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By M.C. Manjón

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by

Miguel C. Manjón

Department of Economics,
Rovira i Virgili University (Spain)

Address:
Facultad de Ciencias Económicas
Avda. Universitat, 1
Reus 43204
Spain
(e-mail: mma@fcee.urv.es)

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The Trade–off Between Risk and Control in Corporate Ownership

Abstract

This paper analyses the risk–control trade–off in corporate ownership. It presents a simple model in which large shareholders decide their share depending on their risk aversion, risk–neutral effects attached to firm size and the effectiveness of different (external and internal) mechanisms for controlling managers' behaviour. Two institutional settings in which the expected benefits from control appear to overcome risk aspects are explored: the USA at the turn of the 20^{th} century and Spain in the 1990's. The empirical evidence seems to support the predictions of the model regarding the relationship between ownership concentration, the characteristics of governance and the size of the firm.

Keywords: Corporate Governance, Disciplinary Mechanisms, Large Shareholders
JEL Classification: C23, D23, D81, G34

1 Introduction

Ownership is a central institution in trade because it confers the power to take ex–post decisions. Wherever contingencies not specified in the contracts arise, owners' beliefs become the principal guide for the solution eventually adopted. The legal structure of the corporation reflects this by entitling shareholders to monitor managers and ultimately fire them if they do not fulfill their expectations (BLAIR [1995]). Moreover, shareholders are claimants for the residual rights of control (HART [1995a]). However, even within systems of corporate governance, the ownership structure of the corporations does not present a homogeneous pattern (LA PORTA *et al.* [1999]). The question that arises then is why some firms are tightly held whereas others show widely dispersed shareholdings? A number of recent studies have addressed this issue and the overall conclusion is that there are conflicting forces behind a given ownership structure. Holding substantial shares of equity implies important benefits derived from the control of corporate decision–making.[1] The downside are the associated costs.

AGHION AND BOLTON [1992], for example, argue that when an entrepreneur has to raise new funds the marginal costs of sharing control with new shareholders have to be weighed against the chances of losing control to outside investors. This has been observed in the evolution of the initial shareholder control in German and UK firms (GOERGEN AND RENNEBOOG [2003]) and concurs with the existence of rationing and discrimination in the allocation of shares in UK initial public offerings (BRENNAN AND FRANKS [1997]). However, a more dispersed ownership structure leads to the classical agency problem between managers and owners. Large shareholders may mitigate this problem as long as the benefits from controlling the firm pay off (SHLEIFER AND VISHNY [1986], HOLDERNESS AND SHEEHAN [1988]; see, however, BANERJEE *et al* [1997] and FRANKS *et al* [2001]). In Belgium, for example, the disciplining effects of large shareholders have been observed in industrial companies and families (RENNEBOOG [2000]). However, BURKART *et al.* [1997] show that there is a trade–off between the gains obtained from a tight control over managers' decisions and the costs of constraining managers' initiative. Moreover, as BOLTON

[1] As pointed out by ZWIEBEL [1995, 162], although "private benefits of control have received much attention recently, much of this literature is vague on the origins of these benefits. Among plausible sources are the ability of managers (or directors) to dilute corporate funds for private benefit, synergies obtainable through mergers, favours conferred by a firm, access to inside information, perquisites of control, and *utility derived from power or control*" (emphasis added). On the importance of power in corporate governance see also TRICKER [1998], RAJAN AND ZINGALES [1998] and ZINGALES [1998]. A related concept is that of authority, as discussed by AGHION AND TIROLE [1997].

AND VON THADDEN [1998a], [1998b] pointed out, increasing ownership concentration reduces the chances of managerial slack but also lowers market capitalization, and therefore the liquidity trading in the secondary market. BECHT [1999], indeed, finds that there is a negative relationship between blockholding and the liquidity of the German and Belgian stock exchanges.

The aim of this paper is to contribute to this literature by discussing the role of risk and control factors in the ownership structure of corporations. I present a simple model in which large shareholders trade off the costs of higher ownership shares, in terms of less diversified risk, against the benefits, in terms of greater control. In particular, the investment decision is shaped by *i)* their risk aversion and a "risk–neutral effect" due to the limited diversification of their portfolios (DEMSETZ AND LEHN [1985, 1158]), and *ii)* the effectiveness of alternative or complementary mechanisms to ownership concentration for disciplining managers' behaviour. The model indicates that changes in the characteristics of governance, the information available to the investor and the size of the firm directly affect ownership concentration. Moreover, given that governance systems are defined by a set of disciplinary mechanisms, control factors are more likely to offset risk factors whenever a convenient combination of these mechanisms is present. Therefore, in these contexts we expect ownership concentration to be high but the other disciplinary mechanisms to be weak. In the second part of the paper I analyse two institutional settings that fit into this pattern.

Other studies have investigated the trade–off between risk and control. ADMATI *et al.* [1994], for example, analyse an ownership structure made up of a large monitoring–active shareholder and a fringe of small passive shareholders. Important differences with our study are that investors are assumed to be risk–averse and there are multiple risky securities. In fact, their main concern is the optimality of the allocation of shares in terms of risk sharing, an aspect which is beyond the scope of this paper. Notice also that they focus on ownership concentration and do not consider alternative or complementary mechanisms that may also discipline managers (HART [1995b], MOERLAND [1995]). The emphasis on the corporate governance approach adopted here is closer to the seminal paper of DEMSETZ AND LEHN [1985]. These authors maintain, as we do, that shareholders evaluate the dis/advantages of diffuseness and concentration guided by a value (i.e. utility) maximisation goal. In particular, they propose three driving forces in the election of an ownership structure, all of which are somehow considered in the model: the size of the firm, control potential and regulation.

In line with the conclusions reached by DEMSETZ AND LEHN [1985] and the cross–

sectional evidence provided by LA PORTA *et al.* [1998], the comparative statics of the model suggest that strong external disciplinary mechanisms (e.g. legal conditions) tend to reduce ownership concentration. That is, a system of corporate governance that strengths the external mechanism as it evolves would show a simultaneous reduction in ownership concentration. This is the first testable hypothesis of the model.[2] Unfortunately, its long–term nature makes it difficult to test it properly. One attempt to do so, based on interpreting empirical evidence on the evolution of the ownership structure in American corporations, is presented in section 4.

The American case is interesting because since BERLE AND MEANS [1932] it is the kingdom of the "open corporation". Besides, it has a long tradition of studies on the joint–stock corporation. Notably, A.D. CHANDLER's work [1977], [1990] has thoroughly documented the rise of the large–scale, widely held companies in the last third of the nineteenth century. However, before World War I the ownership of significant shares of equity was still common in many of these large firms. One must bear in mind these were the years of the large family concerns (Carnegie, Morgan, Rockefeller, Stillman and Vanderbilt, among others) and that some institutional shareholders (e.g., investment bankers and independent promoters) also played an important role in the governance of many corporations. American business history therefore provides scope for discussing our tenets.

DEMSETZ AND LEHN [1985] also argue that risk aversion and the risk–neutral effect imply a negative relationship between ownership concentration and firm size (hereafter this is referred to as the D–L claim). However, if the benefits from control are strong enough, the concentration–size relationship could even be positive, as the discussion in section 2 is intended to show. Casual observance of the current corporate governance systems around Continental Europe supports our line of reasoning (BARCA and BECHT [2001]). The German, French and Italian cases clearly suggest that risk cannot be the only variable to guide shareholders' investment decisions. All these countries are characterised by high levels of ownership concentration and frequent intervention by shareholders in the affairs of the company.

More specifically, the model shows that the D–L claim holds as long as certain wealth constraints apply.[3] Empirical evidence from the Spanish system of corporate governance

[2]The model also predicts that the optimal level of investment is lower for shareholders who are better informed about the characteristics of the internal mechanisms of control (e.g., boards of directors). However, the lack of appropriate information in the data set used in this study precludes testing this relationship here. This is left for future research.

[3]In a related study on initial public offerings, GOERGEN AND RENNEBOOG [2003] find that wealth constraints affect UK shareholders but are not binding for German shareholders. They argue that large

in the early 1990's to support this second testable hypothesis is presented in section 5. The Spanish case is interesting because, as suggested e.g. in the annual reports of the Spanish Stock Exchange (CNMV [1989] – [1995]), in most listed companies ownership concentration is the central element of the governance system. This is a critical feature that enables us to considerably simplify the set of disciplinary mechanisms, i.e. the vector of relevant explanatory variables in the econometric specification relating ownership concentration and size in an unbalanced panel of Spanish listed firms. A similar empirical strategy can be found in CRESPI [1998], but following the D–L claim. Taking into account shareholders' wealth constraints, however, our estimates show that the D–L claim holds for certain types of shareholders (e.g., individuals) but not for others (e.g., non–financial companies and the State).

The last section of the paper summarises the main conclusions and suggests possible extensions for future research.

2 Risk and Control in the Ownership Structure of Corporations

The essence of the governance puzzle is the separation between the ownership of shares and the control over the principal policies of the firm (BERLE AND MEANS [1932]). A shareholder owning 100% of the shares would enjoy all the benefits of control. However, s/he would also have to bear the risk of holding an undiversified portfolio. Selling off some shares may provide risk–sharing gains (ADMATI *et al.* [1994]), depending ultimately on her/his degree of risk aversion and the relative size of the investment with respect to her/his wealth – i.e. the risk–neutral effect discussed by DEMSETZ AND LEHN [1985]. The downside of share dispersion is that managers enjoy more leeway than in a tightly held firm. It turns out that small shareholders do not monitor managers optimally because of the possibility of free–riding. In these contexts they may end up being merely entitled to receive dividends whereas managers, as supreme interpreters of "what is best for the firm", can even decide on the appropriate timing for the returns on shareholders' investments.

Payouts and conflicts of interest are only part of the story, however. In a world of incomplete contracts, corporate governance matters because ownership confers residual

German shareholders may be receiving more private benefits of control because of the weaker protection of their rights. The comparative statics of our model suggest that legislation and regulation are indeed important explanatory factors of the concentration–size relationship, but our framework is more comprehensive in the sense that it considers the whole set of control mechanisms.

rights of control upon nonhuman assets (HART [1995a]).[4] It is precisely in such a world, in which transaction costs preclude the "comprehensive contract" solution, that ownership concentration, the composition of the board and the market for (partial) corporate control arise as mechanisms that can mitigate the agency problem (HART [1995b]). Governance mechanisms are also important because of their regulatory role in the generation and distribution of quasi–rents (ZINGALES [1998]). Access to the firm's assets, for example, does not confer new residual rights of control. It is, however, an alternative way of allocating power within the organization because it affects the ex–post bargaining process over the surplus generated in the firm. As TRICKER [1998, 2] pointed out, "corporate governance is about power – the wielding of power over corporate entities".

Large shareholders are therefore in a privileged position to obtain a large part of these quasi–rents through their power to influence appointments to the board and/or their ability to gain easier access to key resources of the company (RAJAN AND ZINGALES [1998]). Moreover, their monitoring role is subject to receive benefits from control that are larger than the costs of shirking (SHLEIFER AND VISHNY [1986]). As shown by BURKART *et al.* [1997], large shareholders will exert their authority to reverse managers' decisions whenever there is a net gain in doing so. Interestingly, they also show that the set of states of the world in which this is likely to happen expands as ownership concentration increases.

In this vein, the expected benefits of holding a large share of equity may be substantial enough to overcome risk aspects relating to the amount of the investment. However, ownership concentration does not act in isolation from other governance mechanisms. As LA PORTA *et al.* [1998] pointed out, for example, it is a substitutive mechanism in legal settings characterised by poor and ineffective protection of investors' interests – see also GOERGEN AND RENNEBOOG [2003]. More generally, AGRAWAL AND KNOEBER [1996] show that these interrelationships apply to the whole set of mechanisms (debt policy, the managerial labour market, the market for corporate control, etc.). Therefore, a framework for the analysis of corporate ownership must allow for alternative and/or complementary

[4] Ownership also confers a formal authority established by statutory or legal rules. Nevertheless, due to, for example, information asymmetries between principals and agents (AGHION AND TIROLE [1997]), this does not need to entail real authority. From an empirical point of view, the fact that control rights by shareholders are not necessarily equivalent to effective control over the corporation raises interesting issues for the research on corporate governance (albeit not directly relevant for the problem addressed here). LEECH AND LEAHY [1991] and LEECH AND MANJON [2002], for example, discuss the use of probabilistic and game–theoretic measures of control (for the sake of simplicity these are not used here); HERMAN [1981], LA PORTA *et al.* [1999], RENNEBOOG [2000] and BARCA and BECHT [2001], for example, stress the importance of considering "ultimate control" (see also foonote 9).

mechanisms of control (MOERLAND [1995]), for they may alter the expectations of power and control deriving from the ownership of shares. In particular, empirical analyses risk reaching biased conclusions if they do not control for these alternative mechanisms. Fortunately, as shown by FRANKS *et al* [2001], all these mechanisms neither focus necessarily on disciplining managers in poorly performing companies, nor do they always exert a significant disciplinary effect. Researchers may take advantage of these caveats and reduce the set of mechanisms by selecting those that are relevant for the analysis.[5]

3 Theoretical framework

To illustrate some of these issues at greater length it is useful to discuss them in a framework defined by a simple model of investment under uncertainty. The interest here is focused on a (the) large(st) shareholder/investor. However, I do not claim that it accurately represents her/his actual behaviour. In fact, important aspects such as tax policies, multiple securities, strategic behaviour against rivals (there is only one investor) or dynamics are not taken into account.[6] Rather, they are left for future research. The model is a purely one–step, one–period decision that aims to show that:

[5]Notice that this empirical strategy is conditional to an appropriate assessment of the set of mechanisms. To illustrate its potential drawbacks, let us consider a hypothetical study on the determinants of the ownership structure of German corporations. "In the stereotypical view of German finance, hostile tender offers are virtually unheard of, with banks (rather than markets) assumed to play an important role in both the financing and control of German corporations" (JENKINSON AND LJUNGQVIST [2001, 397–398]). Accordingly, an econometric model including proxies for the banks' monitoring activity (e.g. proxy votes) as explanatory variables but omitting measures of the market for corporate control may nevertheless reach accurate conclusions. However, the empirical evidence provided by JENKINSON AND LJUNGQVIST [2001] challenge this stereotypical view and suggest that "the building of hostile stakes" may represent a level of hostile acquisitions "of a similar magnitude to the incidence of hostile takeovers in the UK". Moreover, these authors raise caveats on the monitoring role of German banks and emphasise their assistance to the predator companies. As a consequence, our econometric specification, correct under the widespread view of the German system of corporate governance, would be misleading unless we somehow controlled for these complex stakebuilding strategies.

[6]Related studies such as AGHION AND BOLTON [1992], BURKART *et al*. [1997] and BOLTON AND VON THADDEN [1998a], [1998b] share some of these simplifying features. On the other hand, taxes are indirectly addressed by SHLEIFER AND VISHNY [1986]; multiple securities are the main concern of ADMATI *et al*. [1994] and are discussed at some point by RAJAN AND ZINGALES [1998]; and the strategic behaviour is an important element of ZWIEBEL's [1995] paper. Admittedly, the main caveat to be cast on our model is its static setting (see also SHLEIFER AND VISHNY [1986] and ZWIEBEL [1995]). As shown below, however, its predictions can be interpreted in a long–term, dynamic perspective.

Proposition 1 *: Achieving a certain percentage of equity in a firm depends not only on risk concerns, but also on the distinctive features of the corporate governance that shape control factors. Other things being equal, moreover, higher (lower) levels of investment are more frequent in firms and/or institutional settings in which the ownership of shares confers a high (low) control over corporate decision–making.*

3.1 A simple model

Let us consider an investor who is contemplating buying a large stake of equity in a corporation. For the sake of simplicity, budget constraints and market restrictions are not considered: s/he has the chance and the means to become a large (or even the largest) shareholder in the company. The ultimate reasons behind this decision are not a major concern here. We might suppose, for example, that s/he already has a small stake in the firm and is now considering increasing the size of the investment. Alternatively, we can see the investment as part of a diversification strategy in other sectors, other countries, etc. Such stakebulding behaviour is not uncommon in the stock markets – see, e.g., JENKINSON AND LJUNGQVIST [2001]. In any case, our interest lies in the size of the investment s/he will eventually hold and on its determinants.

Following on from our previous discussion, it is assumed that the investor's decision is guided by control and risk factors. The former are related to the percentage of equity eventually held and to the characteristics of the governance system, while the latter arise from risk–aversion and risk–neutral effects. Formally, let us assume that the investor's preferences are represented by a von Newmann–Morgenstern utility function (U) that is twice continuously differentiable and additively separable in control (c) and risk (r) components:

$$U(c,r) = c(i,\delta^E,\delta^I) - r(w) = c(i,\delta^E,\delta^I) - r(A\cdot i) \quad , \tag{1}$$

where $i \in [0,1]$ is the percentage of equity; $\delta^E \in [0,1]$ and $\delta^I \in [0,1]$ are indices (to be analysed in detail later) that summarise the features of the corporate governance; and A is the ratio between firm size (in terms of total equity) and investor's wealth, i.e. $r(.)$ depends on the relative amount of the investment with respect to the investor's wealth, $w = A \cdot i$. It is assumed that the greater the ratio between investment and wealth, the greater the disutility in a non–decreasing way, $\frac{dr}{dw} > 0$ and $\frac{d^2r}{d^2w} > 0$. On the other hand, c is increasing and concave in i, $\frac{\partial c\left(i,\delta^E,\delta^I\right)}{\partial i} > 0$ and $\frac{\partial^2 c\left(i,\delta^E,\delta^I\right)}{\partial^2 i} < 0$. Also, given that controlling factors are likely to arise only after a certain threshold of investment has been achieved ($\underline{i}$), it seems reasonable to set $c(i,\delta^E,\delta^I) = 0, \forall i \in [0,\underline{i}]$. Figure 1 illustrates these assumptions.

[Insert Figure 1]

The governance system is represented by the deltas, which are meant to discern the degree of efficacy and development of alternative mechanisms of control. In our notation, δ^E accounts for the "external" disciplinary mechanisms (e.g. the market for corporate control and the competition in the product markets), whereas δ^I accounts for the "internal" ones (e.g. board of directors, executive compensation and debt). The characteristics of the external mechanisms are considered known, so δ^E is a scalar between one and zero for, respectively, *market–oriented systems* (the Anglo–American model) and *network–oriented systems* (such as those in Continental Europe). Moreover, it is assumed that the increase in the utility from control obtained by an extra one per cent of equity will decrease when the efficacy of these external mechanisms increases, $\frac{\partial^2 c\left(i,\delta^E,\delta^I\right)}{\partial \delta^E \partial i} < 0$.

As for the internal mechanisms, it is assumed that some information is hidden to the outsiders. In particular, there are unrevealed factors at the firm level that introduce uncertainty to the shareholders' assessment of the control conferred by the investment. As illustrative examples I can mention management entrenchment, institutional shareholders' activism and other stakeholders' preferences. I model this by defining δ^I as a binary random variable with values δ^I_H and δ^I_L ($\delta^I_H > \delta^I_L$) to distinguish, respectively, firms with strong and weak internal mechanisms. The investor's subjective probabilities associated with these values are $\Pr(\delta^I = \delta^I_H) = q$ and $\Pr(\delta^I = \delta^I_L) = 1 - q$. It is also assumed that $\frac{\partial c\left(i,\delta^E,\delta^I_H\right)}{\partial i} < \frac{\partial c\left(i,\delta^E,\delta^I_L\right)}{\partial i}$, i.e. the control obtained by an increase in the level of investment is higher the weaker the internal mechanisms.

Under these assumptions the shareholder chooses the optimal level of investment (i^*) by maximising his/her expected utility:

$$i^* = \arg\max_i \left\{ \underset{\delta^I}{E} \left[U(c,r) \right] \right\} = \arg\max_i \left\{ \sum_{j=H,L} \left[\Pr(\delta^I = \delta^I_j) \cdot c(i,\delta^E,\delta^I_j) \right] - r(w) \right\}. \quad (2)$$

By reordering the First Order Condition (FOC) we obtain the solution to equation (2) as[7]

$$\sum_{j=H,L} \left\{ \Pr(\delta^I = \delta^I_j) \cdot \frac{\partial c\left(i,\delta^E,\delta^I_j\right)}{\partial i} \right\} = \underset{\delta^I}{E} \left[\frac{\partial c\left(i,\delta^E,\delta^I\right)}{\partial i} \right] = A\frac{dr}{dw}. \quad (3)$$

As suggested in the first part of **Proposition 1**, the optimum depends on the balance of two factors: i) the characteristics of the corporate governance, which shape the expected

[7] The first order condition of the interior maximum is a necessary and sufficient condition since the objective function is strictly concave with respect to i.

marginal utility extracted from the control associated with achieving a certain level of investment; ii) risk effects, including those derived from the relative size of the firm with respect to the investor's wealth and those related with the agent's degree of risk–aversion. Lower levels of investment are dominated by risk concerns up to a point at which control factors offset and eventually overcome them (see Figure 1). Moreover, as suggested in the second part of **Proposition 1**, ownership concentration depends (other things being equal) on the relation between the level of investment and the utility of its associated control. In particular, it will be higher in systems of corporate governance and/or firms characterised by weak alternative disciplinary mechanisms.

3.2 Further insights

Comparative statics

Let us further consider the implications of the model with regard to the ownership structure of the corporations by analysing the comparative statics of the optimum. From the FOC in (3) we can easily obtain the derivative with respect to the probability of δ_H^I as:

$$\frac{\partial i^*}{\partial q} = \frac{\frac{\partial c\left(i,\delta^E,\delta_H^I\right)}{\partial i} - \frac{\partial c\left(i,\delta^E,\delta_L^I\right)}{\partial i}}{A^2\frac{d^2r}{d^2w} - q\frac{\partial^2 c\left(i,\delta^E,\delta_H^I\right)}{\partial^2 i} - (1-q)\frac{\partial^2 c\left(i,\delta^E,\delta_L^I\right)}{\partial^2 i}} < 0. \tag{4}$$

Therefore, the model predicts that a better informed shareholder holds a lower percentage of shares than an uninformed one. However, s/he will increase her/his share of equity whenever s/he observes a weakening of an internal disciplinary mechanism (e.g. the exit of an institutional shareholder or an independent director). This "balancing" effect agrees with the scarce empirical evidence on the issue (AGRAWAL AND KNOEBER [1996], CRESPÍ–CLADERA AND GISPERT [2002]).

As for the analogous condition with respect to the external mechanisms:

$$\frac{\partial i^*}{\partial \delta^E} = \frac{q\frac{\partial^2 c\left(i,\delta^E,\delta_H^I\right)}{\partial \delta^E \partial i} + (1-q)\frac{\partial^2 c\left(i,\delta^E,\delta_L^I\right)}{\partial \delta^E \partial i}}{A^2\frac{d^2r}{d^2w} - q\frac{\partial^2 c\left(i,\delta^E,\delta_H^I\right)}{\partial^2 i} - (1-q)\frac{\partial^2 c\left(i,\delta^E,\delta_L^I\right)}{\partial^2 i}} < 0. \tag{5}$$

This suggests that a change in the institutional setting (for example, the legal framework) which improves the efficacy of the external mechanisms will entail lower levels of investment, and vice versa. This is consistent with the cross–sectional international evidence provided by LA PORTA *et al.* [1998]. I further illustrate this in the next section by discussing the evolution of the American case since the turn of the twentieth century.

Finally, we can also address the relationship between the relative size of the company and ownership concentration:

$$\frac{di^*}{dA} = \frac{-\frac{dr}{dw} - Ai\frac{d^2r}{d^2w}}{A^2\frac{d^2r}{d^2w} - q\frac{\partial^2 c\left(i,\delta^E,\delta^I_H\right)}{\partial^2 i} - (1-q)\frac{\partial^2 c\left(i,\delta^E,\delta^I_L\right)}{\partial^2 i}} < 0. \tag{6}$$

According to the model, an increase (decrease) in the size of the firm in terms of total equity would lead, *ceteris paribus*, to a decrease (increase) in the stake held by the shareholder. In essence, this is the D–L line of reasoning. However, the opposite effect arises when we consider variations in the investor's wealth: holding the absolute size of the firm constant, the amount of money s/he is willing to invest is directly related to her/his wealth – see, e.g., GOERGEN AND RENNEBOOG [2003]. Therefore, I conclude that small (large) firms with respect to the investor's wealth will tend to be more (less) concentrated.[8] I illustrate this in section 5 using data on Spanish listed firms.

Majority shareholders

The result in (6) leads to an interesting discussion about the existence of majority shareholders. Full control of the corporation does not demand 100% of shares. In fact, once a certain degree of control is achieved no significant gains are expected from raising the level of investment (AGHION AND BOLTON [1992]). Why, then, are majority shareholders found all over the world? The model suggests that these should be firms in which the largest shareholder has a negligible risk–neutral effect (A), i.e. the size of the firm is very small compared to the wealth of the investor. Effectively, typical examples are subsidiary firms, family concerns and State–owned companies. Subsidiaries and State–owned companies can be very large, but the controlling shareholder (another company, the State) is comparatively very wealthy. Similarly, family firms are usually small companies and the share of the individual's wealth involved in the investment is therefore not too big (or is allocated between the members of the family when the firm becomes larger). This is consistent with the evidence on majority shareholders provided by SHEEHAN AND HOLDERNESS [1988] in the USA and LEECH AND MANJON [2002] in Spain.

[8] To a certain extent, this agrees with the international empirical evidence on the determinants of the ownership structure. DEMSETZ AND LEHN [1985] in the USA and LEECH AND LEAHY [1991] in the United Kingdom, for example, report negative and statistically significant coefficients for variables of size. PROWSE [1992] obtains similar results for Japan, but only in firms integrated in a *keiretsu*. On the other hand, MURALI AND WELCH [1989] do not find significant values for the size coefficient in a sample of American firms with majority shareholders. In Spain, however, CRESPI [1998] and GALVE AND SALAS [1993] report a positive relationship between size and ownership concentration.

Firms heterogeneity

It also seems important to bear in mind that the actual shape of the utility functions is different for every single company. What the model shows is that the particular features of its governance system will alter the optimal level of investment and open up a wide range of possibilities. That is, given a certain risk–effect, relatively low percentages of equity (e.g., 5%, 10%, 15%) will, in some contexts, entail high levels of control; in others, however, similar standards will only be possible through substantial minorities (e.g. 40%, 45%) or even huge majorities (e.g. 60%, 75%, 90%). This conclusion agrees with the diversity in ownership structures observed around the world by LA PORTA *et al.* [1999] and BARCA and BECHT [2001].

Empirical tests

The empirical evidence provided in the next sections is intended to further support these arguments. I will analyse the set of control mechanisms in two different institutional settings and show that in both of them ownership concentration naturally arises as the main one. I will then test some of the insights gained from the comparative statics: how changes in the institutional setting affect the concentration of ownership (in the USA since the turn of the century) and what the relationship is between ownership concentration and firm size when we control for differences in the investor's wealth (in a sample of Spanish listed firms in the 1990's). The relationship between ownership structure and other internal mechanisms is left for future research.

4 Case 1: USA at the turn of the twentieth century

The turn of the twentieth century saw the rise of the big American businesses and the development of modern management techniques. The "managerial enterprise" described by CHANDLER [1977], [1990] is a large, multiunit enterprise run by a hierarchy of salaried managers with little or no stock ownership in the company. However, the open corporation observed by BERLE AND MEANS [1932] was not an instant achievement but a progressive process that took place over the decades that followed the Second Industrial Revolution around the 1880's. In this section I aim to show that some stylised facts in this historical period point to ownership concentration as an optimal solution for the governance of many large firms. Later I will present empirical evidence on the ownership structure of American firms based on two previous studies: TAUSSIG AND BARKER [1925] and HERMAN [1981].

Lastly, I will argue that the evolution of the American system of corporate governance since those days is consistent with the predictions of the model.

4.1 Governance mechanisms

Founders and family firms

Incorporation was commonplace among large industrial companies by the 1890's but most of these were still held by a small group of people, namely the founders and their relatives. New funds, when needed, were mostly obtained by issuing preferred stock (without voting rights) and debt financing. As NAVIN AND SEARS [1955, 127] pointed out, "ownership might have spread, but to a limited degree; shares might have become available to outsiders, but to a restricted extent". In fact, as CHANDLER [1962] shows, the influence of the family group extended to long periods after the foundation of the company. The Du Pont, GM, Standard Oil, and Sears and Roebuck studies prove that this decisive role remained even after mergers or acquisitions had taken place. Needless to say, this does not mean that these owners were involved in day–to–day operations; nor should one dismiss the growing importance of widely held corporations as industry leaders. Yet the weight of closely held corporations and family concerns among the largest US industrial enterprises before World War I should not be underestimated.

Institutional shareholders

As for the institutional shareholders, until very recently several regulations restricted the activities of banks and insurance companies in the American governance arena (ROE [1994]). These were barred from owning stock and underwriting securities and so any form of control over a corporation was out of the question. However, critically associated with the early development of a market for common stocks were a group of investment bankers and independent promoters. As shown by BASKIN AND MIRANTI [1997], representatives of these institutional shareholders were on the Boards of Directors and had a say in important corporate decisions. These played an important role in the governance of some companies because they had incentives to use the *voice* rather than the *exit* strategies.

Market mechanisms

In contrast with the importance of family groups and institutional shareholders, it may be argued that in this period the effectiveness of market mechanisms for monitoring managers was dubious. The market for corporate control and the market for managerial talent,

for example, were in their early stages. As for the competition in the input and product markets, this was considerably limited due to backwards and forwards integration strategies (CHANDLER [1977]). Moreover, leaving aside railroad companies and some exceptional cases in the extractive and textile sectors, a large–scale market for industrial securities did not exist at least until the 1920's (NAVIN AND SEARS [1955]). Stock was usually transmitted through informal channels between relatives, friends, and partners. Another factor worth noting is the poor quality of the financial reports for making managers accountable and the lack of reliable information for assessing market risk. Effective regulations on financial disclosure and agents' responsibilities were not implemented until the Securities Acts of 1933 and 1934 (BASKIN AND MIRANTI [1997]). Therefore, it appears that owners (founders, relatives and institutional shareholders) could not trust market mechanisms with the burden of monitoring managers.

4.2 Some indirect evidence on the ownership structure

Ownership concentration is a simple and well–known mechanism for aligning shareholders' and managers' interests. But did the American corporations of the early twentieth century employ this solution? The extant, albeit scarce, empirical evidence seems indeed to support this possibility.

HERMAN [1981], for example, analyses the ownership structure of a sample of 40 large firms in the period 1900–1901. On the basis of an ultimate control classification the study shows that widely held firms were much less common than closely held companies, family concerns and those managed under the influence of bankers and promoters (the proportion was approximately one out of four). Unfortunately, the study does not provide detailed information on the size of these holdings. Yet it is remarkable that i) except for the (widely held) Management category, all were above 5% of the voting stock; ii) in 13 companies they were above 10%; and iii) in 5 companies an individual or control group owned the majority of shares.

Further supportive evidence can be found in the TAUSSIG AND BARKER [1925] study on the executives of around 400 firms during the period 1904–1905 to 1913–1915. In about 10%–20% of these firms the ownership of shares by their executives was practically negligible (below 1% of capital stock). However, most firms in the sample were closely held. As an illustration, around 50% (70%) of the largest (smallest) firms in the sample had a large shareholder with more than 20% of the capital stock. In fact, these figures probably underestimate the actual level of concentration because in about half of the firms relatives and friends of the executives were among the large shareholders of the company.

4.3 Discussion

Family firms, institutional shareholders' activism and ownership concentration appear to be common features in a substantial number of large US corporations at the turn of the century. But their importance progressively declined in subsequent periods, whereas other mechanisms of control (e.g. the market for corporate control and the market for managerial talent) were becoming more active. There were also substantial improvements in public accounting and statistical information on financial markets during the 1920's and 1930's as well as important changes in the legal setting, particularly with regard to institutional shareholders and tax policies (BASKIN AND MIRANTI [1997]). Accordingly, the characteristics of the corporate governance system evolved from a network–oriented model towards a market–based one (BLAIR [1995]).

The ultimate reasons behind this evolution are not addressed in this paper. Following BEBCHUK AND ROE [1999], for example, one may argue that changes in the corporate rules broke the path–dependence tendency of the ownership structure. Whatever these reasons are, the argument presented here is still valid: the institutional setting at the turn of the century particularly favoured a high concentration of ownership. Conditions were less advantageous thereafter and our model predicts a decrease in the levels of ownership concentration. This is precisely what has been observed in American firms since World War II.

5 Case 2: the Spanish system of corporate governance

Spanish Stock Exchanges are supervised, controlled, and inspected by the *Comisión Nacional del Mercado de Valores* (CNMV). On the whole, the system is broadly similar to the French and German systems. Some characteristics of the Spanish Stock Market in the early 1990's are worth noting, however: i) the small number of listed firms; ii) the low percentage of free float (market traded share) in most companies; iii) the concentration of market turnover in very few stocks (around 10%–15% of companies accounted for more than 90% of market turnover); iv) the low frequency of hostile takeovers; and v) the lack of activism of most institutional shareholders (CNMV [1989] – [1995], BARCA and BECHT [2001]).

All in all, there is general agreement that the cornerstone of the Spanish system of corporate governance is ownership concentration. However, large shareholders do not discipline managers through the partial market for corporate control (i.e. block transfers). Rather, they tend to intervene directly and replace the incumbent managers when firm

performance is poor (GISPERT [1998], CRESPÍ–CLADERA AND GISPERT [2002]). This institutional setting is therefore an interesting case in which control factors are likely to offset the risk involved in investing large sums of money in a firm's equity. This section focuses in particular on the relationship between the relative size of the company and ownership concentration using a data set of industrial listed companies based on the registers of the CNMV in the period 1991 to 1995 (LEECH AND MANJON [2002]). First I present descriptive statistics and later provide econometric evidence.

5.1 Ownership structure

The descriptive analysis of the ownership structure of these companies shows the high concentration of shares (Table 1). In fact, if we take into account the previous remarks on the weakness of the alternative disciplinary mechanisms (the takeover market, the role of institutional shareholders, etc.) the figures in Table 1 are consistent with the idea that control deriving from equity ownership is a principal factor in the Spanish system of corporate governance. On average, the largest shareholder in a Spanish listed firm holds about 40% of equity and about two thirds are held by the five largest ones.[9] Ownership concentration increased steadily throughout this period and revealed positive differences between large and medium–sized firms. These two facts suggest that equity investment decisions may well be guided by reasons other than risk concerns.[10] The degree of variability in the population, however, is worth noting. These companies do not define a homogeneous sample and so firm–specific effects seem to be important.

[Insert Table 1]

[9] The shares of the largest and five largest shareholders are calculated following a majority shareholding criterion to define the "ultimate control" – see, e.g., RENNEBOOG [2000, footnote 10] and LEECH AND MANJON [2002, pp 162–163] for more details.

[10] Large and medium–sized firms are defined on the basis of the median of Total Assets (book value, millions of pesetas). Total Assets are generally agreed to be a good proxy for the size effect and have indeed been used in related studies – e.g. MURALI AND WELCH [1989] in the USA and CRESPI [1998] in Spain. DEMSETZ AND LEHN [1985, 1164] also use the market value of equity, which admittedly appears to be a better proxy – see also PROWSE's [1992] study for Japan– but they claim that their conclusions were not substantially affected: "We have experimented with other size measures (e.g. book value of assets), but the general nature of the statistical result is unaffected by this choice" (see also CRESPÍ–CLADERA AND GISPERT [2002] and GOERGEN AND RENNEBOOG [2003]). In their study on British companies, LEECH AND LEAHY [1991] use the (log) Number of Employees whereas for Spain GALVE AND SALAS [1993] use (log) Added Value.

As for the nature of these large shareholders, Table 2 shows that large firms are dominated by other corporations and the government, whereas individuals and families cluster around medium–sized companies. Given the assumptions for constructing the data set, one must be careful when interpreting these empirical results. Nevertheless, they clearly concur with the insights provided by the theoretical framework. One may expect individuals and families to be affected by some wealth constraint, so their specialisation in medium–sized firms appears an attempt to circumvent this. Corporate investors, on the other hand, do not suffer this kind of restriction and have oriented their investments mostly towards large firms. This is also evident among State–owned companies.

[Insert Table 2]

5.2 Econometric results

This section provides further evidence on the relation between ownership concentration and firm size. The dependent variables of the econometric model are a logarithmic transformation of the relative percentage of equity held by the largest ($LS1$) and five largest ($LS5$) shareholders. Among the explanatory variables, the data set includes two alternative mechanisms of control: the ratio of current liabilities to long–term debt (QD) as a proxy for financial policy; and the rate of $EXPORT$ (as a percentage of Turnover) as a proxy for the characteristics of the product market.[11] Moreover, dummy variables allow for the institutional nature of the largest shareholder. The breakdown includes individuals ($T1$), non–financial corporations ($T2$), state–owned organisations ($T3$), banks ($T4$), family groups ($T5$), holdings of private companies ($T6$), holdings of public firms ($T7$) and "mixed groups" in which related firms and family groups were among the largest shareholders ($T8$). These variables are introduced in the econometric specification as products with the variable of $SIZE$. The aim is to control for differences in wealth between these types of shareholders, as suggested by the comparative statics of our model in (6). The model also includes a dummy variable for the majority–controlled corporations (MAJ) and sectoral dummies to indirectly control for other covariates (e.g. other external mechanisms). The

[11] In principle, the econometric specification should include further disciplining mechanisms e.g. measures of labour managerial markets, takeovers, the composition of Boards, etc.. However, our data set does not contain such detailed information. This omission may raise concerns about the potential bias, but such concerns are relevant as long as the omitted mechanisms are acting effectively. The empirical evidence on the Spanish case suggests that this is at least doubtful. See, for example, CNMV [1989] – [1995], GALVE AND SALAS [1993], GISPERT [1998], BARCA and BECHT [2001] and CRESPÍ-CLADERA AND GISPERT [2002].

unbalanced panel includes 162 firms with three or more consecutive observations in the period 1991 to 1995. Table 3 provides a summary of statistics and more details on the construction of these variables.

[Insert Table 3]

Table 4 reports results for a linear specification under different assumptions on the stochastic properties of the error term (OLS, Within, and GLS estimators). OLS can be seen as a benchmark for previous studies that have used cross–section data. However, since firms in the sample are heterogeneous the OLS estimates are biased. Fixed and random effects models were performed using an error component model with firm–specific effects. In this way some control mechanisms not explicitly included in the model could be incorporated through the structure of the error term. As expected, the Hausman test rejects the null hypothesis of no correlation between the individual effects and the explanatory variables, so Within estimations seem more appropriate here than the GLS method.

[Insert Table 4]

These results show the conflict between control and risk factors. The size of the firm is statistically significant for the individuals and its negative sign agrees with the tenet that wealth constraints guide the investment decision. However, this constraint does not seem so important for other shareholders. This is particularly clear for the groups or coalitions of large shareholders (e.g. family firms), but it is also apparent in non–financial and public companies. Therefore, our results concur with the conclusions obtained from the theoretical analysis. Moreover, they are robust to alternative stochastic assumptions on the error term.

It may still be argued that the results are spurious and that they can also be explained by, for instance, measurement and/or specification errors. However, the econometric results fully agree with the descriptive analyses and cast doubts on such a caveat. Moreover, previous studies on Spanish listed firms also found that the institutional features of the largest shareholder appear to be related to the size of the firm. GALVE AND SALAS [1993], for example, use a simple model relating performance to size and ownership structure to show that, on the basis of cross–sectional evidence, the controlling group determines the size of the firm. As an illustration, they conclude that family firms tend to be smaller (especially if they are majority–controlled) but more efficient than the average listed firm. In a related study, CRESPI [1998] discusses the determinants of the ownership structure using an econometric specification similar to ours. Not surprisingly, the results of these two

studies do not differ substantially. However, he fails to provide a satisfactory explanation for the rejection of the D–L claim. Although he mentions the existence of benefits from control, he eventually dismisses their importance and seems more willing to blame the econometric modelling for a result that is "opposite to what one would expect".

6 Concluding remarks

The ownership structure of large corporations has become a matter of recent concern among researchers in corporate finance. As a result, a number of trade–offs have been detected between the advantages and disadvantages of a given ownership structure. This has provided a better understanding of the diversity of ownership structures observed all around the world. As an illustration of this, in light of recent scandals in corporate governance, policy makers may be tempted to encourage ownership concentration to increase the monitoring of managers and reduce agency problems. However, ownership concentration has its own costs, such as less liquidity in the equity markets. Moreover, policy makers should be very aware that other mechanisms may, at least in principle, help to discipline managers' behaviour. Therefore, perhaps a better solution would be simply to reinforce them.

This paper has investigated the trade–off between risk and control in corporate ownership. In the financial literature there is a tendency to emphasize the risk involved in holding a share of equity, whereas comparatively less heed is paid to the accompanying control benefits for large shareholders (emphasised, on the other hand, in the literature on the theory of the firm). This study presents a simple model and evidence from different institutional settings that suggest that both risk and control factors influence the equity investment decisions of large shareholders. In particular, the extant empirical evidence appears to agree with the predictions of the model that changes in the characteristics of governance, in the information available to the investor and in the size of the firm affect ownership concentration.

Casual observance of the systems of corporate governance in continental Europe tends to support our tenets. With obvious differences, Germany, France and Italy seem to be characterised by high ownership concentration and large shareholders' receiving some (non–pecuniary) benefits from their investments. Therefore, our estimates from a sample of Spanish listed firms in the 1990's and the analysis of the American corporations at the turn of the twentieth century should be backed up by further empirical results from these countries. In particular, it would be interesting to test the informational predictions of the

model, a task that is not performed here due to the lack of appropriate information.

To conclude, it seems also interesting to briefly discuss other issues that for simplicity have been left aside. These are beyond the scope of this paper, but our theoretical framework may be useful in future attempts to address them. First, the stakeholder approach to corporate governance has not been explored. However, the shareholder's utility function may include additional components to allow for the effects of her/his decision on the welfare of other stakeholders such as debtholders and workers. Second, investors do not necessarily limit their interest to one asset. Investing in multiple securities would clearly affect the risk component of the utility function, but it could also be a source of benefits if, for example, cross–shareholdings alter the competition in the product market. Third, many corporations have more than one large shareholder. In France and Spain, for example, one can find this kind of structure in the so–called, respectively, "noyaux durs" and "nucleos duros". These are said to be stable coalitions of shareholders, but to what extent is this a sustainable equilibrium? Lastly, our model is static in the sense that the decision to invest is taken instantaneously. This fact does not affect the nature of our discussion. Such an assumption, however, may be critical if we aim to analyse more complex settings. A dynamic game that takes into account the interactions between shareholders' strategies is doubtless a research avenue to be pursued.

Figure 1. Investor Utility Function: Control and Risk Components.

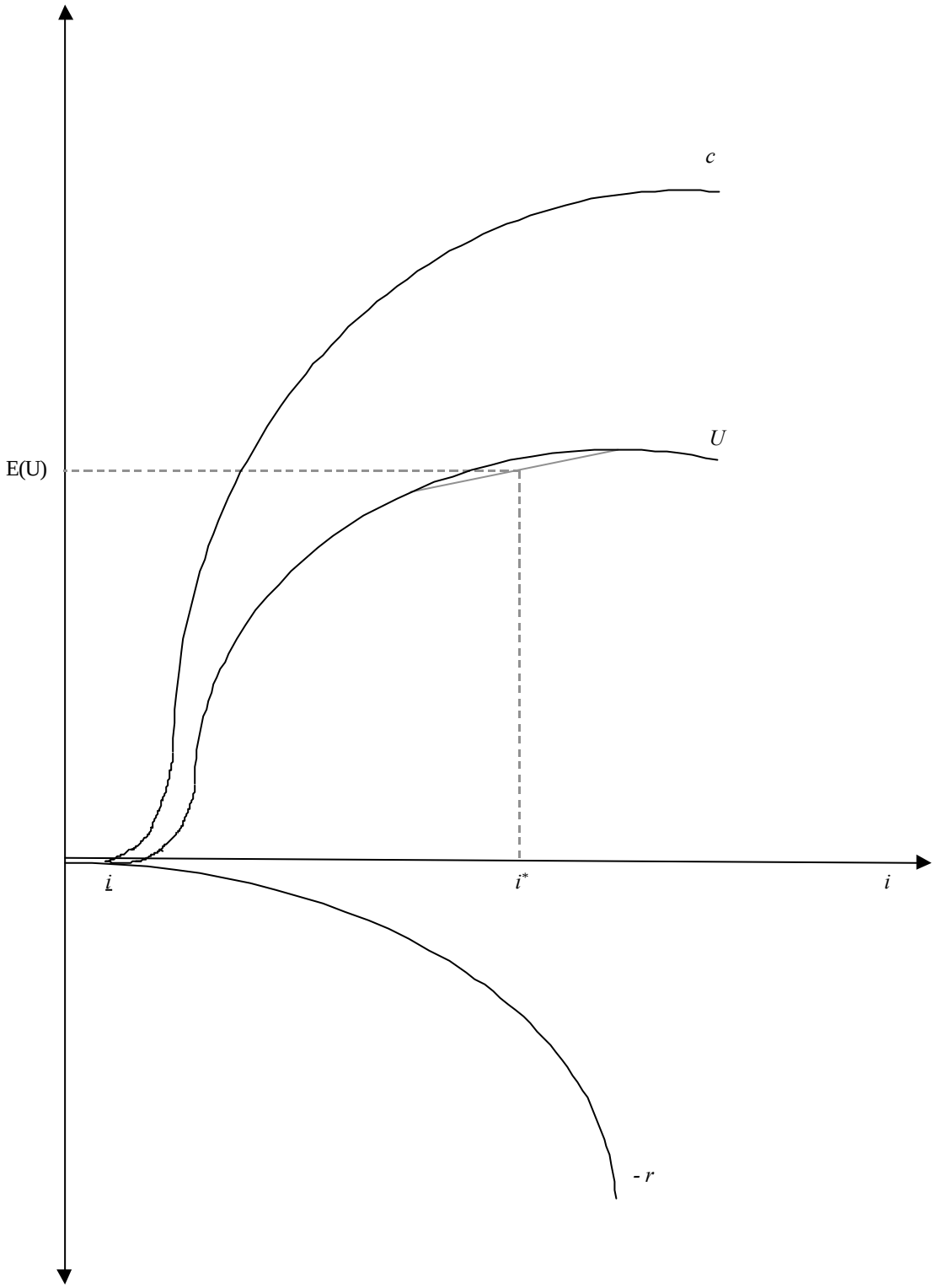

Table 1. Ownership Concentration.

Percentage of Shares Owned by the Largest (S1) and Five Largest (S5) Shareholders.

	1991			1992			1993			1994			1995		
	A	*L*	*M*	*A*	*L*	*M*	*A*	*L*	*M*	*A*	*L*	*M*	*A*	*L*	*M*
Mean S1	40.15	41.00	39.82	42.83	44.56	42.53	42.38	45.42	40.86	36.38	43.97	39.35	40.25	43.85	37.63
St.Dev. S1	26.83	27.04	26.00	27.48	27.93	26.67	26.84	26.83	25.48	25.43	25.50	24.83	26.46	26.37	23.77
Mean S5	58.68	56.12	61.10	62.20	61.74	64.31	63.12	64.09	64.70	62.08	63.82	63.93	61.74	63.72	62.50
St.Dev. S5	27.40	27.00	26.12	27.12	26.22	26.85	26.68	25.00	26.10	25.63	23.39	24.77	25.83	23.47	24.71
N	331	148	149	312	140	141	290	126	126	277	122	122	263	113	113

Source: CNMV.

A = All Sample L = Large Firms; M = Medium–sized Firms.

Table 2. Ownership Concentration.

Percentage of Shares Owned by Type of Largest Shareholder.

	1991			1992			1993			1994			1995		
	A	*L*	*M*	*A*	*L*	*M*	*A*	*L*	*M*	*A*	*L*	*M*	*A*	*L*	*M*
Individuals	0.20	0.06	0.34	0.19	0.05	0.33	0.20	0.06	0.32	0.21	0.04	0.34	0.21	0.05	0.35
Non-Fin. Corp.	0.65	0.72	0.57	0.66	0.74	0.57	0.63	0.68	0.57	0.65	0.74	0.60	0.64	0.71	0.58
State	0.07	0.13	0.02	0.07	0.14	0.01	0.08	0.16	0.02	0.08	0.14	0.02	0.08	0.16	0.02
Banks	0.06	0.07	0.04	0.05	0.06	0.04	0.06	0.08	0.04	0.05	0.07	0.03	0.05	0.06	0.04

Source: CNMV.

A = All Sample L = Large Firms; M = Medium–sized Firms. "Individuals" also includes family groups (i.e. the variables T1 and T5 of Table 3). "Non–Financial Corporations" also includes holdings of private companies (i.e. T2 and T6). "State" includes state-owned organisations and holdings of public firms (i.e. T3 and T7). The residual category (not presented in the table) are firms in which the largest shareholder is a "mixed group" formed by related firms and family groups (T8).

Table 3. Summary of Statistics.

Variable	*Mean*	*St. Dev.*	*Min.*	*Max.*
S1	0.4024	0.2427	0.0001	1
S5	0.6190	0.2487	0.0001	1
MAJ	0.3364	0.4728	0	1
T1	0.0387	0.1930	0	1
T2	0.6168	0.4864	0	1
T3	0.0600	0.2377	0	1
T4	0.052	0.2223	0	1
T5	0.1321	0.3389	0	1
T6	0.0600	0.2377	0	1
T7	0.008	0.0892	0	1
T8	0.0320	0.1762	0	1
EXPORT	0.1294	0.2064	0	1
QD	0.7672	0.2423	0.0442	0.99
SIZE	0.0682	0.2655	82×10^{-6}	3.2452

$N = 162$ and $N \times T = 749$. S1 and S5 are the share held, respectively, by the largest and five largest shareholders of the company following an "ultimate control" classification based on majority control. The dummy variable MAJ equals 1 if the share of the largest shareholder is over 50%. T1 to T8 are dummy variables equal to 1 if the largest shareholder is an individual (T1), a non–financial corporation (T2), a state-owned organisation (T3), a bank (T4), a family group (T5), a holding of private companies (T6), a holding of public firms (T7) or a "mixed group" of related firms and family groups (T8). See LEECH AND MANJON [2002] for more details on the definitions of these variables. EXPORT is the percentage of turnover sold to foreign countries. QD is the ratio of current liabilities to long–term debt. SIZE is total assets (book value in millions of pesetas $\times 10^{-6}$).

Table 4. Econometric Models.

	OLS		Within		GLS	
	$LS1$	$LS5$	$LS1$	$LS5$	$LS1$	$LS5$
SIZE	−120.67 (12.16)*	−135.26 (16.22)*	−29.12 (10.71)*	−43.79 (14.26)*	−54.50 (10.20)*	−69.55 (13.34)*
QD	.2260 (.1665)	.2110 (.2222)	−.0237 (.1432)	.0043 (.1902)	.0085 (.1391)	.0255 (.1819)
EXPORT	−.2276 (.2050)	−.4833 (.2735)**	.3956 (.1731)*	.3092 (.2299)	.2191 (.1686)	.1221 (.2204)
T2×SIZE	120.15 (12.16)*	134.53 (16.22)*	30.16 (10.72)*	44.52 (14.23)*	54.01 (10.20)*	68.78 (13.33)*
T3×SIZE	120.66 (12.17)*	134.71 (16.23)*	31.15 (10.79)*	44.75 (14.33)*	54.58 (10.22)*	68.92 (13.36)*
T4×SIZE	118.95 (12.17)*	132.60 (16.23)*	30.65 (10.74)*	44.43 (14.27)*	53.17 (10.20)*	67.38 (13.34)*
T5×SIZE	122.94 (12.45)*	135.50 (16.61)*	31.53 (10.82)*	46.77 (14.37)*	55.89 (10.30)*	71.20 (13.47)*
T6×SIZE	121.69 (12.26)*	132.54 (16.36)*	30.87 (10.80)*	45.93 (14.34)*	54.17 (10.27)*	69.30 (13.43)*
T7×SIZE	123.67 (12.47)*	140.65 (16.63)*	32.16 (10.86)*	47.86 (14.43)*	55.40 (10.34)*	71.74 (13.52)*
T8×SIZE	130.99 (28.24)*	142.29 (37.67)*	156.85 (89.67)**	−48.90 (119.10)	78.08 (45.70)**	45.30 (59.82)
MAJ	2.12 (.0785)*	1.41 (.1047)*	1.34 (0.1128)*	0.8016 (0.1499)*	1.65 (0.0937)*	1.01 (0.1225)*
F, χ^2	46.97*	17.58*	19.20*	4.64*	396.02*	125.17*

** 10% significance; * 5% significance. $LS1 = ln\ (\frac{S1}{1-S1})$, $LS5 = ln\ (\frac{S5}{1-S5})$. Definitions of S1, S5 and all the explanatory variables can be found in Table 3. For the sake of simplicity, estimates from the sectoral dummies are omitted. F and χ^2 are, respectively, F and Wald tests of the joint significance of the set of explanatory variables. Hausman test: 79.19* (LS1) and 39.42* (LS5).

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