran's (1990) contributions are followed to design it. He places the responsibility for quality on the board of directors and points out three requirements (aspects, or even phases) related to the process: quality planning, quality control and quality improvement. The "ability to manage change" dimension is assessed by means of six items suggested in Doppler and Lauterburg (1998); in the last one, Barney's (1986) anthropological perspective is followed. The fourth dimension that integrates the latent variable organisational culture, team work, is referred to a specific item suggested in Hall's research. Finally, we follow Likert (1961) in order to classify the dimension "participative management style" and use three specific items.

Hypothesis of organisational culture.
H_4: The better the assessment assigned to the organisational culture by a manager, the higher the organisational performance achieved will be.

The sample selected to test the model was taken out from Ardán's database, which comprised 166 firms holding the ISO 9000:1994 certificate of quality. A total of 72 executives responded, giving a response rate of 43 per cent. The evaluation of the proposed theoretical model was carried out by means of four simple linear regressions (RLS) and one multiple linear regression (RLM) in which the Return on Assets (RECOMED) was adopted as a dependent variable and Company Reputation (drawn up as a factorial variable: REPUEM), Product or Service Reputation (generated from only one item: REPUPOSE), Human Capital (designed as a factorial variable: CAPIHUMA) and Organisational Culture (factorial as well: CULTORGA) were adopted as predictor or independent variables.

The size of the firm is frequently recognised in the literature as a control variable which influences performance (Huselid, 1995; Vicente-Lorente, 2001). In order to decide to include it or not in the MRL model, we first performed an ANOVA to explore if the size should be included as a control variable in the regression. Firm size was measured by total employment (Huselid, 1995) and

converted into five categories to test its influence on our dependent variable (RECOMED). We did not find significant differences of firm size categories on return on assets, thus we decided not to incorporate it in the model (MRL) as a control variable, keeping the model simple and clear.

Following Hair et al. (1999), those items that negatively affected Cronbach's Alpha coefficient of the latent variable (REPUEM, CAPIHUMA and CULTORGA) were eliminated for each construct. Also, for the three unobservable latent variables (REPUEM, CAPIHUMA and CULTORGA) to be used in the regressions, a Principal Component Analysis (PCA) with varimax rotation was carried out with the purpose of obtaining a factorial structure for each one. The total variance explained for the three constructs is shown on Table 11.1.

Table 11.1: Total Variance Explained (PCA)

Latent Variables	Total Variance Explained (%)
Factorial REPUEMP	49.104
Factorial CAPIHUMA	58.967
Factorial CULTORGA	33.886

Before estimating the function specified in the model of regression, a study of the relationships among all the variables was carried out by using a non-parametric statistic Spearman's Rho (Hair et al., 1999). Thus, as we can see in Table 11.2, the results confirm that there exists a significant statistical correlation among the dependent variable and each of the four independent variables considered (REPUEM, REPUPOSE, CAPIHUMA and CULTORGA).

Table 11.2: Correlations between Dependent and Independent Variables

VARIABLES	RECOMED
Factorial REPUEMP	.777**
REPUPOSE	.525**
Factorial CAPIHUMA	.569**
Factorial CULTORGA	.805**

** Significant at 10% level.

The results of the MLR indicate an acceptable goodness of fit of the model evaluated by means of the adjusted $R_{\_}$ (0.529). The regression coefficients analysis estimated (MRL) and its significance levels show the acceptance of H_1,

H_2 and H_4 (Factorial REPUEMP, Factorial CAPIHUMA, and Factorial CULTORGA achieved a p-value < 0.05). On the other hand, H_2 (the variable REPUPOSE presented a p-value = 0.255) must be rejected if we consider the same 0.05 significance level. Statistical results are shown in Table 11.3.

Table 11.3: Standardised Coefficients (SLR, MLR)

VARIABLES	Parameters SLR	p-value	Parameters MLR	p-value
Factorial REPUEMP	0.754	0.000	0.283	0.038
Variable REPUPOSE	0.463	0.000	0.103	0.255
Factorial CAPIHUMA	0.574	0.000	0.251	0.008
Factorial CULTORGA	0.784	0.000	0.642	0.000

Conclusion

The literature review carried out in this paper suggests the importance of some "invisible" resources as rent generators to those firms holding or controlling them. All those resources having a more intangible nature or more strongly dependent on people turn out to be specially efficient for those firms that "supposedly" have a strong focus on their development.

The results of the empirical study through the regressions reveal the statistical importance of some resources to explain levels of company performance. In the RLS analysis, the four intangible resources achieved statistical significance but in the MLR analysis, only three of the hypotheses, company reputation, human capital and organisational culture with company performance, were confirmed.

Our research methodology has been different from that of the authors previously mentioned, considering that neither Aaker (1989) nor Hall (1992) used regression analysis; they only elaborate a ranking of resources as drivers of competitive advantages. Also, our study has been carried out in a different competitive environment, working with a sample of Spanish manufacturing firms, whose size is lower than the ones considered by Aaker (1989) and Hall (1992). Despite these differences in methodology and firm characteristics, we reached similar conclusions to other authors. These general conclusions highlighted the role played by some intangible resources as generators of competitive advantages and also the ability of these resources to explain variances in firm performance.

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