



# Financial decisions as determinants of ownership structure

## 868 Evidence from Spanish family controlled firms

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### Abstract

**Purpose** – The aim of this paper is to analyse how financial decisions influence corporate ownership structure of Spanish family and non-family controlled firms.

**Design/methodology/approach** – The authors derived two models in line with financial theory, which have then been estimated by using a sample of Spanish companies. Panel data methodology and estimation by the generalized method of moments allow the unobservable heterogeneity to be eliminated and the endogeneity problem controlled.

**Findings** – The main findings are as follows. First, increases in debt lead outside owners and managers to limit the risk they bear by reducing their holdings. Such reductions are also found in family controlled firms. Second, both outside owners and managers are encouraged to increase their stakes in the firm in view of higher dividends. This reaction is also observed in family controlled firms, and it is even stronger in the managers of family controlled firms. Third, outside owners in non-family firms increase their holdings when a new investment project is undertaken, whereas the reaction of family controlled firms is the opposite. The expected positive effect of investment on insider ownership is only observed in family controlled firms.

**Practical implications** – When analysing the determinants of corporate ownership structure, the analysis should be controlled for family ownership.

**Originality/value** – Overall, this paper contributes to the strand of literature on the determinants of corporate ownership structure in two ways: first, by focusing on the role played by financial decisions; and second, by accounting for family control.

**Keywords** Family firms, Public ownership, Private ownership, Spain, Corporate finances, Decision making

**Paper type** Research paper

### 1. Introduction

There is little empirical evidence on financial decisions as determinants of corporate ownership structure. However, there are some theoretical and empirical works pointing out that this effect may be relevant. It is worth highlighting several papers that support the theoretical analysis presented in the next section. First of all, a firm's ownership concentration is found to be determined by its debt (Demsetz and Villalonga, 2001), dividends (Shleifer and Vishny, 1986; Allen *et al.*, 2000) and investment (Jensen and Meckling, 1976) policies. Second, these financial decisions may be determinants of the level of insider ownership as well, as shown by Jensen (1986), Stulz (1988), Denis and Sarin (1999) and Holderness *et al.* (1999) for debt, Jensen (1986) for dividends, and Himmelberg *et al.* (1999) for investment[1].



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Another important point of debate in ownership literature refers to family control and the consequences that this type of ownership has on performance. As pointed out by Anderson and Reeb (2003), families may have stronger incentives to monitor managers in order to mitigate agency costs and enhance shareholders' value, since a family's wealth is strongly linked to the performance of the firm. On the other hand, DeAngelo and DeAngelo (2000) argue that substantial cash flow rights may provide families with incentives and the capacity to ensure that management serves the family's own best interests at the expense of firm performance. Regardless of the final effect of family control on performance, the important point in this debate is whether it has an impact on a firm's financial decisions or not. Previous evidence shows that family ownership leads to greater availability of credit (Bopaiah, 1998) or to a lower cost of debt (Anderson *et al.*, 2003). DeAngelo and DeAngelo (2000) point out that families may make use of special dividends as a way of expropriating rents from the firm. Also the investment decision is likely to be affected by the longer horizons that potentially characterize families as compared to other shareholders. As a result, family controlled firms are found to invest more efficiently than non-family firms (James, 1999). According to these results, family controlled firms are expected to show peculiarities in their debt, dividends and investment decisions as compared to non-family firms. Whether or not the inverse of this relation also holds (i.e. whether there is a difference between family and non-family controlled firms as to the effect of financial decisions on corporate ownership structure) is an unanswered question.

Our paper contributes to ownership literature in the following two directions. First, we analyse how debt, dividends and investment decisions influence a firm's levels of outside and inside ownership concentration. Second, we shed light on the relevance of family control regarding the relationship between financial decisions and corporate ownership structure by focusing on the Spanish case, which is highly representative of this ownership pattern. In fact, in ownership literature there is growing interest in analysing the consequences of firms' ultimate ownership (see, for instance, La Porta *et al.*, 1999; Claessens *et al.*, 2000; Faccio and Lang, 2002). This has motivated us to account for family control in Spanish firms since, as Faccio and Lang (2002) document, family controlled firms are the most important category in Spain (55.79 per cent of Spanish firms in their sample are family controlled).

Consequently, the aim of this paper is to analyse financial decisions as determinants of corporate ownership structure in family and non-family controlled Spanish firms. To achieve this goal, we specify two models in line with financial theory, the first explaining ownership concentration and the second explaining insider ownership. Both models are then extended to account for the family effect. These models are estimated by using panel data methodology in order to eliminate unobservable heterogeneity, and we also control for the endogeneity problem by using the generalized method of moments (GMM).

According to our results, the following conclusions are reached. First, both outside owners and managers in non-family firms tend to reduce their holdings when debt increases, as a consequence of their risk aversion. This reaction is also observed in the outside owners of family controlled firms, and it is even stronger in their managers. Second, higher dividends encourage outside owners and managers to increase their stakes in the firm, regardless of the nature of its control (family vs non-family). Third, the levels of ownership concentration in non-family firms are higher when new investments are undertaken, whereas families reduce their holdings in view of higher investment levels. The expected positive effect of investment on insider ownership is

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only found in family controlled firms, whereas managers of non-family firms do not seem to react to new investments. Finally, outside holdings do not depend on the firm's free cash flow and investment opportunities, whereas managers choose their stakes according to these two characteristics.

The paper is organized as follows. We first discuss the main theoretical arguments supporting the relations between ownership and financial decisions in order to present our models. We then describe the data set and the results from the statistical analysis. We comment on the estimation method before discussing the results of the regression analysis. Finally, we present our main conclusions.

## 2. Theory, hypotheses and models

The main purpose of this paper is to study how financial decisions influence corporate ownership structure. In this way, we analyse the effect of the three major financial decisions (i.e. debt, dividends and investment) on a firm's outside and inside shareholdings. In fact, financial theory suggests that ownership patterns differ between outside and inside shareholders, which has led us to differentiate between these two ownership dimensions.

Let us first look at what financial theory tells us about the relationship between the level of a firm's ownership concentration and its debt, dividends and investment policies. As Demsetz and Villalonga (2001) indicate, if the firm's debt provides some of the monitoring of managers that otherwise would have come from a concentrated ownership, then higher leverage could be associated with lower levels of concentration. Therefore, this substitution hypothesis points to a negative relationship between debt and ownership concentration. Furthermore, a risk-based argument reinforces this prediction in that the desire of individual outside owners to diversify their portfolios is likely to be stronger when the risk they bear with their investments is high.

Regarding dividends, Shleifer and Vishny (1986) justify the existence of a positive relation between ownership concentration and dividends based on tax concerns, since large shareholders are usually other companies for which the received dividends are tax deductible. In this way, dividend payments can be seen as a way of encouraging the possession of higher stakes in the firm, as shown in Allen *et al.* (2000). Consistent with this tax-based argument, we expect dividends to positively influence the level of ownership concentration in Spanish firms, where large shareholders are usually other companies.

Finally, investment may also be considered as a determinant of corporate ownership structure. The inverse of this causality has been widely accepted in financial literature, since investment is one of the major ways through which ownership structure affects a firm's value. As Jensen and Meckling (1976) assert, managers' natural tendency is to allocate the firm's resources in their own best interests, which may conflict with value maximization. Since higher investment leads to greater opportunities for managerial discretion, stronger monitoring by concentrated ownership should be needed in order to control for such discretion. Therefore, we expect a positive effect of the firm's investment on its level of ownership concentration.

The influence of financial decisions on a firm's inside shareholdings has also been documented in the literature. Stulz (1988) argues that higher leverage allows managers to control more voting rights for a given stake in the firm, so that increments in the debt-to-capital ratio beyond a certain point lead managers to reduce their shareholdings. Moreover, since the firm's shares become riskier as more debt is issued, managers are likely to own smaller shareholdings when their firm's debt rises, because

of their risk aversion and limited wealth. It is also widely accepted in financial literature that debt constrains managers since they must meet interest payments or face the likelihood of losing their jobs in case of bankruptcy (Jensen, 1986). Debt financing thus limits the private benefits that managers can obtain through the misuse of their dominant position and, consequently, the incentives to entrench through share ownership diminish. These arguments lead us to expect a negative effect of leverage on the firm's level of insider ownership, such as the one found in Denis and Sarin (1999) and Holderness *et al.* (1999).

Concerning the dividend decision, Jensen (1986) points to dividend payments as an alternative to debt as a way of eliminating a firm's free cash flow and, consequently, as a potential deterrent to managers' consumption of perquisites. If managers offset their lower potential of shirking by increasing liquidity through share ownership, then higher dividends will lead to higher insider ownership levels, and a positive relation is thus expected.

Regarding the investment decision, the abovementioned argument applied to the level of ownership concentration can be extended here by means of the convergence of interest hypothesis. According to this hypothesis, the higher the insider equity ownership, the more likely it is that the conflicts between managers and shareholders will be resolved, and the more efficient their investment decisions will be. Therefore, Himmelberg *et al.* (1999) propose that investment should positively affect insider ownership, since higher investment leads to greater opportunities for managerial discretion, which can be controlled by means of increases in insider ownership.

To test these expected relations between ownership and financial decisions, we have specified two separate models: one explaining the level of ownership concentration, the other explaining the firm's insider ownership. Specifically, the models to be tested are as follows:

$$OC_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 DIV_{it} + \beta_3 INV_{it} + (\beta_4 + \beta_5 IOD_{it}) IO_{it} + \beta_6 FCF_{it} + \beta_7 Q_{it} + \beta_8 SI_{it} + \varepsilon_{it} \quad (1a)$$

$$IO_{it} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 DIV_{it} + \alpha_3 INV_{it} + (\alpha_4 + \alpha_5 OCD_{it}) OC_{it} + \alpha_6 FCF_{it} + \alpha_7 Q_{it} + \alpha_8 SI_{it} + \varepsilon_{it} \quad (2a)$$

where  $IO_{it}$  and  $OC_{it}$  denote insider ownership and ownership concentration, respectively[2].  $D_{it}$  is the firm's debt ratio,  $DIV_{it}$  denotes dividends and  $INV_{it}$  stands for the firm's investment.

Additionally,  $FCF_{it}$  and  $Q_{it}$  enter both models to capture the potential effect of a firm's free cash flow and investment opportunities, respectively, on its ownership structure. We also control for firm size as measured by the logarithm of the replacement value of total assets,  $SI_{it}$ . Let us see how financial theory supports the relationship between these variables and ownership.

As suggested by Jensen (1986), the higher the firm's free cash flow, the greater the managers' incentives to make their firms grow beyond their optimal size. If concentrated ownership solves free cash flow problems, then the desired level of insider ownership and ownership concentration in order to avoid overinvestment is expected to increase with the amount of free cash flow. The available empirical evidence, however, is contradictory. For instance, the results in Bergström and Rydqvist (1990) show that there is no significant relationship between equity concentration and free cash flow; whereas

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Lange and Sharpe (1995) and Himmelberg *et al.* (1999) find that free cash flow positively influences the firm's ownership concentration and insider ownership, respectively[3].

The existence of privileged information and the potential divergence between inside and market expectations encourages managers to adjust their holdings to their firms' future performance. Tobin's  $q$  should thus be an important determinant of insider ownership, in such a way that managers in firms with better investment opportunities are expected to hold a larger fraction of their firms' shares. Using different proxies for Tobin's  $q$ , the results in Cho (1998) and Denis and Sarin (1999) corroborate the expected positive effect of a firm's investment opportunities on its managers' ownership, whereas Lange and Sharpe (1995) and Mak and Li (2001) find no significant effect on the level of ownership concentration. In contrast, Demsetz and Villalonga (2001) report a negative coefficient for Tobin's  $q$  in both ownership structure equations, this negative effect being greater on insider ownership than on ownership concentration.

Firm size is also controlled for in both models. According to Demsetz and Lehn (1985), firm size is negatively related to ownership concentration because the larger the firm is and the larger its capital resources are, generally the more difficult it is to own a given fraction of the firm. This negative effect of firm size on inside and outside ownership concentration has been widely supported in, for instance, Holderness and Sheehan (1988), Bergström and Rydqvist (1990), Lange and Sharpe (1995), Cho (1998), Denis and Sarin (1999), Holderness *et al.* (1999) and Demsetz and Villalonga (2001).

Note that Models (1a) and (2a) incorporate the ownership concentration and insider ownership variables, respectively, in order to test whether there is a complementary or substitution relationship between these two agency-cost control mechanisms. Moreover, these right-hand side ownership variables have been interacted with their respective dummies to control for non-linearities in the value-ownership relation. In fact, it has been widely supported by financial literature that both insider ownership (as a consequence of the convergence of interest and entrenchment effects) and ownership concentration (as a result of the monitoring and expropriation effects) have a non-linear influence on the scope of the firm's agency costs, and are thus non-linearly related to firm value (see, for example, Morck *et al.*, 1988; McConnell and Servaes, 1990; Gedajlovic and Shapiro, 1998; Miguel *et al.*, 2004). Overall, these non-linearities suggest that higher levels of insider ownership and ownership concentration may not always reflect greater incentives to maximize value and monitor managers, but may be associated with greater managerial entrenchment (Fama and Jensen, 1983) and rent expropriation (Shleifer and Vishny, 1997).

There have been several previous attempts to integrate these non-linearities into the analysis of the relationships among control mechanisms (Grier and Zychowicz, 1994; Schooley and Barney, 1994; Crutchley *et al.*, 1999). However, all of them account for the non-linearity of insider ownership by including its square as a right-hand-side variable in the specified models, and there is no theory sustaining such specifications. Since it is the trend followed by firm value that suggests the existence of a convergence of interests or managerial entrenchment, this kind of reasoning only holds when a value model is specified. And, for the same reasons, the expropriation effect must be captured by means of the relationship between a firm's value and its ownership concentration.

To overcome this problem, we use the optimal breakpoints of the value-ownership relation found in Miguel *et al.* (2004)[4] in order to build dummy variables, which are then entered into our models. The insider ownership dummy,  $IOD_{it}$ , takes value one when there is a convergence of interests between managers and shareholders, and value zero when managers get entrenched. The ownership concentration dummy,

$OC_{it}$ , equals one when there is monitoring by large shareholders, and zero when controlling owners manage to expropriate the wealth of minority owners. Hence, in Model (1a) the coefficient on the insider ownership variable is  $\beta_4$  under entrenchment, since  $IOD_{it}$  takes value zero, and it is  $(\beta_4 + \beta_5)$  under convergence of interests, since  $IOD_{it}$  takes value one. Similarly, in Model (2a) the coefficient on the ownership concentration variable is  $\alpha_4$  under expropriation, since  $OC_{it}$  takes value zero, and it is  $(\alpha_4 + \alpha_5)$  under monitoring, since  $OC_{it}$  takes value one. In both cases, whenever the dummy variable takes value one, the statistical significance of the coefficient must be checked by performing a linear restriction test. The null hypotheses tested are  $H_0: \beta_4 + \beta_5 = 0$  in Model (1a) and  $H_0: \alpha_4 + \alpha_5 = 0$  in Model (2a).

Finally, growing interest in the ultimate ownership pattern, as evidenced in ownership literature, has led us to account for the potential moderating role of family control in the relationship between ownership and financial decisions. In fact, as Faccio and Lang (2002) document, family controlled firms are the most important category in Spain. As discussed in the introduction, there is prior evidence on certain particularities of the financial decisions of family controlled firms as compared to those of non-family firms. We investigate whether or not the inverse of this relation also holds (i.e. whether there is a difference between family and non-family controlled firms as to the effect of financial decisions on corporate ownership structure). With this purpose, Models (1a) and (2a) have been extended as follows:

$$OC_{it} = \beta_0 + (\beta_1 + \lambda_1 FCD)D_{it} + (\beta_2 + \lambda_2 FCD)DIV_{it} + (\beta_3 + \lambda_3 FCD)INV_{it} + (\beta_4 + \beta_5 IOD_{it})IO_{it} + \beta_6 FCF_{it} + \beta_7 Q_{it} + \beta_8 SI_{it} + \varepsilon_{it} \quad (1b)$$

$$IO_{it} = \alpha_0 + (\alpha_1 + \gamma_1 FCD)D_{it} + (\alpha_2 + \gamma_2 FCD)DIV_{it} + (\alpha_3 + \gamma_3 FCD)INV_{it} + (\alpha_4 + \alpha_5 OC_{it})OC_{it} + \alpha_6 FCF_{it} + \alpha_7 Q_{it} + \alpha_8 SI_{it} + \varepsilon_{it} \quad (2b)$$

where  $FCD_{it}$  is a dummy variable that takes value one in the case of family controlled firms[5], and zero otherwise. For instance, in Model (1b) the coefficient on the debt variable is  $\beta_1$  for non-family firms, since  $FCD_{it}$  takes value zero, and it is  $(\beta_1 + \gamma_1)$  for family controlled firms, since  $FCD_{it}$  takes value one. Also in these models, whenever the dummy variable takes value one, the statistical significance of the coefficient must be checked by performing a linear restriction test.

### 3. Data and statistical analysis

The principal source of information is the database from the comisión nacional del mercado de valores (CNMV) Spanish Security Exchange Commission (Spanish SEC). More specifically, we use data collected in the form of “Interim Financial Reports for all quoted companies” and “significant shares for all quoted companies”. Additionally, data on the market value of the company shares have been extracted from the Daily Bulletin of the Madrid Stock Exchange (MSE). Furthermore, we have used the database from Faccio and Lang (2002) in order to identify family controlled firms. However, our database covers a smaller number of companies than that of Faccio and Lang (2002), since we do not study financial firms. As Crespi-Cladera and Garcia-Cestona (2001) point out, the inclusion of investment trusts nearly doubles the number of companies, since there are 307 investment trusts in Spain. Crespi-Cladera and Garcia-Cestona (2001) focus the main part of their analysis on ownership and control of Spanish listed firms on non-financial companies. As a result, 193 companies are included in their analysis. Unlike Crespi-Cladera and Garcia-Cestona, our analysis

covers several years. Particularly, our study period ranges from 1990 to 1999, since we use some of the results found in Miguel *et al.* (2004) for the same period. Finally, our methodology imposes an additional restriction in order to control for unobservable heterogeneity and endogeneity; that is, we need information for at least six consecutive years in order to test for the absence of second-order correlation since this is an assumption of the GMM (see Arellano and Bond, 1991). As a result, 135 non-financial listed Spanish companies are included in our sample.

Therefore, our sample is an unbalanced panel comprising 135 companies for which the information is available for at least six consecutive years between 1990 and 1997. The structure of the panel, by number of annual observations per company, is given in Table I. Hence, as Table I shows, we have 1,233 observations; however, the models were estimated for only 1,098 of them because we lost the data for one year in the construction of some variables (see Appendix).

We have allocated the whole sample to ten sub-sectors according to the main product. As can be seen in Table II the observations of the total sample are quite uniformly distributed among the different sub-sectors. More importantly, this same distribution among sub-sectors is maintained for the sub-sample of family controlled companies, except for the energy companies. Therefore, the family controlled companies are uniformly distributed by sub-sectors, except the energy companies. There are several reasons why energy companies are rarely family controlled. First, because these companies used to be state controlled companies, and after their privatization they became widely held corporations. Second, the size of energy

**Table I.**  
Structure of the sample

Number of annual observations per company	Number of companies	Number of observations
10	76	760
9	22	198
8	24	192
7	5	35
6	8	48
Total	135	1,233

**Table II.**  
Total and family controlled samples distributed by sub-sector classification

Sub-sector	Total sample		Family controlled sample	
	Number of observations	Percentage of observations	Number of observations	Percentage of observations
Energy	127	10.30	18	2.91
Extractive industry	30	2.43	10	1.61
Transport industry	128	10.38	70	11.31
Textile industry	30	2.43	20	3.23
Building	201	16.30	107	17.29
Trade and services	319	25.87	167	26.98
Food industry	187	15.17	130	21.00
Metal industry	76	6.18	28	4.52
Chemical industry	78	6.33	42	6.79
Paper industry	57	4.62	27	4.36
Total	1,233	100	619	100

companies is usually very large, as a result it is very difficult for a family to control these large companies.

The main summary statistics (mean, standard deviation, maximum and minimum) of the variables used in the estimation are shown in Table III. Furthermore, we have performed a mean comparison test between family and non-family controlled firms for each of the variables included in our models. Results from this statistical analysis are provided in Table IV.

As expected, the level of ownership concentration is significantly higher in family controlled firms than in non-family firms. Similarly insider ownership is significantly higher in family controlled firms. However, we do not find any significant difference for the variables related to financial decisions (debt, dividends and investment). This fact facilitates our empirical approach since the levels of debt, dividends and investment are independent of family control, which implies that our tests of financial decisions as determinants of ownership structure depending on family control is very suitable for our purpose. Finally, the statistical analysis tells us that family controlled firms have higher free cash flow, lower investment opportunities and that they are smaller than non-family firms.

#### 4. Estimation method

The estimation method was selected in order to avoid unobservable heterogeneity and endogeneity. In fact, because firms are heterogeneous there are always characteristics influencing ownership structure (insider ownership and ownership concentration) which are difficult to measure or hard to obtain, and which do not enter our models. Therefore, if we do not control for this heterogeneity, we will run the risk of obtaining biased results, as shown in the studies by Moulton (1986, 1987). Unlike cross-sectional

	Mean	SD	Minimum	Maximum
$OC_{it}$	0.64311	0.24155	0.00011	1.0000
$IO_{it}$	0.17664	0.23821	0.0000	1.0000
$D_{it}$	0.20056	0.21741	0.0000	0.98392
$DIV_{it}$	0.01281	0.02066	0.0000	0.21516
$INV_{it}$	0.01489	0.14566	-4.5441	0.78551
$FCF_{it}$	0.04332	0.07844	-0.68449	0.84867
$Q_{it}$	1.1468	0.85053	0.20672	13.774
$SI_{it}$	10.582	1.6005	6.3724	15.933

**Table III.**  
Summary statistic

	Mean family controlled firms	Mean non-family controlled firms	t-statistic	p-value
$OC_{it}$	0.7436	0.5422	-15.1821	0.0000
$IO_{it}$	0.1942	0.1590	-2.4512	0.0144
$D_{it}$	0.1933	0.2079	1.1158	0.2647
$DIV_{it}$	0.0138	0.0127	-0.8608	0.3895
$INV_{it}$	0.0209	0.0089	-1.3609	0.1739
$FCF_{it}$	0.0494	0.0373	-2.5597	0.0106
$Q_{it}$	1.0731	1.2208	2.8837	0.0040
$SI_{it}$	10.2328	10.9332	7.4238	0.0000

**Table IV.**  
Mean comparison test  
between family and non-  
family controlled firms

analysis, panel data methodology has a great advantage in that it allows us to control for unobservable heterogeneity through an individual effect,  $\eta_i$ . We also included the variable  $d_t$  to measure the temporal effect with the corresponding dummy variables, so that we could control for the effect of macroeconomic variables on corporate ownership structure. Consequently, to eliminate individual heterogeneity, the models in Equations (1a), (1b), (2a) and (2b) were transformed into the following equations:

$$\begin{aligned} \text{OC}_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 \text{DIV}_{it} + \beta_3 \text{INV}_{it} + (\beta_4 + \beta_5 \text{IOD}_{it}) \text{IO}_{it} \\ & + \beta_6 \text{FCF}_{it} + \beta_7 Q_{it} + \beta_8 \text{SI}_{it} + d_t + \eta_i + \nu_{it} \end{aligned} \quad (1a)$$

$$\begin{aligned} \text{OC}_{it} = & \beta_0 + (\beta_1 + \lambda_1 \text{FCD}) D_{it} + (\beta_2 + \lambda_2 \text{FCD}) \text{DIV}_{it} \\ & + (\beta_3 + \lambda_3 \text{FCD}) \text{INV}_{it} + (\beta_4 + \beta_5 \text{IOD}_{it}) \text{IO}_{it} + \beta_6 \text{FCF}_{it} \\ & + \beta_7 Q_{it} + \beta_8 \text{SI}_{it} + d_t + \eta_i + \nu_{it} \end{aligned} \quad (1b)$$

$$\begin{aligned} \text{IO}_{it} = & \alpha_0 + \alpha_1 D_{it} + \alpha_2 \text{DIV}_{it} + \alpha_3 \text{INV}_{it} + (\alpha_4 + \alpha_5 \text{OCD}_{it}) \text{OC}_{it} \\ & + \alpha_6 \text{FCF}_{it} + \alpha_7 Q_{it} + \alpha_8 \text{SI}_{it} + d_t + \eta_i + \nu_{it} \end{aligned} \quad (2a)$$

$$\begin{aligned} \text{IO}_{it} = & \alpha_0 + (\alpha_1 + \gamma_1 \text{FCD}) D_{it} + (\alpha_2 + \gamma_2 \text{FCD}) \text{DIV}_{it} \\ & + (\alpha_3 + \gamma_3 \text{FCD}) \text{INV}_{it} + (\alpha_4 + \alpha_5 \text{OCD}_{it}) \text{OC}_{it} + \alpha_6 \text{FCF}_{it} \\ & + \alpha_7 Q_{it} + \alpha_8 \text{SI}_{it} + d_t + \eta_i + \nu_{it} \end{aligned} \quad (2b)$$

Moreover, the potential endogeneity of the financial decision variables in both models could seriously affect the estimation results. In fact, there is extensive theoretical and empirical research on how ownership structure (ownership concentration and insider ownership) influences financial decisions. Therefore, the key right-hand side variables (debt, dividends and investment) are endogenous. Additionally, there are theoretical arguments that lead us to consider the control variables as endogenous as well. For instance, a firm's free cash flow may depend on its ownership structure, since the latter is a key element in the free cash flow theory. The Tobin's  $q$  variable is clearly endogenous in our models, as is revealed by the extensive evidence on the effect of ownership structure on firms' performance (as measured by Tobin's  $q$ ). Finally, size may also be influenced by corporate ownership structure, since the latter affects financial decisions, which in turn influence size. Therefore, if we ignore the endogeneity issue we will obtain a spurious correlation between ownership structure and the right-hand side variables. Hence, we estimated Models (1a), (1b), (2a), and (2b) by using the GMM, which allows us to control for problems of endogeneity by using instruments. Specifically, we use all the right-hand-side variables in the models lagged twice or more as instruments. Additionally, the GMM solves the problem of intertemporality in that it is a dynamic estimation method. Note that this method provides a joint estimation of the parameters for the whole period studied. Finally, to eliminate the individual effect, we took first differences of the variables, and then we estimated the models thus obtained.

The panel data estimation was carried out using DPD98 for GAUSS written by Arellano and Bond (1998). To check for potential misspecification of the models we use the  $m_2$  statistic, which tests for lack of second-order serial correlation in the first-difference residuals. In our models, this hypothesis of second-order serial correlation is always rejected. Another specification test used is Sargan's statistic of over-identifying restrictions, which confirms the absence of correlation between the instruments and the error term in both models. Finally, besides the aforementioned specification tests,

Tables V and VI provide two Wald tests: the first ( $z_1$ ) is a test of the joint significance of the reported coefficients, while the second ( $z_2$ ) is a test of the joint significance of the time dummies.

## 5. Discussion

As shown in Tables V and VI, the results obtained are in accordance with the theoretically expected relations explained above for the ownership concentration and the insider ownership models.

Let us first discuss the results for the ownership concentration model, whose results appear in Table V. The second column of the table provides the results of the basic model in (1a), whereas the results of the extended model in (1b) are provided in the third column. The negative relationship between ownership concentration and debt indicates that as debt increases and, consequently, the risk of the firm rises, large shareholders reduce their stakes in the firm in order to limit the risk they bear. Moreover, the coefficient for family controlled firms ( $\hat{\beta}_1 + \hat{\lambda}_1 = -0.0539$ , statistically significant, see  $t_2$ ) is lower in absolute value than that for non-family firms ( $\hat{\beta}_1 = -0.1048$ ). This result suggests that families are less concerned with their firms' financial risk, and that they are reluctant to reduce their stakes in the firm in view of higher debt, since this reduction would lead to a likely loss of control.

Regarding the dividend decision, we find a positive coefficient for the dividend variable, which confirms that a higher dividend payment encourages the possession of higher stakes in the firm, as show in Allen *et al.* (2000). When we control for the family effect, the coefficient of the interaction ( $\hat{\lambda}_2$ ) is statistically insignificant. This result tells us that the incentives for appropriating the dividends paid are not related to who possesses the shares. This result was expected since the benefits from dividends are linearly related to the stake in the firm regardless of this stake being owned by a family or not.

The investment decision is also studied, showing that investment positively influences ownership concentration. Therefore, this result suggests that in general terms, higher investment encourages outside owners to hold more shares of the firm. This result is quite different for family controlled firms, since the coefficient of the investment variable for these firms is negative ( $\hat{\beta}_3 + \hat{\lambda}_3 = -0.1083$ , statistically significant, see  $t_3$ ). This means that families reduce their stakes when new investments are undertaken. This result could be explained by the fact that families have incentives and the capacity to expropriate the cash flow generated by these new investments, which is in agreement with the results found by Faccio *et al.* (2001) for Asian firms.

As shown in the second column of Table V, the influence of insider ownership on ownership concentration is also positive, not only when interests converge ( $\hat{\beta}_4 + \hat{\beta}_5 = 0.05724$ , statistically significant, see  $t_4$ ), but also when managerial entrenchment exists ( $\hat{\beta}_4 = 0.19701$ ). Note that this positive relation holds even after controlling for the family effect (see the third column of Table V), which confirms the complementary relationship between these two agency-cost control mechanisms.

The results for the size variable show that, according to Demsetz and Lehn (1985), larger Spanish firms are characterized by lower levels of ownership concentration. However, both free cash flow and Tobin's  $q$  are not statistically significant in the ownership concentration model. This lack of significance is logical to some extent. First, outside owners do not usually know the amount of their firms' free cash flow, and they may not be able to control for its alternative uses nor react to its variations. Second, outside owners often do not know the value of their firms' future investment

Model (1a):

$$OC_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 DIV_{it} + \beta_3 INV_{it} + (\beta_4 + \beta_5 IOD_{it}) IO_{it} + \beta_6 FCF_{it} + \beta_7 Q_{it} + \beta_8 SI_{it} + d_t + \eta_i + \nu_{it}$$

Model (1b):

$$OC_{it} = \beta_0 + (\beta_1 + \lambda_1 FCD) D_{it} + (\beta_2 + \lambda_2 FCD) DIV_{it} + (\beta_3 + \lambda_3 FCD) INV_{it} + (\beta_4 + \beta_5 IOD_{it}) IO_{it} + \beta_6 FCF_{it} + \beta_7 Q_{it} + \beta_8 SI_{it} + d_t + \eta_i + \nu_{it}$$

	Model (1a)	Model (1b)
Constant	0.0359* (0.0059)	0.0404* (0.0057)
$D_{it}$	-0.0633* (0.0132)	-0.1048* (0.0121)
$DIV_{it}$	0.1602** (0.0831)	0.4935* (0.1051)
$INV_{it}$	0.0455* (0.0064)	0.0366* (0.0068)
$IO_{it}$	0.1970* (0.0181)	0.1461* (0.0095)
$IO_{it} IOD_{it}$	-0.1398* (0.0252)	-0.0765* (0.0087)
$FCF_{it}$	0.0150 (0.0214)	0.0158 (0.0119)
$Q_{it}$	0.0010 (0.0013)	0.0010 (0.0013)
$SI_{it}$	-0.0085** (0.0046)	-0.0109* (0.0035)
$D_{it} FCD_i$		0.0509** (0.0259)
$DIV_{it} FCD_{it}$		-0.2148 (0.1519)
$INV_{it} FCD_{it}$		-0.1751 (0.0226)
$t_1$	2.6575	7.4670
$t_2$		2.5204
$t_3$		7.0381
$z_1$	261.403 (8)	1,425.101 (11)
$z_2$	1,047.430 (8)	1,898.216 (8)
$m_1$	-2.570	-2.904
$m_2$	-1.019	-1.210
Sargan	101.617 (103)	119.023 (108)

**Notes:** The dependent variable is ownership concentration ( $OC_{it}$ ).  $D_{it}$  is the firm's debt ratio,  $DIV_{it}$  denotes dividends,  $INV_{it}$  stands for the firm's investment,  $IO_{it}$  is the insider ownership,  $FCF_{it}$  denotes the free cash flow,  $Q_{it}$  stands for the investment opportunities, and  $SI_{it}$  denotes size. The insider ownership dummy,  $IOD_{it}$ , takes value one when there is a convergence of interests between managers and shareholders, and value zero when managers get entrenched. The family controlled dummy,  $FCD_{it}$ , equals one when a family is the controlling shareholder, and zero otherwise. The regressions are performed by using the panel described in Table I. The rest of the information needed to read this table is: (i) heteroskedasticity consistent asymptotic standard error in parentheses; (ii) \*, \*\* indicate significance at the 1 and 5 per cent level, respectively; (iii)  $t_i$  is the  $t$ -statistic for the linear restriction test under the null hypothesis of no significance; (iv)  $z_1$  is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as  $\chi^2$  under the null of no relationship;  $z_2$  is a Wald test of the joint significance of the time dummies; degrees of freedom in parentheses. (v)  $m_i$  is a serial correlation test of order  $i$  using residuals in first differences, asymptotically distributed as  $N(0,1)$  under the null of no serial correlation; (vi) Sargan is a test of the over-identifying restrictions, asymptotically distributed as  $\chi^2$  under the null of no relation between the instruments and the error term; degrees of freedom in parentheses

**Table V.**  
Estimation results for  
the ownership  
concentration models

Model (2a):

$$IO_{it} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 DIV_{it} + \alpha_3 INV_{it} + (\alpha_4 + \alpha_5 OCD_{it}) OC_{it} + \alpha_6 FCF_{it} + \alpha_7 Q_{it} + \alpha_8 SI_{it} + d_i + \eta_i + \nu_{it}$$

Model (2b):

$$IO_{it} = \alpha_0 + (\alpha_1 + \gamma_1 FCD) D_{it} + (\alpha_2 + \gamma_2 FCD) DIV_{it} + (\alpha_3 + \gamma_3 FCD) INV_{it} + (\alpha_4 + \alpha_5 OCD_{it}) OC_{it} + \alpha_6 FCF_{it} + \alpha_7 Q_{it} + \alpha_8 SI_{it} + d_i + \eta_i + \nu_{it}$$

	Model (2a)	Model (2b)
Constant	0.0205* (0.0038)	0.0256* (0.0063)
$D_{it}$	-0.0251* (0.0060)	-0.0162* (0.0015)
$DIV_{it}$	1.2609* (0.0492)	1.1091* (0.1669)
$INV_{it}$	0.0365* (0.0030)	0.0051 (0.0045)
$OC_{it}$	0.2253* (0.0096)	0.2840* (0.0242)
$OC_{it} OCD_{it}$	0.1527* (0.0065)	0.1576* (0.0115)
$FCF_{it}$	-0.1614* (0.0092)	-0.1428* (0.0139)
$Q_{it}$	0.0142* (0.0011)	0.0057* (0.0010)
$SI_{it}$	-0.0068** (0.0027)	-0.0179* (0.0057)
$D_{it} FCD_i$		-0.1119* (0.0147)
$DIV_{it} FCD_{it}$		0.8203* (0.2151)
$INV_{it} FCD_{it}$		0.2309* (0.0229)
$t_1$	28.599	13.9601
$t_2$		4.4419
$t_3$		12.0116
$z_1$	2,579.753 (8)	848.844 (11)
$z_2$	1,214.957 (8)	71.953 (8)
$m_1$	-1.881	-2.249
$m_2$	-2.221	-1.909
Sargan	111.399 (114)	91.467 (106)

**Notes:** The dependent variable is insider ownership ( $IO_{it}$ ).  $D_{it}$  is the firm's debt ratio,  $DIV_{it}$  denotes dividends,  $INV_{it}$  stands for the firm's investment,  $OC_{it}$  is the ownership concentration,  $FCF_{it}$  denotes the free cash flow,  $Q_{it}$  stands for the investment opportunities, and  $SI_{it}$  denotes size. The insider ownership dummy,  $IOD_{it}$ , takes value one when there is a convergence of interests between managers and shareholders, and value zero when managers get entrenched. The family controlled dummy,  $FCD_{it}$ , equals one when a family is the controlling shareholder, and zero otherwise. The regressions are performed by using the panel described in Table I. The rest of the information needed to read this table is: (i) heteroskedasticity consistent asymptotic standard error in parentheses; (ii) \*, \*\* indicate significance at the 1 and 5 per cent level, respectively; (iii)  $t_i$  is the  $t$ -statistic for the linear restriction test under the null hypothesis of no significance; (iv)  $z_1$  is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as  $\chi^2$  under the null of no relationship;  $z_2$  is a Wald test of the joint significance of the time dummies; degrees of freedom in parentheses. (vi)  $m_i$  is a serial correlation test of order  $i$  using residuals in first differences, asymptotically distributed as  $N(0,1)$  under the null of no serial correlation; (vii) Sargan is a test of the over-identifying restrictions, asymptotically distributed as  $\chi^2$  under the null of no relation between the instruments and the error term; degrees of freedom in parentheses

**Table VI.**  
Estimation results for  
the insider ownership  
models

opportunities and, consequently, they cannot take advantage of this privileged information by buying shares when the expectations are good. This interpretation is consistent with Del Brio *et al.* (2003), who find that it is difficult for Spanish outsiders to judge the quality of investment opportunities, a problem that is also noticed by Del Brio *et al.* (2003) when using an event studies methodology.

Let us turn our attention to the discussion of the results for the insider ownership model, shown in the second and third column of Table VI. Regarding the debt variable, its coefficient in the basic model supports the negative relationship between debt and insider ownership widely documented in financial literature. Therefore, since managers are risk averse, they reduce their stakes in the firm when the probability of default is high. This negative effect remains when the firm is family controlled ( $\hat{\alpha}_1 + \hat{\gamma}_1 = -0.1281$ , statistically significant, see  $t_2$ ); moreover, the coefficient is larger in absolute value than that of non-family firms ( $\hat{\alpha}_1 = -0.0162$ ), which suggests that managers of family controlled firms are characterized by higher risk aversion. This result is also supported by the statistical analysis if we take into account that managers own higher stakes in family controlled firms.

Regarding the dividend decision, we obtain a positive coefficient for the insider model, which suggests that higher cash distributions, since they limit managerial discretion over the firm's resources, are offset by a higher liquidity via share ownership. This positive relationship is also found when considering the family effect. Additionally, the coefficient is larger for family firms ( $\hat{\alpha}_2 + \hat{\gamma}_2 = 1.9294$ , statistically significant, see  $t_3$ ) than for non-family firms ( $\hat{\alpha}_2 = 1.1091$ ). This result is again explained by the higher stake owned by managers in family firms and, consequently, by their greater incentives to increase their holdings when higher dividends are paid.

The results for the investment variable show a positive relationship between insider ownership and investment. That is, managers are encouraged to increase their stakes when new investments are undertaken in order to obtain the cash flow from these new investments. However, when we control for the family effect, we find that this behaviour is only observed in family controlled firms. Therefore, we can conclude that families exert a greater control on managers and, as a consequence, they are more prone to undertake investments with positive net present value and to increase their stakes in order to take advantage of these new investments.

The second column of Table VI shows that the effect of ownership concentration on insider ownership is positive when there is both monitoring ( $\hat{\alpha}_4 + \hat{\alpha}_5 = 0.37792$ , statistically significant, see  $t_1$ ) and expropriation ( $\hat{\alpha}_4 = 0.22525$ ), and this result holds after controlling for the family effect (see third column of Table VI). As in Chen and Steiner (1999), these results suggest that concentrated ownership requires high levels of insider ownership in order to ensure value maximization. Consequently, both insider ownership and ownership concentration are complementary control mechanisms.

Regarding the control variables, we find that size negatively affects the level of insider ownership in Spanish firms, which supports the results in Cho (1998), Holderness *et al.* (1999) and Demsetz and Villalonga (2001). Free cash flow is negatively related to insider ownership; therefore, insider ownership is not a mechanism to solve overinvestment problem. Consequently, when there is free cash flow managers reduce their stakes to avoid the overinvestment costs, which will be borne to a greater extent by shareholders. The positive coefficient of Tobin's  $q$  indicates that managers in firms with better investment opportunities hold a higher stake since they wish to obtain future benefits from these investment opportunities.

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## 6. Conclusions

This paper studies how financial decisions affect the ownership structure of Spanish family and non-family controlled firms, yielding new empirical evidence that gives rise to the following conclusions. First, outside owners and managers in non-family firms reduce their holding when debt increases, as a consequence of their risk aversion. However, some differences are found in family controlled firms. On the one hand, the negative effect of debt on the level of ownership concentration is lower in family controlled firms, which suggests that families are less concerned with financial risk and more concerned with maintaining their control over the firm. On the other hand, managers of family controlled firms are found to be more risk averse as compared to managers in non-family firms and, consequently, they make larger reductions in their stakes when their firms' debt increases. Second, higher dividends encourage outside owners to hold higher stakes in the firm regardless of whether the firm is family controlled or not. And, since higher dividends prevent managers from undertaking negative net present value projects, managers are also prone to increase their holdings in order to receive a greater fraction of the dividends paid. This effect is even larger in family firms characterized by higher insider stakes. Third, if the firm undertakes a new investment project, outside owners in non-family firms are prone to increase their holdings. In contrast, families reduce their holdings when new investments are undertaken in order to expropriate rents. Concerning managers, the expected positive effect of investment on their holdings is only observed in family controlled firms, probably due to the greater control that families exert on their firms' managers.

Given the scarce literature directly related to the topic studied in this paper, we propose, a new approach to studying the relationship between ownership structure and financial decisions; furthermore, we provide new empirical evidence on the costs and benefits of family control over the firm. From our point of view, the following research question arises: under what circumstances does family control generate benefits or costs to the remaining shareholders, and to what extent? This further question opens a new strand of literature related to the consequences of ultimate ownership.

## Notes

1. The arguments used in these papers to relate financial decisions and ownership structure are discussed in detail in the next section.
2. The subscript  $i$  refers to the company and  $t$  refers to the time period. An exact definition of all variables can be found in the Appendix.
3. However, free cash flow is proxied by the firm's availability of internal funds in Bergström and Rydqvist (1990) and Lange and Sharpe (1995) and by the ratio of operating income to sales in Himmelberg *et al.* (1999), which does not accurately fit the definition by Jensen (1986).
4. Using the same sample of Spanish companies, Miguel *et al.* (2004) find that Spanish insiders get entrenched when their ownership ranges from 35 to 70 per cent, and that expropriation of Spanish minority shareholders exists when the level of ownership concentration increases beyond 87 per cent.
5. This dummy variable has been constructed according to Faccio and Lang (2002). See the Appendix.

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**Appendix**

In this appendix we present the definition and calculations, when necessary, of all the variables used in our analysis. All book values are extracted from a database composed of the Interim Financial Reports for all quoted companies, published by the CNMV.

*Insider ownership*:  $IO_{it}$  is the percentage of common shares held by insiders.

*Ownership concentration*:  $OC_{it}$  is the percentage of common shares held by significant shareholders.

$$\text{Insider ownership dummy : } IOD_{it} = 1 \text{ if } IO_{it} \leq 0.35 \text{ or } IO_{it} \geq 0.70 \\ = 0 \text{ otherwise}$$

where the breakpoints (0.35 and 0.70) are calculated in Miguel *et al.* (2004) using the same sample of Spanish companies.

$$\text{Ownership concentration dummy : } OCD_{it} = 1 \text{ if } OC_{it} \leq 0.87 \\ = 0 \text{ otherwise}$$

where the breakpoint (0.87) is calculated in Miguel *et al.* (2004) using the same sample of Spanish companies.

*Family controlled dummy*:  $FCD_{it} = 1$  if a family is the controlling shareholder, and 0 otherwise. These data have been obtained from Faccio and Lang (2002). These authors use 20 per cent of the votes to determine the effective control of a firm. According to La Porta *et al.* (1999), the idea behind using 20 per cent of the votes is that this is usually enough to have effective control of a firm.

$$\text{Debt ratio : } D_{it} = \frac{MVLTD_{it}}{MVLTD_{it} + V_{it}}$$

where  $MVLTD_{it}$  is the market value of the long-term debt, calculated as in Miguel and Pindado (2001), and  $V_{it}$  is the market value of equity, extracted from the daily bulletin of the MSE.

$$\text{Replacement value of total assets : } K_{it} = RF_{it} + RI_{it} + (TA_{it} - BF_{it} - BI_{it})$$

where  $RF_{it}$  is the replacement value of tangible fixed assets,  $RI_{it}$  is the replacement value of inventories,  $TA_{it}$  is the book value of total assets,  $BF_{it}$  is the book value of tangible fixed assets and  $BI_{it}$  is the book value of inventories. The last three terms have been obtained from the firm's balance sheet, while the first two have been calculated following the formulas described in Miguel and Pindado (2001).

$$\text{Dividends : } DIV_{it} = \frac{\text{dividends}_{it}}{K_{it}}$$

where  $\text{dividends}_{it}$  denotes the total amount of dividends based on the current year's net income.

$$\text{Investment : } INV_{it} = \frac{NF_{it} - NF_{i,t-1} + DEP_{it}}{K_{it}}$$

Investment has been calculated according to Lewellen and Badrinath (1997).  $NF_{it}$  denotes net fixed assets as measured by the book value of tangible assets minus the accumulated book depreciation for year  $t$ , and  $DEP_{it}$  is the book depreciation expense corresponding to year  $t$ .

$$\text{Tobin's } q : Q_{it} = \frac{V_{it} + MVLTD_{it} + BVSTD_{it}}{K_{it}}$$

where  $BVSTD_{it}$  is the book value of short-term debt.

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$$\text{Free cash flow : } FCF_{it} = CF_{it} \left( \frac{1}{Q_{it}} \right)$$

Details about the interpretation of the free cash flow variable can be found in Miguel and Pindado (2001).  $CF_{it}$  stands for the firm's cash flow, calculated using the following formula:

$$\text{Cash flow : } CF_{it} = \frac{EBIT_{it} + DEP_{it} + PR_{it}}{K_{it}}$$

where  $EBIT_{it}$  denotes earnings before interests and taxes, and  $PR_{it}$  stands for the different provisions reported in the profit and loss account.

$$\text{Size : } SI_{it} = \text{Log}(K_{it})$$

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