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Variables influencing the gender composition of boards: the Spanish evidence

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ABSTRACT

This paper studies the determining factors of the gender composition of the boards of large Spanish companies and presents a method to predict it. For this purpose, I run a multivariate analysis to identify the differences in the characteristics between firms without female directors and firms with two or more female directors or one female director if she is the CEO or Chairwoman. This research analyses women's participation on Spanish boards in a period prior to the introduction of voluntary measures to boost female participation, so its results are not influenced by that development.

Keywords: Gender, board of directors, women, corporate governance, Spain

Variables influencing the gender composition of boards: the Spanish evidence

INTRODUCTION

According to King et al. (2010, 2), despite the big improvement in gender equity in the past 30 years "there is little doubt that gender inequity persists". In recent years a number of countries have attempted to improve equal opportunities in the top of corporate structures by recommending that firms increase the presence of women on corporate boards. In Norway public policies call for an increase in the proportion of women in power positions in society. This country's law on quotas requires at least 40% of the board members of large publicly tradable companies listed on the Oslo Stock Exchange to be women. In France, under a bill submitted to parliament in 2009, all companies listed on the Paris Stock Exchange would have to move towards parity on their boards by 2015. The Finnish Corporate Governance Code recommends that both genders be represented on the boards of listed companies from the first annual general meeting held from 1 January 2010.

The Spanish government has undertaken a series of initiatives to promote gender balance on the boards of large corporations. On 19 May 2006 a new Code of good governance (the Conthe Code) was approved. This Code aims to improve control over the board and for firms to disclose transparent information to shareholders. It recommends that listed companies seek the right balance of "knowledge, gender and experience" when considering board composition. The Code calls on listed Spanish companies with few women

on their boards to actively seek out female candidates when they have a board vacancy, particularly for independent directorships.

Recommendation 15 urges companies to explain why they have no or only a few women on their boards: "When women directors are few or non-existent, the board should state the reasons for this situation and the measures taken to correct it". In particular, the Nomination Committee should strive to ensure that the process of filling board vacancies has no implicit bias against women candidates and that the company is making a conscious effort to include women with the target profile among the candidates for board seats.

At the same time as the Spanish Code introduced voluntary measures to promote female participation on boards, the Gender Equality Act (3/2007) introduced other measures to promote effective equality between women and men. This Act recommends that those companies that must present a non-abridged profit and loss statement include a number of women in their boards that allows them to reach a gender balance within eight years. The boards of Spanish listed firms were obliged to inform about their corporate governance practices for the first time in 2004. Specifically, these firms now have to present an Annual Corporate Governance Report (henceforth, ACGR) to the Spanish Securities Markets Commission (henceforth, CNMV). This obligation to provide corporate governance information is allowing researchers to learn a great deal about the practices of Spanish boards.

After the publication of Ministerial Order ECO/3722/2003 of 26 December on the Annual Corporate Governance Report and other information instruments of listed companies and other entities, a new stage of greater transparency dawned for Spanish companies. This regulation makes some specifications about the transmission of information on corporate governance practices to the market. The boards of these firms now have to produce an ACGR and must make this report freely available on the company's website to shareholders and

investors. The report provides full and detailed information about the governance structures and practices of the company. The market, investors and shareholders should be able to find information about the decision-making processes and other relevant aspects of the firm's governance in order to form an accurate image of, and make a sound judgment about, the company.

This paper complements previous studies of gender and corporate governance in various ways. First, the small number of papers that have examined this issue previously in Spain did not use information from the ACGR because firms did not have to present this report at the time. In contrast, this research analyses the characteristics of boards using information coming from the ACGR but in a period prior to the introduction of voluntary measures to promote female participation on boards in Spain, so the results will not be influenced by that development. A study using data prior to the abovementioned regulation, by Campbell and Mínguez-Vera in the period 1995-2000, suggests that Spanish investors do recognise the contribution of women board members.

Second, I add to the literature that analyses the determinants of the board's gender composition. The present study builds upon *tokenism* and *solo status* theories and determines the variables that predict the probability of belonging to a board with at least two women or one woman if she is the CEO or Chairwoman. I think that one single woman holding an important position, such as CEO or Chairwoman, or at least two female directors in the same boardroom, may have some influence on the decisions of the board.

Third, my findings could also contribute to the body of research and to the debate on boardroom gender policy. Identifying the characteristics of the Spanish firms most likely to include women in their boardrooms could help firms apply the new recommendations on corporate governance practices, which urge companies with no women board members to explain the reasons for this situation. This could represent an important starting-point in

understanding the difficulties women face in breaking through the glass ceiling, so often mentioned in the economic literature on corporate governance and gender.

In this work, I aim to identify, using statistical analyses, the determinant variables of the decision to incorporate women on the boards of the most influential Spanish firms. My overall objective is to further our understanding of the determinants of female participation in boardrooms. The primary contribution of this paper is that it sheds light on the characteristics of boards with at least two women or one woman if she is the CEO or Chairwoman.

I hypothesise that a number of variables relating to firm value, the structure of the board and its functions, and firm characteristics predict the participation of two women in the boardroom or one woman if she is the CEO or Chairwoman. My findings provide support for the hypothesis that firms not listed on the continuous market but obliged to present an ACGR to the CNMV, firms in the consumer services sector, firms in the real estate sector, and firms whose board has a high participation in the capital predict that there will be at least two women on the board or one woman if she is the CEO or Chairwoman.

The paper proceeds as follows. Section 2 reviews the relevant literature on *tokenism* and *solo status* theory and board gender diversity and firm value. Section 3 describes the methodology. Section 4 presents the sample, data sources and variables. Section 5 presents the results, and Section 6 describes the main conclusions, limitations of the study, and suggestions for future research.

RELATED LITERATURE

Female directors, tokenism and solo status

Burke (1994) suggests that the first female directors were token appointments sometimes recruited for symbolic value. Farrell and Hersch (2005) find that boards take on women when their representation is zero or low. There is evidence that the majority of

companies have only one female director. According to different authors this fact is frequently observed as a sign of tokenism (Adams and Ferreira 2009; Branson 2006; Bourez 2005; Corporate Women Directors International 2007). According to tokenism theory, women's lives in the firm were influenced by their proportion. Women who were few in number among their male colleagues – perhaps with "only woman" status – became tokens and faced the "loneliness of the outsider" in an alien culture (Kanter 1977). Kanter (1977) suggests that when a particular group falls below 15% of the total, its members are viewed as representatives of their category rather than as individuals. Token status theory has three fundamental principles (Kanter 1977): visibility, contrast and assimilation. When tokens are very visible they feel they are under pressure to perform well compared to their dominant counterparts and that their mistakes are being closely observed. Contrast leads dominant group members to exclude and isolate the token to heighten boundaries. Assimilation take place when dominants alter the social characteristics connected with tokens. As Gustafson (2008, 2) notes, "when tokens assimilate into the stereotypical categories defined for them by dominants, the result is what Kanter calls role encapsulation, a condition that forces tokens into limited and caricatured work roles (e.g., males define clerical duties as appropriate for females)". Token status theory suggests that when individuals—e.g., women—are in an extreme minority role encapsulation perpetuates stereotypes and limits their career opportunities (Kanter 1977; Gustafson 2008).

Empirical research has explored the effects on the individual of being the only member of a minority group (Lord and Saenz 1985; Sekaquaptewa and Thompson 2002, 2003; Loyd, White, and Kern 2008). Thompson and Sekaquaptewa (2002) distinguish between "token" and "solo". The latter is used to refer to people who are the sole members of their social category within a homogeneous group (Lord and Saenz 1985; Saenz and Lord 1989; Thompson and Sekaquaptewa 2002). In a board of directors the only woman would be

considered a *solo* woman. Thompson and Sekaquaptewa (2002) find that unlike *token*, the term *solo* does not imply that a person has been preferentially selected for a position because of their social category. Rather, *solo status* describes the situation of an individual who is the only representative of his or her social category present.

According to Loyd, White, and Kern (2008), when individuals are the only member of their social category in an otherwise homogeneous group, intergroup pressure is assumed to be high. The dominant group has the tendency to see women primarily as female, embodying the sexual category position, and only afterwards as individuals (Terjesen, Sealy, and Singh 2009). *Solo* women feel isolated and obtain positions with low responsibility (Kanter 1977; Thompson and Sekaquaptewa 2002; Yoder and Aniakudo 1977). Kanter (1977) finds that *solo* women are stereotyped as being less suitable for running a business than men when they work in male-dominated settings. Also, Thompson and Sekaquaptewa (2002) find that investigations of work situations point out that *solo status* is a negative experience for individuals of disadvantaged groups. According to Sekaquaptewa and Thompson (2003), when a woman works in a male-dominated environment, she may be the only woman present and may notice that there are negative stereotypes about women around. She could consequentially suffer from cognitive deficits in all domains (Saenz 1994; Saenz and Lord 1989). Miller and Trina (2009) argue that if female directors are seen as tokens and do not have the power to implement their ideas, it will be difficult to improve firm performance. Erkut, Kramer, and Konrad (2008) argue that one condition for female directors to be able to exert a positive influence is for there to be a minimum number of women in the boardroom. Konrad, Kramer, and Erkut (2008) find that women tend to feel more comfortable when there are two women on the board than when there is only one. Two women can simultaneously use strategies for raising complex and controversial subjects in a manner that makes the other

members pay attention. Erkut, Kramer, and Konrad (2008) find that real change occurs when there are two or three women on the board.

Nevertheless, Adams and Ferreira's (2009) results suggest that female directors are not mere tokens. These women could impact board governance by bringing new ideas and different perspectives to the boardroom. Different studies find evidence that women who sit on a number of board committees are more than just symbolic members and can contribute more than just legitimacy (Bilimoria and Piderit 1994; Hillman, Cannella, and Harris 2002; Kesner 1988). In summary, the existing literature suggests that companies avoid tokenism (Kanter 1977; Lewis 1974; Williams 2000; Zelechowski and Bilimoria 2004).

On the other hand, when the board has only a single woman but she is the CEO or Chairwomen she is probably more influential than an ordinary director, since her contribution in each of these roles is essential for the effective running of the board. The position of the Chairperson is one of the most strategic in the organisation. He or she is responsible for the activities of the board. The CEO is the head of executive management and responsible for the day-to-day running of the firm. According to the Spanish Code, the Chairperson, who in some companies is also its Chief Executive, is responsible for calling meetings, drawing up the agenda and chairing the sessions, and supplying the board members with sufficient information in a timely manner. He or she procures a good level of debate and the active involvement of all members, encouraging them to participate actively in the board's deliberations.

Carter, Simkins, and Simpson (2003) label firms with no female board members firms with a low female participation on their boards, and firms having two or more female board members firms with a high female participation on their boards. These authors ignore firms with a single woman director regardless of position. Loyd, White, and Kern (2008) analyse what happens when there are exactly two members (duo status) of a minority sub-group.

In the current research I create a group of firms without female directors and another group with at least two women or only one if she is the CEO or Chairwoman. I think that when there are two women or a single woman in an important position, the isolation is much lower and the women are in a position to bring new perspectives and ideas to the board.

Board's gender diversity, firm performance and external pressure

Recent studies on boards analyse the relation between the board's gender diversity and firm value. Some researchers find a negative relation between the proportion of women on the board and performance (Bøhren and Strøm 2006; Pelled, Eisenhardt, and Xing 1999; Shrader, Blackburn, and Iles 1997), while others find no statistically significant relation (Miller and Triana 2009; Randøy, Thomsen, and Oxelheim 2006; Rose 2007; Zahra and Stanton 1988). But a third group of studies suggests that a positive relation exists between board diversity and firm value (Adams and Ferreira 2003; Bonn 2004; Campbell and Mínguez-Vera 2008; Carter, Simkins, and Simpson 2003; Erhardt, Werbel, and Shrader 2003; The Boston Club 2004). McKinsey and Company (2007) finds that firms with three or more women directors perform better in their corporate governance measures and financial performance. In the Spanish context, Campbell and Mínguez-Vera (2008) find evidence that gender diversity has a positive effect on the value of the company, while firm value has no influence on either the presence of women or gender diversity. Kang, Ding, and Charoenwong (2009) show that investors tend to respond positively to the appointment of female directors in Singaporean companies.

On the other hand, Adams and Ferreira (2009) find that mandating gender quotas for directors can reduce firm value for well-governed firms. They argue that "[p]roposals for regulations enforcing quotas for women on boards must then be motivated by reasons other than improvements in governance and firm performance". Miller and Triana (2009) stress

that although they do not find a relation between gender diversity and firm performance, this do not necessarily mean that gender diversity does not help firms.

Previous theory and research has explored whether it is the presence of women on the board that improves firm performance, or it is the most profitable firms that are most likely to include women in their boardrooms (Brown, Brown, and Anastasopoulos 2002; Farrell and Hersch 2005; Smith, Smith, and Verner 2006; van der Walt and Ingley 2003). Smith, Smith, and Verner (2006) find evidence that the positive relation is due to the first effect, in other words, that diversity positively affects performance, and not the reverse. Kang, Ding, and, Charoenwong (2009) find that investors react well to the appointment of female directors to increase board diversity, particularly when the women maintain or increase the board's independence.

Although boards may have a preference for diversity regardless of performance, companies respond to external pressure to increase the number of female directors on boards (Farrell and Hersch 2005). However, not much is known about how investors respond to the positions that female directors occupy in the boardroom (Kang, Ding, and, Charoenwong 2009).

A lack of diversity on the board may translate into negative publicity for the organisation (Daily and Dalton 2003). In the 1970s, Lewis (1974) defended the presence of women and minorities in the boardroom, but warned against choosing a woman or member of a minority who is unqualified merely for the CEO to be able to show that his (sic) board is not discriminatory. Highly qualified women and members of minorities should be sought out and assessed as individuals, not as representatives of specific groups.

Farrell and Hersch (2005, 86) argue that "due to internal preferences or external pressure for greater board diversity, the demand for female representation allows women to self-select better performing firms". This could explain the relation between board gender

diversity and innovation (Miller and Triana 2009), with innovation understood as the implementation of strategies contributing to new opportunities to develop new products or services. Miller and Triana (2009) find that companies that have diverse human and social capital on diverse boards could benefit from this situation. But these authors do not find a positive relation between board gender diversity and firm reputation, and suggest that one explanation could be because women are less likely to occupy management and leadership positions that make them highly visible to the public.

According to Adams and Ferreira (2009, 33), "[f]or several reasons it is not clear that adding female directors will enhance board effectiveness. For example, if female directors are chosen merely because of tokenism, their impact is likely to be minimal". On the other hand, Åhmansson and Öhlund (2009) suggest that when the distribution by gender of those in the most important positions becomes totally visible, the top of the hierarchy is significantly more often offered to a woman. But female board members are much older than their male counterparts, so it is harder for women to reach the last step on the ladder.

METHODOLOGY

The general approach taken here is to model the probability that a board member belongs to a board with zero women directors (henceforth, a z-board) or to a board with at least two women directors or one if she is the CEO or Chairwoman (henceforth, a w-board) as a function of a group of independent variables measuring firm performance, corporate governance and firm characteristics. Industry and firm size are included as control variables. The explanatory and control variables in the study are continuous and categorical.

Before applying the multivariate analytical techniques I analysed the data. For the regression analysis, the literature recommends checking for normality, homoscedasticity, independence of the error and linearity (Hair et al. 1999). The variables used in this study do

not follow a normal distribution and I opted not to eliminate firms with extreme values (outliers), since this technical refinement of the sample would be at the cost of eliminating real information. I used the most appropriate econometric techniques for the type of variables and built a binary logistic regression model. Before starting the analyses I tested for the possible existence of linear relations in each binary logistic regression model between the independent variables. I carried out logit analyses using the statistics package SPSS, where the dependent variable is a fictitious variable measuring female participation in the boardroom.

According to Yoder (1991), token women directors are unlikely to be able to influence board effectiveness. I consider that the presence of a single woman is unlikely to impact corporate policy significantly. Carter, Simkins, and Simpson (2003) ignore firms with a single woman on their boards to reduce the risk that the woman is on the board merely as a token, as well as to give a better dichotomy for the comparison. Unlike Carter, Simkins, and Simpson (2003) I do not exclude firms with a single woman director from the sample if she is the CEO or Chairwoman because I consider that these women can influence—and perhaps positively—the board's decision-making.

Thus I built a model where the dichotomous dependent variable equals 0 in the case of absence of women in the boardroom and 1 if there are two or more women directors or a single woman if she is the CEO or Chairwoman:

$Y_i = 1$ Prob $(Y_i = 1) = p_i$

$Y_i = 0$ Prob $(Y_i = 0) = 1 - p_i$

The model is represented as a logistic function whose values range from 0 to 1:

$$p = \frac{e^Z}{1+e^Z} \quad \text{or} \quad p = \frac{1}{1+e^{-Z}} \quad \text{and} \quad q = 1 - \frac{1}{1+e^{-Z}}$$

where p is the probability of success—belonging to a w-board—and q the probability of failure—belonging to a z-board—and $p+q=1$.

Z is a combination of independent variables:

$$Z = B_0 + B_1X_1 + B_2X_2 + \ldots + B_kX_k$$

where $B_0, B_1, \ldots B_k$ are the coefficients to estimate from the data, $X_1, X_2, \ldots X_k$ are the independent variables, and e is the base of the natural logarithm.

The larger Z is, the closer p will be to 1, and the more negative Z is, the closer p will be to 0. When Z = 0, P will equal 0.5, in other words, the probability of belonging to a z-board will be the same as the probability of belonging to a w-board.

Researchers frequently use the ratio p/q, called the odds ratio, which measures the probability of success, or that a particular event will occur, compared to the probability that the event will not occur. The odds ratio ranges from 0 to ∞ and is calculated as follows:

$$p+pe^{-Z}=1 \quad \rightarrow \quad pe^{-Z}=1-p \quad \frac{p}{q} = e^{Z}$$

The logarithm of the odds ratio—known as logit—ranges from $-\infty$ to $+\infty$ (Long 1997). Solving for Z:

$$\ln \frac{p}{q} = \ln e^{Z} = z \ln e = z \quad \rightarrow \ln \frac{p}{q} = B_0 + B_1X_1 + B_2X_2 + \ldots + B_kX_k$$

The probability that the i-th firm has a w-board is:

$$p_i = \frac{1}{1 + e^{-(B_0 + B_1X_1 + \ldots + B_kX_k)}}$$

To determine the goodness of fit, I analysed the likelihood of the observed results using the maximum likelihood method, specifically the statistic:

$-2LL = -2 \times log\ likelihood$

The null hypothesis and alternative hypothesis to test the goodness of fit are as follows:

Null Hypothesis: The model fits the observed data perfectly.

Alternative Hypothesis: The model does not fit the observed data perfectly.

An alternative to the likelihood ratio for testing whether an independent variable makes a statistically significant contribution to explaining the dependent variable is the so-called Wald statistic. In this work I use both methods.

The null hypothesis to test in the case of the Wald statistic is defined as follows:

$B_j = 0$, i.e., $B_1 = B_2 = .. = B_{10} = 0$

SAMPLE, DATA SOURCES AND VARIABLES

In this section I describe the sample selection process and provide descriptive statistics. I use different sources of firm data. Most of the data required for this research comes from the Annual Corporate Governance Reports. This information is complemented with data from the consolidated annual accounts of firms from groups. This information comes from the SABI database, which holds accounting data on Spanish companies. Further information comes from the Spanish Securities Market Commission, the Madrid Stock Exchange and company websites. The availability of information is one of the aspects characterising the period under analysis. (The year 2004 is the first year that listed firms were legally obliged to present an ACGR with data from 31 December 2003 to the CNMV). The Official Spanish Gazette (BOE) published ECO/3722/2003 on 8 January 2004, then in March of that year made the model of the report public. This is important because some firms drew up their reports before the government published the legal provisions, meaning that the reports from the first year are very heterogeneous and suffer from a large amount of missing data. For this reason, the current work starts with the whole population of firms obliged to present an ACGR to the CNMV in 2005 with data from 2004: 239 firms (123 listed on the continuous market and 116 not listed on that market but legally obliged to present an ACGR

to the CNMV). I fulfil the necessary screening to be able to carry out the statistical analyses required. I exclude firms from the financial and insurance sectors in order to compare economic indicators such as ROE and ROA. The financial and insurance sectors have their own specific accounting regulation, so their firms' annual accounts are not comparable to those of firms from other sectors (Gabás and Apellaniz 1994; Callao, Ferrer, Jarne, and Laínez 2009). The sample consists of 154 firms at this stage. Of these, 104 are listed on the continuous market, while 50 are not.

Insert Table 1 about here.

Of the 154 sample firms I eliminate the 37 in which the single female director was neither CEO nor Chairwoman, leaving a final sample of 117 firms. I treat two or more women members the same as one woman CEO or Chairwoman because if I ignored firms whose boards have a single female director with an important position (CEO or Chairwoman) I would be denying the important influence of the people occupying these roles, whether male or female. Because of their function a CEO or Chairwoman alone has as much or more power to decide than two or more female directors on the same board.

Insert Table 2 about here.

Table 2 provides descriptive characteristics for the sample, broken down by firms listed on the continuous market and firms not listed on that market but obliged to present an ACGR, for the 117 sample companies. The data from the ACGRs indicate there were 76 firms listed on the continuous market and 41 not listed on that market but obliged to present an ACGR in the sample as at 31 December 2004, and there were respectively 844 and 171 board positions associated with these companies. Women held 21 (2.40%) of the board positions in the firms listed on the continuous market compared to 38 (14.50%) in the firms not listed on the continuous market but obliged to present an ACGR.

With regard to the sample size and the choice of reliable independent variables, the assumptions are the same as in the multiple linear regression (Martínez 1999). For Martínez (1999), a minimum requirement is to have between 5 and 10 cases per predictor. Some researchers recommend not using this model with less than 100 cases (Harrell 2001; Martínez 1999). Hair et al. (2004) indicate that the ratio of observations to independent variables should not fall below 5, and that ideally the ratio should be between 15 and 20 observations per independent variable. Ortega and Cayuela (2002), after reviewing the different solutions in the literature, stress Freeman's (1987) classic formula:

$$n = 10\ (k + 1)$$

where n is the sample size, and k the number of independent variables.

Various authors observe that when the number of events per variable falls below 10 the calculations become less precise (Freeman 1987; Ortega and Cayuela 2002; Perduzzi et al. 1996). According to Freeman (1987), the analysis should include no more than 10 independent variables. On this basis, and in order not to reduce the sample excessively, I excluded those variables for which I lacked data in some of the firms (duality of CEO and board chair, number of annual board meetings, number of annual board meetings without chairperson attending, number of annual committee meetings, and Tobin's Q).

To select the indicators of the model I followed Hosmer and Lemeshow's (2000) recommendations and carried out a prior selection process of the variables, taking the results of logistic regressions with a single independent variable as basis (i.e., applying a logistic regression for each variable). These "univariate" logistic regressions can help the researcher to detect variables with problems estimating the model parameters (Doménech and Navarro 2005). Doménech and Navarro (2005) suggest eliminating the pre-selected independent variables that are not very significant (when the p-value exceeds 0.3). Following these authors I applied a univariate logistic regression before building the model to detect the

variables with problems estimating the parameters and/or with p-values exceeding 0.3. The explanatory variables to include in the models are those with a p-value of less than 0.30 in the univariate logistic regression tests.

I measure firm value using a market-based measure of performance, a proxy for Tobin's *Q*, as well as two accounting measures, return on equity (ROE) and return on assets (ROA). Previous research uses similar variables to measure firm value. The lack of consensus in the choice of study periods often seriously limits the possibility of comparison between studies of corporate governance (Johnson, Daily, and Ellstrand 1996). Johnson, Daily, and Ellstrand (1996) review the literature and observe that the profitability indicators that researchers use are variously for a single year or the average of a period, lagged, or adjusted for industry effects (usually defined using 2-, 3- or 4-digit SIC codes). Bonn, Yoshikawa, and Phan (2004) introduce a time gap between board structure and firm performance in view of the importance of time in decision-making. This method requires collecting data with at least one year's lag between the structure of the board and the firm's performance. In this research I collect economic data from 2005, 2006 and 2007 and calculate the average. The information about board composition comes from 2004.

The rest of the explanatory variables that have been commonly used in the literature include various characteristics of the firm and of its corporate governance. These variables are defined as follows:

Remuneration of directors. The Spanish Code recommends complete transparency regarding directors' remuneration. I use three variables: (i) total annual remuneration of directors; (ii) average annual remuneration of directors; and (iii) total remuneration of directors / income attributed to controlling company (expressed as %).

Firm leverage. This variable is calculated as the total debt divided by total shareholders' equity.

Ownership concentration**.** This variable is measured as the total proportion of capital stock held by the board of directors.

Board size. This variable is measured as the number of board members. The Spanish Code recommends that boards comprise no fewer than five and no more than fifteen members.

Number of directorships held in other companies. The Spanish Code sees it as reasonable that directors hold directorships in other firms, but each director should devote the necessary time and effort to his or her duties and should explain any other professional commitments to the nomination committee. I use two variables: (i) total number of directorships held in other companies from same group; and (ii) total number of directorships held in other companies from different group.

Audit report. This is a dummy variable that equals 1 if the audit report has reservations or qualifications, 0 otherwise.

Type of market. This is a binary variable that equals 1 if the company is listed on the continuous market, and 0 if the firm is not listed on the continuous market but must present an ACGR to the CNMV.

Duality of CEO and board chair. This is a binary variable that equals 1 if the CEO is also the Chair of the board, 0 otherwise. If the board chooses to combine the roles of Chairman and CEO in the same person, the Code recommends that an independent director be empowered to ask for the calling of board meetings or the addition of new business on the agenda, to coordinate and give voice to the concerns of external directors, and to guide the board's assessment of the Chairman.

Types of directors' affiliations. The Code establishes two categories of directors' affiliations: internal (or executive) and external (either proprietary or independent). Executive directors are individuals who are officers or employees of the firm or one of its invested

companies. Nevertheless, board members who are senior officers or directors of the company's parent firm should be considered proprietary directors rather than executive or internal directors. Proprietary directors are those who own an equity stake higher than or equal to the legally determined threshold for significant holdings, or who are otherwise appointed by virtue of their status as shareholders, or who are representatives of the shareholders. Independent directors are people of acknowledged professional prestige who are in a situation to complete their duties without being influenced by any association with the firm, its shareholders or its management. The Code recommends that a sufficient number of external directors be elected, and that there should be as few internal directors as is practical considering the complexity of the corporate group and the ownership interests controlled by the internal directors. The composition of the board of directors is measured by four variables: (i) proportion of insiders, i.e., number of executive directors over total number of directors; (ii) proportion of proprietary directors, i.e., number of proprietary directors over total number of directors; (iii) proportion of independent directors, i.e., number of outsiders over total number of directors; and (iv) proportion of other directors.

Gender diversity. I use the following variables to measure gender diversity: (i) female ratio (measured by proportion of female directors on board); (ii) proportion of female independent directors on board; (iii) proportion of female executive directors on board; (iv) proportion of female proprietary directors on board; (v) proportion of other female directors on board; (vi) number of women directors; and (vii) chair gender: dummy variable equal to 1 if Chairperson is female, 0 otherwise.

Number of meetings held in a year. This variable is measured by: (i) number of annual board meetings; (ii) number of annual board meetings (without chairperson attending); and (iii) number of annual meetings of different committees.

Firm's age. This variable is defined as the log of the difference between the end of 2004 and the firm's founding year.

I also include two control variables used in previous studies in the field: the size of the firm (as measured by the total number of employees) and industry dummies (Oil and power; Technology and telecommunications; Consumer goods; Consumer services; Real estate; Basic materials, industry and construction [reference category]). Hyland and Marcellino (2002) find that the size of the firm and the industry is related to the presence of women on the board. In the late 1970s, Heidrick and Struggles (1977) found that women were more likely to be board members in consumer goods firms. In the 1980s, Harrigan (1981) found a higher proportion of women on the boards of process technology, service and financial companies. Forbes, Piercy, and Hayes (1988) noticed more women in the service sector than in manufacturing. Skalpe (2007) finds more women directors in tourism than in manufacturing. Hyland and Marcellino (2002) find evidence that female directors would like to become involved with firms from the following two blocks: finance, insurance, and real estate, or transportation, communications, electric/gas, and sanitary. More recently, Schnake, Williams, and Fredenberger (2006) suggest that associations between firm performance and board characteristics may not be generalisable from one sector to another. On the other hand, some industries like private service and retail are 'female-friendly' because their firms have women with important positions on the board (Smith, Smith, and Verner 2006)

I have chosen these explanatory variables for two reasons. First, because at the time of this study it was possible in Spain to obtain the necessary information for the analysis directly from the firms through their Annual Corporate Governance Reports. Second, because most of these variables have been defined and employed in previous studies.

I tried to obtain a linear combination of the independent variables capable of estimating the characteristics impacting the probability that a board member belongs to a w-board or to a z-board. The linear combination proposed is the following model:

$Z = B_0 + B_1$ Type of market + B_2 Total % of capital held by board + B_3 Return on assets + B_4 Return on equity + B_5 Firm size + B_6 Industry1 (Oil and power) + B_7Industry2 (Technology and Telecommunications) + B_8 Industry3 (Consumer goods) + B_9 Industry4 (Consumer services) + B_{10} Industry5 (Real estate)

After carrying out the multicollinearity analyses, I observed that the diagnostics do not show either very low tolerance values or variance inflation factors greater than 10 in any variable. In addition, the condition index does not exceed 15. Tables 3 and 4 report the results of these analyses.

Insert Table 3 about here.

Insert Table 4 about here.

Thus I built a model to identify the influence and contribution of certain characteristics both of the board and the firm to the probability of having a z-board or a w-board. If the value is greater than or equal to 0.5, the probability the firm has a w-board will be high, while if the value is less than 0.5 the probability the firm has a z-board will be high.

RESULTS

This section presents the results obtained in the model of gender diversity of Spanish boards.

Nagelkerke's R^2 is 0.346, which means that the variables included in the final step can explain almost 34.6% of the dependent variable (Table 5).

Insert Table 5 about here.

Table 6 shows the regression coefficients, Wald statistics, and odds ratios.

Insert Table 6 about here.

The contribution of each of the independent variables to building the logistic regression model is shown in the *Z* function, which is estimated from the values of the selected variables. The variables that make a statistically significant contribution to building the model are: type of market, proportion of capital stock in the hands of the board, consumer services industry, and real estate sector. Looking at the values and signs of the coefficients in the equation, the results show that firms not listed on the continuous market but obliged to present an ACGR have a significant positive influence on the probability of belonging to a w-board. Moreover, the consumer services industry and real estate sector also contribute to predicting the presence of women in the boardroom, and so does the proportion of capital stock in the hands of the board, although this latter effect is much weaker.

The estimated function built from the variables in the equation in the fourth step is as follows:

$$Z = \text{- 3.60+ 1.59 Type of market + 0.02 Total \% of capital held by board + 1.90 Consumer services industry + 1.75 Real estate sector}$$

The logit model estimated presents the following equation:

$$P = \frac{1}{1 + e^{-(-3.60 + 1.59\,\text{Type of market} + 0.02\,\text{Total \% of capital held by board} + 1.9\,\text{Consumer services} + 1.75\,\text{Real estate})}}$$

The confidence intervals associated with the odds ratios—except those for firm size, measured by number of workers, which is not statistically significant—do not contain 1, which means that the four abovementioned variables are relevant for the model.

The impact of each of the four explanatory variables in the prediction of female participation—interpreted from the odds ratios—indicates the existence of an association between variables. The fact that these independent variables have a positive coefficient and an odds ratio greater than 1 means that they have a significant effect on the probability of having at least two women in the boardroom or a single woman if she is the CEO or Chairwoman.

In this research, the variables that most contribute to predicting a w-board are the consumer services sector, with an odds ratio of 6.68, and the real estate sector, with an odds ratio of 5.78. The odds ratios of 6.68 and 5.78 indicate that firms in the consumer services sector and real estate sector have respectively 6.68 and 5.78 times more probability of having w-boards than the rest of the firms. Firms not listed on the continuous market but obliged to present an ACGR are 4.92 times more likely to have w-boards. On the other hand, firms with a higher proportion of capital stock in the hands of the board have an odds ratio of 1.02. This odds ratio indicates that firms with a higher proportion of capital stock in the hands of the board members have 1.02 times more probability of having w-boards than firms with boards having a lower participation in the capital.

I conclude that firms with a high proportion of capital stock in the hands of the board have a greater probability of having w-boards than firms with low values in this indicator, but this result should be treated with caution. The odds ratio is close to 1, so the effect on female participation in the boardroom is weak. But type of market and industry have a positive coefficient and an odds ratio far exceeding 1, which provides evidence supporting significant effects on the dependent variable.

DISCUSSION

The present research approaches the issue of female representation on boards of directors from the perspective of corporate governance in the Spanish context. This study seeks to advance our understanding of gender issues in the boardroom by investigating the determinants of female participation in the boardroom.

A potential contribution of the current research to the extant literature is to shed light on the situation in Spain before the publication of the Spanish good governance code and equality law, which encourage firms to include more women on their boards. This study also makes a theoretical contribution to the gender diversity and corporate governance literature by providing a better understanding of how the relations between female directors and corporate governance operate.

The sample includes the whole population of firms except companies from the financial and insurance sectors and those with a single woman director who is neither the CEO nor Chairwoman. I exclude firms from those two sectors to enable comparison of accounting measures of performance, and I exclude firms with only one single woman without a high position on the board because such women can be expected to have little power to make or influence policy according to *tokenism* and *solo status* theories. My empirical analysis includes a set of variables relating to firm value, the structure of the board and its functions, and firm characteristics. I predict and find that the likelihood of a board having at least two women or one if she is the CEO or Chairwoman—or of being what I call a w-board—is a function of a set of variables, most of which more related to firm characteristics than to board characteristics.

The evidence presented in this paper indicates that the four variables that contribute significantly to predicting the presence of at least two women on the corporate board or a

single woman if she is the CEO or Chairwoman are: firms not listed on the continuous market but obliged to present an ACGR to the CNMV; firms from the consumer service sector; firms from the real estate sector; and firms that have a board with a high participation in the capital. Accounting measures of firm value and other governance indicators do not play a key role. The results of the analysis show that firm performance does not predict female participation on boards during the period of this study. These findings are in line with others that report no statistically significant relation between performance and gender diversity on boards of directors (Randøy, Thomsen, and Oxelheim 2006; Rose 2007; Zahra and Stanton 1988).

In this paper, I provide some new evidence that not being listed on the continuous market predicts the presence of women on boards better than being listed in a period prior to the recommendations to implement gender quotas in the board of directors. Female representation on the boards of firms not listed on the continuous market but obliged to present an ACGR, in 2004, is 12.74%, compared to 4.27% in firms listed on the continuous market. This result is interesting because companies listed on the continuous market are more exposed to external pressure for greater board gender diversity than companies not listed on the continuous market. Future research should examine the composition of boards of listed companies and compare the findings with the results of this study with the aim of analysing the effect of the recent recommendations about female participation in boardrooms.

These findings, particularly the one about the concentration of the capital stock in the hands of the board, could be suggesting family control. This would be consistent with Ruigrok, Peck, and Tacheva (2007), who conclude that it is important to take the circumstances of each country into account rather than relying on the results from other countries. In Spain, Laffarga, Fuentes, and Giner (2006) find that firms with a stronger presence of women among their top management have a capital structure that is largely

private and family controlled. In Sweden, Svanström (2003) finds that women appear to have more opportunity to enter the board in family firms, and that ownership can ease the path towards a directorship. In Switzerland, women directors are often selected through family contacts (Ruigrok, Peck, and Tacheva 2007). Some authors, such as Izraeli and Talmud (1998), observe that women often enter boards to reflect family ownership. This suggestion that the family firm is associated with a higher likelihood of having a w-board is consistent with extant literature. Previous research finds that women seem to have more opportunity to become directors in family firms than in other types of firm (Corporate Women Directors International 2002; Laffarga, Fuentes, and Giner 2006; Mateos, Escot, and Gimeno 2006; Ruigrok, Peck, and Tacheva 2007; Svanströn 2003). Mateos, Gimeno, and Escot (2007) find that apart from family-owned firms, co-operatives, firms whose majority shareholders have a greater control in naming board members, and unlisted firms have a higher proportion of women on their boards.

Few Spanish studies have used data from corporate governance reports, so the current study represents a step forward in understanding corporate governance practices in Spain, a country with the idiosyncrasy that the ownership structure is more concentrated than in other countries (La Porta et al. 1998). The Spanish market differs from others such as those in the UK and the US in that the level of independence on boards and committees is relatively low. There is no balance of power between independent members of boards and executives. One of the reasons why the boards of firms listed on the continuous market have fewer women may be because family members are less represented in these firms, which increases women's difficulties in entering the boardroom (Corporate Women Directors International 2002; Mateos, Escot, and Gimeno 2006).

A further implication of these results is that it appears that the sector is more important than other measures such as the board size, the remuneration of directors, the types

of directors' affiliations, the duality of CEO and board Chair, or the number of board meetings, among others, in the determination or prediction of more women on boards. Previous researchers have indicated the importance of the industry variable and more specifically the consumer service industry (Amidu and Abor 2006; CWDI 2004; Equal Opportunity for Women in The Workplace Agency 2006; European Professional Women's Network 2004; Li and Wearing 2004), perhaps because in this industry women are important as consumers and employees. According to the Spanish National Statistics Institute (INE), 83.45% of working women worked in the services sector in 2004. One of the reasons why the real estate sector is a predictor of women on boards may be because during the time of study Spain was in the midst of an economic boom driven fundamentally by the real estate sector. During the period prior to the study, from 2000 to 2004, the number of women working in real estate grew from 607,600 in 2000 to 811,700 in 2004, a growth rate of 33.6%. Considering just university-educated women, the number rose from 236,900 to 347,300 in the same period, a growth rate of 46.6%. This growth in female participation in real estate could explain women's entry into the boardrooms. Real estate has been the most heavily hit sector in the Spanish economy during the recession that began in late 2006, and it would be interesting for researchers to examine how the crisis has impacted women's participation.

This study also has practical implications. Since the aim of the new legislation and the recommendations on corporate governance coming from the Spanish government is to increase the presence of women on corporate boards, policymakers should make efforts to discover why it is these four variables that contribute to predicting a greater presence of women in boardrooms. I recommend that policymakers consider the characteristics of companies with at least two women directors or one single woman if she is the CEO or Chairwoman before introducing new legislation or recommendations on corporate governance. King et al. (2010) recommends that practitioners strive to increase the number of

women in organisations and develop and communicate equitable organisational norms, policies and procedures. This should help them design policies that help women to break through the so-called glass ceiling. The current research aims to be a first step in understanding the current situation, especially in a Spanish context. Nevertheless, although the four variables remaining in the model are predictive of women's participation on the board, I cannot conclude that they are the causes.

Another practical implication is that when firms from the consumer service industry and the real estate sector have female directors, these women may have more empathy with customers, suppliers or other stakeholders, and improve and expand trade and relationships with them, and so the firms may gain a competitive advantage over rivals lacking female directors. Firms with female directors are also in a better position to attract women employees (Graves and Powell 1988).

This study has several limitations. The Spanish business structure is made up largely of small and medium-sized firms, so it would be interesting to examine the corporate governance practices of this type of firm. But a significant obstacle exists to accessing information from the boards of these firms. These firms are not obliged to present an ACGR to the CNMV, which makes them difficult to study. Indeed, that is why I excluded them from this research. Accessing data on corporate governance in SMEs has proved extremely difficult because directors have shown themselves to be extremely uncooperative (Daily, Dalton, and Cannella 2003). Their reluctance to allow researchers inside the "black box" of the board's decision-making could be due to a fear that exposing the board's activities to outside scrutiny could open the doors to possible legal action from shareholders (Daily Dalton, and Cannella 2003).

Additionally, and in line with other research papers, I could have used other variables such as the age of board members, corporate board experience, directors' educational

background, female departures, directors' tenure (length of time a member has served on the board), CEO tenure, ethnicity, among others, but information about these variables was unavailable in the ACGR. On the other hand, I employed future performance measures to predict current board composition, so further research should investigate whether past firm performance drives board composition.

With respect to future research, it would be interesting to see the extent to which the gender composition of boards changes and adapts to the recommendations of the Spanish government, and how such changes are related to the quota-based policy initiatives in favour of a gender balance on the boards of large corporations. Since 2006 the Spanish good governance code urges Spanish listed firms without any women directors to explain the reasons for that situation and to strive to rectify it.

It would also be interesting to compare the results of the current study with those of studies from other countries with similar recommendations about gender equality on boards. Researchers would be able to compare the current findings with future data, which will presumably witness an increase in the presence of women board members as a result of the recent developments. A longitudinal study that tracks the outcomes of the recommendations over several years would also be useful.

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