DISENTANGLING THE RELATION BETWEEN OWNERSHIP STRUCTURE AND BOARD COMPOSITION

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Abstract

Few articles have addressed the relation between the ownership structure and the composition of the boards. The results of the analysis performed on a sample of Spanish listed companies for the period 2004–2011, show that in markets where corporate ownership is highly concentrated, it is necessary to devote special attention to blockholders and to differentiate the figure of the independent directors from the group of outsiders. The results confirm a negative and decreasing relation between blockholders and the percentage of independents while insiders' ownership is only significant if one looks at the percentage of outsiders as a whole, in which case it shows a U-shaped quadratic relation.

Keywords: ownership structure, blockholders, insiders' ownership, board composition, corporate governance.

JEL classification: G32, G34

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1. Introduction

Differences in corporate governance across countries appear to be the result of variations in corporate organizational structure, particularly the ownership patterns and the composition of boards of directors (Li, 1994). Likewise, the law in each country greatly influences the corporate governance of each region (Martynova and Renneboog, 2011).

With regards to the ownership structure, it presents different idiosyncrasies depending on the context of study. A conventional classification distinguishes between two broad categories of corporate ownership structure. In the first category are the countries of Continental Europe and Japan, in which the ownership of firms is often concentrated within a small number of other firms, banks, and families. In the second category, which includes Britain and the United States, ownership is more dispersed and cross-shareholdings are rare.

Due to these differences in ownership structure the problem of corporate governance that companies face in each of these contexts is different. Therefore, where ownership is dispersed, the predominant problem is the agency problem between shareholders (principals) and managers (agents) as a result of the separation of ownership and control (Jensen and Meckling, 1976). On the other hand, when equity ownership is highly concentrated, the corporate governance problem is accentuated on the relationship between minority and majority shareholders (Shleifer and Vishny, 1997). Although both problems are present in all corporate governance systems, what varies is the degree of importance of each of them (Lazarides, Drimpetas, and Dimitrios, 2009).

The board of directors, as the highest governing body of a company, must adapt its composition and functioning to solve the prevailing problem of corporate governance in each case. When share ownership is dispersed, the board of directors must be configured primarily as a tool for supervision and control, aimed at aligning the interests of those who manage the company with the interests of those who provide the resources and hold the risk. As Easterwood et al. (2012) indicate, the board of directors has the final responsibility for the functioning of the firm and for evaluating and replacing managers. To increase the willingness and ability of the board to efficiently carry out this oversight function, good governance practices recommend that outside members be appointed to the board, and that their representation and weight in said governing body be increased.

In contexts of high ownership concentration, such as the Spanish case, large shareholders have incentives to be involved in, and to influence, the management of the company. It reduces the problem of management supervision, however this influence can not necessarily be directed towards maximizing the value of the company, but could instead result in the obtaining of private benefits at the expense of minority shareholders (Shleifer and Vishny, 1997; Villalonga and Amit, 2006). In this situation, it is the board of directors that should act to protect minority shareholders (Mínguez and Martín, 2003) and, given that the primary mission of the independent board members is to ensure that the interests of the free float[1] are represented on the board of directors (Olivencia Report, 1998), in a high ownership concentration scenario, the weight of the independent directors on the board should increase, thereby transmitting a signal to the market that the interests of minority shareholders are properly safeguarded and they will not be expropriated by the majority shareholders. This idea is especially important in countries, such as Spain, whose legal rules originate is the civil law and the protection of investor is weaker (La Porta et al., 2000).

Although the board of directors should be configured to be an effective governing body, and the problem of corporate governance depends on the ownership structure, few studies have addressed the relation between ownership structure and composition of the board. Furthermore, when this relation has been analyzed, the studies that have been published (most of them carried out in Anglo-Saxon countries) have focused their attention on the influence of managerial ownership on the percentage of either outsiders or independents on the board. In some cases the results show a negative linear relation (Li 1994; Bathala and Rao, 1995; Denis and Sarin, 1999; Mak and Li, 2001; Boone et al. 2007; Coles, Daniel, and Naveen, 2008, or Linck, Netter, and Yang, 2008, among others) while in others, a nonlinear relation is found (Barnhart and Rosenstein, 1998; Arthur, 2001; Mínguez and Martín 2003; or Peasnell, Pope, and Young, 2003).

[1] The portion of a listed company´s capital that is held by small investors, that is the part not controlled by the major shareholders that constitute the "core" shareholders of the company (Spanish National Stock Market Commission).

This literature considers the outsiders as a homogeneous group within the board, whose primary mission is to ensure that the actions of the executives are consistent with the interests of the shareholders and, in the Anglo-Saxon context, the terms outsiders and independents are used interchangeably. However in Spain, and due to the ownership structure predominant in Spanish companies, within the group of outsiders it is important to distinguish between the nominee directors, who represent the interests of the controlling shareholders, and independent directors, who represent the interests of the small shareholders or the free float. Although all of them are outsiders and as such should supervise the executive management, the interests they represent often differ. Therefore, in the Spanish case, the terms outsiders and independents cannot be used as synonyms, as normally occurs in the international literature.

Additionally, although previous studies have focused almost exclusively on managerial ownership as the variable of the ownership structure to be studied, when analyzing the ownership structure in Spain and the continental European countries, the role of blockholders or significant shareholders has to be taken very much into account, as does the importance that conflicts of interest between majority and minority shareholders have in this context. As stated in Salas (2002), the level of ownership concentration is above 65% in countries such as Germany, France, Italy, or Spain, reaching levels of up to 85% in the latter two countries, while in the Anglo-Saxon context shareholder concentration is situated at much lower levels (in the U.S. shareholder concentration stands at 20% and at 10% in the UK). Likewise, Martynova and Renneboog (2011) note the high percentage of Continental European companies controlled by investors owning a blocking minority of at least 25% in contrast to UK and US. In this sense, there are few studies that have analyzed the relation between the concentration of ownership in the hands of blockholders and the makeup of the board of directors. For example, Li (1994), Mak and Li (2001), or Baglioni and Colombo (2013), find a negative relation between the concentration of capital in the hands of significant shareholders and the presence of outsiders[2]. On the other hand, Peasnell et al. (2003) and Lasfer (2006) observe a

[2] In the study by Baglioni and Colombo (2013) the variable used was the percentage of independents instead of the percentage of outsiders.

positive relation between ownership concentration and the percentage of outsiders[3]. However, none of these studies raise the possibility of a nonlinear relation between ownership concentration and board composition as confirmed in the present study.

Therefore, in this paper the relation between ownership structure and the composition of the board of directors is analyzed under the hypothesis that in contexts of concentrated ownership structures it is essential to differentiate between outside and independent board members and investigate not only the influence of managerial ownership on the structure of the board, but also the effect of the concentration of ownership in the hands of significant shareholders. The results obtained corroborate the need to make these distinctions, noting that insiders' ownership[4] is significant in explaining the presence of outsiders on the board, while the blockholders are significant in determining the percentage of independents. Moreover, the study deepens the analysis of nonlinear relations between ownership structure and board composition, an aspect scarcely analyzed in the literature, confirming a decreasing nonlinear relation between the concentration of ownership and the presence of independent directors on the board and a nonlinear U-shaped relation between insiders' ownership and the percentage of outside directors.

The paper is structured in the following manner. First, the ownership structure and board composition as corporate governance mechanisms are addressed and the hypotheses of the study are introduced. Subsequently, the sample to be analyzed and the analytical models are presented, as are the main findings of the study. The article closes with a summary and conclusions section.

2. Theoretical framework

2.1. The ownership structure and corporate governance problem

As observed by Berle and Means (1932), and even long before by Adam Smith in his book *The Wealth of Nations*, the distribution of capital among many

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[3] These studies used diverse variables to measure the concentration of ownership: some cases use property in the hands of the principal shareholder (Peasnell et al. 2003), or the three major shareholders (Baglioni and Colombo 2013), and other cases take as a reference the existence of shareholders with more than 3% or 5% of capital (Li, 1994; Mak and Li, 2001; Lasfer, 2006).

[4] We have used insiders' ownership as a measure of managerial ownership.

shareholders in large companies allows managers greater freedom in the use of enterprise resources. The fragmentation of the ownership of companies can lead to a conflict of interests, or an agency conflict, between owners and managers over the allocation and distribution of corporate resources (Jensen and Meckling, 1976).

The difficulties of coordinating small investors, together with the fact that each of them, taken individually, perceives that their vote on any proposal is irrelevant, and therefore will not affect the final outcome, justifies the lack of participation of small shareholders in the management of the corporation, which is evidenced by the level of absenteeism in the general shareholder´s meetings (Stiglitz, 1985). Therefore, primarily in large enterprises and publicly traded companies, managers commonly enjoy wide discretion in the use of enterprise resources, discretion that they can exploit to their own advantage, creating an important agency conflict between capital owners and the executives of the company.

Managerial ownership (Jensen and Meckling, 1976) and blockholder ownership (Kaplan and Minton, 1994) are two of the major governance mechanisms that help control agency problems. On one hand, the participation of the executives in the equity of the company leads to an alignment of their interests with those of the owners, reducing the agency conflict between the two. However, when managers have a substantial proportion of the shares, they can have enough power and influence to pursue the satisfaction of their own interests in detriment to the interests of the other shareholders. Thus, with regard to insiders' ownership and its contribution to the resolution of the agency problem, the hypotheses formulated are a convergence of interests initially and, above a certain level of management participation in the company´s equity, the entrenchment hypothesis (Peasnell et al., 2003).

On the other hand, shareholders with large blocks of shares have a greater interest in controlling management behavior (Shleifer and Vishny, 1986). The literature on corporate governance coincides in highlighting the presence of significant shareholders as one of the primary control mechanisms. However, Kim, Kitsabunnarat, and Nofsinger (2007), indicates that although the concentration of ownership is a corporate governance mechanism for reducing agency problems between management and owners, the existence of large shareholders can lead to agency conflict between large and small shareholders. Minority shareholders are vulnerable to expropriation from major shareholders. Expropriation can take the form of profit reallocation, asset misuse, transfer pricing, the sale of departments or parts of the firm at below market prices to other firms owned by major shareholders, or the acquisition of other firms that major shareholders own at a premium (La Porta et al., 2000).

Therefore, with regard to the existence of significant shareholders and their influence on the resolution of the agency conflict, the hypotheses that are formulated are initially that of monitoring and, beyond a certain threshold of concentration of ownership in the hands of blockholders, the expropriation hypothesis.

2.2. The board of directors as a corporate governance mechanism

The board of directors of a corporation is meant to perform the critical functions of monitoring and advising top management (Coles et al., 2008). The composition of the board can be explained taking into consideration these two functions. Therefore, the board members should be grouped into two categories: executive or inside directors, that is, members of the company´s management team, and outside directors that do not form part of the management team. The advantage of the presence of the first is that executive directors have more and better information about the company, so they primarily fulfill the function of the advisory role. On the other hand, the role of the non-executive, or outside, directors is to act as arbitrators in those situations in which there are conflicts of interest between shareholders and managers. Although Anglo-Saxon literature considers outsiders as a homogeneous group and the terms outsiders and independents are used interchangeably, in the Spanish case it is very important that, within the group of outside directors, a distinction is made between independent directors and nominee directors. The first are defined as renowned professionals that are neither affiliated with the management team, nor with the core investors that exert influence over it. Its primary mission on the board is to safeguard the interests of the free float. On the contrary, nominee directors are appointed to the board because they hold, or represent holders of, shareholdings that enable them to influence in the control of the company, that is, nominee directors are linked to controlling shareholders. In summary therefore, it can be said, that the role of outside (both nominee and independent) directors is to prevent opportunistic behavior on behalf of managers that could undermine the company. As outside directors the independents must fulfill this role, but they must also safeguard the interests of minority shareholders in the face of certain actions that controlling shareholders (represented by nominee directors) could wish to undertake.

The literature dealing with the study of boards of directors is extensive. A large part of the research has focused on analyzing the effect of board composition on performance, based on the hypothesis that the most efficient boards have a large number of outsiders. The results obtained, however, vary considerably[5], and the aforementioned hypothesis has been questioned by a whole literary trend that indicates that an optimal board structure that produces better business results in general, does not exist. Along these lines, authors such a as Hermalin and Weisbach (1998) and Raheja (2005) have developed theoretical models on the determinants of board composition. At the empirical level, several studies such as Boone et al*.* (2007), Coles et al*.* (2008) and Linck et al*.* (2008), among others, show that board composition is established by a rational choice process which considers each firm's specific characteristics and needs.

2.3. The influence of ownership structure on board composition

Although the board of directors must be set up to be an effective governing body and the corporate governance problem is directly related to the ownership structure, few studies have addressed the relation between ownership structure and board composition in depth. The analyses to date have been limited almost exclusively to the analysis of the relation between insider ownership and the percentage of outsiders or independents on the board. Thus, there are several authors (Li 1994; Bathala and Rao, 1995; Denis and Sarin, 1999; Mak and Li, 2001; Boone et al*.* 2007; Coles et al*.* 2008; or Linck, et al*.*, 2008; among others) that pose a possible substitution effect between ownership structure (measured by the managerial ownership) and the composition of the board. In this sense, it is considered that firms with a high concentration of insider ownership need fewer

[5] There is no consensus in the results of studies analysing the relation between board structure and business performance, as shown in the meta-analyses performed by Dalton et al., (1998) and Dalton et al. (1999), among others.

outside directors due to the effect of the convergence and alignment of interests, which are brought about by the fact that managers are simultaneously owners of the company. Nevertheless, significant insider ownership has offsetting costs, as stressed by Fama and Jensen (1983). When a manager owns a substantial portion of the firm´s shares, and that confers sufficient influence or voting power on him, he can satisfy his own non value-maximizing objectives without endangering his employment and salary. Given this risk of entrenchment, and to minimize it, it would be reasonable to expect that beyond a certain threshold of management equity ownership, a positive relation between this variable and the percentage of outside board members would be observed (Mínguez and Martín 2003; Peasnell et al*.* 2003). The sum of both effects (convergence of interests and entrenchment) could result in a nonlinear U shaped relation between insiders' ownership and the presence of outsiders on the board.

Based on these arguments and previous results, and taking into account that in the Spanish case all outside directors (and not just the independents) are responsible for supervising the management team´s performance; the first hypothesis of this study is formulated:

H1: *There is a nonlinear U-shaped relation between insiders' ownership and the proportion of outside directors on the board of directors.*

Connelly et al*.* (2010), in their literature review of ownership structure, note that empirical research usually either ignores individual outside blockholders or lumps them together with institutional investors despite their potential differences. In the literature on the determinant factors of board composition, only a few studies such as Li (1994), Mak and Li (2001), Peasnell et al*.* (2003), Lasfer (2006), Baglioni and Colombo (2013) or that of He and Sommer (2010) have addressed the influence of blockholders on board composition (measured as the percentage of outsiders, with the exception of Baglioni and Colombo (2013) for whom the percentage of independents is the variable studied). Undoubtedly, this variable relative to the presence of blockholders can be of little interest in the Anglo-American context in which these studies were carried out, since the dominant ownership structure is dispersed. However, unlike the U.S., in the majority of continental European companies there are large shareholders with the capacity to exert significant influence (Martynova and Renneboog, 2011), either individually or in collaboration with other partners, over the management of the firm.

Large shareholders have greater incentives to monitor management behavior (Shleifer and Vishny, 1986), therefore as the equity stake of the blockholders increases, so does their supervision, either directly or through their representatives on the board of directors, (nominee directors) thereby making necessary a smaller number of independent directors.

However, once the participation of the blockholders reaches a certain level, large shareholders can use their status to obtain private benefits at the expense of minority shareholders when the interests of the two do not coincide, as pointed out by Shleifer and Vishny (1997) and Villalonga and Amit (2006). In this event, and as indicated in Mínguez and Martín (2003), the board should expand the scope of its supervisory function to safeguard the interests of small shareholders, thereby preventing that the divergence of majority and minority shareholder interests results in harm to, or the expropriation of, small investors. In this case, the independent board members must contribute to minimizing problems between large and small shareholders (Baglioni and Colombo, 2013), looking out for the interests of the free float on the board (Conthe Code and Spanish National Stock Market Commission).

Therefore, in light of the above, it would be reasonable to expect that as blockholder ownership increases, the number of independents necessary on the board would decrease, since the task of managerial oversight would be carried out by the nominee directors. However, once a certain level of blockholder participation is reached, the weight of the independent directors on the board should increase, thereby sending a signal to the market that the interests of minority shareholders are properly safeguarded and there will be no expropriation by majority shareholders.

The sum of both effects (supervision and expropriation) can result in a nonlinear U shaped relation between blockholder ownership and the percentage of independent members on the board.

Therefore the following hypothesis is formulated for the study:

H2: *There is a nonlinear U-shaped relation between blockholder ownership and the proportion of independent directors on the board of directors.*

3. Ownership structure and corporate governance of Spanish listed firms

3.1. Description of the data

The sample was selected starting with the whole of the Spanish companies included in the Corporate Governance Reports of security issuers admitted for trading on official secondary markets. The reports were drafted by the Spanish National Stock Market Commission (CNMV) for the years 2004[6]–2011 with the final sample consisting of 173 entities that constitute an unbalanced panel for the 8 years of analysis. Due to missing data the panel consists of 1,174 observations for the variables regarding boards of directors.

Table 1 shows the characteristics of the boards of the companies analyzed. However, to facilitate the understanding of the table, a brief definition of each of the different categories of directors that make up the boards of Spanish listed companies[7] is in order. First, a differentiation must be made between inside - or executive - directors and outside directors. Inside directors are those board members who, in addition to their duties as directors, have senior management responsibility in the company, or are employees of the company or its corporate group. On the other hand, outside directors are not involved in the day-to-day activities of the company. They are classified as either nominee or independent directors. The outside nominee directors form part of the board because they hold what is legally considered a significant stake in the company, or because they represent significant shareholders[8]. Finally, outside independent directors should perform their duties without being conditioned by any type of relationship with the organization, the management team or the controlling shareholders of the company. Their primary mission is to defend the interests of all shareholders, particularly the minority

[6] The year 2004 is the first year that the Annual Reports of Corporate Governance were published with a consistent format, so this period is taken as the starting point for the sample selection.

[7] These definitions correspond to those given by the Spanish National Stock Market Commission (CNMV).

[8] The CNMV defines significant shareholdings as those exceeding 5% of the capital.

shareholders who do not have access to a seat on the board. Finally, the category "others outsiders" refers to those who do not fall into any of the above categories.

It should also be noted that the classification of directors by category is given in the database, since each listed company must issue an annual corporate governance report in which they define the board structure and state the category of each board member. Likewise, it should be noted that in Spain each company can structure its board freely, however, there are recommendations[9] regarding the size, composition, and functioning of the board that organizations should adopt, otherwise they must justify their non-compliance. Generally, companies have a Nominating Committee that is responsible for proposing the names of the directors whose election is then ratified at the general shareholder´s meeting.

Regarding the characteristics of the board of directors of the companies analyzed, Table 1 shows that, on average, the boards consist of ten members, with outside directors (79%) predominating over executive (inside) board members (21%). The high percentage of nominee directors (44%) is also noteworthy as it reflects the high degree of ownership concentration in Spanish companies. Moreover, independents represent less than a third of all board members (29%). Regarding the board´s leadership structure, in 48% of the companies analyzed the offices of Chairman of the Board and Chief Executive Officer (CEO) are separated. This figure (48%) indicates the absence of a dominant leadership structure among Spanish companies, since that while in one half of the sample the offices of President and CEO are unified, in the other half the two positions are separated.

(Insert Table 1 about here)

[9] The Conthe Code of 2006 is the latest report published in Spain with corporate governance recommendations.

Table 1: Descriptive statistics on the structure of the boards (Spanish listed companies 2004–2011)

Variable	Definition	Mean	Median	Standard Deviation	Minimum	Maximum	Number of observations
Board Size	Number of board members	10.06	10.00	4.12	3.00	24.00	1,174
Insider directors	% insiders	21.38	18.75	16.88	0.00	100.00	1,174
Outsider directors	% outsiders	78.62	81.25	16.88	0.00	100.00	1,174
-Nominee directors	% nominee	44.29	44.44	24.85	0.00	100.00	1,174
-Independent directors	% independents	29.15	29.70	20.02	0.00	88.90	1,174
-Others outsiders	% other outsiders	5.18	0.00	10.39	0.00	71.43	1,174
Leadership	Dummy = 1, Chairman and CEO separated; Dummy = 0, Chairman=CE0	0.48	0.00	0.50	0.00	1.00	1,174

With the intention of exploring the ownership structure of Spanish listed companies, Table 2 was prepared showing the definition and the descriptive statistics of the different variables related to equity ownership[10].

(Insert Table 2 about here)

[10] Participation through both direct and indirect shareholdings has been taken into account in all cases.

Table 2: Descriptive statistics of ownership variables (Spanish listed companies 2004–2011)

Variable	Definition	Mean	Median	Standard Deviation	Minimum	Maximum
INS_OWN	% Equity owned by insiders	11.19	0.17	21.07	0.00	98.48
BOARD_OWN	% Equity owned by the board	28.40	19.60	28.62	0.00	100.00
MAIN_SHARE	% Equity owned by the major shareholder	36.10	26.81	24.50	0.00	100.00
3MAIN_SHARE	% Equity owned by the 3 major shareholders	53.47	54.87	23.75	0.04	100.00
5MAIN_SHARE	% Equity owned by the 5 major shareholders	60.25	60.96	23.41	0.04	100.00
BLOCK	Sum of the % of equity holdings equal to, or above, 5%	61.00	62.14	24.28	0.00	100.00

As shown in Table 2, executive directors hold, on average, 11.19% of equity. Additional analysis not included in the text reveals that in approximately 63% of the companies in the sample, the executive directors hold less than 1% of the equity of their company. In addition, the percentage of companies in the sample in which the executive directors are the majority shareholders holding a stake exceeding 50% of the equity does not exceed 10%. It suggests that, generally speaking, insiders on the boards of directors of Spanish listed companies do not actively invest in their firm´s equity, compared to other ownership structure variables in which the degree of ownership concentration is higher. The variable related to the participation of board members in the company´s equity, shows that on average, the directors have approximately a 28% stake in the equity of the company.

The major shareholder holds on average slightly more than 36% of the company´s capital, although in some cases it can reach up to 100%. Also, additional analysis not included in the text reveals that in 30% of the observations analyzed, the principal shareholder owns a participation, near or above 50%, which means that in just under a third of the companies in the sample, the largest shareholder holds an absolute majority controlling stake. When the participation of the three major shareholders is taken into consideration, the companies subject to absolute majority[11] control represent approximately 56% of the sample, increasing to 67% if the aggregate shares of the five largest shareholders are considered. It is also worthy to note that the variable BLOCK –sum of the percentages of equity holdings equal to, or above, 5%- shows values very similar to those of the variable that represents the combined share of the five largest shareholders (5MAIN_SHARE), which indicates that, apart from the five largest shareholders, there are few significant shareholders with a stake exceeding 5% of equity. In summary, all of these data corroborate the high degree of ownership concentration prevalent in Spanish companies.

3.2. Ownership structure and board composition: a univariate analysis

Before modeling the relation between ownership structure and the composition of the board of directors of Spanish listed firms, a more detailed study of the sample is presented which looks for significant differences in board composition based on how the ownership of the company is structured.

First, the main descriptive statistics are shown (Table 3) grouped by the variable related to insiders' ownership (INS_OWN) divided in quintiles, in which the existence of significant differences for all variables related to board composition is confirmed. Regarding the size of the board and the percentage of independent directors, no clear pattern is observed as both those companies in quintile 1 and those in quintiles 4 and 5 present smaller boards and a lesser presence of independent board members. Nevertheless, what is observed is a smaller percentage of outside directors in those companies in which executive ownership is more concentrated (the presence of outsiders decreases by 24% from the 1st to the 5th quintile) as well as a lower percentage of nominee directors (the presence of nominee directors decreases by 25% from 1st to the 5th quintile). With regards to the insiders' ownership variable (INS_OWN), for the first three quintiles the mean value of insiders' ownership is well below 1% and increases to an average of 7% in quintile 4 and only shows a high percentage of ownership in quintile 5 (48%).

[11] The majority control referred to implies that the three or five principal shareholders hold an equity state equal to, or above, 50%.

Furthermore, in Table 4 the analysis is replicated by dividing the sample according to the concentration of ownership in the hands of the major shareholders (BLOCK). In this case, significant differences are also observed for all of the variables analyzed. As it can be observed, companies with the most concentrated ownership (quintile 5) opt for smaller boards and a smaller percentage of outside directors due to a reduced presence of independent board members. It is found that as the ownership by the blockholders increases, the percentage of independents decreases more rapidly than the percentage of outside directors (more than a 20% variation in the presence of independents versus a 6% drop for outside directors). On the contrary, the percentage of nominee directors is higher in firms with more concentrated ownership (nominee directors increase their presence by 17% between quintiles 1 and 5) since these directors represent the interests of the major shareholders on the board. It is confirmed that as the degree of concentration of ownership in the hands of significant shareholders increases, there is less need for the board to act as a control mechanism, and therefore the percentage of outside directors can be smaller in these cases due to the reduced presence of independents. In firms with dispersed ownership however, is necessary to increase the percentage of outside directors, which is achieved mainly by increasing the percentage of independents, since they are considered to be more effective in the supervisory function. Also, companies with a dispersed ownership structure, where the free float has more weight, it only makes sense that there is a higher proportion of independent directors, since these directors are the ones that represent the minority shareholder interests on the board.

If one observes the variable BLOCK, the high degree of concentration of ownership in Spanish companies is confirmed. It is observed that in companies with lower levels of ownership concentration (quintile 1) the blockholders hold, on average, a 24% stake, while this percentage increases to 93% in companies with a concentrated ownership structure (quintile 5). It is also interesting to note that from quintile 2 on, blockholder stakes exceed 50% on average, which illustrates the high degree of ownership concentration in the companies analyzed.

In sum, in terms of property ownership, it can be shown that insiders are not very active as far as Spanish companies are concerned while the characteristic that differentiates the Spanish from the Anglo-Saxon context is the concentration of ownership in blockholders.

(Insert Table 3 and Table 4 about here)

Table 3: Descriptive statistics categorized by insiders' ownership (Spanish listed companies 2004–2011)

Quintile 1 (dispersed) Quintile 2 Quintile 3 Quintile 4 Quintile 5 (concentrated)		Mean	Standard Deviation	Minimun	Maximum	ANOVA F (sig)
BSIZE	1	9.57	4.00	3.00	20.00	40.640 (0.000)
	2	12.94	4.54	5.00	24.00	
	3	11.04	3.95	3.00	24.00	
	4	9.82	3.59	3.00	20.00	
	5	8.16	3.22	3.00	20.00	
INSIDERS	1	12.15	13.24	0.00	66.67	116.039 (0.000)
	2	16.37	9.41	4.76	57.10	
	3	17.68	11.89	5.26	100	
	4	25.42	15.51	0.00	100	
	5	36.20	17.07	7.69	100	
OUTSIDERS	1	87.79	13.32	33.33	100	115.218 (0.000)
	2	83.63	9.41	42.90	95.24	
	3	82.32	11.89	0.00	94.74	
	4	74.58	15.51	0.00	100	
	5	63.80	17.07	0.00	92.31	
NOMINEE DIRECTORS	1	55.53	23.36	0.00	100	42.041 (0.000)
	2	46.76	21.55	0.00	91.67	
	3	44.69	25.54	0.00	90.91	
	4	41.87	22.46	0.00	90.00	
	5	30.09	22.31	0.00	83.33	
INDEPENDENTS	1	26.24	20.88	0.00	88.90	7.063 (0.000)
	2	33.48	18.23	0.00	80.00	
	3	33.47	22.83	0.00	87.50	
	4	27.22	18.38	0.00	80.00	
	5	28.06	17.10	0.00	80.00	
LEADERSHIP	1	0.75	0.43	0	1	46.532 (0.000)
	2	0.50	0.50	0	1	
	3	0.30	0.46	0	1	
	4	0.42	0.49	0	1	
	5	0.30	0.46	0	1	
INS_OWN	1	0.00	0.00	0.00	0.00	1155.816 (0.000)
	2	0.01	0.01	0.00	0.03	
	3	0.20	0.14	0.03	0.53	
	4	7.41	6.36	0.53	20.76	
	5	48.42	20.28	20.85	98.48	
BLOCK	1	67.46	22.82	10.26	99.96	51.800 (0.000)
	2	58.58	24.82	0.00	99.39	
	3	45.82	24.82	0.00	98.17	
	4	53.97	21.86	0.00	98.26	
	5	70.78	15.90	29.40	100	

Table 4: Descriptive statistics categorized by ownership concentration (blockholders) (Spanish listed companies 2004–2011)

Quintile 1 (dispersed) Quintile 2 Quintile 3 Quintile 4 Quintile 5 (concentrated)		Mean	Standard Deviation	Minimun	Maximum	ANOVA F (sig)
BSIZE	1	10.73	3.66	5.00	21.00	15.174 (0.000)
	2	10.76	3.91	3.00	22.00	
	3	10.35	3.87	3.00	21.00	
	4	10.00	4.17	3.00	24.00	
	5	8.23	4.37	3.00	20.00	
INSIDERS	1	18.12	12.68	0.00	100	5.595 (0.000)
	2	19.84	14.90	0.00	100	
	3	22.24	16.12	0.00	100	
	4	21.61	16.90	0.00	100	
	5	24.86	20.42	0.00	100	
OUTSIDERS	1	81.88	12.68	0.00	100	5.729 (0.000)
	2	80.16	14.90	0.00	100	
	3	77.76	16.12	0.00	100	
	4	78.38	16.90	0.00	100	
	5	75.04	20.44	0.00	100	
NOMINEE DIRECTORS	1	35.26	21.84	0.00	90.00	14.974 (0.000)
	2	45.52	23.86	0.00	100	
	3	45.26	23.85	0.00	100	
	4	47.08	23.68	0.00	100	
	5	52.10	27.85	0.00	100	
INDEPENDENTS	1	40.50	21.01	0.00	87.50	40.456 (0.000)
	2	30.44	20.00	0.00	88.90	
	3	27.90	18.51	0.00	87.50	
	4	26.94	15.98	0.00	80.00	
	5	18.66	17.71	0.00	66.67	
LEADERSHIP	1	0.35	0.48	0	1	9.423 (0.000)
	2	0.45	0.50	0	1	
	3	0.46	0.50	0	1	
	4	0.50	0.50	0	1	
	5	0.63	0.48	0	1	
INS_OWN	1	2.22	5.85	0.00	37.98	21.472 (0.000)
	2	8.39	14.61	0.00	60.58	
	3	12.87	20.16	0.00	70.97	
	4	16.33	23.77	0.00	83.66	
	5	17.02	30.30	0.00	98.48	
BLOCK	1	24.18	11.71	0.00	40.27	3844.401 (0.000)
	2	49.68	5.06	40.32	57.25	
	3	62.45	2.75	57.33	67.54	
	4	74.77	4.73	67.55	83.76	
	5	93.42	4.78	83.76	100	

4. Empirical models and variables

In addition to the variables related to the ownership structure and the board composition, the model includes other control variables which are defined below:

Level of indebtedness. A firm's indebtedness can also act as a control mechanism (Fernández and Gómez, 1999; Lozano, Miguel, and Pindado, 2005). A certain level of debt generates a series of contractual obligations which reduce managers' discretionary powers over the firm's free cash flow, thus guaranteeing the optimization of resource use (Jensen, 1986) and a better alignment of shareholder and managerial interests. In this sense, if the level of indebtedness is high, the need for control by the board will be lower. The variable used is the ratio of total debt divided by the total volume of assets (DEBT).

Firm Size: Authors such as Boone et al. (2007), Coles et al. (2008), Lehn, Patro, and Zhao (2009), Linck et al. (2008) and He and Sommer (2010), among others, show a positive relation between firm size and board composition, consistent with the notion that larger firms have greater agency costs of free cash flow (Jensen, 1986) and that board structure is a means to mitigate the agency problems associated with firm size. Firm size is defined as the logarithm of the volume of assets for each period analyzed (FSIZE).

Diversification. Pearce and Zahra (1992) suggests that diversification could require skills that company members do not possess, thus creating the need for new non-executive board members to provide better advice and guidance in the decision-making process. For this variable the number of business segments in which the firm operates is used and a dummy variable is defined, which has a value of one when the firm operates in more than one segment and a value of zero otherwise. The classification used to define the sectors is the CNAE 93 Rev.1 on a two-digit level (DIV).

Firm Age. Firm age is another proxy used for the complexity of the firm's operations. Although authors such as Boone et al. (2007) present arguments supporting a positive relation between firm's age and the proportion of outsiders, it could also be argued that the younger firms are more complex because they lack prior market experience, and therefore are in more need of guidance. Therefore, based on these arguments, it is possible that there could be both a positive and a negative relation between firm age and board structure. The logarithm of the number of years since the firm was established as of December 31 is employed for each of the years analyzed (FAGE).

Leadership. As shown by Fama and Jensen (1983), when the CEO and the Chairman is the same person, it has a negative impact on the board's ability to perform its monitoring function properly (Tuggle et al. 2010). Along these lines, Rediker and Seth (1995) suggest that firms in which the Chairman and CEO is the same person require boards with more control power. A dummy variable is used with a value of one when the roles of Chairman and CEO are held by two different people and zero when one person holds both positions (LEADERSHIP).

Industry and Year Effects. A dummy is included to identify the different industrial sectors in the sample as well as a series of variables that were also included to reflect time-related effects, since the tests showed that these dummies are significant, they therefore form part of the model.

The following Tables 5 and 6 show the descriptive statistics for the control variables and the correlation matrix respectively.

(Insert Table 5 and Table 6 about here)

Table 5: Descriptive statistics: control variables (Spanish listed companies 2004–2011)

Variable	Mean	Median	Standard Deviation	Minimum	Maximum	Number of Observations
DEBT	0.45	0.47	0.26	0.00	1.04	1,293
FSIZE	12.67	12.55	2.10	6.15	19.39	1,295
DIV	0.38	0.00	0.49	0	1	1,368
FAGE	43.93	32.25	27.34	0.09	115.89	1,357

Table 6: Correlation matrix (Spanish listed companies 2004–2011)

	BSIZE	INDEPENDENTS	OUTSIDERS	INSIDERS	NOMINEE DIRECTORS	LEADERSHIP	INS_OWN	BLOCK	FSIZE	DEBT	DIV	FAGE
BSIZE	1											
INDEPENDENTS	0.026	1										
OUTSIDERS	0.369***	0.142***	1									
INSIDERS	-0.368***	-0.141***	-0.999***	1								
NOMINEE DIRECTORS	0.250***	-0.633***	0.599***	-0.599***	1							
LEADERSHIP	-0.126***	-0.107***	0.178***	-0.179***	0.195***	1						
INS_OWN	-0.247***	-0.040	-0.480***	0.481***	-0.302***	-0.160***	1					
BLOCK	-0.164***	-0.375***	-0.129***	0.127***	0.243***	0.176***	0.243***	1				
FSIZE	0.707***	0.134***	0.230***	-0.228***	0.071**	-0.204***	-0.164***	-0.144***	1			
DEBT	0.208***	-0.125***	0.037	-0.036	0.135***	-0.074**	0.072**	0.064**	0.345***	1		
DIV	-0.003	0.152***	0.125***	-0.126***	-0.001	0.080***	-0.100***	-0.112***	-0.065**	-0.109**	1	
FAGE	0.159***	-0.140***	0.035	-0.036	0.058**	-0.099***	-0.176***	-0.131***	0.202***	0.104***	-0.057**	1

Note: * Indicates statistical significance at 10 percent level

** Indicates statistical significance at 5 percent level

*** Indicates statistical significance at 1 percent level

Panel data was the methodology we used to test the hypotheses, which makes it possible to take into account the unobservable heterogeneity that exists among firms by splitting the error term into three components[12]. Besides, panel data increase the number of observations, the degrees of freedom, and therefore, the results' consistency.

We began with a pooled Ordinary Least Squares (OLS) model, a random effects model and a fixed effects model and we ran different tests to check the suitability of each model. On one hand, we compared the results of the pooled OLS model to those of the random effects model by means of the Breusch and Pagan Lagrangian multiplier test for random effects. This test revealed that using the random effects model was preferable to the pooled regression model. On the other hand we estimated a fixed effects model, and the F test for significance of fixed effects also revealed that using fixed effects was preferable to the pooled regression. Finally, we used the Hausman specification test to compare random and fixed effects models and, on the basis of these test results, we chose to use the fixed effects model.

However, other necessary tests were also performed to detect possible model specification problems for each of the two dependent variables. First, we applied the Wooldridge test for autocorrelation in panel data to detect the possible autocorrelation of the models, which was confirmed. The Modified Wald Heteroskedasticity test for groupwise heteroskedasticity also confirmed the existence of this problem in the models. To avoid these problems we finally decided to use the Feasible Generalized Least Squares (FGLS) estimator, which considerably improved the results.

We defined the following regressions for the percentage of outsiders and independents as dependent variables, where the variables of ownership structure are the main explanatory variables. The equity held by executive directors

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[12] Uit = $\eta_i + \lambda_t + \nu_{it}$ where η_i represents the individual specific term of the error related to the firm i (unobservable heterogeneity) which includes the unobservable effects that only have an effect on firm i. λ_t represents the impacts for the period t that have an influence on all the firms; and ν_{it} is a random disturbance. (García-Ramos and García-Olalla, 2011).

(INS_OWN) was used as a measure of managerial ownership and the variable BLOCK was used to represent ownership concentration.

To analyze the effect of each of the ownership structure variables separately, and the type of relation (linear or nonlinear) on the composition of the board, various models were defined. To test whether the variable INS_OWN is really substantially affecting the proportion of outsiders (H1) and that the variable BLOCK is the one that substantially influences the percentage of independents on the board (H2) both the variables INS_OWN and BLOCK are introduced simultaneously in the models. Also, to analyze whether there is a nonlinear relation between the ownership structure variables and the board composition, the quadratic terms of insiders' ownership (INS_OWN^2) and blockholders ($BLOCK^2$) were included in the models. By doing this in Models 1 and 5 the existence of a linear relation between the variables of ownership structure (BLOCK and INS_OWN) and the composition of the board (OUTSIDERS and INDEPENDENTS) is contrasted; in Models 2 and 6 the term BLOCK squared is included, while in the Models 3 and 7 it is the variable INS_OWN squared which is included. Furthermore, in Models 4 and 8 the two variables of ownership (INS_OWN and BLOCK) are contrasted jointly for the existence of a nonlinear relation between them and board composition (OUTSIDERS and INDEPENDENTS).

We also included the control variables defined previously. Besides, to control for the interdependence between board composition and board size, we include in the board composition regressions lagged board size as an instrument for board size.

$$OUTSIDERS_{i,t} = \alpha + \beta_1 INS\_OWN_{it} + \beta_2 INS\_OWN^2{}_{it} + \beta_3 BLOCK_{it} + \beta_4 BLOCK^2{}_{it} + \beta_5 DEBT_{it} + \\ + \beta_6 LEADERSHIP_{it} + \beta_7 FSIZE_{it} + \beta_8 DIV_{it} + \beta_9 FAGE_{it} + \beta_{10} BSIZE_{it-1} + \sum_{i=1}^{7} \delta_i DummyIndustry + \\ \sum_{i=1}^{7} \gamma_i DummyYear + \eta_i + \lambda_t + \nu_{it}$$

$$INDEPENDENTS_{i,t} = \alpha + \beta_1 INS\_OWN_{it} + \beta_2 INS\_OWN^2{}_{it} + \beta_3 BLOCK_{it} + \beta_4 BLOCK^2{}_{it} + \beta_5 DEBT_{it} + \\ + \beta_6 LEADERSHIP_{it} + \beta_7 FSIZE_{it} + \beta_8 DIV_{it} + \beta_9 FAGE_{it} + \beta_{10} BSIZE_{it-1} + \sum_{i=1}^{7} \delta_i DummyIndustry + \\ \sum_{i=1}^{7} \gamma_i DummyYear + \eta_i + \lambda_t + \nu_{it}$$

The following section presents the model estimation results and discusses the main findings.

5. Empirical results

As shown in Table 7 the variable INS_OWN is significant in all cases, confirming a nonlinear U-shaped relation with the percentage of outsiders (H1). In this case, at first there is evidence of the convergence of interests effect (negative relation), leading to an entrenchment effect (positive relation) once INS_OWN exceeds the level of 59.42% in Model 4 (61.6% in Model 3). That is, when the executive directors control a large portion of the organization´s capital (more than 59% or 61%) their individual interests begin to prevail over the collective interest, which in turn calls for a greater presence of outside directors to safeguard the interests of the other shareholders. In this case the relation between board composition (measured by the percentage of outsiders) and ownership structure (represented by insiders' ownership) corresponds to a quadratic nonlinear relation as shown in Fig. 1. This figure represents an estimation of the percentage of outsiders as a function of insiders' ownership (Model 4). For this estimation the average values of all of the variables were taken, with the only exception of those variables related to the insiders' ownership. As the figure illustrates, as executive ownership increases, the presence of outsiders on the board decreases due to the convergence of interests effect, however once the percentage of insiders' ownership surpasses 59%, the proportion of outsiders on the board increases (entrenchment effect). However, it is interesting to note that the function reaches the maximum end point at a representation of 74% of outsiders on the board while the maximum initial point is 85%. This difference between the two maximum values of the function could indicate that although the presence of outsiders increases when executive ownership is high (as a control mechanism) it does not reach as high a level as in the cases in which insiders' ownership is low. It could be due to the fact that the concentration of ownership in the hands of executive insiders allows for a greater control over the process of director selection and appointment (Arthur, 2001), so if managers exert a strong influence through their ownership participation in the company, it could result in the presence of outsiders on the board being lower than necessary and thereby preventing these outside directors from exercising control over them.

(Insert Table 7 about here)

Table 7: Estimation of the proportion of outsiders using the Feasible Generalized Least Squares (FGLS) estimator. (Spanish listed companies 2004–2011)

Variable	*Model 1*	*Model 2*	*Model 3*	*Model 4*
(constant)	75.28***	71.11***	78.05***	73.59***
INS_OWN	-0.29***	-0.30***	-0.62***	-0.65***
INS_OWN^2	----	----	0.01***	0.01***
BLOCK	-0.01	0.09**	-0.03**	0.13***
BLOCK^2	----	-0.00***	----	-0.00***
DEBT	-1.01	-1.02	-0.07	0.08
LEADERSHIP	3.39***	3.33***	3.52***	3.40***
FSIZE	0.03	0.01	0.02	0.06
DIV	0.82*	0.93**	0.68	0.50
FAGE	-0.02*	-0.02*	-0.03***	-0.02*
BSIZE (lagged)	0.67***	0.65***	0.60***	0.55***
Industry dummies	Yes***	Yes***	Yes***	Yes***
Year dummies	Yes***	Yes***	Yes***	Yes***
Wald Chi^2	1444.18 (21)	1441.68 (22)	1059.21 (22)	1097.09 (23)
Prob > chi^2	0.0000	0.0000	0.0000	0.0000
R^2	0.3519	0.3509	0.3543	0.3581
Number of Observations	989	989	989	989

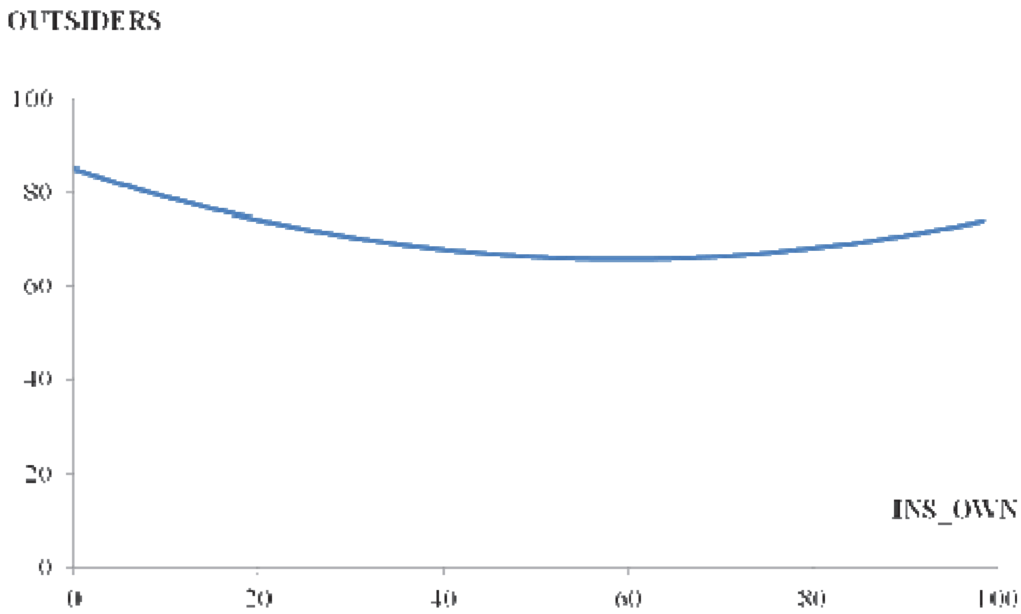
Note: *** indicates statistical significance at the 1 percent level; ** indicates statistical significance at the 5 percent level, and * indicates statistical significance at the 10 percent level.

For industry dummies and year dummies the word “Yes” indicates that these dummies have been included in each model. The joint significance level (as a result of a Wald test) for industry dummies and year dummies is shown in each model with ***,** or * next to “Yes”.

Wald test shows the joint significance of the reported coefficients, asymptotically distributed as Chi^2 under the null hypothesis of no relation.

(Insert Fig. 1 about here)

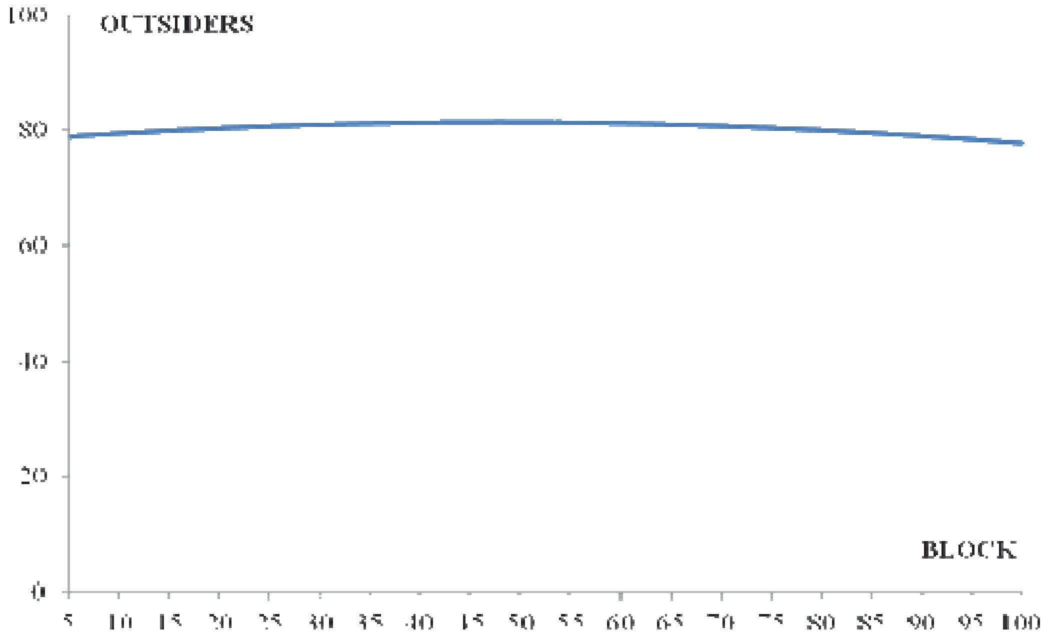
Fig. 1: The effect of insiders' ownership on the percentage of outsiders



With regard to the variable BLOCK, it shows a nonlinear inverted U-shaped relation with the percentage of outsiders, reaching its point of inflection when BLOCK is equal to 48.49% (Model 4). However, as illustrated in Fig. 2, the variable´s range of variation in relation to the percentage of outside directors is small; it starts with the percentage of outsiders at 79.19% (when the variable BLOCK is 5%) and reaches a percentage of 77.81% (when variable BLOCK is 100%) reaching a maximum value of 81.47% of outsiders which corresponds to the function´s point of inflection. Therefore, although the variables related to the concentration of ownership by the blockholders are significant in the models, their effect on the percentage of outsiders is minimal as shown in Fig. 2.

(Insert Fig. 2 about here)

Fig. 2: The effect of blockholders on the percentage of outsiders



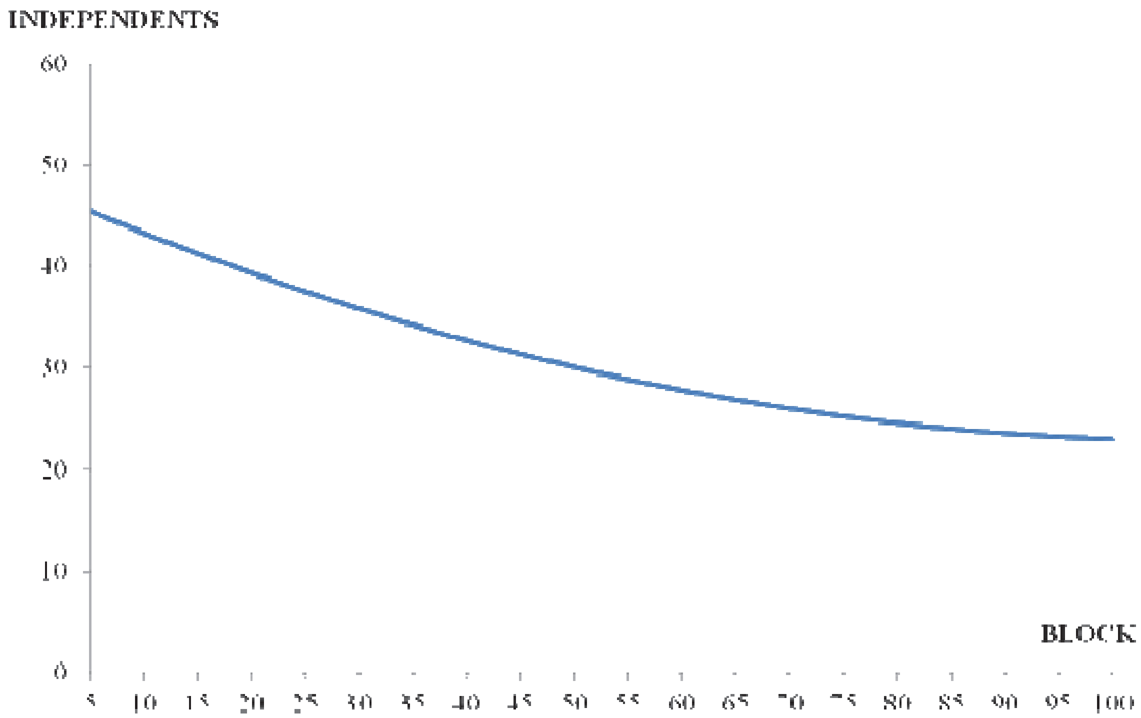
It is also worthy to note that there is a significant positive relation between the leadership structure and the regressed size of the board, and the proportion of outside directors, which implies that as the size of the board increases, so does the proportion of outside directors. Likewise, if the positions of Chairman and CEO are separated, the percentage of outsiders is higher. Finally, there is a negative relation between firm age and the proportion of outsiders, that is, younger firms include more outside directors in the boards.

If the same models are now analyzed, but with the dependent variable INDEPENDENTS (Table 8) there are noticeable differences with the models commented previously. First, a nonlinear relation (U-shaped) between the variable BLOCK and the percentage of independent directors is found. As indicated in Models 6 and 8, as the degree of ownership concentration increases, the presence of independent board members declines (monitoring effect) but once a certain point is reached, the relation becomes positive (expropriation effect). However, when calculating the points of inflexion of the functions, both in Model 6 as in Model 8 we observe that these points of inflexion for the variable BLOCK are at 110.19% and 108.67% respectively, which are outside the range of the function. These data suggest that the observed nonlinear relation is not so much a nonlinear U-shaped quadratic function but rather a convex decreasing function. Therefore an alternative model (Model 9) was calculated in which the logarithm of the variable BLOCK (LNBLOCK) was included as an explanatory variable instead of the variable and its square. As shown in Table 8 (Model 9) the logarithm of BLOCK has a negative and significant influence on the percentage of independents on the board, indicating that the relation between the concentration of ownership in the hands of significant shareholders and the presence of independent directors is a decreasing function of the variable BLOCK. In contrast to the quadratic relation specified in Model 6 and Model 8, this alternative model does not allow for the existence of a turning point. To complement the previous analysis, with the objective of discriminating between the nonlinear quadratic and the logarithmic specifications, an artificial nesting model was estimated incorporating both the quadratic and logarithmic ownership concentration variables (Model 10), following the paper of Peasnell et al. (2003). It can be observed that LNBLOCK is significant at the 0.001 level while BLOCK and $BLOCK^2$ lose significance in this model.

These results can also be observed in Fig. 3 which estimates the percentage of independent directors on the basis of the equity in the hands of the blockholders (Model 6). For this estimation the average values of all of the variables were taken, with the only exception of those variables related to the concentration of ownership in the hands of significant shareholders. When analyzing the figure it can be seen that the relation between the presence of independent directors and blockholder ownership does not correspond to a quadratic function but is a negative nonlinear relation represented by a decreasing function, with the point of inflection falling outside the range of the function. It indicates that as the concentration of ownership in blockholders increases, the presence of independent directors decreases, since the control function is exercised by the significant shareholders, however the proportion of independent directors decreases at an ever slower rate, with the minimum percentage of independents stabilizing at around 23%.

(Insert Fig. 3 about here)

Fig. 3: The effect of blockholders on the percentage of independents



If the other variables in the model are analyzed, it can be found that INS_OWN is not significant in any of these models, which shows that the concentration of ownership in the hands of significant shareholders, BLOCK, is a more relevant variable than INS_OWN for explaining the presence of independent directors on the boards of Spanish listed companies. These results are in line with the evidence previously shown in Table 3 which shows that the presence of independents changes very little in relation to insiders' ownership.

Furthermore it appears that in those companies in which the debt ratio is higher or the positions of Chairman and CEO are separated, the percentage of independent directors is lower, since in such cases these mechanisms (debt and leadership structure of the company) are acting as control mechanisms, so there is a lesser need for board oversight resulting in a smaller number of independent directors.

On the contrary, those larger, more diversified, and younger, that is, more complex companies (Acero and Alcalde, 2012) require a greater presence of independent board members. Finally there is a significant negative relation between the lagged board size and the proportion of independents indicating that the larger the board, the lower the proportion of independents. This result contrasts with the positive relation observed in Table 7 between the regressed size of the board and the percentage of outsiders. These results could indicate that the size of the board increases through other categories of directors while keeping the number of independents steady thereby producing a reduction in the percentage of these directors. All this suggests, therefore, that as the size of the board increases, the proportion of outsiders increases due to an increase in the presence of nominee directors. **(Insert Table 8 about here)**

Table 8: Estimation of the proportion of independents using the Feasible Generalized Least Squares (FGLS) estimator. (Spanish listed companies 2004–2011)

Variable	*Model 5*	*Model 6*	*Model 7*	*Model 8*	*Model 9*	*Model 10*
(constant)	16.66***	22.30***	16.01***	23.35***	42.45***	57.30***
INS_OWN	0.01	0.01	0.03	0.05	0.00	-0.01
INS_OWN^2	-----	----	-0.00	-0.00	----	----
BLOCK	-0.21***	-0.46***	-0.21***	-0.46***	----	0.48*
$BLOCK^2$	-----	0.00***	----	0.00***	----	-0.00**
LNBLOCK	----	----	----	----	-8.90***	-16.04***
DEBT	-5.13***	-5.12***	-4.82***	-4.98***	-3.58**	-2.47
LEADERSHIP	-1.22**	-1.17**	-1.05*	-0.97*	-0.97*	-0.90
FSIZE	2.03***	2.04***	2.06***	2.05***	1.79***	1.52***
DIV	1.77**	1.66**	1.77**	1.66**	1.12*	1.02
FAGE	-0.12***	-0.13***	-0.12***	-0.13***	-0.14***	-0.14***
BSIZE (lagged)	-0.59***	-0.61***	-0.60***	-0.60***	-0.47***	-0.37***
Industry dummies	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***
Year dummies	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***
Wald Chi^2	365.46 (21)	390.69 (22)	355.81 (22)	384.53 (23)	303.37 (21)	271.26 (23)
Prob > chi^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R^2	0.2453	0.2502	0.2447	0.2498	0.2240	0.2184
Number of Observations	989	989	989	989	971	971

Note: *** indicates statistical significance at the 1 percent level; ** indicates statistical significance at the 5 percent level, and * indicates statistical significance at the 10 percent level.

For industry dummies and year dummies the word “Yes” indicates that these dummies have been included in each model. The joint significance level (as a result of a Wald test) for industry dummies and year dummies is shown in each model with ***,** or * next to “Yes”.

Wald test shows the joint significance of the reported coefficients, asymptotically distributed as Chi^2 under the null hypothesis of no relation.

The results partially corroborate the working hypothesis confirming a nonlinear relation between ownership structure and board composition. On one hand, the percentage of outsiders is determined to a large degree by insiders' ownership for which a quadratic nonlinear U-shaped relation is observed between these two variables as a consequence of the existence of an initial convergence of interest effect (negative relation) and a subsequent entrenchment effect (positive relation) (H1). Furthermore, it is observed that the concentration of ownership in the hands of blockholders is a key element in determining the presence of independent directors on the boards of Spanish companies, characterized by a highly concentrated ownership structure. In this sense the relation between the ownership by major shareholders and the percentage of independents on the board is a nonlinear decreasing function, which does not give full empirical support to the influence that would be expected from the so-called expropriation effect on the presence of independent members on the board (H2).

6. Summary and conclusions

There is growing body of literature examining boards of directors, however, little is currently known about the relation between ownership structure and board composition in high ownership concentration contexts. This study addresses this issue and shows the close relation that exists between ownership structure and board composition.

The results indicate that insiders' ownership has a relevant influence on the percentage of outside directors, where a nonlinear relation exists between the two variables. This relation arises from an initial convergence of interest effect which is followed by a subsequent entrenchment effect. The observation of a U-shaped relation would be consistent with there being a demand for outside directors to prevent the entrenchment by managers who own a substantial portion of the firm´s shares. On the contrary, the proper safeguarding of minority shareholder interests against the possible expropriation by the majority shareholders in firms with concentrated ownership structures is not clearly supported by the empirical analyses conducted. When one looks at the percentage of independent directors, the ownership structure influences the composition of the board through the concentration of ownership in the hands of blockholders. But in this case the relation between these two variables does not have a U shape, the relation, although nonlinear, turns out to be a negative decreasing function. As the significant shareholders increase their ownership of the company, the percentage of independent directors on the board decreases (in favor of an increase in nominee directors). This decrease in the presence of independents takes place at an ever decreasing rate (nonlinear decreasing function), demonstrating that companies choose to maintain a minimum percentage of independents on the board. However, the minimum recommended by the Conthe Code[13] (at least a third of the members on the board should be independents) is far from being met by companies with a concentrated ownership structure, which poses the question as to whether these companies adequately protect minority shareholder interests.

Our results have potentially important implications for the debate on outsiders and independents and on corporate governance in general. Our findings highlight the diversity that exists within the group of outside directors in contexts such as the Spanish one, where it is necessary to make a distinction between the figures of nominee and independent directors, and that these two groups of directors assume different functions on the board. Although all outside directors are key to monitoring and controlling, independents are necessary to safeguard the interests of minority shareholders in contexts characterized by a high degree of ownership concentration such as the Spanish market. In this sense, the studies carried out in high ownership concentration contexts should differentiate the group of outsiders from those independent directors, an issue that is usually overlooked. Additionally, this paper discusses the need to reflect and gather evidence on whether including independent members on the board is effectively contributing to safeguarding minority shareholder interests and how to ensure that the independent members fulfill this function, all of this with a special emphasis on firms with highly concentrated ownership structures in which the risk of expropriation of minority shareholders is higher.

[13] Conthe Code of 2006 is the latest report published in Spain with corporate governance recommendations.

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