THE EFFECTS OF OWNERSHIP STRUCTURE AND BOARD COMPOSITION ON THE AUDIT COMMITTEE ACTIVITY: SPANISH EVIDENCE

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The effects of ownership structure and board composition on the audit committee activity: Spanish evidence

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Abstract: This paper examines the factors that affect the activity of the audit committees. The data used in the analyses are collected from the Spanish stock market in 2003. We use the activity of the audit committee as a proxy of its efficacy. The results show the existence of a non-linear relationship between the managerial stock ownership and the activity of the audit committee. We have also verified the existence of a lower audit committee's activity in highly leveraged firms and when the ownership structure is concentrated in the hands of large shareholders. The large firms have more active committees than small firms. Finally, we have not found any evidence of a significant influence of the composition of the board or the audit committee on the activity of the latter.

Keywords: audit committee; activity; board of directors; ownership structure

Introduction

The economic scandals derived from accounting manipulation have damaged the investors' trust on the financial markets in the U.S. and other European markets. The investment community claims of measures to improve the market transparency highlights the role of the audit committee to improve the quality of the financial statements. In this sense, the Stock Exchange Commission (SEC) recommends the U.S. listed companies to form audit committees from 1972, being this a necessary requisite to be listed from 1978 (Goddard and Masters, 2000).

The persistence of accounting scandals, have lead to a full reconsideration relating the functioning of the audit committees, with special attention to their composition and independence from the managerial team. Consequently, the Treadway Commission (1987), the Cadbury Report (1992), the American Law Institute (1994) and the Blue Ribbon Committee (1999) recommend that the audit committees should be composed by independent directors with an adequate background to perform auditing activities. Moreover, the Sarbanes-Oxley Act (2002), additionally to their independence, establishes that at least one of the members of the audit committee should have a board experience in the area of finance.

There are numerous studies about the functioning of the audit committees conducted in different markets. Some of them analyse the variables that affect the voluntary formation of the audit committees (Pincus *et al.* 1989; Bradbury 1990; Collier 1993 and Willekens *et al.* 2004), several aspects relating their composition have also been treated (Vicknar *et al.* 1993; Beasley 1996; Klein 1998 and Carcello and Neal 2000) some other studies, as ours, analyse the factors that affect the intensity of their activity (Menon and William 1994; Collier y Gregory, 1999 and Deli y Gillan, 2000) principally. Other approach analyses the effect of the audit committee on the reduction of the abnormal accruals (DeFond y Jiambalvo 1991, Klein 2002, Bédard et al. 2004).

Spanish regulatory context

Similarly to the U.S. market, Spanish companies have experienced in the last years an intensification of financial control by promoting the formation of independent audit committees.

In this sense, the Spanish Code of Best Practices (Código Olivencia, 1998) recommends the formation of such audit committees to verify the financial statements and the internal audit system of the companies. Later, the promulgation of the Law for the Reform of the Financial System (Ley de Medidas de Reforma del Sistema Financiero, 2002) made the formation of audit committees mandatory for all listed companies from January of 2003. Finally, the Aldama Report (2003) recommends forming the audit committees entirely composed by outside directors (independent directors and representatives of large shareholders) in a proportion similar to the board of directors. It is also recommended to choose an independent president for the audit committee.

Being the audit committee a key element to improve the market transparency and return the confidence to the investment community, in this study we analyse the factors that affect the efficacy of this control mechanism. To approximate the efficacy of the audit committee, we measure the intensity of its activity measured through its meeting frequency. We interpret a high meeting frequency as an indicator of an intense control performed by the audit committee. The factors that presumably affect the audit committee activity are mainly linked to the firm's ownership structure and the composition and independence of both the board and the audit committee itself.

Our study contributes to extend the empirical research about the audit committees functioning in the Spanish market. The Spanish context is characterised by an institutional framework that clearly differs from that of the Anglo-Saxon markets. The investors' protection and the supervision exerted by the external mechanisms of control are more intense in the Anglo-Saxon context than in Continental European economies (La Porta *et al.,* 1998). Our study of the audit committees differs from others previously conducted for the Spanish market in that its main aim is to its analyse their efficacy. The mandatory nature of the audit committees for the Spanish listed companies of January 2003 deviates our attention from the study of the factors that affect their voluntary formation to the analysis of the variables that affect their efficacy as an instrument to improve the quality of financial information.

Our results show that the activity of the audit committees of Spanish listed companies is affected by their ownership structure, leverage and size. However, contrarily to the recommendations of the Aldama Report (2003), the composition and independence of the board and the audit committee, seems to have no influence on the activity of these committees.

The remainder of this paper is structured as follows: in the second section we review previous literature and develop the hypothesis. The third section describes the variables and the methodologies used in the study, the forth section analyses the sample and database used. The fifth section presents the results obtained and the sixth section concludes.

Determinants of the audit committee activity

The audit committees can be defined as delegate committees of the board, its main aim is to guarantee the reliability of the accounting information issued by the firms. Their main task is to evaluate the internal audit system of the company, safeguard the independence of the external auditor and to evaluate and to control the processes of corporate governance, informational transparency and conflicts between the shareholders and the managers[1]. To perform these tasks efficiently, the audit committee will have to meet regularly with the external auditor in order to revise the financial reports, the audit process and the functioning of the internal control mechanisms. The functions carried out by the audit committee contribute to reduce agency costs and the information asymmetries between the internal and external agents of the company.

The formation of the audit committee does not guarantee an immediate reinforcement of the accounting information control system[2]. In this way, Menon and Williams (1994) suggest that the audit committee should meet at least twice a year. The audit committee should hold a first meeting to plan the work with the external auditor and a second one to review the results of the auditory. According to that, several corporate governance codes recommend a minimum

[1] A description of the audit committee activity must be included in an annual corporate governance report presented to the board and to the firm's shareholders in their annual meeting.

[2] Beasley (1996) have found that the formation of audit committees do not eliminate the informational fraud. Menon and Williams (1994) have found that, in a sample of 156 NASDAQ firms that voluntarily formed audit committees, 57 held only one annual meeting or did not meet at all.

meeting frequency for an effective control by the audit committees. For example, the Cadbury Report (United Kingdom) recommends a minimum of two meetings per year, the Mertzanis Code (Greece) suggests a minimum of two or three meetings per year. In the Spanish case, the Olivencia Code and the Aldama Report do not make a specific mention of a minimum meeting frequency[3].

These recommendations about a minimum meeting frequency to guarantee an effective control by the audit committee are supported by the empirical evidence of a positive relationship between the meeting frequency of the audit committee and the quality of the firms' accounting information (Xie *et al.*, 2003 and Abbot *et al.*, 2004).

According to that, in our study we have used the annual meeting frequency as a proxy of the efficacy of the audit committee. Given that there is not a guarantee of an active supervision action performed by the audit committee during its meetings, the meeting frequency is an imperfect proxy of the audit committee's efficacy. However, it is also evident that it is not probable to exert an effective control if the audit committee holds one meeting per year or does not hold any meeting at all (Menon and Williams, 1994; Klein 1998; Collier and Gregory, 1999 and Deli and Gillan, 2000).

There are many theoretical and empirical studies that that have found evidence of the existence of a relationship between the firms' ownership structure and the intensity of the agency conflicts[4]. There is also a wide range of studies that verify the influence of the composition of the board and its delegated committees on their capacity to mitigate the managerial opportunistic behaviour[5]. In this sense, we analyse the possible influence of the dispersion of the firm's ownership structure and the composition of the board and the audit committee on the control exerted by the latter.

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[3] However, the Guide for Good Corporate Governance issued by the Foundation of Financial Studies (2003) recommends that the audit committee should meet with the external auditor at least every quarter. This recommendation is similar to the definition of "active audit committee" used by Deli and Gillan (2000).

[4] See Holderness (2003) for a review of the literature relating the relationship between the ownership structure and the agency conflicts.

[5] See Hermalin and Weisbach (2003) for a review of the literature relating the supervisory role of the board.

Managerial stock ownership

The managerial stock ownership is an instrument that contributes to reduce agency costs (Jensen and Meckling, 1976). When the managers of a company have a large amount of their company's shares there is an interest alignment between the managers and the rest of the shareholders. The managers benefit directly from their own professional efforts and suffer the negative consequences of their opportunistic actions through the respective positive and negative variations of their shares' market value. Consequently, we would expect that the managers, that own large blocks of shares, would favour the formation of active audit committees, given the positive wealth effects derived from an improve of the financial statements' quality and the market transparency.

However, it is also plausible that managerial stock ownership will allow managers to be isolated from the action of control mechanisms such as the board and the market for corporate control (Demsetz, 1983). Managerial entrenchment would allow managers to hold opportunistic patterns of behaviour contrary to the rest of the shareholders' interests. Following this reasoning, the managers would try to avoid any control mechanism, including the formation of an active audit committee.

These two opposite effects, interest alignment and managerial entrenchment could coexist with different intensity depending on the size of the managers' blocks of shares. In this sense, several authors have found evidence of an alternation between the dominion of alignment and entrenchment effects linked to managerial stock ownership[6]. Taking into account the coexistence of alignment and entrenchment effects linked to managerial stock ownership we could expect a non-monotonic relationship between this variable and the intensity of the control exerted by the audit committee.

[6] Morck *et al*. (1988), McConnell and Servaes (1990, 1995), Kole (1995) and Holderness *et al*. (1999) have found evidence of the existence of a non-linear relationship between managerial stock ownership and firms' value in U.S. market.

Board and audit committee composition

The composition of the board is a fundamental characteristic that affects its capability to control managerial actions (Fama and Jensen, 1983). A board dominated by the managers presents a severe limitation to control the managerial actions contrary to the shareholders' interests.

Consequently a board dominated by the firm's managerial team would not be an effective mechanism to control the managers' opportunistic actions. The interests of the managers, mainly remuneration and security in their jobs, would lead the inside directors to extend their influence to the board committees that take decisions relating those matters. The dominance of the board by the insiders could therefore hinder the formation of active an independent audit committees (Klein, 2002).

Taking into account the negative effect that the insiders could have on the supervisory role of the board and the audit committee, we analyse if the inclusion of executive members in these control mechanisms results in the formation of passive audit committees.

The large shareholders

The dispersed ownership structure of the large companies could generate free rider problems, that is, it could hinder the direct managerial supervision by the shareholders (Grossman and Hart, 1980). However, the large shareholders may have incentives to supervise managerial actions given that the increase of their shares' value derived form the direct supervision can compensate de supervisory costs directly incurred.

Nevertheless, the presence of large shareholders could also cause problems to the small shareholders. The high-risk exposure of the large shareholders due to the lack of diversification of their investments can be a source of interest conflicts with the minority shareholders. As a result, the large shareholders, following their own interests could expropriate the small shareholders' wealth (Shleifer and Vishny, 1997).

Empirical evidence regarding the effect of the large shareholders on the corporate governance of the firms is contradictory. There is evidence of the supervisory role of the large shareholders in

the adoption of anti-acquisition amendments (Brickley *et al.*, 1988 and Pound, 1988). Kaplan and Minton (1994), Kang and Shivdasani (1995) and Franks *et al.* (1997) find evidence of a positive influence of the large shareholders on the substitution of the top managers of underperforming companies. There is also evidence about a moderation of the managerial remuneration in firms with the presence of large shareholders (Dyl, 1988 and Hambrick and Filkenstein, 1995). Contrarily to this empirical evidence, Demsetz and Lehn (1985) and Holderness and Sheenan (1988) fail to find supportive evidence of the influence of the large shareholders on the firms' value.

Therefore, given the incentives of the large shareholders to supervise managerial actions, we could expect a positive influence of such shareholders on the formation of active audit committees. However, the defence of their own interests at the cost of the small shareholders' wealth could indicate that this influence could be negative.

Hypothesis

In the previous epigraphs of this paper we have argued that the activity of the audit committee is affected by (1) the managerial stock ownership (2) the composition of the board and the audit committee and (3) the dispersion of the ownership structure. According to the theoretical background and empirical evidence exposed, we propose the following hypothesis:

Hypothesis 1: The meeting frequency of the audit committee has a non-linear relationship with the managerial stock ownership.

Hypothesis 2: The meeting frequency of the audit committee has a negative relationship with the presence of managers in both the board and the audit committee.

Hypothesis 3: Large shareholders have a positive influence on the audit committees' meeting frequency.

Methodology and variables

This study analyses the factors that affect the control activity performed by the audit committee. We use the meeting frequency of this control mechanism as a proxy of its supervisory efficacy. Several econometric tests were conducted in order to analyse the influence of the ownership structure and the composition of the board and the audit committee composition on its supervisory efficacy. First, it was estimated a Tobit model in which the dependent variable was the number of meetings held by the audit committee in 2003 (MEETFREQ)[7]. For a discrete and censored variable as (MEETFREQ) it is not suitable to use an OLS regression model as it provides biased and inconsistent estimations (Greene, 2003). The beta coefficients of the Tobit model represent directly the marginal effects of each variable on the number of meetings held by the audit committee during the year.

We also estimate a negative binomial regression model as an additional robustness check of the results obtained from the Tobit model. This model is suitable in the case of a discrete dependent variable that takes small values and presents a variance that is higher than its average value (Cameron and Trivedi, 1990)[8].

Finally, following the procedure of Deli and Gillan (2000) for the US market, we have estimated a binomial logit model in which the dependent variable is dichotomous and takes value one when the number of meetings held by an audit committee in 2003 is at least 4 and takes value zero for a lower meeting frequency.

The independent variables included in the regression models are those considered in the hypothesis proposed. The first hypothesis analyses the possible effects of the managerial stock ownership (INOWN) on the activity of the audit committee. To capture a possible non-linear

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[7] Collier and Gregory (1998) use the number of the audit committee's meeting hours during the year for a sample of British firms as a proxy of their activity. However, this information is not available in the case of the Spanish listed firms.

[8] The negative binomial regression is a generalisation of the Poisson regression model. This kind of model is usually employed to make estimations of the number repetitions of a certain event. The negative binomial regression provides efficient estimates of the variances of the parameter estimates in cases of over dispersion (Cameron and Trivedi, 1990).

relationship between this variable and the meeting frequency (MEETFREQ), we have included also a quadratic term of the managerial stock ownership (INOWN2).

The effect of the board composition and the audit committee composition on the activity of the latter is considered using the proportion of independent members (%INDBD and %INDAUD) and executive members (%EXEBD and %EXEAUD) present in both mechanisms of control.

To analyse the effect of the recommendation made by most corporate governance codes about the formation of audit committees fully formed by outside members, we consider if the inclusion of executive members in this committee had a negative effect on its control activity. To capture the effect of the executive members on the audit committee we include in our regression models a dummy variable (EXEAUD) that takes value one in the case of the inclusion of executive members in this committee and value zero otherwise.

The effect of the dispersion of the firms' ownership structure on the activity of the audit committee is considered by the inclusion of the joint stock ownership of the three largest shareholders (LARGE3).

In order to control if the separation of the titles of CEO and president of the board affects the control activity performed by the audit committee, we include a dummy variable (CHAIRCEO). This variable takes value one if the president of the board and the CEO are the same person and takes value zero in the case of separation of posts. The separation of the roles of CEO and president of the board is persistently recommended in numerous corporate governance codes[9].

We have also included in our models controls of size and gearing. Regarding the firm size, Fama and Jensen (1983) and Smith and Watts (1992) propose that the agency conflicts become more severe as the size grows, being necessary to intensify the control of managerial actions. In this case, we would expect a direct relationship between the firm's size and the control activity

[9] This recommendation is included in the Cadbury Report (1992), Dey Report (1994), Cardon Report (1998), Mertzanis Report (1999) and Preda Report (1999). However, in the Spanish case, the Olivencia Code and Aldama Report admit that the suitability of this separation depends on the specific firm's characteristics. Therefore, these documents do not make a general recommendation about this matter.

performed by the audit committee. To control this possible effect, we have included in the regression models the log of the book value of the firm's total assets (SIZE).

The use of debt financing could also affect the activity of the audit committees, given the accounting certification requirements imposed by the lenders. The interest conflicts between the shareholders and the lenders could make the latter to amplify their supervisory activity in order to avoid any wealth expropriation attempt from the shareholders or the managers (Jensen and Meckling, 1976). The financial leverage of the firm is controlled by the inclusion in the regressions of the ratio of total debt to total assets (LEV).

Sample and data

The analysis of the determinants of the audit committees' activity has been conducted on an initial sample of 90 non-financial companies listed on the Madrid stock exchange for which the data about the composition of the audit committee in year 2003 was available. From this sample, 21 firms were eliminated because there were no public data about the number of meetings held by the audit committee in year 2003. The final sample was composed then by 69 firms[10]. The composition data of the audit committees in 2003 has been extracted from the firms' corporate governance report[11] displayed on their web sites and also from the registers of the CNMV (Spanish SEC).

The composition of the board has also been consulted in the firms' corporate governance reports. The stock ownership data necessary to calculate the managerial and the large shareholders' stock ownership have been extracted from the CNMV files. Finally, the accounting data relating the firms' size and their financial leverage have been consulted in the files of financial reports of the CNMV.

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[10] See table 1 for a more detailed description of the sampling process.

[11] Following the recommendations of the Aldama Report (2003), the article 116 of the Law of Transparency of the Stock Market requires the listed companies to publish an annual corporate governance report. This report has also to be published on the Spanish Security Exchange web site (www.cnmv.es).

To summarize the characteristics of the 90 firms that composed our initial sample, we have calculated a set of descriptive statistic indicators shown in table 2.

The audit committees of our sample have an average size of 3.51 members, being 45.85% independent directors, 44.87% representatives of large shareholders and 9.27% executive directors. These data suggest that the listed firms follow the recommendations of the Aldama report relating the exclusion of the executive members from the audit committees, however a relevant weight of representatives of the large shareholders is observed. The percentage of independent members is lower than the 79.6% and 85% reported by Klein (2002) and Xie *et al.*, (2003) for the U.S. market. However, these data can't be compared directly, because in the Anglo-Saxon context the category of outsider representative of a large shareholder (dominical in Spain) is not considered and in the Spanish context the category of affiliated outsider is not considered either.

The audit committees of our sample have met on average 4.77 times in 2003. This meeting frequency is slightly higher than the 4 meetings per year recommended by the Foundation of Financial Studies (Fundación de Estudios Financieros, 2003), or the two meetings recommended by the Dual code, the Cadbury report or the Mertzanis report.

The board of the sample firms have an average size of 11.57 members, being 22.51% executives, 32.95% independents and 44.53% representatives of the large shareholders. These values are similar to those reported in the Spencer Stuart Board Index for the Spanish listed firms in 2003. In this report, based on a sample of 78 Spanish listed firms, the average board size is 12.6 members with a 20% of executive directors, 36% of independent directors and 44% of representatives of the large shareholders.

In relation to the ownership structure, the mean managerial stock ownership is 10.86%. However, the distribution of this variable is highly dispersed, being its median value only 0,07%. These values clearly differ from the mean of 5.09% and median 0.00% reported by Deli and Gillan (2000) for the US market. The concentration of the ownership structure, represented

by the joint stock ownership of the three largest shareholders has an average value of 43.69%. This value is similar for the whole set of firms listed on the Spanish continuous market[12].

As a first approach to test our hypothesis, the table 3 shows the correlations among the variables of the study. The results are similar to those obtained in the multi-variant analysis performed in the next section.

There is a negative and highly significant correlation between the number of meetings held by the audit committee (MEETFREQ) and the joint stock ownership of the three largest shareholders (LARGE3). There could be two opposites interpretations of this result. On the one hand, the lower activity of the audit committee in the presence of large shareholders could be the result of opportunistic behaviour of the large shareholders that take advantage of private benefits of control, contrary to the general interests of the small shareholders[13]. On the other hand, the direct supervision exerted by the large shareholders could reduce the ability of the managers to distort the financial statement figures, which in turn reduces the need for an active audit committee.

Secondly, we observe a positive and statistically significant correlation between the meeting frequency of the audit committee (MEETFREQ and ACTIVE) and the firm's size (SIZE). This result could suggest that the higher complexity of the financial statements of the large companies requires a higher meeting frequency by the audit committee to supervise them.

Finally, some other relevant correlations are found between the composition of the board (%INDBD, %EXEBD) and the composition of the audit committee (%INDAUD, %EXEAUD). A high weight of the independent or the executive members in the board entails a high weight of the same kind of members in the audit committee. In this sense, an independent board would be prone to form an independent audit committee. On the contrary, a strong influence of the executive members in the board will be probably transferred to the audit committee.

[12] The mean value for the stock ownership of the largest and the three largest shareholders for the whole sample of firms listed on the Spanish continuous market are respectively 30.30% and 44.49%. These data point out to the existence in the Spanish market of a highly concentrated ownership structure like in most Continental European economies.

[13] See examples of private benefits of control in Nenova (2003) and Dyck and Zingales (2004).

Multi-variant analysis results

In this section, we comment the main results obtained from different multi variant methodologies (Tobit, binomial negative and logit) in the analysis of the factors that affect the audit committees' activity.

Tobit model

Table 4 shows the estimations obtained for a set of Tobit models. Four variables were d statistically significant in all regressions: The linear and quadratic terms of the managerial stock ownership (INOWN and INOWN2), the joint ownership stake of the three largest shareholders (LARGE3), the log of the book value of firm's total assets (SIZE), and the financial leverage ratio (LEV). None of the variables used to measure the composition of the board or the audit committee resulted statistically significant.

We have obtained coefficients positive and negative respectively for the linear term and the quadratic term of the managerial stock ownership. This result suggests the existence of a non-linear relationship between this variable and the number of meetings held by the audit committee in 2003. The relationship obtained is negative for ownership stakes under 30% and positive above this stake[14].

The tendency of the managers to avoid the control exerted by the audit committee as their ownership stake grows can be understood as a manifestation of the managerial entrenchment. The change of tendency for ownership levels above 30% suggests that the managerial team seems to be sufficiently protected from the external controls. Consequently, the alignment effect dominates the entrenchment effects for high stock ownership levels.

The inclusion of executive members in the audit committee (EXEAUD) has a negative effect, although not statistically significant, on its meeting frequency. The sign of these variable's coefficient is similar to the one obtained by Collier and Gregory (1999), being in their case statistically significant.

[14] The inflexion point is 29.9% for the first model and similar in the others.

Similarly to the results of the correlation analysis, we have obtained a negative and statistically significant relationship between the ownership stock of the large shareholders and the meeting frequency of the audit committee. This result suggests that the presence of large shareholders do not have a positive effect on the supervisory role of the audit committee. This could be the result of either the substitution effect[15] derived from the direct supervision exerted by the large shareholders or the exploitation by the large shareholders of private benefits of control that could be lost in the case of the existence of an active audit committee.

In relation to the size of the firm, the positive and statistically significant coefficients obtained in all regressions confirm the results of the correlation analysis. This result is similar to those reported by Klein (1998) and Menon and Willams (1994), suggesting that the large firms have more active audit committees to counteract their severe agency problems.

We observe a negative and statistically significant relationship between the leverage ratio and the meeting frequency of the audit committee. This result is contrary to our initial intuition about the accounting certification requirements imposed by the lenders. According to our reasoning, the lenders would favour the formation of active audit committees to improve the quality of the information used to value the firm's solvency. Our result fails to verify this hypothesis and according to previous studies in the Spanish market[16] suggests that there could be a substitution between the control exerted by the lenders and by the audit committee.

Contrarily to what we expected and to the evidence reported by Collier and Gregory (1999), we obtained positive coefficients for the dummy variable representing the coincidence of the titles of CEO and president of the board. However, these coefficients are not statistically significant in any of the regressions. These results suggest that the accumulation of power in the hands of the CEO do not interfere with the control activity of the audit committee.

The variables representative of the percentage of independent (%INDBD and %INDAUD), executive members (%EXEBD and %EXEAUD) in both the board and the audit committee and

[15] Rediker and Seth (1995) find evidence of the substitution between the control exerted by the board and the supervisory role of the large shareholders.
[16] See Arrondo y Fernández (2005).

the dummy variable that identifies the inclusion of executives in the audit committee (EXEAUD) did not enter significantly any of the estimated models. In this sense, the degree of independence of the board or the audit committee does not affect the control activity performed by the latter. These results opposite to the recommendations about the independence of the board and the audit committee made by most corporate governance codes, are similar to those obtained by Collier and Gregory (1999) and Klein (1998) relating the inclusion of outsiders in the board and by Felo *et al.* (2003) about the inclusion of outsiders in the audit committee.

Negative binomial regression model

As an alternative robustness check of our previous results, we have estimated a negative binomial regression model using the same variables of the Tobit model. With this estimation, we try to prove that our results are not affected by the over-dispersion of the dependent variable (MEETFREQ). The results obtained from this estimation are shown in table 5. The similarity of these results to those of the Tobit model confirms the conclusions reached so far.

Binomial logit model

Finally, to facilitate the comparison of our results to previous studies (Klein, 1998) we have estimated a binomial logit model based on the definition of "active audit committee" proposed by the Treadway Commission (1987), and in the Spanish market by the Foundation of Financial Studies (2003). The dependent variable of this logit model is a dummy variable equal to one if the audit committee met four or more times during 2003, and zero otherwise. The independent variables are the same used in the Tobit and negative binomial models.

The results shown in table 6 show, as previous methodologies, the negative effects of the financial leverage. This finding confirms the existence of a substitution effect between alternative mechanisms of control in the firm. Similarly to Klein (1998), we have also obtained a negative statistically significant coefficient for the large shareholding variable. We have also found supporting evidence of the positive size effects on the audit committees' meeting frequency as previously obtained by Klein (1998) and also in our previous estimations.

However, we do not observe the existence of a non-linear relationship between the managerial stock ownership and the activity of the audit committee. This result does not contradict our previous findings. It means that the managerial stock ownership does not affect the probability of having a meeting frequency equal or higher than four meetings per year by the audit committee.

Conclusions

In this paper, we have analysed the factors that affect the audit committee activity. This study has been conducted for a sample of Spanish firms listed on the Madrid stock exchange in 2003, being this the first year in which the formation of an audit committee is compulsory to be listed on Spanish stock market.

The results obtained, independently of the methodology used, suggest that the audit committee activity is affected by the firms' ownership structure, leverage and size. However, we have not obtained any evidence of a systematic effect of the board or audit committee composition on the activity of the latter. We also fail to find evidence of a systematic effect of the separation of the titles of CEO and president of the board on the meeting frequency of the audit committee. These results do not support the recommendations of the Aldama report, which emphasizes the formation of independent audit committees.

The influence of the ownership structure comes both from its concentration in the hands of large shareholders and from the managers' ownership stakes. We have observed that the effect of the managerial stock ownership on the audit committee activity is negative for stakes under 30% and becomes positive for ownership stakes above this, for which we suppose that the managers are effectively entrenched. We have also observed a negative effect of the large shareholders on the audit committee activity. This effect could be caused by a substitution between alternative control mechanisms or by the exploitation of private benefits of control by the large shareholders.

Finally, we have observed that the large companies have active audit committees and that highly leveraged firms tend to make a limited use of their audit committees. Altogether, the analysis of the determinants of the audit committee efficacy raises some questions that constitute the natural extension of this study. In this sense, it seems logical to ask the following: what effect has the formation of the audit committees on the firms' governance? Does this effect depend on the activity or the independence of the audit committees? Therefore, the study of the effects on managerial discretion derived from the formation of audit committees, their composition and their activity constitute a future extension of this paper.

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[1]

Table 1:Sample selection procedure

Total amount of listed companies on the continuous and new markets in 2003	116
Non availability of information relating the audit committee structure	(15)
Financial companies (banking and insurance)	(11)
Unknown audit committee meeting frequency in 2003	(21)
FINAL SAMPLE SIZE	**69**

This table describes selection procedure of the sample finally used in this study.

Table 2: Descriptive statistics for a sample of 90 firms

Variables	Observations	Mean	Median	Maximum	Minimum	St. Deviation
Firm's book value of total assets (in thousands of Euros)	90	2.476.776,06	455.979,00	49.189.551,00	36.510,00	6.417.046,44
Gearing ratio (Total debt/total assets)	90	0,522	0,5485	1,1616	0,003	0,217
Stock ownership of directors representing large shareholders (%)	90	15,22	3,03	94,22	0	22,15
Stock ownership of executive directors (%)	90	10,86	0,070	84,11	0	21,73
Stock ownership of independent directors (%)	90	0,30	0,01	13,76	0	1,488
Stock ownership of the three largest shareholders (%)	90	43,69	43,71	134,2	0,22	26,48
Board size	90	11,57	11	30	5	4,50
Board's proportion of directors representing large shareholders (%)	90	44,53	45,45	91,66	0	23,10
Board's proportion of executive directors (%)	90	22,51	20	62,50	0	14,36
Board's proportion of independent directors (%)	90	32,95	33,33	78,57	0	18,89
Size of the audit committee	90	3,51	3	6	2	0,81
Audit committee's proportion of directors representing large shareholders (%)	90	44,87	45	100	0	29,83
Audit committee's proportion of executive directors (%)	90	9,27	0	40	0	14,46
Audit committee's proportion of independent directors (%)	90	45,85	40	100	0	29,61
Meeting frequency of the audit committee	69	4,77	5	13	0	2,91

Table 3: Correlation matrix

	MEETFREQ	ACTIVE	INOWN	LARGE3	%INDBD	%INDAUD	%EXEBD	%EXEAUD	SIZE	LEV
MEETFREQ										
ACTIVE	0,754** (0,000)									
INOWN	-0,141 0,248	-0,132 0,278								
LARGE3	-0,242* 0,045	-0,107 0,384	0,144 0,239							
%INDBD	0,199 0,101	0,136 0,264	0,032 0,794	-0,312** 0,009						
%INDAUD	0,102 0,405	0,059 0,633	0,172 0,158	-0,224 0,064	0,752** 0,000					
%EXEBD	-0,063 0,609	-0,068 0,576	0,557** 0,000	0,102 0,405	-0,062 0,610	0,213 0,079				
%EXEAUD	-0,206 0,090	-0,155 0,202	0,186 0,125	-0,096 0,433	-0,075 0,538	0,213 0,079	0,383** 0,001			
SIZE	0,507** 0,000	0,430** 0,000	-0,236 0,051	0,148 0,225	0,081 0,506	-0,077 0,530	-0,166 0,174	-0,202 0,095		
LEV	0,039 0,748	0,010 0,937	-0,040 0,746	0,038 0,758	-0,065 0,594	-0,089 0,466	0,004 0,971	0,050 0,683	0,332** 0,005	

Spearman correlation coefficients
*, **;*** Indicates p-values of coefficients are significant at the 10%, 5% and 1% statistical levels respectively.

Variables	
MEETFREQ	Number of audit committee’s meetings in 2003
ACTIVE	Dummy variable equal to one if the audit committee met four or more times and zero otherwise
INOWN	Stock ownership of executive directors (%)
LARGE3	Stock ownership of the three largest shareholders (%)
%INDBD	Board’s proportion of independent directors (%)
%INDAUD	Audit committee's proportion of independent directors (%)
%EXEBD	Board’s proportion of executive directors (%)
%EXEAUD	Audit committee's proportion of executive directors (%)
SIZE	Log of the book value of total assets
LEV	Debt to total assets ratio (book values)

Table 4: Multivariate determinants of audit committee activity (Tobit model; Limdep 7.0)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-5,772 (-2,560)**	-5,959 (-2,603)***	-5,791 (-2,522)**	-4,987 (-2,212)**	-5,109 (-2,278)**
INOWN	-0.119 (-2,135)**	-0,120 (-2,170)**	-0,125 (-2,184)**	-0,110 (-1,975)**	-0,111 (-1,994)**
INOWN2	0,002 (2,442)**	0,002 (2,468)**	0,002 (2,534)**	0,001 (2,371)**	0,001 (2,387)**
CHAIRCEO	0,716 (1,269)	0,675 (1,202)	0,649 (1,118)	0,826 (1,467)	0,804 (1,432)
%INDBD	0,674 (0,462)				
%INDAUD		0,593 (0,639)			
%EXEBD			0,775 (0,304)		
%EXEAUD				-2,720 (-1,362)	
EXEAUD					-0,818 (-1,299)
LARGE3	-0,027 (-3,834)***	-0,027 (-3,981)***	-0,028 (-4,165)***	-0,028 (-4,300)***	-0,028 (-4,319)***
SIZE	0,979 (5,454)***	0,992 (5,617)***	0,997 (5,617)***	0,947 (5,336)***	0,958 (5,426)***
LEV	-2,586 (-2,002)**	-2,587 (-2,013)**	-2,685 (-2,091)**	-2,437 (-1,912)*	-2,449 (-1,919)*
Number of cases	69	69	69	69	69
Log likelihood function	-150,815***	-150,719***	-150,876***	150,009***	-150,091***
$\chi 2$ (p-value)	38,93 (0,000)	38,99 (0,000)	38,94 (0,000)	40,55 (0,000)	40,30 (0,000)

Dependent variable: Number of audit committee's meetings in 2003 (MEETFREQ).
Estimated coefficients are unbracketed, with associated t-values shown in parentheses.
*, **;*** Indicates t-values of coefficients (shown in parentheses) are significant at the 10%, 5% and 1% statistical levels respectively.

Table 5: Multivariate determinants of audit committee activity (Binomial negative model; STATA 7.0.)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-0,243 (-0,56)	-0,266 (-0,60)	-0,254 (-0,57)	-0,106 (-0,24)	-0,135 (-0,31)
INOWN	-0,034 (-2,40)**	-0.034 (-2,41)**	-0,035 (-2,40)**	-0,032 (-2,16)**	-0,032 (-2,20)**
INOWN2	0,0005 (2,59)***	0,0005 (2,60)***	0,0005 (2,62)***	0,0005 (2,36)**	0,0005 (2,39)**
CHAIRCEO	0,168 (1,43)	0,163 (1,38)	0,163 (1,34)	0,184 (1,57)	0,181 (1,54)
%INDBD	0,115 (0,04)				
%INDAUD		0,050 (0,26)			
%EXEBD			0,065 (0,12)		
%EXEAUD				-0,564 (-1,26)	
EXEAUD					-0,158 (-1,16)
LARGE3	-0,004 (-3,36)***	-0,004 (-3,43)***	-0,004 (-3,55)***	-0,005 (-3,63)***	-0,005 (-3,65)***
SIZE	0,169 (5,12)***	0,169 (5.22)***	0,169 (5,22)***	0,160 (4,82)***	0,162 (4,93)***
LEV	-0,508 (-1,86)*	-0,506 (-1.85)*	-0,510 (-1,87)*	-0,459 (-1,68)*	-0,463 (-1,69)*
Number of cases	69	69	69	69	69
Log Likelihood	-148,077	-148,046	-148,071	-147,269	-147,395
$\chi 2$ (p-value)	38,93 (0,000)	38,99 (0,000)	38,94 (0,000)	40,55 (0,000)	40,30 (0,000)

Dependent variable: Number of audit committee's meetings in 2003 (MEETFREQ).
Estimated coefficients are unbracketed, with associated t-values shown in parentheses.
*, **;*** Indicates t-values of coefficients (shown in parentheses) are significant at the 10%, 5% and 1% statistical levels respectively.

Table 6: Multivariate determinants of audit committee activity (Binomial logit model; SPSS 12.0)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-11,426 (-3,058)***	-11,557 (-3,094)***	-11,764 (-3,103)***	-11,126 (-2,979)***	-11,184 (-2,998)***
INOWN	-0,075 (-1,220)	-0,076 (-1,240)	-0,084 (-1,340)	-0,073 (-1,194)	-0,074 (-1,202)
INOWN2	0,001 (1,561)	0,001 (1,566)	0,001 (1,587)	0,001 (1,589)	0,001 (1,594)
CHAIRCEO	-0,542 (-0,822)	-0,557 (-0,850)	-0,669 (-0,977)	-0,507 (-0,760)	-0,520 (-0,782)
%INDBD	0,280 (0,157)				
%INDAUD		0,453 (0,410)			
%EXEBD			1,723 (0,624)		
%EXEAUD				-0,784 (-0,361)	
EXEAUD					-0,204 (-0,289)
LARGE3	-0,023 (-2,485)**	-0,023 (-2,511)**	-0,024 (-2,649)**	-0,024 (-2,639)***	-0,024 (-2,633)***
SIZE	1,159 (3,404)***	1,158 (3,430)***	1,180 (3,452)***	1,148 (3,377)***	1,153 (3,394)***
LEV	-2,613 (-1,674)*	-2,566 (-1,670)*	-2,776 (-1,777)*	-2,576 (-1,676)*	-2,595 (-1,684)*
Number of cases	69	69	69	69	69
Chi- square	26,435 ***	26,577***	26,806***	26,540***	26,493***
R^2 of Cox and Snell	0,318	0,320	0,322	0,319	0,319
Correct percentage	78,3	79,7	76,8	79,7	78,3

Dependent variable: dummy equal to one if the audit committee met four or more times and zero otherwise (ACTIVE).
Estimated coefficients are unbracketed, with associated t-values shown in parentheses.
*, **;*** Indicates t-values of coefficients (shown in parentheses) are significant at the 10%, 5% and 1% statistical levels respectively.

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