A NEW APPROACH TO EXPLAINING CAPITAL STRUCTURE

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ABSTRACT

This paper provides a new approach that relies on the ownership structure to explain capital structure. Our view is that capital structure is partly determined by the incentives and the goals of those who are in control of the firm. Our results strongly support this view. As a consequence of managerial entrenchment and rent expropriation phenomena, self-interested agents (entrenched managers and controlling owners) choose the capital structure according to the debt ratios more appropriate for their own best interest. Additionally, we find evidence of an interaction effect between insider ownership and ownership concentration; particularly, the debt increments promoted by outside owners are larger when managers are entrenched. Further findings are obtained according to firm-specific characteristics, such as intangible assets, investment opportunities and free cash flow.

1. INTRODUCTION

Since Modigliani and Miller's (1958) paper, capital structure has become a puzzle whose pieces do not fit well. A lot of research has been carried out from financial theory. A survey of all this research is found in Harris and Raviv (1991), and more recent literature can be found in Leary and Roberts (2004). However, there is a lack of consensus on which are the determinants of capital structure. In this context, strategy scholars have made important contributions suggesting that a strategy perspective might help to explain capital structure. In this vein, Barton and Gordon (1987) analyze whether the strategic perspective is able to fill in some gaps in the financial literature to explain the capital structure puzzle. Subsequent strategy researchers have addressed this issue adding more pieces to the puzzle. Thus, strategy scholars have analyzed how different strategies affect debt, for instance, the diversification strategy (Barton and Gordon, 1988; Chatterjee and Wernerfelt 1991; Lowe et al., 1994; Taylor and Lowe, 1995; Kochhar and Hitt, 1998), the specificity of assets (Williamson, 1988; Balakrishnan and Fox, 1993; Vicente-Lorente, 2001), the innovation strategy (O'Brien, 2003), and the environmental dynamism (Simerly and Li, 2000). As a consequence, nowadays we know more about capital structure, though some questions still remain unresolved.

To shed light on some of these questions, we provide a complementary approach to the financial and strategy views of capital structure, called the ownership view of capital structure, according to which a firm's ownership structure can help to explain the choice between debt and equity. Following this view, the aim of this paper is to analyze the role of ownership in explaining a firm's capital structure. Our research is a step forward in the capital structure literature in two directions. First, we analyze how ownership affects capital structure accounting for the convergence of interest and entrenchment effects in the case of insider ownership, as well as for the monitoring and expropriation effects when considering the ownership concentration. Second, we investigate how the ownership-capital structures relationship is moderated by the interaction between insider ownership and ownership concentration, and between ownership and the firm's characteristics, such as the level of intangible assets, the investment opportunities and the free cash flow.

To achieve this aim, we have chosen a sample of Spanish companies for three reasons. First, Spain is a civil law country and, according to La Porta et al. (1998), Spanish investor protection is weaker than that of their US counterparts. Furthermore, as La Porta et al. (1999) point out, the risk of expropriation of minority shareholders is greater in countries with weaker investor protection. Actually, this is the case of Spain, where controlling owners manage to expropriate rents from minority ones, as is documented in Miguel et al. (2004). Note that the expropriation effect is crucial for going forward in our first research direction, and also in the second since it is a derivation of the first. Second, our approach assumes a complementary view to the financial and strategic views of capital structure and, unlike other civil law countries where expropriation may also exist, both views have been well-documented in recent research for the Spanish case. On the one hand, Miguel and Pindado (2001) analyze the determinants of capital structure accounting for the institutional characteristics affecting Spanish companies. They develop a target debt adjustment model, which is the starting point for our basic model. On the other hand, Vicente-Lorente (2001) examines how strategic resources affect the capital structure of Spanish companies. Third, the phenomena of convergence of interests versus entrenchment and monitoring versus expropriation are well characterized in Miguel et al. (2004) for the Spanish case. They analyze the relationship between ownership structure and firm value and derive the breakpoints that allow us to distinguish between the abovementioned phenomena. Consequently, we use the same sample of Spanish companies to take advantage of the results found by Miguel et al. (2004).

The structure of the paper is as follows. We present the ownership view of capital structure in the second section. The research methods are described in section third, including data, dependent and independent variables, empirical specification of the model and econometric methods. Finally, the fourth section presents our results, and the last section discusses our findings and highlights our conclusions.

2. THE OWNERSHIP VIEW OF CAPITAL STRUCTURE

Capital structure is not only the result of the various financial characteristics of the firm and strategies it engages, but it is also determined by the decision-makers' choice. Particularly, managers and significant outside owners both exert a major influence on decision making in the firm and, consequently, on financing decisions. Given the risk of non-diversification of their personal wealth, self-interested managers are encouraged to reduce their firms' debt to a level that is below the level of value maximization. However, as insider equity ownership increases, the conflicts between managers and shareholders are likely to be resolved (Jensen and Meckling, 1976) and, consequently, the incentives of managers to lower debt diminish. On the basis of this convergence-of-interests effect, our

Hypothesis 1 states that *higher levels of insider ownership lead to higher debt levels.* Previous empirical evidence is not unanimous about the precise relationship that exists between insider ownership and corporate debt. Kim and Sorensen (1986), Agrawal and Mandelker (1990), Garvey (1992) and Agrawal and Knoeber (1996) find that there is a positive relation between these two variables. In contrast, the results in Friend and Lang (1988), Agrawal and Nagarajan (1990), Denis and Sarin (1999) and Holderness et al. (1999) show that insider ownership and debt are negatively related. On the other hand, since dispersion creates free-riding problems and makes manager monitoring difficult, a concentrated ownership is considered to reduce the scope of managerial opportunism (Shleifer and Vishny, 1986). Accordingly, where there is monitoring by large shareholders, managers will not be able to adjust leverage to their own interests, and the debt ratio will be higher than where ownership is disperse. Consistent with this monitoring effect, our Hypothesis 2 states that *higher levels of ownership concentration lead to higher debt levels.* The evidence in Friend and Lang (1988) confirms that ownership concentration encourages debt financing, whereas Grier and Zychowicz (1994) find a negative relationship between these two variables.

However, the relation between ownership structure and corporate debt may be more complex than the one described above. 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; and more recently, Gedajlovic and Shapiro, 1998; Miguel et al., 2004). This non-linearity of ownership with respect to firm value has implications for the previously described relationship between ownership and debt. At some point, as the level of insider ownership increases, managers get entrenched. In this scenario, the decision-making process is under the control of self-interested managers, who will act in their own best interests departing from the value-maximization objective. Therefore, managerial entrenchment involves not only the desire, but also the ability to decrease debt levels, even if doing so reduces shareholders' wealth. By reducing leverage, entrenched managers avoid taking excessive risks on their large exposure to the firm (Fama, 1980), and they also avoid the disciplinary role of debt over the firm's free cash flow (Jensen, 1986). Accordingly, Hypothesis 3 predicts that *under managerial entrenchment, debt will be negatively affected by insider ownership.* There is strong empirical evidence supporting this hypothesis in, for instance, Grier and Zychowicz (1994), Jung et al. (1996), Berger et al. (1997) and De Jong and Veld (2001). A further complexity in the relationship between ownership and debt concerns the expropriation phenomenon that is likely to appear at high levels of ownership concentration. When the control over the firm passes to its controlling owners, self-interested actions intended to attain their private benefits are expected, and incentives to monitor managers in order to protect the value-maximization objective are likely to diminish. According to the risk-based argument in Demsetz and Lehn (1985), large shareholders are expected to limit the risk they bear by promoting lower debt levels than would otherwise be the case. Accordingly, Hypothesis 4 predicts that *under expropriation, the positive relationship between ownership concentration and debt will be weaker than if controlling owners in the firm do not exist.* Unfortunately, there is no prior empirical evidence on the moderating effect of expropriation on a firm's capital structure, except for Faccio et al. (2003), who find that debt can facilitate the expropriation of minority shareholders in European and Asian firms. This evidence leads us to believe that the relationship between ownership concentration and debt will remain positive under expropriation, even though weaker than under monitoring, and, consequently, that Hypothesis 4 will hold.

Additionally, the relationship between a firm's ownership and capital structures may be moderated by the interaction between insider ownership and ownership concentration, and between ownership and several firms' characteristics. It is worth noting that there is no prior evidence supporting this view, though there are strong arguments that lead us to believe that such interaction effects exist. When the convergence-of-interest effect dominates, higher levels of insider ownership result in lower managerial opportunism and, according to Hypothesis 1, a positive effect of insider ownership on debt is expected. If outside owners are encouraged to monitor managers and eliminate any possibility of opportunistic behavior, the convergence-of-interest effect will be complemented by the monitoring incentives of outside owners. In contrast, in the case of self-interested owners only worried about extracting rents from other minority shareholders, the convergence-of-interest effect will conflict with this non-value maximizing behavior of outside controlling owners. On the other hand, when their stakes in the firm allow managers to get entrenched, Hypothesis 3 predicts a negative effect of insider ownership on debt. The desire of entrenched managers to reduce their firms' leverage creates a conflict with the interests of outside owners, and if they have the ability to prevent self-interested managers from pursuing their objectives, the negative effect of insider ownership on debt may be mitigated or even disappear. The same reasoning applies to the effect of ownership concentration. According to Hypotheses 2 and 4, outside owners promote higher levels of debt in their firms as a mechanism to lower managerial opportunism. If managers are in convergence of interests, the positive effect of ownership concentration on debt will be complemented by the value-maximizing objectives of managers. In contrast, if managers are entrenched, the monitoring by outside owners is likely to be ineffective, and the positive effect of ownership concentration on debt may be mitigated or even disappear. Taking as a basis these arguments, we pose Hypothesis 5 according to which *the relationship between ownership and capital structures is moderated by the interaction between insider ownership and ownership concentration.*

Finally, there is likely to be an interaction between ownership and several firm characteristics, as well. In fact, the incentives and goals of managers and outside owners may change according to certain characteristics of their firms, such as the level of intangible assets, the investment opportunity set, and the free cash flow. First, the level of intangible assets discloses information about a firm's growth opportunities and, according to Myers (1977), growth opportunities can be viewed as call options whose value depends on discretionary future investment. As a result, intangible assets cannot be easily assessed by potential external investors and, consequently, these assets exacerbate the asymmetric information problem by sending a signal that is perceived as negative by potential bondholders. However, the negative signal that is sent to the market by a high level of intangible assets may be offset by the positive signal corresponding to a higher level of insider ownership and ownership concentration. Therefore, the choice between debt and equity within a context of high levels of intangible assets is expected to depend on the trade-off between the bondholders' reluctance to lend to the firm, and the reliance on a better use of such intangible assets by value-maximizer managers. Second, capital structure theories suggest that firms with good investment opportunities should have low leverage (see, for instance, Harris and Raviv, 1991, Lang et al. 1996). The basic idea is that a high leverage may prevent firms from taking advantage of their investment opportunities in that they cannot issue new securities in order

to finance them. Therefore, we expect the decision-makers' desire of higher debt levels in their firms to be restrained in the presence of investment opportunities, when a value-maximization objective prevails. Third, corporate debt itself is a disciplinary device that helps to reduce the costs deriving from the conflict of interests between managers and owners with respect to free cash flow. Jensen (1986) claims that debt prevents managers from undertaking negative net present value projects by using the free cash flow, since if these projects do not yield enough profitability to pay the interests and re-fund the debt, the firm will file for bankruptcy. Consequently, debt financing limits the managers' incentives to engage in non-optimal activities, such as overinvestment. Therefore, managers in convergence of interests and monitoring owners are expected to encourage debt increases when a firm's level of free cash flow is high. In contrast, such debt increments are not expected when managers are entrenched, since entrenched managers will seek to reduce their risks and, at the same time, to maximize the private benefits associated with the discretionary use of their firms' free cash flow. Accordingly, our Hypothesis 6 states that *the relationship between ownership and capital structures is moderated by the level of intangible assets, the investment opportunity set, and the free cash flow.*

The interaction effects predicted by Hypotheses 5 and 6 have not been addressed empirically in prior research. In this sense, our paper is a step forward in financial and strategy literature.

3. RESEARCH METHODS

Since our paper is built on Miguel et al. (2004), we use the same unbalanced data panel of non-financial quoted Spanish companies for the period ranging from 1990 to 1999[1]. The dependent variable in our study is the debt ratio, D_{it}. In accordance with the aim of our paper we have three categories of independent variables. The first one refers to ownership structure (ownership concentration, OC_{it}, and insider ownership, IO_{it}). The second one includes a set of variables that are usually included in basic models of capital structure (non-debt tax shields, $NDTS_{it}$, probability of financial distress, PDF_{it}, and profitability, $PROF_{it}$). Finally, we enter size, S_{it}, as a control variable. Table 1 provides summary statistics and correlations of the dependent and independent variables in our models.

Table 1. Descriptive statistics and correlations

	Mean	Standard deviation	1	2	3	4	5	6	7
1. D_{it}	0.20056	0.21741	1.0000						
2. IO_{it}	0.17664	0.23821	-0.0486	1.0000					
3. OC_{it}	0.64311	0.24155	-0.0035	0.1520	1.0000				
4. $NDTS_{it}$	0.00443	0.06183	-0.2575	-0.0334	-0.0118	1.0000			
5. PDF_{it}	0.48228	0.38256	-0.0830	0.0261	-0.0401	0.0387	1.0000		
6. $PROF_{it}$	0.05455	2.63031	0.0130	-0.0263	-0.0498	0.1252	-0.0261	1.0000	
7. S_{it}	10.582	1.6005	0.0620	0.1571	-0.1012	0.0301	-0.1809	0.0299	1.0000

We also control for strategic issues in our basic model of capital structure. There are two schools in strategic management that explain the core strategy. On the one hand, the resource-based view argues that firm effects are the basis for sustainable competitive advantage (see, for instance, Wernerfelt, 1984; Mahoney and Pandian, 1992; Peteraf, 1993). On the other hand, industrial organization suggests that industry effects dominate over time (see, for instance Demsetz 1973; Vasconcellos and Hambrick, 1989; Powell, 1996). Mauri and Michaels (1998) argue that the resource-based and the industrial organization views are complementary within strategic management, and as a consequence both firm and industry effects should be entered into our model. To achieve this aim, we follow Rumelt (1991) and we use latent variables to capture both the industry and firm effects. Therefore, η_i is a term that captures the individual latent variables for each firm (i=1,…,135); and θ_j is a term that captures the industry latent attributes shared by members of the same industry (j=1,…,10). Finally, we also enter the d_t term capturing the temporal latent effect into our model, so that we control for the effect of macroeconomic variables on capital structure. Consequently, our basic model is

$$D_{it} = \beta_0 + \sum_{k=1}^{5} \beta_k X_k + \eta_i + \theta_j + d_t + \upsilon_{it} \quad (1)$$

where X_k is a vector of the independent variables, and υ_{it} is the random disturbance.

This model can be easily extended to consider the effect of ownership concentration and insider ownership on debt by introducing both variables, IO_{it} and OC_{it}, into X_k. However, the relationship between a firm's capital structure and its ownership structure is not so simplistic. To account for the non-linearities in the relationship between ownership structure and value, we expand on the results in Miguel et al. (2004). Consequently, we enter the non-linearities in the relationship between ownership structure and firm value by constructing two dummy variables. The first one is called insider ownership dummy (IOD_{it}), which takes value zero when the level of insider ownership is below 35 percent or above 70 percent (i.e. when there is a convergence of interests between managers and shareholders), and value one otherwise (i.e. when insider ownership ranges from 35 to 70 percent and, consequently, managers are entrenched). We call the second dummy variable ownership concentration dummy (OCD_{it}), which equals zero when ownership

[1] See Miguel et al. (2004) for details on the structure of the panel.

concentration is below 87 percent (i.e. when there is monitoring by large shareholders), and one otherwise (i.e. when ownership concentration is equal to or above 87 percent and, consequently, controlling owners manage to expropriate the wealth of minority owners). As a result, the expanded model of capital structure is

$$(2) \qquad D_{it} = \beta_0 + \sum_{k=1}^{5} \beta_k X_k + (\beta_6 + \alpha_1 IOD_{it}) IO_{it} + (\beta_7 + \alpha_2 OCD_{it}) OC_{it} + \eta_i + \theta_j + d_t + \upsilon_{it}$$

This model allows us to address two important issues. On the one hand, we can learn how insider ownership affects a firm's capital structure when there is convergence of interests between managers and shareholders by interpreting β_6 (since IOD_{it} takes value zero); whereas such an effect is captured by $\beta_6+\alpha_1$ when managers are entrenched (since IOD_{it} takes value one). In this last case, if both parameters are significant, a linear restriction test is needed in order to know whether their sum ($\beta_6+\alpha_1$) is significantly different from zero, hence the null hypothesis of no significance is H_0:$\beta_6+\alpha_1=0$. On the other hand, we address the role played by ownership concentration in explaining capital structure. When there is monitoring by large shareholders we interpret the coefficient β_7 (since OCD_{it} takes value zero), whereas the coefficient of the ownership concentration variable is $\beta_7+\alpha_2$ when controlling owners expropriate the wealth of minority owners (since OCD_{it} takes value one). If both parameters are significant, the null hypothesis of the linear restriction test needed in this case is H_0: $\beta_7+\alpha_2=0$.

Finally, to study in depth the capital-ownership structures relation of the extended model in Eq. 2 we have controlled for the interaction between insider ownership and ownership concentration, as well as between ownership and firm-specific characteristics. First, we have estimated a model in which the interaction between insider ownership and ownership concentration is considered. The resultant model is as follows

$$(3) \qquad D_{it} = \beta_0 + \sum_{k=1}^{5} \beta_k X_k + (\beta_6 + \alpha_1 IOD_{it} + \alpha_2 OCD_{it}) IO_{it} + (\beta_7 + \alpha_3 OCD_{it} + \alpha_4 IOD_{it}) OC_{it} + \eta_i + \theta_j + d_t + \upsilon_{it}$$

in which insider ownership and ownership concentration have been simultaneously interacted with both dummy variables (IOD_{it} and OCD_{it}) in order to account for the moderating effect of the interaction between insider ownership and ownership concentration on the capital-ownership structures relation. Second, we have interacted ownership variables with firm-specific characteristics. The model to be estimated is as follows:

$$(4) \qquad D_{it} = \beta_0 + \sum_{k=1}^{5} \beta_k X_k + (\beta_6 + \alpha_1 IOD_{it} + \alpha_2 DV_{it}) IO_{it} + (\beta_7 + \alpha_3 OCD_{it} + \alpha_4 DV_{it}) OC_{it} + \eta_i + \theta_j + d_t + \upsilon_{it}$$

where DV_{it} is a dummy variable constructed according to the firm's level of intangible assets, investment opportunities and free cash flow.

The main advantage of the specification of our model is that it avoids the problems arising when the strategic effects are correlated with the independent variables. This situation is very likely in that a firm's strategy affects its profitability (see, for instance, papers quoted in Ramanujan and Varadarajan, 1989 and Palich et al. 2000). To solve this problem, we have first entered the strategic effects into our model by using firm and industry effects; and in order to control for the correlation between firm effects (η_i) and the independent variables (X_k), we use the panel data methodology in estimating our models. Additionally, to solve the endogeneity problem, we estimate our model by using the generalized method of moments (GMM). Specifically, we use Arellano and Bond's (1991) estimator, which solves the endogeneity problem by using the right-hand side variables in the models lagged twice or more as instruments.

5. FINDINGS

The results of the GMM estimation of our basic model of capital structure are provided in the first column of Table 2. All the estimated coefficients are statistically significant and of the expected sign. The coefficient of the lagged debt variable indicates that firms follow an adjustment pattern towards target debt levels, and that transaction costs create a delay in this adjustment. The speed of this adjustment is above 0.5 (λ=1-0.44183=0.55817). As expected, the coefficient of profitability is negative, suggesting that firms substitute internally generated funds for debt, since the latter are affected to a larger extent by informational and agency problems than the former. Also as expected, debt is negatively associated to non-debt tax shields and the probability of financial distress. Consistent with the static trade-off theory, these results point out that firms rebalance their financial structure by searching for a target level that is jointly determined by the existence of tax and financial distress effects. Finally, the positive coefficient on size is consistent with Rajan and Zingales (1995).

As shown in the second column of Table 2, the results for the variables in the basic model remain practically identical once the ownership variables, IO_{it} and OC_{it}, are included in vector X_k. Hypothesis 1 predicts that insider ownership is positively related to debt because of the convergence-of-interest effect. The lack of significance of the coefficient of insider ownership does not corroborate this hypothesis. In contrast, the positive and significant coefficient of ownership concentration supports Hypothesis 2, according to which outside owners play an active monitoring role and seek to control managerial discretion through higher debt ratios.

Table 2. GMM Estimations

	I	II	III
Constant	-0.06245* (0.00802)	-0.05473* (0.00446)	-0.05548* (0.00547)
$D_{i,t-1}$	0.44183* (0.01429)	0.41381* (0.00672)	0.41207* (0.00984)
$NDTS_{it}$	-0.09266* (0.03053)	-0.09194* (0.01793)	-0.18269* (0.03265)
PFD_{it}	-0.10213* (0.01405)	-0.13436* (0.00738)	-0.10534* (0.01653)
$PROF_{it}$	-0.00357* (0.00097)	-0.00218* (0.00045)	-0.00488* (0.00094)
S_{it}	0.15893* (0.00462)	0.16345* (0.00375)	0.16855* (0.00615)
IO_{it}		-0.01762 (0.01584)	-0.01339 (0.02466)
$IO_{it}\, IOD_{it}$			-0.05316** (0.05267)
OC_{it}		0.12573* (0.01931)	0.22219* (0.03763)
$OC_{it}\, OCD_{it}$			-0.10191* (0.01714)
T_1			4.152
Z_1	3845.328 (5)	18160.546 (7)	7610.356 (9)
Z_2	205.348 (7)	530.223 (7)	591.167 (7)
z_3	95.078 (9)	1111.951 (9)	194.850 (9)
M_1	-3.978	-3.915	-4.090
M_2	-0.479	-0.715	-0.226
Sargan	102.145 (85)	119.607 (119)	108.434 (148)

Notes:

i) Heteroskedasticity consistent asymptotic standard error in parentheses.

ii) *,** and *** indicate significance at the 1%, 5% and 10% level, respectively.

iii) t_1 is the t-statistics 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 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.

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 χ^2 under the null, degrees of freedom in parentheses.

It should be noted, however, that the relationship between ownership and capital structures may be more complex than the one specified in the above-discussed model. According to the widely supported non-linearities of ownership with respect to firm value, we proposed Hypotheses 3 and 4, which have been tested by adding the interaction of insider ownership and ownership concentration with their respective dummy variables. This way, the resultant model allows us to learn whether entrenched managers and controlling outside owners act in their own best interests and pursue actions intended to attain their non-value maximizing objectives when making the capital structure decision. The third column of Table 2, which reports the GMM estimation of this extended model, shows that the parameter of insider ownership when managers are in convergence of interests remains non-significant; whereas the negative coefficient of insider ownership when managers are entrenched ($\beta_5+\alpha_1$=-0.05316, β_5 not significantly different from zero) totally confirms Hypothesis 3. Hypothesis 4 is also supported by our results. In fact, the coefficient of ownership concentration when there is expropriation of minority shareholders is positive ($\beta_7+\alpha_2$=0.12028, which is statistically significant, see t_1) and smaller than the one under monitoring (β_7=0.22219).

The results above-discussed can be completed by taking into account the interaction between insider ownership and ownership concentration. The results of the GMM estimation of this model are provided in the first column of Table 3. The coefficient of insider ownership when there is convergence of interests between owners and managers remains statistically non-significant, regardless of whether outside owners are encouraged to promote value-maximization actions or are only worried about expropriating rents (α_2 not significantly different from zero). Supporting Hypothesis 3, the effect of insider ownership when managers are entrenched remains negative, and of the same magnitude under monitoring than under expropriation ($\beta_6+\alpha_1$=-0.32904 and $\beta_6+\alpha_1+\alpha_2$= -0.32904, respectively). Regarding the effect of ownership concentration on debt, our results show that insider ownership plays a slight moderating role. On the one hand, the evidence from the extended model in Eq. 2 holds, confirming Hypotheses 2 and 4, since ownership concentration positively affects leverage, and its coefficient is larger under monitoring than under expropriation (see t_1, t_2 and t_3 in the first column of Table 3 to check the significance of these coefficients). On the other hand, the debt increments promoted by outside owners are larger when managers are entrenched (α_4 positive and significantly different from zero). The coefficients of the remainder variables in the model remain significant and of the expected sign. Overall, these results corroborate those of the extended model in Eq. 2 and provide partial support to Hypothesis 5**,** whicht predicts that insider ownership and ownership concentration interact.

Table 3. GMM Estimations: Interaction effects

	I	II	III	IV
Constant	-0.05836* (0.00641)	-0.05270* (0.00691)	-0.05061* (0.00651)	-0.06460* (0.00695)
$D_{i,t-1}$	0.39630* (0.01289)	0.39167* (0.01526)	0.41653* (0.01451)	0.42901* (0.01469)
$NDTS_{it}$	-0.19975* (0.03153)	-0.19550* (0.03519)	-0.15802* (0.04001)	-0.20612* (0.04273)
PFD_{it}	-0.12302* (0.01766)	-0.14021* (0.01647)	-0.11713* (0.02024)	-0.07099* (0.01460)
$PROF_{it}$	-0.00447* (0.00099)	-0.00100 (0.00157)	-0.00366* (0.00106)	-0.00273** (0.00138)
S_{it}	0.16249* (0.00655)	0.15816* (0.00651)	0.14916* (0.00637)	0.15673* (0.00610)
IO_{it}	-0.01946 (0.03091)	0.01523 (0.03187)	0.09150** (0.03764)	-0.00494 (0.02967)
$IO_{it}\ IOD_{it}$	-0.32904* (0.09145)	-0.09940* (0.03327)	-0.11940* (0.03497)	-0.02938 (0.03155)
$IO_{it}OCD_{it}$	0.04946 (0.03523)			
$IO_{it}DV_{it}$		0.06511* (0.02543)	-0.08615* (0.02713)	0.04793*** (0.02654)
OC_{it}	0.26842* (0.04380)	0.26432* (0.04087)	0.34731* (0.05322)	0.21254* (0.03682)
$OC_{it}\ OCD_{it}$	-0.16166* (0.01639)	-0.11816* (0.01764)	-0.12243* (0.01862)	-0.11780* (0.01723)
$OC_{it}IOD_{it}$	0.20706* (0.06555)			
$OC_{it}DV_{it}$		0.00160 (0.01024)	-0.05225* (0.00520)	-0.02476* (0.00627)
t_1	6.613	1.000	0.064	2.942
t_2	2.866	3.955	1.341	5.034
t_3	4.889		0.317	2.159
t_4			2.037	
t_5			2.095	
t_6			1.707	
z_1	7277.001 (11)	4001.433 (11)	3056.037 (11)	3876.583 (11)
z_2	321.032 (7)	218.042 (7)	208.214 (7)	450.200 (7)
z_3	78.894 (9)	91.225 (9)	57.586 (9)	81.201 (9)
m_1	-4.184	-4.160	-4.232	-4.299
m_2	-0.061	-0.214	-0.084	-0.020
Sargan	113.136 (167)	114.174 (162)	119.644 (167)	105.018 (157)

Notes:

i) Heteroskedasticity consistent asymptotic standard error in parentheses.

ii) * indicates significance at the 1% level.

iii) t_1 is the t-statistics 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 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.

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 χ^2 under the null, degrees of freedom in parentheses.

Our second test, proposed to go further in the study of the relationship between capital and ownership structures, consists of interacting ownership variables with firm-specific characteristics. The second column of Table 3 reports the results of the model including the interaction of ownership with intangible assets. In this case, DV_{it} takes value one if the firm's level of intangible assets is above the sample median, and zero otherwise. As can be seen in the second column of Table 3, the effect of insider ownership on debt is as expected when the level of intangible assets is low; that is, there is no effect on debt under convergence of interests (β_6 not significantly different from zero) and the effect under entrenchment is negative ($\beta_6+\alpha_1=\alpha_1$=-0.09940). However, these results change when the intangible assets are high, as revealed by the significance of the coefficient of the interaction of insider ownership and intangible assets (α_2), which indicates that the effect of insider ownership on debt is moderated by the firm's level of intangible assets. Specifically, with high levels of intangible assets, there is a positive effect of insider ownership on debt when the interests of owners and managers converge ($\beta_6+\alpha_2=\alpha_2$=0.06511). These increments in debt as insider ownership increases may be explained by the fact that the negative signal corresponding to a high level of intangible assets is more than offset by the positive signal resulting from a higher convergence of interests in the firm. In other words, bondholders' reluctance to lend to a firm with high level of intangible assets disappears when a higher insider ownership guarantees the efficient use of such assets. However, there is no effect of insider ownership on debt when managers are entrenched ($\beta_6+\alpha_1+\alpha_2$ not significantly different from zero, see t_1). The rationale behind this lack of significance is that self-interested managers seek to avoid any discipline that could restrain their discretion over the use of intangible assets.

In contrast, our results show that there is no interaction between ownership concentration and the level of intangible assets (α_4 not significantly different from zero). As expected, a firm's leverage increases with the concentration of its ownership, and such an increment is larger under monitoring ($\beta_7+\alpha_4=\beta_7$=0.26432) than under expropriation ($\beta_7+\alpha_3+\alpha_4=\beta_7+\alpha_3$= 0.14616, significantly different from zero, see t_2) regardless of the level of intangible assets.

The interaction of ownership and investment opportunities is tested in the model presented in the third column of Table 3. In this model, DV_{it} takes value one if the firm's Tobin's q is higher than one, and zero otherwise. The relationship between insider ownership and debt is not altered when there are good investment opportunities in the firm. There is no effect under convergence of interests ($\beta_6+\alpha_2$ not significantly different from zero, see t_1), and the effect under entrenchment is negative ($\beta_6+\alpha_1+\alpha_2$=-0.11405, significantly different from zero, see t_2). Note that in this case, the possibility of obtaining private benefits via overinvestment is low and, consequently, the negative coefficient of insider ownership under entrenchment is explained by managers' risk aversion and not by their desire of avoiding the disciplinary role of debt. In contrast, our findings show evidence of an interaction effect in firms with poor investment opportunities. In this case, debt is positively associated with the level of insider ownership when there is a convergence of interests between owners and managers (β_6=0.09150). Since the lower the Tobin's q the higher the risk of overinvestment, this result suggests that managers in convergence of interests voluntarily choose debt to credibly signal that they do not or will not overinvest. This effect, however, disappears when managers get entrenched ($\beta_6+\alpha_1$ not significantly different from zero, see t_3), probably because self-interested managers seek to overinvest and, consequently, they are interested in restraining any increment in leverage. We also find differences in the effect of ownership concentration on debt depending on the investment opportunity set. The expected positive relation holds, and this positive effect is larger under monitoring (β_7=0.34731) than under expropriation ($\beta_7+\alpha_3$ = 0.22488, significantly different from zero, see t_4) when Tobin's q is low. The same result is obtained when Tobin's q is high ($\beta_7+\alpha_4$ = 0.29506 and $\beta_7+\alpha_3+\alpha_4$ = 0.17263, respectively. See t_5 and t_6 in the third column of Table 3 to check the significance of these coefficients).

Finally, we investigate the interaction of ownership and free cash flow by estimating the model presented in the fourth column of Table 3. In this case, DV_{it} takes value one if the firm's free cash flow is above the sample median, and zero otherwise. We find a striking difference in the effect of insider ownership on debt depending on the firm's level of free cash flow. There is no effect in case of low free cash flow, even under entrenchment (β_6 and α_1 not significantly different from zero). Note that, in this case, managers' ability to overinvest is small and, consequently, entrenched managers are not encouraged to avoid debt financing. In contrast, we find a positive relation when the free cash flow is high under both convergence of interests and entrenchment ($\beta_6+\alpha_2$= 0.04793 and $\beta_6+\alpha_1+\alpha_2$=0.04793, respectively). Given that a high free cash flow constitutes a real threat of overinvestment, this evidence points to debt as an effective mechanism to prevent firms from overinvesting. Regarding ownership concentration, the expected relation holds since its effect on debt is higher under monitoring than under expropriation in case of low free cash flow (β_7= 0.21254 and $\beta_7+\alpha_3$=0.09474, respectively. $\beta_7+\alpha_3$ significantly different from zero, see t_1) as well as in case of high free cash flow ($\beta_7+\alpha_4$= 0.18778 and $\beta_7+\alpha_3+\alpha_4$=0.06998, respectively. $\beta_7+\alpha_4$ and $\beta_7+\alpha_3+\alpha_4$ significantly different from zero, see t_2 and t_3, respectively). In contrast with what could be otherwise expected, the coefficient is smaller when the free cash flow is high.

Overall, the evidence presented provides support to Hypothesis 6, according to which the relationship between ownership and capital structures is moderated by the firm's level of intangible assets, investment opportunities and free cash flow.

6. DISCUSSION AND CONCLUSION

The results obtained in this study have several interesting implications that help to explain the capital structure puzzle. In fact, we find that the ownership view of capital structure plays a complementary role to the financial and strategy views in explaining capital structure. First, our findings show that the relationship between capital and ownership structures is not as simplistic as has often been considered in the literature, since capital structure is partly determined by the decision-makers' choice and, consequently, by the incentives and goals of those who are in control of the firm. This way, managerial entrenchment and rent expropriation phenomena have to be taken into account when explaining a firm's capital structure decision. On the one hand, we find no effect of insider ownership on debt when managers and owners share value-maximization interests. According to this result, higher levels of insider ownership – which translate into a better alignment of managers' and shareholders' interests – seem to be sufficient, and higher debt is not required to assure value maximization. In contrast, a firm's debt ratio decreases as insider ownership rises when managers are entrenched; that is, when manages have the ability to pursue self-interested actions without endangering their employment and salary. This evidence, consistent with Grier and Zychowicz (1994), Jung et al. (1996), Berger et al. (1997) and De Jong and Veld (2001), indicates that when the decision-making process is under the control of entrenched managers, debt decreases will be promoted in order to avoid taking excessive risks and, at the same time, avoid the disciplinary role of debt over the use of the firm's free cash flow. On the other hand, and consistent with Friend and Lang (1988), our results reveal that ownership concentration encourages debt financing. However, smaller debt increments are found when controlling owners have the ability to expropriate rents from minority shareholders. Consistent with Faccio et al. (2003), this evidence confirms that, although larger stakes in the firm create incentives to reduce risks, higher debt facilitates expropriation by allowing the controlling owners to dispose of more resources without diluting their stakes.

Second, our study contributes to understanding the capital structure choice by analyzing the interaction between insider ownership and ownership concentration. This connection has not been examined in prior studies, and our findings partially support its relevance for the choice between debt and equity. We find that the level of ownership concentration does not moderate the relationship between insider ownership and debt and, what is more interesting, that when entrenched managers are in control of the decision-making process, the monitoring role of outside owners is totally ineffective. On the other hand, the debt increments promoted by outside owners are larger when managers are entrenched, which suggests that when ownership concentration increases and, consequently, outside owners' influence over the decision-making process strengthens, higher debt is used as a mechanism to restrain the opportunistic behavior of entrenched managers.

Finally, our third contribution lies in the interaction between ownership and firm-specific characteristics, such as intangible assets, investment opportunities and free cash flow. Our evidence confirms that these characteristics influence the incentives and goals of the decision-makers and, consequently, influence the relationship between ownership and capital structures. First, we find a higher positive sensitivity of debt to insider ownership when the level of intangible assets is high, which suggests that leverage plays a major role in controlling the managerial discretion associated with intangible assets. Second, we find larger increments in leverage in the case of poor investment opportunities, which points to debt as an effective mechanism to prevent firms from overinvesting. Third, free cash flow is

found to be the most relevant characteristic in explaining differences in the ownership-capital structures relation, since its effect dominates that of ownership. Consequently, we can assert that the major challenge associated with managerial behavior concerns the conflict of interests between owners and managers with respect to the use of the free cash flow.

Overall, this study provides new evidence on capital structure by emphasizing the decision-makers' choice, and the way in which this choice is affected by their stakes in the firm and firm-specific characteristics. Our findings confirm that self-interested agents (entrenched managers and controlling outside owners) play a major role in the capital structure decision by adjusting firms' debt ratios to their own best interests. Our results also indicate that debt is used as a mechanism to reduce the managerial opportunism associated with intangible assets, investment opportunities and, especially, with the use of a firm's free cash flow. To conclude, our findings from the ownership view open an additional way to better fit the pieces of the capital structure puzzle.

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