How Do Financial Decisions Affect Corporate Ownership Structure?

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Abstract

This paper analyses the influence of financial decisions on corporate ownership structure. We derive two models in line with financial theory, which have then been estimated by using a sample of Spanish companies. The panel data methodology and the estimation by the Generalized Method of Moments allow us to eliminate the unobservable heterogeneity and to control for the endogeneity problem. Our findings show that: i) increases in debt lead managers and outside owners to limit the risk they bear by reducing their holdings; ii) both managers and outside owners are encouraged to increase their stakes in the firm in view of higher dividends; and iii) there are higher levels of insider ownership and ownership concentration when a new investment project is undertaken. Additionally, we find that managers behave in accordance with their firms' free cash flow and investment opportunities; whereas outside shareholders do not seem to take these two variables into account when choosing their stakes. 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; second, by analysing the Spanish case.

Keywords: Ownership structure, financial decisions, agency costs, panel data.

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1. Introduction

There is extensive theoretical and empirical research on how corporate ownership structure influences financial decisions (see, for instance, Kim and Sorensen (1986), Friend and Lang (1988), Grier and Zychowicz (1994), Moh'd, Perry and Rimbey (1998), Miguel and Pindado (2001), and Brailsford, Oliver and Pua (2002), for capital structure; Rozeff (1982), Lloyd, Jahera and Page (1985), Moh'd, Perry and Rimbey (1995), Holder, Langrehr and Hexter (1998), Short, Zhang and Keasey (2002) and Gugler and Yurtoglu (2003), for dividends; Schaller (1993), Chirinko and Schaller (1995), Griner and Gordon (1995), Cho (1998), Goergen and Renneboog (2001), and Pindado and de la Torre (2004), for investment). However, there is little evidence on the determinants of ownership structure, especially on the effect of the main financial decisions on a firm's inside and outside shareholdings.

Our paper provides advances in at least two directions. First, we offer an analysis of the determinants of corporate ownership structure, mainly focusing on the effects of a firm's financial decisions on its levels of inside and outside ownership concentration. Second, the growing interest in trying to explain differences in corporate ownership patterns across countries (see, for instance, La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1998; La Porta, Lopez-de-Silanes and Shleifer, 1999; Claessens, Djankov and Lang, 2000; Faccio and Lang, 2002) has motivated us to investigate Spanish firms in order to provide new evidence concerning this question.

Consequently, the aim of this paper is to analyse financial decisions as determinants of corporate ownership structure using Spanish firms. To achieve this aim, we derive two models (insider ownership and ownership concentration models) in line with financial theory. Both models are estimated by using panel data methodology in order to eliminate the unobservable heterogeneity. Specifically, we use the generalized method of moments to control for the endogeneity problem, the importance of which has been demonstrated by the abovementioned extensive literature on how ownership structure influences financial decisions.

According to our results, the following conclusions are reached. First, both managers and outside owners tend to reduce their holdings when debt increases, as a consequence of their risk aversion. Second, higher dividends encourage managers and outside owners to increase their stakes in the firm. Third, the levels of insider ownership and ownership concentration are also higher when new investments are undertaken. Finally, managerial holdings depend on the firm's free cash flow and investment opportunities; whereas outside owners do not seem to have such information when choosing their stakes.

The paper is organized as follows. We first present our models and discuss the main theoretical arguments supporting the proposed relations. We then describe the data set and the methodology used in the estimation of the specified models. The empirical results are discussed in the following section, and the paper finishes with our main conclusions.

2. Theory and econometric specification

Since the main purpose of this paper is to study how financial decisions influence corporate ownership structure, and financial theory suggests that ownership patterns

differ between inside and outside shareholders, we have specified two separate models; one explaining the firm's insider ownership, the other explaining the level of ownership concentration. Specifically, the models to be tested are as follows:

$$IO_{it} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 DIV_{it} + \alpha_3 INV_{it} + (\alpha_4 + \alpha_5 OCD_{it})OC_{it} + \\ + \alpha_6 FCF_{it} + \alpha_7 Q_{it} + \alpha_8 SI_{it} + \varepsilon_{it} \quad (1)$$

$$OC_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 DIV_{it} + \beta_3 INV_{it} + (\beta_4 + \beta_5 IOD_{it})IO_{it} + \\ + \beta_6 FCF_{it} + \beta_7 Q_{it} + \beta_8 SI_{it} + \varepsilon_{it} \quad (2)$$

where IO_{it} and OC_{it} denote insider ownership and ownership concentration, respectively[1]. According to the main purpose of this paper, both models include three variables that measure a firm's financial decisions: D_{it} is the firm's debt ratio, DIV_{it} denotes dividends and INV_{it} stands for the firm's investment. 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, OCD_{it}, equals one when there is monitoring by large shareholders, and zero when controlling owners manage to expropriate the wealth of minority owners. 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. Finally, we also control for firm size as measured by the logarithm of the replacement value of total assets, SI_{it}.

Let us now explain how financial theory supports our econometric specification by discussing the expected relations in both models. 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, Kroszner and Sheehan (1999).

Despite the lack of theoretical and empirical evidence, a risk-based argument can also be valid to predict a negative effect of debt on ownership concentration, since 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. Furthermore, 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.

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. On the other hand, 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

deductable. 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, Bernardo and Welch (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.

The effect of investment decisions on corporate ownership structure is not so straightforward. The reverse causality, however, 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. Therefore, 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. Accordingly, Himmelberg, Hubbard and Palia (1999) propose that investment should positively affect insider ownership, since higher investment leads to greater opportunities for managerial discretion, which can be controlled for by means of increases in insider ownership. Following this argument, and extending it to the level of ownership concentration by way of the monitoring hypothesis, we expect a positive effect of the firm's investment on the shareholdings of both inside and outside owners.

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 a 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 Lange and Sharpe (1995) and Himmelberg, Hubbard and Palia (1999) find that free cash flow positively influences the firm's ownership concentration and insider ownership, respectively[2].

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, Kroszner and Sheehan (1999) and Demsetz and Villalonga (2001).

Finally, Models (1) and (2) 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, Shleifer and Vishny, 1988; McConnell and Servaes, 1990; Gedajlovic and Shapiro, 1998; Miguel, Pindado and de la Torre, 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, Jensen, Jahera and Raymond, 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, Pindado and de la Torre (2004)[3] in order to build dummy variables, which are then entered into our models. Hence, in Model (1) the coefficient on the ownership concentration variable is α_4 under expropriation, since OCD_{it} takes value zero, and it is ($\alpha_4 + \alpha_5$) under monitoring, since OCD_{it} takes value one. Similarly, in Model (2) the coefficient on the insider ownership variable is β_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. 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: $\alpha_4 + \alpha_5 = 0$ in Model (1) and H_0: $\beta_4 + \beta_5 = 0$ in Model (2).

3. Data and methodology

The principal source of information is the database from the CNMV (Spanish Security Exchange Commission). More specifically, we use data collected in the form of "Interim Financial Reports for all quoted companies" and "Significant shares for all quoted companies". Furthermore, data on the market value of the company shares have been extracted from the Daily Bulletin of the MSE (Madrid Stock Exchange).

To control for unobservable heterogeneity and endogeneity, we have constructed a data panel of non-financial quoted Spanish companies for the period ranging from 1990 to 1999. Specifically, this unbalanced panel comprises 135 companies for which the information is available for at least six consecutive years between 1990 and 1999. This condition is necessary to have a sufficient number of periods to test for second-order serial correlation, as pointed out by Arellano and Bond (1991). The structure of the panel, by number of annual observations per company, is given in Table I. Hence, as

Table 1 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 A).

<Insert Table I about here>

Table II shows the companies in the sample allocated to ten sub-sectors according to their main product. Finally, Table III provides summary statistics (mean, standard deviation, maximum and minimum) of the variables used in the estimation.

<Insert Tables II and III about here>

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 analysis, the panel data methodology has a great advantage in that it allows us to control for unobservable heterogeneity through an individual effect, η_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, in order to eliminate individual heterogeneity, the models in equations (1) and (2) were transformed into equations (3) and (4):

$$IO_{it} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 DIV_{it} + \alpha_3 INV_{it} + (\alpha_4 + \alpha_5 OCD_{it})OC_{it} + \\ + \alpha_6 FCF_{it} + \alpha_7 Q_{it} + \alpha_8 SI_{it} + d_t + \eta_i + \nu_{it} \quad (3)$$

$$OC_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 DIV_{it} + \beta_3 INV_{it} + (\beta_4 + \beta_5 IOD_{it})IO_{it} + \\ + \beta_6 FCF_{it} + \beta_7 Q_{it} + \beta_8 SI_{it} + d_t + \eta_i + \nu_{it} \quad (4)$$

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 (insider ownership and ownership concentration) influences financial decisions (see the Introduction Section). 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 it 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 (3) and (4) by using the generalized method of moments (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. Finally, in order 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. Although there is first-order serial correlation (m_1) in the differenced

residuals of Model (4), it is due to the first-difference transformation of the models. 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, Table IV provides 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.

4. Empirical results and discussion

As shown in the first and second columns of Table IV, the results obtained are in accordance with the theoretically expected relations explained above for the insider ownership and the ownership concentration models.

<Insert Table IV about here>

Consistent with Moh´d, Perry and Rimbey (1998), Denis and Sarin (1999) and Holderness, Kroszner and Sheehan (1999, 2000), a firm's debt negatively affects the level of insider ownership. This result confirms the risk aversion which characterizes managers, and which makes them reduce their holdings when the probability of default is high. This risk-based argument is supported once again by the results for the ownership concentration model, which show that significant shareholders limit the risk they bear by reducing their holdings in view of higher debt.

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. We obtain a positive coefficient for the dividends variable in the ownership concentration model as well, which confirms that a higher payout encourages the possession of higher stakes in the firm, as shown in Allen, Bernardo and Welch (2000).

Interesting results are found for the investment decision. First, we find a positive relationship between insider ownership and investment. Therefore, consistent with Himmelberg, Hubbard and Palia (1999), managers' equity compensation is greater in firms with higher levels of investment, where the alignment of interest is especially necessary. Investment also positively influences ownership concentration, which suggests that higher investment encourages outside owners to hold more shares of the firm.

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 ($\hat{\alpha}_4 = 0.22525$). As in Chen and Steiner (1999), these results suggest that concentrated ownership requires high levels of insider ownership in order to ensure value maximization. Moreover, 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_1), but also when managerial entrenchment exists ($\hat{\beta}_4 = 0.19701$). These results confirm the complementary relationship between these two agency-cost control mechanisms.

Our findings reveal interesting empirical evidence regarding the control variables as well. The results for the size variable show that larger Spanish firms are characterized by lower levels of insider ownership and ownership concentration. This result was expected and does not distinguish between inside and outside owners. The interesting issue concerns the remaining control variables: free cash flow and Tobin's q. Both variables are significant in the insider ownership model, but not statistically significant in the ownership concentration model. The negative coefficient of the free cash flow variable in the insider ownership model indicates that Spanish firms do not solve their overinvestment through higher levels of insider ownership. Quite the reverse, managers

are encouraged to reduce their shareholdings in view of higher free cash flow, thus they bear overinvestment costs to a lesser extent. In other words, insider ownership is not a solution to the free cash flow problem, and Spanish managers are likely to invest any available cash, regardless of the effect that this policy may have on shareholders' wealth. The coefficient of Tobin's q is positive as expected, which confirms that managers in firms with better investment opportunities hold a larger fraction of their firms' shares. On the other hand, the lack of significance of the coefficients of free cash flow and Tobin's q found in the ownership concentration model 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 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, Miguel and Pindado (2003), who find that it is difficult for Spanish outsiders to judge the quality of investment opportunities, a problem that is also noticed when Del Brio, Perote and Pindado (2003) when using an event studies methodology.

5. Conclusions

This paper studies how financial decisions affect corporate ownership structure, yielding new empirical evidence that gives rise to the following conclusions. First, managers reduce their holding when debt increases, as a consequence of their risk aversion. Outside owners behave in the same way, since they want to limit their risk as well. Second, since higher dividends prevent managers from undertaking negative net present value projects, managers are prone to increase their holdings and, consequently,

they receive a greater fraction of the dividends paid. Additionally, higher dividends also encourage outside owners to hold higher stakes in the firm. Third, if the firm undertakes a new investment project, both managers and outside owners are prone to increase their holdings.

Additionally, our results reveal an interesting issue. Managers are aware of their firms' free cash flow and investment opportunities. Consequently, they reduce their stakes in the firm when the free cash flow rises and then they overinvest it; they also increase their holdings when their firms' investment opportunities are good. In contrast, outside owners choose their stakes in the firm regardless of its free cash flow and investment opportunities, since they do not have access to this information.

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.

Insider Ownership Dummy: $IOD_{it} = 1$ if $IO_{it} \leq 0.35$ or $IO_{it} \geq 0.70$

$= 0$ otherwise

where the breakpoints (0.35 and 0.70) are calculated in Miguel, Pindado and de la Torre (2004) using the same sample of Spanish companies.

Ownership Concentration Dummy: $OCD_{it} = 1$ if $OC_{it} \leq 0.87$

$= 0$ otherwise

where the breakpoint (0.87) is calculated in Miguel, Pindado and de la Torre (2004) using the same sample of Spanish companies.

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

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 (Madrid Stock Exchange).

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

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).

Dividends: $DIV_{it} = \dfrac{dividends_{it}}{K_{it}}$

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

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

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.

Tobin´s q: $Q_{it} = \dfrac{V_{it} + MVLTD_{it} + BVSTD_{it}}{K_{it}}$

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

Free cash flow: $FCF_{it} = CF_{it}\left({}^{1}\!/_{Q_{it}} \right)$

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: *Cash flow*: $CF_{it} = \dfrac{EBIT_{it} + DEP_{it} + PR_{it}}{K_{it}}$

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

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

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Notes

[1] 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.

[2] 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, Hubbard and Palia (1999), which does not accurately fit the definition by Jensen (1986).

[3] Using the same sample of Spanish companies, Miguel, Pindado and de la Torre (2004) find that Spanish insiders get entrenched when their ownership ranges from 35 to 70 percent, and that expropriation of Spanish minority shareholders exists when the level of ownership concentration increases beyond 87 percent.

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	1233

Table II. Sample distribution by sub-sector classification

Sub-sector	Number of Companies	% Companies
Energy	14	10.37
Extractive Industry	3	2.22
Transport Industry	14	10.37
Textile Industry	3	2.22
Building	22	16.30
Trade and Services	35	25.93
Food Industry	21	15.56
Metal Industry	8	5.93
Chemical Industry	9	6.67
Paper Industry	6	4.44

Table III. Summary statistic

	Mean	Standard deviation	Minimum	Maximum
IO_{it}	.17664	.23821	.0000	1.0000
OC_{it}	.64311	.24155	.00011	1.0000
D_{it}	.20056	.21741	.0000	.98392
DIV_{it}	.01281	.02066	.0000	.21516
INV_{it}	.01489	.14566	-4.5441	.78551
Q_{it}	1.1468	.85053	.20672	13.774
FCF_{it}	.04332	.07844	-.68449	.84867
SI_{it}	10.582	1.6005	6.3724	15.933

Table IV. Estimation Results

Model 3: $IO_{it} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 DIV_{it} + \alpha_3 INV_{it} + (\alpha_4 + \alpha_5 OCD_{it})OC_{it} + +\alpha_6 FCF_{it} + \alpha_7 Q_{it} + \alpha_8 SI_{it} + d_t + \eta_i + \nu_{it}$

Model 4: $OC_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 DIV_{it} + \beta_3 INV_{it} + (\beta_4 + \beta_5 IOD_{it})IO_{it} + +\beta_6 FCF_{it} + \beta_7 Q_{it} + \beta_8 SI_{it} + d_t + \eta_i + \nu_{it}$

The dependent variables are insider ownership (IO_{it}) and ownership concentration (OC_{it}). D_{it} is the firm's debt ratio, DIV_{it} denotes dividends and INV_{it} stands for the firm's investment. 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, OCD_{it}, equals one when there is monitoring by large shareholders, and zero when controlling owners manage to expropriate the wealth of minority owners. FCF_{it}, Q_{it} and SI_{it} denote free cash flow, investment opportunities and size, respectively. 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% level, respectively; iii) t_1 is the t-statistic for the linear restriction test under the null hypothesis of no significance; v) z_1 is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as χ^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 χ^2 under the null of no relation between the instruments and the error term; degrees of freedom in parentheses.

	Model 3	Model 4
Constant	.02051* (.00384)	.03587* (.00591)
D_{it}	-.02514* (.00600)	-.06327* (.01317)
DIV_{it}	1.29088* (.04918)	.16021** (.08306)
INV_{it}	.03648* (.00298)	.04545* (.00639)
IO_{it}		.19701* (.01807)
IO_{it} IOD_{it}		-.13977* (.02516)
OC_{it}	.22525* (.00955)	
OC_{it} OCD_{it}	.15267* (.00648)	
FCF_{it}	-.161386* (.00922)	.01504 (.02138)
Q_{it}	.01424* (.00105)	.00102 (.00130)
SI_{it}	-.00682** (.00273)	-.00846** (.00460)
t_1	28.599	2.657
z_1	2579.753 (8)	261.403 (8)
z_2	1214.957 (8)	1047.430 (8)
m_1	-1.881	-2.570
m_2	-2.221	-1.019
Sargan	111.399 (114)	101.617 (103)