This paper provides new evidence on the way in which ownership influences firm value. Unlike previous studies, the empirical evidence obtained from our ownership concentration model supports not only the monitoring but also the expropriation effects. Additionally, the insider ownership model provides results that confirm the convergence-of-interest and the entrenchment effects, even though Spanish insiders get entrenched at higher ownership levels than their U.S. and U.K. counterparts. Copyright © 2004 John Wiley & Sons, Ltd.

The idea that ownership structure is one of the main corporate governance mechanisms influencing the scope of a firm’s agency costs is generally accepted (Jensen and Meckling, 1976). Based on this premise, the effect of ownership structure on firm performance has been widely documented in previous literature, paying greater attention to U.S. and U.K. firms and, more recently, to German and Japanese firms. In this context, we investigate Spanish firms in order to provide new evidence on the matter. Relying on theoretical arguments pointing to the non-linearity of the relationship, two empirical models are specified that allow us to derive the optimal breakpoints in both the relationship between value and ownership concentration, and the relationship between value and insider ownership. Our results show a quadratic relationship between value and ownership concentration, which confirms not only the monitoring, but also the expropriation effect for the very highest concentration values in Spanish firms, in contrast to the previous findings for U.S., U.K., German, and Japanese firms. Concerning insider ownership, our evidence supports both the convergence-of-interest and the entrenchment effects, and suggests that Spanish insiders get entrenched at higher ownership levels than their U.S. and U.K. counterparts.

THEORY, HYPOTHESES, AND MODELS

Ownership concentration: The monitoring and expropriation hypotheses

Since dispersion creates free-riding problems and makes manager monitoring difficult, a positive relation between ownership concentration and firm
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performance is expected. Consistent with this monitoring hypothesis, Shleifer and Vishny (1986) show the important role played by large shareholders, and how the price of the firm shares increases as the proportion of shares held by these large shareholders rises. However, concentrated ownership may also lead to worse performance, as the expropriation hypothesis proposes. Shleifer and Vishny (1997) argue that in some countries the agency problem comes from the conflict between controlling owners and minority shareholders, instead of between managers and dispersed shareholders. In these cases, large holdings are costly, because majority owners can redistribute wealth—in both efficient and inefficient ways—from other minority shareholders, whose interests need not coincide.

These two competing hypotheses suggest the possibility of a non-linear relation between ownership concentration and performance. Unlike studies on the effect of ownership concentration on performance across countries that support the existence of a linear relationship (see Table 1), our first hypothesis follows the above-mentioned theoretical arguments and predicts a quadratic relationship between value and ownership concentration.

Hypothesis 1: Firm value increases with ownership concentration at low levels (as a result of the monitoring effect), and decreases with ownership concentration at high levels (as a consequence of the expropriation effect).

To validate this hypothesis, the market value of the firm shares is regressed against ownership concentration and its square. The inclusion of these two variables in the value model allows us to explicitly test both the monitoring and expropriation effects, as well as to optimally determine the break-point of the value–concentration relationship. Following Morck, Shleifer, and Vishny (1988) and McConnell and Servaes (1990), we control for firm size, debt ratio, and intangible fixed assets in our value model.

\[
\begin{align*}
(V/K)_{it} &= \beta_0 + \beta_1 OC_{it} + \beta_2 OC^2_{it} + \beta_3 SI_{it} \\
& \quad + \beta_4 D_{it} + \beta_5 (IFA/K)_{it} + \epsilon_{it}
\end{align*}
\]

where \( V \) is the market value of shares, \( OC \) and \( OC^2 \) denote the percentage of common shares held by shareholders that own significant shares, and its square, respectively; \( SI \) is the logarithm of the replacement value of total assets; \( D \) is the debt ratio; \( IFA \) is the book value of the intangible fixed

Table 1. Previous evidence

Panel A: Ownership concentration and performance

<table>
<thead>
<tr>
<th>U.S.</th>
<th>U.K.</th>
<th>Germany</th>
<th>Japan</th>
</tr>
</thead>
</table>

Panel B: Insider ownership and performance

<table>
<thead>
<tr>
<th>U.S.</th>
<th>U.K.</th>
</tr>
</thead>
<tbody>
<tr>
<td>McConnell and Servaes (1990)d</td>
<td>Faccio and Lasfer (1999)d</td>
</tr>
<tr>
<td>Han and Suk (1998)d</td>
<td>Short and Keasey (1999)d</td>
</tr>
<tr>
<td>Holderness et al. (1999)d</td>
<td></td>
</tr>
</tbody>
</table>

This table summarizes the most representative previous studies. The relation found in each study is: a a positive and linear relationship; b a negative and linear relationship; c a quadratic relationship; and d a cubic relationship.

assets; K is the replacement value of total assets; and ε is the error term.\(^1\)

The quadratic relation proposed in Model 1 presents only one breakpoint, which can be optimally derived by differentiating value with respect to ownership concentration. Letting this partial derivative equal zero, this breakpoint is \(OC_1 = \frac{-\beta_1}{2\beta_2}\). \(OC_1\) is positive and, consequently, \(\beta_1\) and \(\beta_2\) present opposite signs. In addition, Hypothesis 1 implies that \(OC_1\) is a maximum (see Figure 1), which leads to the condition that \(\beta_2 < 0\) and, therefore, \(\beta_1 > 0\).

Insider ownership: The convergence-of-interest and entrenchment hypotheses

According to Jensen and Meckling (1976), managers’ natural tendencies are to allocate the firm’s resources in their own best interests, which may conflict with those of outsiders. As insider equity ownership increases, these conflicting interests converge, and hence the conflicts between managers and shareholders are likely to be resolved. This convergence-of-interest hypothesis suggests that firm value increases as management ownership rises. On the other hand, significant insider ownership has offsetting costs, as stressed by Fama and Jensen (1983). They argue that, even for low levels of insider ownership, market discipline may still force managers to pursue value maximization, despite their lack of personal incentives to do so.

In contrast, when a manager owns a substantial fraction of the firm shares, which confers on him enough voting power or influence, he may satisfy his non-value-maximizing objectives without endangering his employment and salary. These arguments give rise to the entrenchment hypothesis, according to which excessive insider ownership has a rather negative impact on corporate performance, probably because a level of insider ownership that is too high is likely to entrench them.

As a result of these two opposing effects, most U.S.- and U.K.-based evidence agrees that a non-linear relationship between insider ownership and firm value exists. However, as shown in Table 1, there is great disparity in the functional form of such a relation. To provide new evidence for the Spanish case, we examine whether insider ownership non-linearly affects firm value. Following Morck et al. (1988), our second hypothesis predicts a cubic relationship between value and insider ownership.

Hypothesis 2: Firm value increases with insider ownership at low and high levels (as a result of the convergence-of-interest effect) and decreases with insider ownership at intermediate levels (as a consequence of the managerial entrenchment effect).

Consistent with this hypothesis, our second model tests a cubic form of the relationship between firm value and insider ownership. Note that our model extends the piecewise linear regression of Morck et al. (1988), allowing the coefficients on

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\(^1\) The first subscript of the variables (\(i\)) refers to firms, and the second (\(t\)) to business year. Details about the calculation of the debt ratio and the replacement value of total assets can be found in Miguel and Pindado (2001).

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Figure 1. Relationship between firm value and ownership concentration
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the insider ownership variables to determine their optimal breakpoints.\(^2\) Completing the regression with the control variables explained above, our second model can be expressed as follows:

\[
(V/K)_{it} = \gamma_0 + \gamma_1 IO_{it} + \gamma_2 IO_{it}^2 + \gamma_3 IO_{it}^3 + \gamma_4 SI_{it} + \gamma_5 D_{it} + \gamma_6 (IF/A/K)_{it} + \varepsilon_{it}
\]  

(2)

where \(IO\), \(IO^2\) and \(IO^3\) denote the percentage of common shares held by insiders, its square and cube, respectively.

In the same way as we did for Model 1, we calculate the two breakpoints of the cubic value–insider ownership regression:

\[
IO_1/IO_2 = (-2\gamma_2 \pm \sqrt{4\gamma_2^2 - 12\gamma_1 \gamma_3})/6\gamma_3.
\]

We can not determine exactly the expected signs of the coefficients on insider ownership variables (\(\gamma_1, \gamma_2, \gamma_3\)) from the above expressions. However, Hypothesis 2 implies that \(IO_1\) is a maximum and \(IO_2\) a minimum (see Figure 2) and, consequently, two conditions concerning both breakpoints that impose the condition that \(\gamma_2\) and \(\gamma_3\) are of opposite signs can be obtained from the second partial derivative.

**RESEARCH DESIGN AND RESULTS**

**Data and estimation method**

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 avoid problems of unobservable heterogeneity and endogeneity, we have constructed a data panel of non-financial quoted Spanish companies for the period ranging from 1990 to 1999.\(^3\) The structure of the panel, by number of annual observations per company, is given in Table 2. Tables 3 and 4 provide the descriptive statistics and correlations, respectively, of the variables used in the estimation.

The estimation method has been selected to avoid the problems of unobservable heterogeneity

\(^2\) Except for Mudambi and Nicosia (1998) and Short and Keasey (1999), all previous research summarized in Table 1 choose a priori breakpoints for the value–insider ownership relationship.

\(^3\) This condition is necessary to have a sufficient number of periods to test for second-order serial correlation (Arellano and Bond, 1991).
and endogeneity highlighted in previous literature. On the one hand, since firms are heterogeneous, there are always characteristics influencing firm value that are difficult to measure or hard to obtain (see Himmelberg, Hubbard, and Palia, 1999). We control for unobservable heterogeneity in our models through an individual effect, \( \eta_i \). We also control for the effect of macroeconomic variables on firm value including a temporal effect, \( d_t \). Consequently, the error term in Models 1 and 2 has been transformed into \( \varepsilon_{it} = d_t + \eta_i + \upsilon_{it} \), where \( \upsilon_{it} \) is a random disturbance. On the other hand, the potential endogeneity of ownership structure may seriously affect the ownership–value relation.\(^4\) To avoid this problem we estimate, by using an instrumental variable estimator, the generalized method of moments (GMM). Finally, we have performed several specification tests, whose details are given in Table 5.

**Results**

The results of our GMM estimation of Model 1 are provided in column 1 of Table 5. The expected signs of the coefficients on the variables \( OC \) and \( OC^2 \) are found; that is, \( \beta_1 \) is positive and \( \beta_2 \) is negative, which confirms the quadratic relationship between firm value and ownership concentration predicted in Hypothesis 1. These results suggest that the value of Spanish firms rises as ownership concentration increases from 0 percent to 87 percent—as a clear consequence of the more efficient monitoring provided by concentrated shareholding—and that beyond this breakpoint firm value is negatively affected by ownership concentration—since an ownership structure that is so concentrated allows the expropriation of minority shareholders.

The results for Model 2 are shown in column 2 of Table 5. Consistent with Morck* et al.* (1988), the coefficients on the variables \( IO \) and \( IO^3 \) are positive and the one on \( IO^2 \) is negative, which supports the cubic specification for the value–insider ownership relation in Spanish firms proposed by Hypothesis 2. We interpret this evidence as consistent with both the convergence-of-interest and the entrenchment effects. For insider ownership values between 0 percent and 35 percent any increment in this variable will be translated into increments in value, as a consequence of the greater incentives for insiders to maximize value as their stakes rise. When ownership ranges from 35 percent to

---

Table 5. GMM estimations of value-ownership models

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>−0.12243∗ (0.015001)</td>
<td>−0.09785∗ (0.01093)</td>
</tr>
<tr>
<td>$OC_{it}$</td>
<td>1.53831∗ (0.44327)</td>
<td></td>
</tr>
<tr>
<td>$OC_{it}^2$</td>
<td>−0.88042∗ (0.30687)</td>
<td></td>
</tr>
<tr>
<td>$IO_{it}$</td>
<td></td>
<td>1.12330∗ (0.34125)</td>
</tr>
<tr>
<td>$IO_{it}^2$</td>
<td></td>
<td>−2.37289∗ (0.88863)</td>
</tr>
<tr>
<td>$SI_{it}$</td>
<td>−0.95440∗ (0.05086)</td>
<td>−0.95894∗ (0.02843)</td>
</tr>
<tr>
<td>$(FA/K)_{it}$</td>
<td>0.60759∗ (0.09411)</td>
<td>0.56264∗ (0.05617)</td>
</tr>
<tr>
<td>$z_1$</td>
<td>440.623 (5)</td>
<td>1525.439 (6)</td>
</tr>
<tr>
<td>$z_2$</td>
<td>649.6094 (8)</td>
<td>2649.439 (8)</td>
</tr>
<tr>
<td>$m_1$</td>
<td>−0.963</td>
<td>−0.968</td>
</tr>
<tr>
<td>$m_2$</td>
<td>0.295</td>
<td>0.189</td>
</tr>
<tr>
<td>Sargan</td>
<td>90.422 (85)</td>
<td>105.438 (102)</td>
</tr>
</tbody>
</table>

Notes: (i) Although we have 1233 observations, the models have been estimated for only 1098 of them because we lost the data for 1 year in the construction of some variables.
(ii) Panel data estimation is carried out using DPD98 for GAUSS written by Arellano and Bond (1998).
(iii) To eliminate the individual effect, models are estimated after taking first differences of the variables.
(iv) All variables are treated as endogenous, since control variables could be determined simultaneously with firm value. Therefore, lags from $t−2$ to $t−4$ of all the right-hand side variables in the models have been used as instruments in order to control for endogeneity.
(v) Heteroskedasticity consistent asymptotic standard error in parentheses.
(vi) ∗ indicates significance at the 1% level.
(vii) $z_1$ and $z_2$ are Wald tests of the joint significance of the reported coefficients and of the time dummies, respectively, both asymptotically distributed as $\chi^2$ under the null of no relationship; degrees of freedom in parentheses.
(viii) $m_i$ 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.
(ix) Sargan is a test of the over-identifying restrictions, asymptotically distributed as $\chi^2$ under the null of no correlation between the instruments and the error term; degrees of freedom in parentheses.

70 percent, value decreases as insider ownership rises; this result suggests that increases in ownership between 35 percent and 70 percent cause insiders to be less interested in the welfare of the rest of the shareholders, and that their higher stakes are likely to entrench them. Finally, for the very highest ownership levels—above 70 percent—the convergence-of-interest seems to dominate the relation again.

**DISCUSSION**

Consistent with previous empirical evidence, we find that ownership structure matters. However, two main discrepancies are found from the new evidence we present here for the Spanish case. First, ownership concentration has a non-linear effect on Spanish firms’ value (because rent expropriation is likely for the very high levels), while in other countries—such as the United Kingdom, the United States, Germany, and Japan—this effect is generally linear (see Table 1). Second, Spanish insiders get entrenched at higher ownership levels than their U.K. and U.S. counterparts (e.g., Holderness, Kroszner, and Sheehan, 1999, show that U.S. managers get entrenched when ownership ranges from 5 to 25 percent, and Short and Keasey, 1999, report percentages of 12 and 41 percent for U.K. managers). We offer one possible explanation for these discrepancies that relies on differences in corporate governance. In fact, there are five institutional characteristics clearly differentiating the Spanish corporate governance system from those of the countries considered in previous research; namely, the level of ownership concentration, the effectiveness of boards, the development of capital markets, the activity of the market for corporate control, and the legal protection of investors.

First, firm ownership is much more concentrated in most of continental Europe than in the United States and the United Kingdom. Moreover,
La Porta et al. (1998) report a higher percentage of ownership concentration in Spanish firms, as compared to U.S., U.K., and even Japanese and German firms. According to Shleifer and Vishny (1997), the presence of controlling shareholders with interests different from those of minority owners would make it easier to expropriate rents in Spanish firms. Second, the two-tier structure of German boards (Kaplan, 1997) and the similar board structure existing in Japan guarantee the distinction between managing and supervisory functions in German and Japanese firms. U.S. and U.K. boards have also been generally considered a competent control mechanism because of their independence of management (Denis and McConnell, 2003). In contrast, boards of directors in Spain, as occurs in most European countries, are one-tiered (which implies that board members manage the company and also supervise its activity); additionally, board members usually lack information (Melle, 1999) and freedom to make decisions (Ricart, Alvarez, and Gallo, 1999). Therefore, one can not rely on the role Spanish boards play in controlling large shareholders and expropriation for expropriation. Third, the liquidity of the assets traded in a market is a good indicator of its level of development and, as Demirgüç-Kunt and Levine (2001) document, the Spanish capital market is relatively illiquid, as compared to those of the United States, the United Kingdom, Germany, and Japan. The expropriation of minority shareholders may be more likely when stock markets are illiquid, since the relative low liquidity of the Spanish capital market would impede minority shareholders to sell out when they perceive abuses by controlling owners (see Maug, 1998, for similar arguments). Fourth, according to Pagano and Volpin (2001), the market for corporate control limits the benefits that controlling owners extract at the expense of minority shareholders. Therefore, the activity of this market could explain the likelihood of expropriation in Spain (where takeovers are rare; see Ocaña, Peña, and Robles, 1997), as compared to the United States and the United Kingdom (whose takeover markets are active; see Denis and McConnell, 2003). Fifth, La Porta et al. (1998) point out that the degree of legal enforcement in Spain is much lower than that in the United States, the United Kingdom, Japan, and Germany and, consequently, Spanish investors are the least protected. Consistent with La Porta, Lopez-de-Silanes, and Shleifer (1999), who show that expropriation is greater in countries with weaker investor protection, this legal argument would also explain why expropriation is more likely in Spanish firms.

On the other hand, the extent of legal protection of shareholders against abuses by managers in the decision-making process may justify why the difficulty to get entrenched is higher for Spanish insiders. Despite the weak legal enforcement, Spanish shareholders’ interests are relatively well protected by laws. As shown in La Porta et al. (1998), Spanish minority owners can cast their votes for one candidate or name a proportional number of directors, and shareholders are given the first chance to buy new issues of stock. U.S. shareholders do not enjoy these rights, while U.K. shareholders enjoy pre-emptive rights but are not allowed to have proportional representation on boards. Therefore, we can interpret the greater difficulty of Spanish insiders to get entrenched as evidence of the effective monitoring exerted by shareholders, who are not only protected from dilution but are also granted representation on boards.

Finally, it is worthwhile noticing that the Spanish case is interesting, since it is highly representative of other institutional contexts that have not been considered in previous research. Specifically, Latin-American economies share most of the above-mentioned institutional characteristics that explain the value–ownership relation in Spanish firms (see La Porta et al., 1998; Demirgüç-Kunt and Levine, 2001): high ownership concentration, very illiquid capital markets, civil legal origin, weak legal enforcement, and antidirector rights (e.g., pre-emptive rights and cumulative voting or proportional representation on boards).

5 Although there is a more complex structure of various committees in Japan, the most relevant one acts as a supervisory board, since it is composed of external experts and representatives of the main companies in the keiretsu (see Kojima, 1994).

6 Note that in Germany and Japan the market for corporate control is practically non-existent, too. See Franks and Mayer (1997) and Kaplan (1994), respectively.

7 Note that this legal argument would also explain why U.K. insiders entrench at higher ownership levels than their U.S. counterparts, as Short and Keasey (1999) show.
CONCLUSION

In this paper we provide new evidence on the relationship between the value of Spanish firms and their ownership structures. Our empirical evidence supports the monitoring and expropriation effects when studying the relationship between firm value and ownership concentration. Our results also confirm the convergence-of-interest and entrenchment effects on the relationship between firm value and insider ownership. Overall, the results obtained confirm that ownership structure matters even when controlling for endogeneity, and that differences in corporate governance systems could explain different value–ownership relations across countries.

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