

**THE CHARACTERISTICS OF SPANISH TAKEOVER TARGETS:  
WHICH ARE THE MOTIVATIONS THAT LEAD TO THE LAUNCHING OF  
TAKEOVER BIDS IN SPAIN?\***

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**ABSTRACT**

In this paper we analyse the characteristics presented by Spanish firms that have been the subject of takeover bids. The results show that these firms were not, in general, characterised by having lower profitability or a worse market valuation than other firms operating in the same sector. This result makes it difficult to argue that takeovers in Spain have in their majority been driven by disciplinary or speculative motives. By contrast, certain variables that exert an influence over the cost of the transaction do appear to play a relevant role in the selection of the target on the part of the bidding firm.

*Keywords: Takeovers, Acquisitions, Logit model*

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# **THE CHARACTERISTICS OF SPANISH TAKEOVER TARGETS: WHICH ARE THE MOTIVATIONS THAT LEAD TO THE LAUNCHING OF TAKEOVER BIDS IN SPAIN?**

## **1. INTRODUCTION**

Identifying the characteristics of firms that are potential takeover targets is a subject that has enjoyed considerable attention in the literature on mergers and acquisitions. Within this literature, it is possible to distinguish two lines. In the studies devoted to the first of these, published fundamentally in journals dedicated to financial matters and industrial economics, an effort has been made to infer the reasons that most frequently lie behind the attempts to take corporate control through the identification of the characteristics of the target firms. By contrast, the works that fall within the second line, which has a more normative character have the objective of constructing models of takeover likelihood that provide the basis for an investment strategy. Many studies have conclusively demonstrated that the shareholders of target firms obtain positive abnormal returns close to the date of the public announcement of the bid<sup>1</sup>. Thus, a model that is capable of identifying those firms that will be the target of an attempted merger or takeover sufficiently in advance of the event and with reliability will allow investors to obtain high profits by investing in them.

The majority of the available evidence on the characteristics of takeover targets refers to the corporate control markets of the USA and the United Kingdom, with the results not always coinciding and occasionally being contradictory. In Spain, the contributions made in this field are somewhat limited. The most relevant work is that of Vázquez (1992), where an attempt was made to analyse precisely which financial characteristics allowed merger and takeover targets to be distinguished from firms of a similar size and activity base that had not been the subject of such a bid. This author used the sample of 68 firms dedicated to industrial and commercial activities. Of these, 34 had been the subject of attempted mergers during the period 1983-1990, whilst the other 34 firms were of a similar size and activity base to the

targets firms but had not been the subject of any attempted merger. Applying a multiple discriminant analysis the author found that the first group of firms had a larger proportion of accumulated reserves, higher indebtedness, a greater capacity to respond to short-term debt, a higher price-earnings ratio and a lower valuation ratio. Against this background, the aim of our study is to provide additional empirical evidence on the differentiating characteristics of Spanish non-financial firms that are takeover targets. The interest of the work does not lie in the development of a model with a large predictive capacity, or in testing its utility in order to obtain abnormal returns in the capital markets. Rather, its objective is limited to inferring the main motivations that could lead to the launching of takeover bids in Spain. It can be differentiated from the work of Vázquez (1992) in a number of aspects. First, the use of a larger sample, namely 138 non-financial firms, and a different time period, 1991-1997. Secondly, the selection of the variables used in the model, on the basis of the formulation of prior hypotheses. Thirdly, the inclusion of variables that reflect ownership structure, in addition to financial and market valuation variables. Finally, the methodology used in the multivariate analysis, that is to say, logit analysis, which offers various statistical advantages with respect to discriminant analysis.

The rest of the paper is organised as follows. In Section 2, and using the previous empirical evidence and the different theories that habitually appear on the literature on mergers and acquisitions as a basis, we formulate a number of hypotheses on the characteristics that, a priori, we could expect to find amongst takeover targets. Section 3 is devoted to the construction of the sample and a description of the variables used. The methodology and results of the multivariate analysis appear in Section 4. Section 5 closes the paper with a review of the main conclusions.

## **2. THEORETICAL DISCUSSION AND FORMULATION OF THE HYPOTHESES**

The economic literature contains a number of different theories on the motives that lie behind the merger and acquisition of firms (for a complete review, see Ballarín et al., 1994). The testing of these hypotheses at the aggregate level is, nevertheless, a complex process, given that not all takeovers necessarily respond to the same motivation and, indeed, a number of motivations can simultaneously be present in the same transaction. Despite this, various empirical works have tried to infer the reasons that, in their majority, provide the impulse for takeovers. To that end, they have analysed the characteristics presented by takeover targets that appear to differentiate them from other firms.

The fundamental complexity that emerges from an application of this methodology lies in selecting a variable that allows each theory to be properly reflected: a number of variables can be used to test one theory, whilst one variable can be used as a proxy for various theories. All this additionally leads to greater difficulty in interpreting the results.

Given these specification problems, the procedure followed in a large number of studies has been to introduce a set of variables into the model -with the possible influence of these being justified, to a greater or lesser extent, on the basis of different economic argument or of previous empirical evidence- and leaving it to select the most relevant ones. However, and following the works of Palepu (1986) and Powell (1997), it seems to be more interesting, at least from an economic point of view, to select the variables not in function of their statistical significance, but rather on the basis of the theories on mergers and acquisitions that habitually appear in the economic and financial literature, to that end formulating a number of specific hypotheses.

In what follows we present four hypotheses. The first three have been formulated on the basis of theories that, having appeared frequently in the literature and being susceptible to testing through the analysis of the characteristics of the takeover targets<sup>2</sup>, justify takeover bids by

reference to different motives. The fourth relates to the consideration on the part of the bidding firm of certain specific aspects of the takeover target that could favour the success of the transaction and reduce its cost.

*(i) The replacement of inefficient management*

Agency models indicate that the professional conduct of some managers is not always directed towards defending the interests of the shareholders for reasons that essentially have to do with the difficulties in designing efficient control systems (Jensen and Meckling, 1976). According to this line, the conflict of interest between shareholders and management, which leads the latter to manage the firm by paying attention to their particular objectives, possibly gives rise to a negative deviation with respect to the expected corporate results.

The theory of the market for corporate control, originally advanced by Manne (1965), indicates that when a firm is managed in an inefficient way there will be other management team that, when becoming aware of this, will be willing to take control of that firm, replacing the old management and improving it. A number of studies, such as those of Palepu (1986), Song and Walkling (1993), Powell (1997) and Barnes (1999), have used different accounting measures of profitability to approximate this theory. In our paper we have considered the return on equity of the firm as an indicator of the efficiency with which it is being managed. Thus, we have formulated the hypothesis that those firms with a lower return on equity than that of others in the same sector and with similar characteristics will be more likely to be the subject of a takeover.

*(ii) Under-valuation of the target firm*

Marris (1964) suggested that the main motivation for the merger and acquisition of firms was the search for assets that were undervalued by the market. For a firm interested in introducing itself in a sector, the acquisition of an undervalued firm would appear to be an interesting option from a financial point of view (Hasbrouck, 1985). On other occasions, the intention of

the bidding firm could simply be to take advantage of market bargains, in order to subsequently resell the assets at a higher price.

The under-valuation of a firm could be the result of its own inefficiency. In this sense, a poor valuation of the target on the part of the market could represent support for the first theory; alternatively, it could be due to the efficiency of the capital market, which systematically undervalues certain firms (Scherer, 1988). In any event, the under-valuation hypothesis indicates that firms whose market value is lower than their real value are converted into takeover targets, given that the price demanded by the market for their control is lower than their true value. As a proxy variable to test this hypothesis, we have used the valuation ratio.

*(iii) Growth-resource imbalance*

Another of the causes that could lead to the takeover of a firm is the intention on the part of the bidder to take advantage of an imbalance between the expectations for growth and the amount of available resources within the target firm. Thus, it could be expected that those firms which present such an imbalance have a higher likelihood of being a takeover target.

Firms with a large amount of available resources and limited growth opportunities are attractive for potential bidders interested in taking advantage of the excess resources. Although for different reasons, in this case related with the agency conflict between shareholders and management, the free cash-flow theory advanced by Jensen (1986) also indicates that firms with resources that are in excess of that required to fund their investment projects that have a positive net present value have a higher likelihood of being acquired.

The financial literature that analyses investment and financing decisions under the hypothesis of asymmetric information (Myers and Majluf, 1984) suggests that firms with an imbalance in the opposite direction, that is to say, with many growth opportunities but limited available resources, also have a higher likelihood of being acquired.

A number of works, such as those of Palepu (1986), Ambrose and Megginson (1992), Powell (1997) and Barnes (1999) have tried to empirically test this theory, although only the first of these has offered some support for it. Thus, Palepu found that the existence of an imbalance between available resources and growth opportunities had a positive effect on the likelihood of a firm being a takeover target. The direction of such an imbalance appeared to be that of many resources and limited growth opportunities, given the lower rate of indebtedness and growth that he observed for the firms under study.

Similarly, various works have tested this theory through the differences observed in the liquidity, indebtedness and growth of target and non-target firms. In our case, following Palepu (1986) and Ambrose and Megginson (1992), we have additionally included a dummy variable that takes the value 1 for those firms with a combination of high indebtedness, low liquidity and growth expectations or low indebtedness, high liquidity and limited growth opportunities, and the value 0 for the other firms.

*(iv) Costs of the transaction*

The size and ownership structure of the acquired firms are two aspects that influence the likelihood of whether the transaction culminates in success, as well as the more or less costly character of this for the bidding firm. Their influence on the likelihood that a firm will be acquired is, therefore, not justified from the point of view of the economic motives that drive the acquisition, but rather from the point of view of their influence on the costs of the transaction for the bidder<sup>3</sup>.

With respect to size, various authors (Palepu, 1986; Powell, 1997, amongst others) have pointed to the existence of transaction costs associated with the size of the acquired firm. Thus, the volume of necessary financial resources, the costs associated with the integration of the acquired firm into the organisational structure of the bidding firm and the difficulties, if such exist, of overcoming the opposition of the management team of the acquired firm, all

increase with the size of that firm. Therefore, we can expect a negative influence to be exerted by size on the likelihood that the firm would be a takeover target. In our study, size is measured through the natural logarithm of the total net assets of the firm.

The degree of ownership concentration is another factor that influences the cost of the takeover for the bidding firm. According to Grossman and Hart (1980) when the target firm presents a very disperse ownership structure, this leads to the appearance of the so-called free rider problem. Each one of the shareholders, given their limited shareholding in the capital of the firm, considers that their individual decision (to tender or not to tender their shares) is irrelevant in the face of the final result of the transaction. As a result, and with the aim of inducing the desired level of tendering, the bidding firm is obliged to offer a very high premium for the shares, thereby acting as a disincentive for the takeover.

Except in the circumstances where there is a high level of potential competition between bidders (Ferguson, 1994), the free rider problem is mitigated when the ownership structure is more concentrated. This is the case because the shareholders are now conscious that their decision is not irrelevant and are thus willing to tender their shares at a lower price. Furthermore, when the ownership structure is concentrated, the bidder can negotiate in an individual manner with each of the most important shareholders, thereby facilitating the success of the takeover.

Therefore, we have formulated the hypothesis that those firm with an ownership structure that is more concentrated than that of other firms with similar characteristics are more attractive for the bidder. The degree of ownership concentration is measured through the percentage of shares directly owned by the two most important shareholders.

A second aspect relative to the ownership structure that is capable of exerting an influence on the likelihood of a firm becoming a takeover target is the directors' shareholding. A larger shareholding by the members of the Board of Directors gives them greater strength when



seeking to impede a hostile takeover (Stulz, 1988). This would suggest a negative relation between directors' shareholding and the likelihood of the firm being acquired. However, an argument could be made in the opposite sense, namely that if the members of the Board of Directors participate in the firm's capital, then their condition of shareholders could act as an incentive for them to favour the success of the transaction in order to obtain the premium offered by the bidder (Mikkelsen and Partch, 1989). Given these lines of reasoning, it is difficult to establish a priori the expected sign for the influence of this variable over the likelihood that a firm will be a takeover target.

The testing of all these earlier-mentioned hypotheses has been carried out using a sample of 138 non-financial Spanish firms. Let us now consider this sample and the methodology applied to it in more detail.

### **3. CONSTRUCTION OF THE SAMPLE AND THE VARIABLES**

#### **3.1 The Sample**

The sample used in this work is made-up of 69 non-financial Spanish firms that were takeover targets during the period 1991-1997. The identification of the firms targeted in each year has been made on the basis of the annual report of the Spanish Securities and Exchange Commission (SSEC). From these, the following have been excluded:

- firms belonging to the financial sector
- firms not quoted on the Spanish Stock Exchange
- firms that launched takeovers of their own shares (for reasons of leaving their Stock Market quotation and going private, reductions in capital, etc.)
- firms for which it was not possible to obtain financial-economic information corresponding to the last accounting year end prior to the date of announcement of the bid.

In those cases where one firm have been the subject of a takeover bid in two or more different years, only the first of these years has been included, given that the characteristics that had made it attractive for takeover must have existed at that time.

In this way, of the total of 156 firms that had been the subject of some takeover bid during the period 1991-1997, 69 complied with the selection criteria. The financial information corresponding to the last accounting year end prior to the date of the announcement of the bid was obtained from the Audits of Issuing Companies database, developed by the SSEC.

The selection of the sample that acted as the control group was made on an industrial and time basis. For each firm, we selected a firm that had not been the subject of a takeover bid during a period of four years turning on the date of announcement of the bid, that belong to the same sector, that was quoted on the Spanish Stock Exchange in the year in which the bid was launched and whose annual accounts where also reflected in the above-mentioned database.

### **3.2 The Variables**

In the construction of the variables we have used the accounting information corresponding to the last accounting year end prior to the date of announcement of the bid, obtained from the earlier-mentioned database developed by the SSEC. With respect to the market valuation ratio, we have used the last quote of the year immediately prior to that of the announcement of the bid.

The information on the ownership structure of the firms again comes from the SSEC, as the institution responsible for the vigilance and control of the Spanish Stock Markets<sup>4</sup>. For each firm we have selected the data on significant shareholdings that is provided on a six-monthly basis to the SSEC, corresponding to a date between six and twelve months prior to the date of the announcement of the bid. In this way, we have tried to avoid the situation whereby the data on the ownership structure of the target firms could be affected by the taking of prior positions on the part of the bidding firm during the period close to the launching of the bid. Of

the 138 firms that make-up the final sample, it was not possible to obtain data on the ownership structure of 33 of them (17 target firms and 16 control firms).

When constructing the dummy variable used to test the hypothesis that those firms with a greater imbalance between growth opportunities and available resources have a higher likelihood of being a takeover target, we have used the valuation ratio as a proxy variable of the growth expectations, considering that a firm has such expectations if the value of its valuation ratio is greater than 1 and does not otherwise. On the other hand, and in order to determine whether or not the indebtedness and liquidity are high, the value of the debt and liquidity ratios of the firm has been compared with that of the median of the sector to which it belongs in the corresponding year. Furthermore, the indebtedness and liquidity variables have been included individually in the model.

The independent variables used in the study, together with the form of calculation and the expected sign in function of the hypothesis formulated in the earlier Section, are set out in Table 1.

## **4. MULTIVARIATE ANALYSIS: METHODOLOGY AND RESULTS**

### **4.1. Methodology**

In this Section we will carry out a multivariate analysis in order to estimate the joint effect that the financial and ownership structure variables have on the probability that a firm is the subject of a takeover bid.

Following Palepu (1986), we have used the logit model to specify the functional relationship between the characteristics of a firm and the probability of it being the subject of an attempted takeover. The logit model represents a particular specification of the binary choice models in which the dependent variable ( $Y_{it}$ ) can only take two values (1 or 0); in our case, if the firm

**Table 1****DESCRIPTION OF THE FINANCIAL AND OWNERSHIP STRUCTURE VARIABLES USED IN THE STUDY**

Variables	Calculation	Hypothesis	Expected sign
Return on equity (ROE)	Net Profit / Equity	Replacement of inefficient management	-
Valuation Ratio (VR)	(Capital market value + Book value of the debt)/ (Book value of equity + Book value of the debt)	Replacement of inefficient management Undervaluation	- -
Imbalance (IMB)	Dummy variable that takes the value 1 for those firms in which there is an imbalance between available resources and growth expectations and 0 for the rest.	Growth-resource imbalance	+
Indebtedness (IND)	Borrowed funds / Total liabilities	Growth-resource imbalance	?
Liquidity (LIQ)	Working capital / Total net assets	Growth-resource imbalance	?
Size (SIZE)	Natural logarithm of total net assets	Costs of the transaction	-
Ownership concentration index (C2)	% of capital in the ownership of the two most important shareholders <sup>a</sup>	Costs of the transaction	+
Directors' shareholding (DS)	% of capital in the ownership of the directors of the firm <sup>b</sup>	Costs of the transaction	?

The variables have been constructed using the accounting information corresponding to the last accounting year end prior to the date of announcement of the offer. To calculate the variable RV we have used the last quotation of the year immediately prior to the announcement of the offer. The data on ownership structure correspond to six-monthly period (ending June or December) situated between six and twelve months prior to the announcement of the offer.

<sup>a</sup> Only direct shareholding has been computed.

<sup>b</sup> This variable only reflects the shareholding declared on an individual basis by the members of the Board of Directors.

has been the subject of a takeover bid in the period  $t$ , then it assigns it the value 1, and 0 otherwise.

The probability that the firm  $i$  is the subject of an attempted takeover in the period  $t$ ,  $p(i, t)$  can be expressed as:

$$P(i, t) = \frac{e^{\beta x(i, t-1)}}{1 + e^{\beta x(i, t-1)}} \quad (1)$$

The relevant characteristics of the target firm that can be quantified are denoted by way of  $x(i, t-1)$  and enter explicitly in the model. The qualitative characteristics that influence the attraction of the target firm and the characteristics of the target-bidder combination are modelled as stochastic variables.

The logit model has the advantage of not requiring the assumptions of normality<sup>5</sup> and equality of the variances-covariances matrixes and of committing fewer type I errors than the discriminant analysis.

## 4.2. Results

Table 2 presents the results of the estimation of three binomial logit models. The first of these, model 1, includes all the explanatory variables save for those relating to the ownership structure, given that for these latter variables there is a lower number of available observations. In model 2 the variable IMB used in the first model and which represents the existence of an imbalance between available resources and growth opportunities is substituted by two dummy variables. The first of these (LRHG) takes the value 1 for those firms that have limited resources (scarce liquidity and significant amount of debt) and important growth expectations, and the value 0 for the rest. The second dummy variable (MRLG) takes the value 1 for those firms in which the imbalance is in the opposite direction, that is to say, a large amount of resources (scarce debt and a significant amount of liquidity) and limited growth opportunities, and the

value 0 for the rest. With these variables, we are trying to analyse whether the existence of an imbalance between available resources and growth opportunities affects the probability of a takeover in a different way, according to the direction that this imbalance takes. Finally, model 3 is the result of re-estimating model 2 with the incorporation of the ownership structure variables.

For each model, we present the estimations of the coefficients of the variables included in it. The statistical significance of these effects is determined by the Wald statistic, calculated for each coefficient and presented immediately below it.

With the aim of adequately valuing the importance of each variable, we have used the value of the exponential function of the coefficient itself, which measures the variation in the odds ratio ( $\frac{p_i}{1-p_i}$ ) in the face of a unit change in the corresponding variable. A coefficient is more important the further away the value of its exponential is from 1. The importance of each variable can also be evaluated on the basis of the standardised elasticities, presented below the exponential of each coefficient in Table 2<sup>6</sup>.

The global significance of each model is given by the likelihood ratio (LR) statistic, which tests the null hypothesis that all the coefficients of the model, except the constant, are equal to 0. This statistic indicates that the third model is the most statistically significant. The highest explanatory power also corresponds to this third model, in that the value of the McFadden  $R^2$  is higher than that of the other two, at 15.07%, as compared to an explanatory power of 6.27% in the first model and 7.55% in the second. From a comparison of Tables 3, 4 and 5 we can also confirm how, effectively, the discriminatory power of model 3, that includes financial and ownership structure variables, is higher than that of models 1 and 2. Model 3 (model 1, model 2) correctly classifies 69.25% (61.59%, 65.22%) of the total of the firms making-up the sample.

**Table 2**  
**RESULTS OF THE ESTIMATIONS OF THE LOGIT MODELS**

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
Probability of takeover bid at evaluation point	43,88%		42,55%		44,85%	
Variables	Coefficient (Wald <sup>(1)</sup> )	Exp( $\beta$ )	Coefficient (Wald)	Exp( $\beta$ )	Coefficient (Wald)	Exp( $\beta$ )
Constant	-0.5629 (0.1440)		-1.0519 (0.4679)		0.9652 (0.2118)	
ROE	0.0665 (1.1252)	1.0688 0.22%	0.0595 (0.8998)	1.0613 0.20%	0.0330 (0.2526)	1.0336 0.10%
VR	0.6186 (3.1083 <sup>*</sup> )	1.8563 12.44%	0.9248 (4.7840 <sup>**</sup> )	2.5214 19.15%	1.5853 (5.8621 <sup>**</sup> )	4.8807 29.73%
IMB	0.6137 (2.3118)	1.8472				
LRHG			-0.0181 (0.0010)	0.9820	-0.4802 (0.2715)	0.6186
MRLG			1.3713 (4.5750 <sup>**</sup> )	3.9404	2.1084 (7.0435 <sup>***</sup> )	8.2354
IND	2.3111 (5.2990 <sup>**</sup> )	10.0857 25.82%	2.9519 (7.0938 <sup>***</sup> )	19.1422 33.92%	3.4583 (6.1630 <sup>**</sup> )	31.7645 38.81%
LIQ	1.7186 (3.2983 <sup>*</sup> )	5.5766 13.12%	1.3409 (1.8589)	3.8225 10.49%	0.8130 (0.4403)	2.2547 5.31%
SIZE	-0.1549 (1.3877)	0.8565 6.68%	-0.1652 (1.5569)	0.8477 7.31%	-0.5391 (7.0742 <sup>***</sup> )	0.5832 18.82%
C2					0.0190 (4.0519 <sup>**</sup> )	1.0192 20.03%
DS					-0.0222 (3.1313 <sup>*</sup> )	0.9780 2.48%
N <sup>(2)</sup>	138		138		105	
LR <sup>(3)</sup>	11.990 <sup>*</sup> (gl=6)		14.445 <sup>**</sup> (gl=7)		21.931 <sup>***</sup> (gl=9)	
McFadden R <sup>2</sup> <sup>(4)</sup>	6.27%		7.55%		15.07%	

Notes:

<sup>(1)</sup> \* Indicates significance at a level of confidence of 90%. \*\* Indicates significance at a level of confidence of 95% \*\*\* Indicates significance at a level of confidence of 99%

<sup>(2)</sup> N indicates the number of observations used to estimate the model. In model 3, 33 observations have been lost, corresponding to those firms for which information is not available on directors' shareholdings.

<sup>(3)</sup> This is  $2 \cdot (\log \text{likelihood at convergence} - \log \text{likelihood with constant term only})$ . The ratio is used to test the null hypothesis that all the parameters in a model are simultaneously equal to zero. The statistic is distributed  $\chi^2_{k-1}$ , with k being the number of parameters of the model, including the independent term.

<sup>(4)</sup> McFadden R<sup>2</sup> =  $1 - (\log \text{likelihood at convergence} / \log \text{likelihood with constant term only})$ . This provides a measurement of the explanatory power of the logit model, similar to the value of R<sup>2</sup> in OLS regression

<b>Table 3</b>			
<b>DISCRIMINATORY POWER OF MODEL 1</b>			
Observed	Predicted		Percent correctly predicted
	0	1	
0	40	29	57.97%
1	24	45	65.22%
Percent correctly predicted over the total sample 61.59%			

<b>Table 4</b>			
<b>DISCRIMINATORY POWER OF MODEL 2</b>			
Observed	Predicted		Percent correctly predicted
	0	1	
0	43	26	62.2%
1	22	47	68.12%
Percent correctly predicted over the total sample 65.22%			

<b>Table 5</b>			
<b>DISCRIMINATORY POWER OF MODEL 3</b>			
Observed	Predicted		Percent correctly predicted
	0	1	
0	37	16	69.81%
1	16	36	69.23%
Percent correctly predicted over the total sample 69.52%			

Returning to Table 2, the results of the estimation of model 1 indicate that the variables with greater influence in the probability that a firm will be the subject of a takeover are those representing indebtedness and liquidity and, to a lesser extent, the valuation ratio. The higher the indebtedness, liquidity and the valuation ratio of a firm, the greater is the probability of it being subject to a takeover.



The results of model 2 indicate that the direction taken by the imbalance between available resources and growth opportunities is important when determining the probability that a firm will be the subject of a takeover. Thus, whilst the coefficient of the variable LRHG is not statistically significant, that corresponding to the variable MRLG is, with this indicating that the probability of being the subject of a takeover is high amongst those firms with a significant amount of available resources and limited growth opportunities. Despite the fact that this imbalance has a positive effect on the probability of a takeover bid, the coefficients of the variables IND, LIQ and VR indicate that, as a generality, the target firms are not characterised as being those with limited growth opportunities and significant resources. As regards the remaining explanatory variables, the results are similar to those obtained in model 1, save for the variable representing liquidity. The significance of this variable is reduced in model 2, given that its effect is now reflected to a great extent by way of the variable MRLG.

When including the ownership structure variables (model 3), we can note that both the C2 and DS variables present statistically significant coefficients. Increasing the ownership concentration and reducing the directors' shareholding has the effect of increasing the probability of a takeover bid. In this model, and by contrast with the earlier ones, size presents a statistically significant coefficient, indicating that the larger the size of a firm, the lower the probability of being the subject of a takeover bid.

## **5. CONCLUSIONS**

In this paper we have analysed the characteristics presented by firms that are the subject of takeover bids and that allow us to differentiate them from other firms. To that end, we have used a sample of non-financial Spanish firms that were the subject of takeover bids in our country during the period 1991-1997. The research has been orientated towards testing the different theories on the motives that drive takeover bids. Thus,

using these theories and earlier empirical evidence as a basis, we have formulated a number of hypotheses on the influence that different financial and ownership structure variables may exert on the likelihood that the firm becomes a takeover target.

The results of the analysis show that none of the possible motivations considered here would appear to be central in driving takeover bids in Spain. Thus, the search for undervalued assets by the market as a principal motive for takeovers is a theory that can be discounted relatively easily in the light of the analysis. The results obtained with respect to the valuation ratio indicate that the target firms are not less valued than others operating in the same sector.

Nor can disciplinary motives be considered as specially relevant in the Spanish market for corporate control. The return on equity of the target firms does not significantly differ from that of the other firms in the industry. Furthermore, other ratios that are habitually used as proxies for the quality of management, such as the valuation ratio or the indebtedness ratio, present a sign that is contrary to that which might be expected in the case of the bad management of the target firm. Given that disciplinary motives are more frequent in hostile takeovers (Morck et al.1988), this result is not surprising, in that the majority of takeovers in Spain have had a friendly character.

The search for complementarities or synergies between the bidding and the target firm as a motive for the takeover is difficult to test by way of the analysis employed here, given that we do not have information on the bidder. We have noted that those firms that exhibit the significant available resources-limited growth opportunities combination have a higher likelihood of being the subject of a takeover. However, this result could be consistent with two theories. First, with that postulating the search for synergies between the bidding and the target firm. Secondly, with the free cash flow theory of Jensen (1986), according to which the agency conflict between shareholders and

managers is aggravated in those firms where there are significant available resources and limited growth opportunities, thereby making them more vulnerable to a takeover. With the aim of determining which of these two theories has greater validity in the Spanish market for corporate control, it would be interesting to analyse the characteristics of the bidders for such firms, as well as the subsequent evolution of the target firms, including the continuity, or otherwise, of their management team.

Finally, the characteristics of the takeover targets in terms of size and ownership structure show that bidding firms select the targets by also taking into consideration those aspects that might exert an influence on the costs of the transaction.

Although the results of this study might be relevant when seeking to obtain a better knowledge of the Spanish market for corporate control and of the character of the transactions carried in it, one of its main conclusions is nevertheless the difficulty in finding a specific profile for the target firms. The limited explanatory power of the estimated models is illustrative of this difficulty. The reasons for this are quite numerous. From amongst these, we can cite the large number of motives that, according to the economic and financial literature, could drive takeover bids; the absence of a predominant motive; the difficulty in selecting variables that allow us to unequivocally test the main underlying motives; and, finally, the possibility that a number of different motives could be simultaneously acting as an incentive on the bidder.

## FOOTNOTES

<sup>1</sup>See Jensen and Ruback (1983) and Jarrell et al.(1988) for the US case; Franks and Harris (1989) on mergers and acquisitions in the UK; Eckbo and Langohr (1989) for the French case; and Fernández and García (1995) and Fernández and Gómez (1999) with respect to Spain.

<sup>2</sup> Not all the theories can be tested by identifying the differential characteristics presented by the target firms with respect to the others operating in the same sector. Thus, for example, management motives or the pursuit of a specific type of synergy as the source of the mergers and acquisitions of firms is difficult to identify using this type of analysis.

<sup>3</sup> Although the degree of ownership concentration and the directors' shareholding contribute towards determining the degree of separation between ownership and control within a firm, in such a way that, from a theoretical point of view, the possibility that the management team adopts behaviour significantly different from that of maximising shareholder value is greater when shareholder concentration and the directors' shareholding is smaller, it is nevertheless to be expected that the existence of this problem is translated into worse results for the firm, an aspect that has already been reflected in the first of the hypotheses.

<sup>4</sup> The regulations currently in force and effect make it obligatory to provide it with information on any shareholding considered as significant (equal to or higher than 5% of the firm's capital). Similarly, any change in the percentage of shareholding that supposes for the buyer or seller an increase or reduction equivalent to 5% or successive multiples thereof must be communicated to the SSEC. Furthermore, the members of the Board of Directors of all quoted companies are obliged to report their shareholdings, whatever the amount, in such a company.

<sup>5</sup> If the independent variables follow a normal distribution, the discriminant analysis gives rise to estimators that are asymptotically more efficient than the logit model. However, if the independent variables are not normal, then the estimators obtained by the logit model are consistent and more robust (Maddala, 1983, page 27). Given that it is improbable that the financial ratios, by virtue of their construction, follow a normal distribution (Barnes, 1982), we have opted for the logit analysis.

<sup>6</sup> In order to calculate the standardised elasticities we first have to determine the probability of a takeover at an evaluation point of the cumulative logistic distribution. The point habitually used is that at which all the explanatory variables take of their median values. The elasticity of the probability function with respect to a given variable is defined as the percentage increase undergone by the probability of a takeover at the evaluation point when the value of the median of the variable being considered is replaced by that of its second or third quartile (that which leads to an increase in the probability). Given this way of obtaining the elasticity, it has only been calculated for the explanatory variables of a continuous character.

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