THE INFLUENCE OF GENDER ON SPANISH BOARDS OF DIRECTORS: AN EMPIRICAL ANALYSIS[*]

Kevin Campbell and Antonio Mínguez-Vera[**]

WP-EC 2007-08

Correspondence to: Antonio Mínguez-Vera, Dpto. de Economía Financiera y Contabilidad, Facultad de Ciencias de la Empresa, Universidad Politécnica de Cartagena, Paseo Alfonso XIII, 50, 30203 Cartagena (Murcia), SPAIN, Tel: +34 968325761, Fax: +34 968325782, E-mail: antonio.minguez@upct.es.

[**]K. Campbell: University of Stirling (Scotland, UK); A. Mínguez-Vera: Universidad Politécnica de Cartagena (Cartagena, Murcia, Spain).

THE INFLUENCE OF GENDER ON SPANISH BOARDS OF DIRECTORS: AN EMPIRICAL ANALYSIS

Kevin Campbell and Antonio Mínguez-Vera

ABSTRACT

Many studies have examined the impact of various characteristics of the board of directors on firm value. However, little attention has been paid to the impact of female board membership on firm value, with the exception of a number of U.S. studies. The aim of this paper is to investigate this issue in a specific context - the Spanish market. We find that the stock market reacts positively to the announcement of a female board appointment, using a non-parametric test, though the result is inconclusive when a parametric test is used. We also find an insignificant relationship between the presence and percentage of women on the board, and firm value, and we find that the opposite causal relationship is also insignificant.

Keywords: women, board of directors, firm value, endogeneity.

JEL classification: G30, G34, G38.

RESUMEN

Muchos estudios han investigado el impacto de varias características del consejo de administración en el valor de la empresa. Sin embargo, se ha prestado poca atención a influencia de la mujer como miembro del consejo en dicho valor, salvo en algunos estudios estadounidenses. El objetivo de este trabajo es investigar esta relación en el contexto español. Los resultados muestran que el mercado reacciona positivamente al anuncio del nombramiento de una mujer como consejera, utilizando un test no paramétrico, aunque los resultados son no significativos cuando el test usado es paramétrico. También se muestra un efecto no significativo, tanto de la presencia como del porcentaje de mujeres en el consejo, sobre el valor de la compañía, y viceversa.

Palabras clave: género, consejo de administración, valor de la empresa, endogeneidad.

1.   Introduction

The term corporate governance encompasses a series of mechanisms aimed at aligning the interests of owners and managers. These mechanisms can be classified as either internal or external to the firm. Internal control mechanisms, which include the ownership structure of the firm, the composition of the board of directors and executive compensation systems, are particularly important in those countries – such as Spain – where stock markets, and hence external control mechanisms, are less well developed than in Anglo-Saxon countries.

A large number of studies have investigated the influence of internal mechanisms on the value of the firm. These have examined, among others, the percentage of insiders on the board, the tenure of directors and managers, the share ownership of insiders (managers and members of the board) and the size of the board of directors.

However, recent research using U.S. data suggests that the presence of women on the board also affects firm value: for example, Kesner (1988), Bilimoria and Piderit (1994), Daily et al. (1999), Carter et al. (2003), and Farrell and Hersch (2004). This raises the issue of how board diversity can affect firm value. presence of the women on the board and firm value. It is also possible that the two variables are endogenously defined.

The objective of this paper is to examine the impact of the presence of women on the board of directors. Our study consists of two parts. In the first part we study the relationship between female board presence and firm value. Two variables are used to measure the presence of women: a dummy variable that indicates the existence of one or more women on the board, and the percentage of women on the board. We measure firm value using an approximation of Tobin's Q. We also contemplate the possible endogeneity of the relationship between the presence of women on the board and firm value. In the second part of the study we use the event study methodology to examine the impact of adding a woman to the board on the stock market value of the firm.

In our view this work makes various contributions to the literature. First, it adds to the very scarce empirical evidence on the topic. As far as we know, only a few papers examine the effect of gender on firm value, and majority for the Anglo-Saxon legal

system (common law). This paper shows evidence from a market which operates the civil law system that is common in most European countries.[1]

Second, part of our analysis makes use of panel data methodology, which is more powerful in controlling for unobservable heterogeneity, which is not taken into account by the majority of published studies. Finally, this is the first study to examine 'the gender effect' in the Spanish market.

Our results show that the presence of women on the board has an insignificant effect on firm value, as measured by our proxy for Tobin's Q. We also find that firm value does not influence the gender diversity of the board. Finally, we find that adding a woman to the board has a positive effect on the market value of the firm when we use a non-parametric test, although this relationship is inconclusive when a parametric test is employed.

The remainder of the paper is structured in five sections. In the following section we describe the theoretical arguments and the Spanish context, in section three we comment the data selection process and the characteristics of our sample. In the fourth section we describe the methodology employed and in section five we report our results. Finally, we present our main conclusions in the final section.

2. Board diversity and the Spanish context

The board of directors functions as an internal governance mechanism via its appointment, supervision and remuneration of senior managers, as well as its collective determination of overall corporate strategy. A large number of studies have investigated the influence of board composition on the value of the firm. These have examined, among others, the percentage of insiders on the board (Agrawal and Knoeber, 1996), the tenure of directors and managers (Hermalin and Weisbach, 1991), the share ownership of board members (Weisbach 1988) and the size of the board of directors (Kini et al., 1995). More recently, researchers have begun to investigate the influence of board

---

[1] The differences between the systems revolve around three fundamental points. The countries in the Anglo-Saxon system tend to have more dispersed ownership structures, stronger investor protection, and a greater relative weight accorded to external control mechanisms. For a more detailed discussion of both systems, see La Porta et al. (2002).

diversity, which may be defined as the variety inherent in the board's composition. This variety can be measured on a number of dimensions: gender, age, ethnicity, nationality, educational background, industrial experience and organisational membership, among others.

In this study we focus on gender, which is arguably the most debated diversity issue, not only in terms of Board diversity, but also in terms of female participation in economic activity and in society in general. We do not consider the ethnic dimension of Board diversity as it is not an important issue in Spain. White people constitute around 98% of the Spanish population (Aja et al., 2000). This situation contrasts with the racial diversity of the United States where, according to the Cervantes Institute (1999), White people constituted 71.8% of the population in the year 2000, compared to Blacks (12.2%), Hispanics (11.4%), Asians (3.9%) and others (0.7%).

It can be argued that greater board diversity increases a firm's competitive advantage relative to firms with less diversity. The arguments that lie behind this are based largely on intuitive reasoning and are articulated by Robinson and Dechant (1997). While they focus on workplace diversity in general and consider diversity in terms of age and race as well as gender, we consider their arguments as they apply to the gender diversity of the board. First, it is argued that greater diversity promotes a better understanding of the marketplace by matching the diversity of a firm's directors to the diversity of its potential customers and employees, thereby increasing its ability to penetrate markets. Therefore, one would expect board composition to systematically vary across industry sectors according to the cross-sector variation in the demographic composition of customers and employees. In this context, it is worth noting that Brammer et. al (2007) in their study of UK corporate boards find that the highest rates of female directors are associated with retailing, banking, the media and utilities - all sectors associated with a close proximity to final consumers - while producer-oriented sectors such as the resources, engineering and business services - characterised by isolation from final consumers and male-dominated workforces - have significantly fewer female directors.

Second, it is argued that diversity increases creativity and innovation as these characteristics are not randomly distributed in the population but tend to vary systematically with demographic variables such as gender. Third, it is argued that diversity can enhance problem-solving as the variety of perspectives that emerges from a more diverse board means that more alternatives are evaluated. By taking a broader view, the board will have a better understanding of the complexities of the business

environment and thus improve decision-making. A more gender diverse board may also improve a firm's competitive advantage if it improves the image of the firm and if this has a positive effect on customers' behaviour and thus on a firm performance (Smith et al., 2006). Beside, the heterogeneous groups consider more alternatives when defining the strategies (Eisenhardt, 1989 and Judge and Miller, 1991)

Carter et al. (2003) consider the link between board diversity and firm value in the context of agency theory, as outlined by Fama and Jensen (1983), and consider whether gender diversity enhances the board as a mechanism to control and monitor managers. They suggest that greater diversity may increase the independence of the board as women are more inclined to ask questions that would not be asked by male directors. However, they also point out that a fresh perspective may not necessarily result in more effective monitoring if female board members are marginalized and conclude that there is no a priori reason to expect greater gender diversity to enhance board monitoring.

Another argument for a more diverse board is that it may improve the quality of the directors if they are selected without prejudice from both genders. Farrell and Hersch (2005) note that, if women are scare commodities at board level, they may choose to serve on the boards of better performing firms. This suggests a positive relationship between the presence of the women on the board and firm value, although it is also possible that the two variables are endogenously defined.

There are also arguments that greater gender diversity may serve to reduce firm performance. Cox et al (1991), Watson et al. (1993) and Miller et al. (1998) argue that diversity increase the boar effectiveness. Earley and Mosakowski (2000) suggest that members of homogeneous groups tend to communicate more frequently as they are more likely to share the same opinions. Similarly, Tajfel and Turner (1985) and Williams and O'Reilly (1998) suggest that homogeneous groups are more cooperative and experience fewer emotional conflicts. However, if greater gender diversity among board members generates more opinions and critical questions, and thus more conflict, decision-making will be more time-consuming and less effective (Lau and Murnighan, 1998) and create barrier in the group and discrimination (Blau, 1977; Smith et al., 1994 and Tsui et al., 1992, Alexander et al., 1995). It has been suggested, however, by Nowell and Tinkler (1994) that women are more cooperative than men, although Brown-Kruse and Hummels (1993) argue that the opposite is true. Boardroom conflict may also be partly determined by the degree of altruism inherent in male and female behaviour: Andreoni and Vesterlund (2001) argue that men are more altruistic than

women when the cost of altruism is low and that the opposite is true when this cost is high. A further argument supporting the view that greater gender diversity is associated with lower firm performance can be found in the observation of Jianakoplos and Bernasek (1998) that women are more risk-averse than men, while Cox and Blake (1991) suggest that women increase the costs of the firm as a result of higher turnover and absenteeism.

More gender diverse boards may also encourage stronger identification by directors with the opinions expressed by other directors of the same gender, thus increasing the likelihood of conflict (Richard et al., 2004) and reducing the cohesion, satisfaction and commitment (Pfeffer, 1983 and Jackson et al. 2003). This can be especially problematic if a firm is operating in a highly competitive environment where the ability to react quickly to changes in the market is an important issue (Williams and O'Reilly, 1998). Although the decisions of a gender diverse board may be of a better quality in the end, this may fail to balance the negative effects of a slow decision-making process if the market demands quick responses (Hambrick et al., 1996).

Adams and Ferreira (2002) and Brancato and Patterson (1999) argue that the gender of a board member does not imply any different behaviour in the management of the firm. Jackson et al. (2003) say that, perhaps, the effects of diversity on affective reactions and social processes occur somewhat independently of the effects of diversity on performance. This assertion does not support that diversity influences performance.

These different arguments encompass positive, non-significant and negative associations between the presence of women on the board of directors and firm value, so the impact of gender diversity cannot be determined a priori. The empirical evidence is also inconclusive. For example, Shrader et al. (1997) are unable to find any significantly positive relationship between the percentage of female members of U.S. boards and several accounting measures of financial performance, and find significantly negative relationships in some cases. Carter et al. (2003) find a positive and a significant relationship between Tobin's Q and the proportion of women on the boards of *Fortune* 1000 firms, after controlling for size, industry and other corporate governance measures. Erhardt et al. (2003) report that the percentage of women on the boards of large U.S. firms is positively associated with two accounting measures of performance, return on assets and the return on investment, while a report by Catalyst (2004) finds that *Fortune* 500 companies with the highest representation of women on their top management teams experienced significantly higher returns on equity and total shareholder returns compared to the companies with the lowest female representation.

Farrell and Hersch (2004) report a non-significant stock market reaction to the announcement of female additions to the board. They also report that women had a higher probability of serving on the boards of better performing firms. However, they are unable to conclude that more boards with greater gender diversity generate better performance. In contrast, Rosenstein and Wyatt (1990) and Block (1999) observe that announcements of female board appointments generate positive abnormal stock market returns.

Du Rietz and Henrekson (2000) fail to find any relationship between the presence of women on the boards of Swedish firms and performance - measured by profitability, employment or orders growth - when controlling for firm size and industrial sectors. A study of Danish firms by Smith et al. (2006) fails to find a significant link between female board representation and accounting measures of firm performance, a result which is consistent with the finding of Rose (2007) that no significant link exists between female representation on Danish boards and firm performance as measured by Tobin's Q. However, this result stands in contrast to the findings of Böhren and Ström (2005) who report a significantly negative relationship between the proportion of women on the boards of Norwegian firms and Tobin's Q. Randøy et al (2006) analyze the impact of board diversity on the performance of the 500 largest firms from three Scandanavian countries - Denmark, Norway, and Sweden - and find no significant gender diversity effect on stock market performance or on the return on assets. Jhen and Bezrukova (2003) find a negative and significant relationship between the percentage of female board members and several accounting measures of financial value, while Carleton et al. (1998) and obtain very similar results. Fenwick and Neal (2001) found that sex composition was related to some measures of performance but not with others. Richard (2000) and Watson et al. (1993) provide a not significant relationship between gender diversity and firm performance.

This study is focused in the Spanish context. Spain is classified as a French-origin civil law country by La Porta et al. (2002) and, in addition to weak investor protection, is characterised by the presence of family and concentrated share ownership (Ballesta and Garcia-Meca, 2005). Further, there is a long tradition of state intervention in the Spanish economy, with the capital market centred on banks and financial institutions.

Table 1 illustrates the differences in share ownership between selected civil law countries, Japan, and the two main Anglo-Saxon countries, the U.S. and the U.K. It is evident that the U.S. and the U.K have the lowest levels of individual share ownership

and the highest levels of institutional share ownership.[2] Of the civil law countries in Table 1, Spain has the highest level of share ownership by individuals, reflecting the importance of family ownership, and the lowest level of institutional share ownership.

Table 1. Comparative ownership structure by countries

Country	Shareholder ownership (%)	Institutional ownership (%)
France	36.5% [a]	8.0% [b]
Germany	36.8% [a]	30.3% [b]
Japan	25.1% [a]	35.8% [b]
Spain	47.2% [c]	6.2% [c]
U.K.	24.5% [a]	50.1% [b]
U.S.	20.5% [a]	44.5% [b]

[a] Source: La Porta et al. (2002) for years 1995, 1996 and 1997.

[b] Source: Gerke et al. (2003) for 1995.

[c] Source: Authors' research for years 1995 to 2000.

Share ownership in Spain is also more concentrated than in the U.S. and U.K. According to La Porta *et al.* (1998) the three largest shareholders in Spain held 51% of the total shares, while in the U.S. and the U.K. this proportion was 20% and 19%, respectively. Most Spanish companies are organised as pyramidal groups, with a holding company at the apex controlling one or more subsidiaries (Ballesta and Garcia-Meca, 2005). Consequently, indirect ownership through pyramids gives controlling shareholders, typically wealthy families, control rights that exceed their direct ownership. This undermines an important governance argument for controlling shareholders: that their own money being tied up in their firms ensures good governance. As a result, the main agency problem in Spain arises from the conflict between controlling and minority shareholders, in contrast to the typical principal-agent problem in Anglo-Saxon economies between shareholders and professional managers. The members of the board of directors mainly represent the controlling shareholders, with minority shareholders less well represented. However, managers are also accustomed to having little oversight by the board of directors or shareholders' meetings (Aldama Report, 2003). Spain has historically had little takeover activity, so

---

[2] This evidence can be related with the degree of development of the secondary markets of capitals and it is possible that it influences in the corporate governance since this type of investors plays an important role in corporate supervision (Diamond, 1984).

the market for corporate control has a limited role as an external governance mechanism, thus placing more responsibility on the board of directors to act as an effective internal mechanism. Although Spain, unlike other European civil-law countries, has a single-tier board of directors, there is a significant difference in the balance between executive directors and independent non-executive directors.

In gender issue, Spain also presents important structural differences. In comparison to other OECD countries the proportion of women in the Spanish workforce is low. In 2005 46.4% of Spanish women participated in the workforce compared to an OECD average of 50.3%, giving Spain a ranking of 24 out of 30 OECD countries (OECD, 2006). Beside, Spain is one of the countries with bigger feminine unemployment of Europe (14%) and it is only overcome by Greece, Poland and Slovakia (Curdová, 2005). However, the unemployment gender gap in Spain is smallest for those women attaining advanced tertiary qualifications. Spanish women achieving this level of education had an unemployment rate of 8.8% in 2005 (OECD average 4.3%) compared to 5.3% of males (OECD average 3.5%).

Attracting more women to serve on company boards requires that they have the educational opportunities and skills necessary to compete with male counterparts. In the U.S. there is no gender gap in tertiary education: women earned more than one-half of all bachelor's and master's degrees (57.3% and 58.5%) and nearly one-half of all doctorates and law degrees (44.9% and 47.3%) awarded in 2002 (Catalyst, 2004). This perhaps explains why the number of women board directors serving on U.S. boards has increased over the past 10 years or so. The average number of women in European boardrooms has increased in recent years in Europe, from 5.0% in 2001 to 8.4% in 2007 (Heidrick and Struggles, 2007). However, this is still a low level of representation in comparison to the U.S. and hides a wide degree of variation across countries. Sweden had the highest number of female directors (21.0%) while Portugal has the lowest number (0.7%). Spanish boards had an average of only 3.1% female directors.

3.   Sample and data

In this section we describe the two different samples used in our analysis: the first for the panel data analysis and the second for the event study analysis. The reason for the two different samples is due to the limitation in the obtaining of some variables for the analysis with panel data previously at 1995.

Panel data analysis

The sample is made up of non-financial firms listed on the continuous market in Madrid during the period January 1995 to December 2000. Due to some limitations in the availability of the data, the sample comprises 68 companies and 408 observations. The identity of the directors, and the dates on which they were appointed, were obtained from the register of directors of the Spanish Stock Exchange Commission (CNMV),[3] which provides details of the date of appointment and termination and the posts of each member of the board of directors of listed companies. From the register of directors we also calculated the number of board members. The accounting data were obtained from the SABI[4] database. Finally, the number of shares and the share prices were obtained from the annual Madrid stock exchange list.

As measures of firm value we use an approximation of Tobin's Q (Q), defined as the sum of the market value of stock and the book value of debt divided by the book value of total assets. The measures of firm value adopted in other corporate governance studies vary considerably, but can generally be divided into two groups: those that use mainly accounting measures, and those that use Tobin's Q. The main difference is that accounting results are based on events that have already occurred, and thus offer a view of the past, while Tobin's Q focuses on future expectations. More recent research tends to use Tobin's Q.[5]

As proxies for the presence of women on the board, we first use the percentage of woman on the board, PWOMEN, calculated as the number of women on the board divided by the total number of directors. The second variable is a dummy, DWOMAN, that takes a value of 1 when there is one or more women present on the board.

We also include a number of control variables. Specifically, the logarithm of the total number directors, LNDIR; the debt level, LEVER (calculated as the ratio of total debt to total assets); the return on assets, ROA, and the size of the firm, SIZE (approximated by the natural logarithm of total assets).

---

[3] Comisión Nacional del Mercado de Valores.

[4] System of Analysis of Iberian Balance Sheets, provided by Bureau Van Dijk.

[5] For further detail on these measurements, see Demsetz and Villalonga (2001).

In table 2 we report the descriptive statistics of all variables. The approximation to Tobin's Q (Q) has a mean value of 1.6, close to the values obtained by Demsetz and Villalonga (2001) for the American market (1.1), Hillier and McColgan (2001) in the United Kingdom (1.96), and López-Iturriaga and Rodríguez-Sanz (2001) in the Spanish market (1.01, 1.44 and 1.23, for different years).

Table 2. Descriptive Statistics

	Mean	Median	Standard Deviation	Minimum	Maximum
Q	1.642	1.287	1.220	0.3318	10.763
PWOMEN	3.283	0.000	7.157	0.000	40.000
DWOMAN	0.237	0.000	0.426	0.000	1.000
NCON	10.750	10.000	4.518	2.000	26.000
LNCON	0.9912	1.000	0.193	0.301	1.415
LEVER	0.384	0.383	0.214	0.000	0.9830
ROA	5.482	4.450	7.594	-19.420	38.120
SIZE	5.535	5.447	0.667	3.778	7.680

Variables: *Q* (approximation of Tobin's *Q*), PWOMEN (percentage of women on the board of directors, %) DWOMAN (binary variable that takes a value of 1 when there is at least one woman on the board of directors, and 0 otherwise), NCON (number of directors on the board), LNCON (logarithm of the number of directors on the board), LEVER (total debt over total assets), ROA (return on assets, %), SIZE (logarithm of the book value of the total assets of the firm).

The mean percentage of women on Spanish boards of directors, PWOMEN, is 3.2%. This is lower than the numbers reported for the U.S. market. For example, Carter et al. (2003) report a value of 9.6%, Farrell and Hersch (2004) a value of 6.9% and Catalyst (2004) a value of 10.2%. However, the greatest difference between Spain and the U.S. is apparent when we observe the percentage of firms with one or more women on the board, DWOMAN. Only 23.7% of Spanish quoted firms have one or more women on their board, while the comparative value for the U.S. (Farrell and Hersch, 2004) is 70%. The incorporation of women into the workplace has been slower in Spain than in other developed countries, a fact reflected in our results.

The mean value of the number of directors (NDIR) is 10.75, the same as that found by Fernández et al. (1998) in their study of the Spanish market. This board size is consistent with the recommendations of the Olivencia code for an ideal board size of between 5 and 15 members. The average board size in the U.S. is also similar to that reported in our study. For example, Carter et al. (2003) report a mean value of 10.9

while Farrell and Hersch (2004) report a value of 11.7. In the U.K., Beekes et al. (2004) report a mean board size of 8.2.

Finally, the means of our leverage variable, LEVER, the return on assets variable, ROA, and the firm size variable, SIZE, are 38%, 5.4% and 5.3, respectively. For comparison, Demsetz and Villalonga (2001) report a value of 19% for leverage and 9.46 for firm size in the U.S.[6]

Event Study Analysis

To carry out this analysis we collected all announcements of board appointments to quoted Spanish firms from 1989 to 2001. The dates of the announcements were obtained from the "previous communications" section of CNMV. The numbers of appointments are reported in table 3 on a year-by-year basis. We can observe that the total number of appointments over this period was 4050, of which only 105 (2.59%) correspond to the appointment of women.

The relativity stability of the number of female appointments each year is also evident from panel A of table 3. It is apparent that the appointment of women members by Spanish boards is not on the increase. In contrast, Farrell and Hersch (2004) demonstrate that the percentage of women appointed to U.S. boards has grown every year from 1990 to 1999.

We analysed the 105 announcements of women's appointments in the event period to identify other announcements (such as dividends, capital issues, capital reductions, splits and mergers) occurring at the same time that might contaminate our sample. This process identified a total of 47 such announcements, affecting 29 different firms. The distribution per years of the final sample is shown in panel B of table 3. Table 4 reports the distribution of female appointments by sector, based on the classification of the Madrid Stock Exchange. We can observe that the majority of firms appointing women belong to the consumption goods sector and the financial services and state agents sector.

---

[6] The correlation matrix of the variables is shown in the appendix.

Table 3: Appointment of Directors to Spanish Quoted Firms: 1989 to 2001

	Panel A: Total Appointment					
	Women		**Men**		**Total**	
Year	Number	%	Number	%	Number	Annual %
1989	15	1.87	786	98.13	801	19.78
1990	3	1.60	185	98.40	188	4.64
1991	4	2.26	173	97.74	177	4.37
1992	9	3.61	240	96.39	249	6.15
1993	7	3.04	223	96.96	230	5.68
1994	9	3.31	263	96.69	272	6.72
1995	9	4.48	192	95.52	201	4.96
1996	10	3.50	276	96.50	286	7.06
1997	6	1.83	322	98.17	328	8.10
1998	10	3.72	259	96.28	269	6.64
1999	7	1.97	349	98.03	356	8.79
2000	9	1.98	445	98.02	454	11.21
2001	7	2.93	232	97.07	239	5.90
Total	105	2.59	3945	97.41	4050	100.00

Panel B: Final Sample of Women's Appointments		
Year	**Number**	**%**
1989	12	25,53
1990	1	2,13
1991	4	8,51
1992	3	6,38
1993	3	6,38
1994	2	4,26
1995	4	8,51
1996	9	19,15
1997	1	2,13
1998	1	2,13
1999	2	4,26
2000	2	4,26
2001	3	6,38
Total	47	100,00

Table 4: Announcements of Women's Appointments to Boards of Directors by Sectors (following the classification of the Madrid Stock Exchange)

Sector	Number of Announcements	Number of Firms
Consumption Goods	12	8
Basic Materials, Industry and Building	2	2
Technology and Telecommunications	3	2
Consumption Services	5	3
Petroleum and Energy	5	4
Financial Services and State Agents	20	10
Total	47	29

Finally, we used daily price data to calculate stock returns. These prices, adjusted for dividend payments, were obtained from the Madrid Stock Exchange database.

4. Methodology

In order to carry out our study we use two different methods: panel data analysis and an event study.

Panel data methodology

This methodology allows us to eliminate any unobservable heterogeneity that may be present among the companies in our sample. If unobservable heterogeneity (highlighted by Himmelberg et al., 1999, among others) is correlated with the explanatory variables, thereby biasing the coefficients obtained, we undertake a conditional inference (estimation by fixed effects). However, if the effects are not correlated with the independent variables, we instead carry out unconditional inference using the random effects method (Arellano and Bover, 1990).

To test for the existence of any correlation between unobservable heterogeneity and the explanatory variables, we use the Hausman test. This test examines the equality of the coefficients of the fixed effects estimations and the random effects estimations. The null hypothesis is that the coefficients of both models are similar. If this hypothesis

is rejected, the coefficients will differ markedly among themselves, with only the intragroup estimation (fixed effects) being consistent. In addition, in order to control for the possible endogeneity of the variables, which could bias the coefficients obtained, the estimation is carried out with panel data using two-stage least squares (2SLS).

To determine the nature of the relationship between female board membership and firm value we estimate two different models. In the first, Tobin's Q is the dependent variable and measures of female board representation are the independent variables. We estimate the following model:

$$Q_{it} = \beta_0 + \sum \beta_j PWOMEN\ (DWOMAN\ )_{jit} + \sum \beta_j CV_{jit} + \psi_t + \eta_i + \varepsilon_{it} \tag{1}$$

where Q represents firm value (our proxy for Tobin's Q), PWOMEN is the percentage of women on the board of directors, and DWOMAN is a dummy variable that takes a value of one when one or more women are present on the board, and zero otherwise. CV represents the control variables (LEVER, ROA and SIZE).[7] Finally, the expressions ψ_t and η_i refer to time effects and unobservable heterogeneity, respectively.

It is not clear, a priori, how female board membership (PWOMEN and DWOMAN) influence firm value (Q). On the one hand, greater gender diversity may be associated with more imaginative company policies (thus generating a positive sign). On the other hand, the presence of women may lead to greater conflict on the board, or women may be appointed due to social pressure rather than on the basis of merit (thus implying a negative sign). Finally, an insignificant relationship would be expected if gender, in fact, has no influence on firm value.

We expect the sign of the leverage variable, LEVER, to be positive if debt is an efficient mechanism for reducing the agency conflict in the firm. The expected sign for the firm size, SIZE, is negative, while that of ROA is positive.

In the second model we consider the possibility that the relationship between the variables representing female board membership and Tobin's Q may be endogenously determined. To account for this we specify firm value as an independent variable and PWOMEN and DWOMAN as dependent variables. We thus use the following model:

---

[7] The selection of the control variables is based on the previous work of Morck et al. (1988), Yermack (1996), Carter et al. (2003), and others.

$$PWOMEN \ (DWOMAN \ )_{it} = \beta_0 + \sum \beta_j Q_{jit} + \sum \beta_j CV_{jit} + \psi_t + \eta_i + \varepsilon_{it} \qquad (2)$$

where CV represents the logarithm of the number of directors, LNCON and the size of the firm, SIZE. The other variables are the same as this specified in Model (1).[8]

The effect of firm value on female board representation will be positive if women choose to work in better performing firms. Finally, we postulate that larger firms, and firms with larger boards, will be more likely to employ female board members.

Event Study methodology

In the second part of the paper we examine the stock market reaction to the announcement of female board appointments using the event study methodology.

The valuation effect of firm i in day t is measured by the abnormal returns, $AR_{i,t}$, calculated as the actual returns, $R_{i,t}$ minus expected returns (Martín, 2003b):

$$AR_{i,t} = R_{i,t} - E\left(R_{i,t}\right) \qquad (3)$$

We use the Ordinary Least Square (OLS) Market Model to calculate expected returns. The estimation window used is (-120, -20) and the event window is (-10, 10), with 0 beginning on the event day.

The following expression is used to estimate the average abnormal return during day t, AAR_t:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{i,t} \qquad (4)$$

where N is the size of the sample.

---

[8] For the control variables, we use those in Carter et al. (2003).

We sum the average abnormal returns across days to calculate the cumulative average abnormal returns, $\text{CAAR}_{(T_1,T_2)}$, where T_1 and T_2 are the actual days in the event period. The expression is the following:

$$CAAR_{(T_1,T_2)} = \frac{1}{N} \sum_{i=T_1}^{T_2} AAR_{i,t} \qquad (5)$$

Two tests are used to analyze the abnormal returns' statistical significance. The first is a parametric test (Share Time Series method) and the second is a non-parametric test (Corrado, 1989).

The Share Time Series method standardises each share's abnormal return by its estimation period standard error. The test statistic for the average abnormal return in day t is the following:

$$\frac{ASE_t}{s(SE)/\sqrt{N}} = \frac{\sum_{i=1}^{N} SE_{it}}{\sqrt{N}} \qquad (6)$$

where $SE_{i,t}$ is the standardised error, ASE_t represents the average standardised error for time t, s(SE) is the standard deviation of the SEs. Finally, $\sqrt{N}$ indicates the square root of the size of the sample.

The Corrado (1989) non-parametric test does not rely on normality assumptions and also is more suitable in situations where variance increases (Seiler, 2000). Friederich et al. (2000) affirm that this test, in several simulations, proves to be more robust than others.

To implement this test, we need to sort and transform the series of abnormal returns into their respective ranks, for both the estimation period and event window. In this way, $k_{i,t} = rank(AR_{i,t})$ where $t = t_1, \dots t_2$. If $AR_{i,t} > AR_{i,j}$ then, $k_{i,t} > k_{i,j}$. The median rank of the share i is $\bar{k}_i = \frac{t_1 + t_2 + 1}{2}$. The rank statistic is calculated using the following formula:

$$Z = \frac{\frac{1}{N}\sum_{i=1}^{N}\left(k_{i,t} - \overline{k}_i\right)}{\hat{s}(k)} \qquad (7)$$

where $\hat{s}(k)$ is the estimated standard deviation of the portfolio mean abnormal return rank over estimation and event windows. The expression used is the following:

$$\hat{s}(k) = \sqrt{\frac{1}{t_1 + t_2}\sum_{t=1}^{T}\left(\frac{1}{N}\sum_{i=1}^{N}\left(k_{i,t} - \overline{k}_i\right)\right)} \qquad (8)$$

Finally, the Corrado (1989) statistic (Z) is asymptotically unit normally distributed.

5.   RESULTS

Panel data results

The results of our tests of models (1) and (2) are presented in tables 5 and 6. Thus, in table 5 we present the relationship between the percentage of women on the board and Tobin's Q, while in Table 6 we report the effect on firm value of the presence of one or more women on the board, and *vice versa*. All of the estimations were carried out using fixed effects, since the Hausman test was significant.

In Table 5 we can observe that the percentage of women on the board (PWOMEN) is not significantly related to our approximation of Tobin's Q. Therefore, we do not find that board gender affects firm value, and our result is therefore consistent with the argument expressed by Adams and Ferreira (2002). This result is contrary to those reported in several U.S. studies, where the sign is positive and significant. As we show below, the inclusion of women on Spanish boards is very low, in comparison to the U.S., and female board members are predominantly found among family-owned firms. However, female board appointments in the U.S. are more influenced by womens' qualifications. These characteristics may explain the differences between the two markets.

As far as the control variables are concerned, we note that firm leverage (LEVER) does not have a significant effect on Tobin's Q. On the one hand, a high level

Table 5: 2SLS Panel Data Regression of the Percentage of Women on the Board of directors (PWOMEN) and Tobin's Q (Q)

	Q	PWOMEN
Constant	4.118	6.677
	(3.71***)	(0.64)
Q		-2.132
		(-1.11)
PWOMEN	-0.010	
	(-0.13)	
LNDIR		6.436
		(2.22**)
LEVER	-0.606	
	(-1.63)	
ROA	0.023	
	(2.27**)	
SIZE	-0.422	-1.132
	(-1.87*)	(-0.74)
Wald Chi²	2020.54***	249.80***
R²	0.075	0.061
Hausman Test	28.61***	19.48***

Note: ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

of debt may imply more control over insiders by creditors, but it may also be associated with higher bankruptcy costs. The result reported here is indeterminate. Return on assets (ROA) has a positive influence on Tobin's Q, which is unsurprising as more profitable firms are more likely to have a higher value. Finally, we observe that firm size (SIZE) has a negative influence on Tobin's Q.

From the final column of table 5, we can observe that the impact of firm value (Q) on the percentage of women on the board (PWOMEN) is not significant. Therefore, it seems that women do not choose to serve on the boards of the more profitable Spanish firms. Female board appointments are more likely to be related to family links than to any external process.

Table 6: 2SLS Panel Data Regression of a Binary Variable that takes the value of 1 when there is at least one woman on the Board of Directors (DWOMAN) and Tobin's Q (Q)

	Q	DWOMAN
Constant	4.183	0.356
	(3072***)	(0.54)
Q		0.028
		(0.819)
DWOMAN	-0.071	
	(-0.13)	
LNDIR		0.941
		(5.12***)
LEVER	-0.611	
	(-1.64)	
ROA	0.024	
	(2.58***)	
SIZE	-0.437	-0.198
	(-2.09**)	(-2.03**)
Wald Chi²	20.38.42***	344.69***
R²	0.099	0.013
Hausman Test	25.47***	26.91***

Note: ***, ** denote significance at the 1% and 5% levels, respectively.

However, the logarithm of the number of directors (LNDIR) has a positive and significant effect on the percentage of women on the board (PWOMEN). It is logical to surmise that in larger boards there is a greater probability that a woman will be employed. Finally, we can observe that firm size (SIZE) does not have a significant effect on the PWOMEN variable.

The results presented in table 6 are very similar. Thus, female board presence (DWOMAN) does not have a significant impact on Tobin's Q and *vice versa*. This confirms the evidence reported in table 5.

Concerning the control variables, we also find that return on assets (ROA) and firm size (SIZE) have, respectively, a positive and a negative impact on firm value. The logarithm of the number of directors (LNDIR) is also positively related to the variable

measuring the presence of woman on the board (DWOMAN). Finally, firm size (SIZE) has a negative impact on DWOMAN. This result is contrary to our expectations, so it would seem that in the more family-owned firms and the smaller firms it is more likely that woman are appointed to the board.

Event study results

We report the results of the event study analysis in table 7. Panel A presents average abnormal returns and cumulative average abnormal returns for each day during the event window, while panel B shows the same information for several time intervals.

From table 7 (panel A) we can observe a positive abnormal return on day -2, which is significant using both the Share Time Series test (10% level) and the Corrado (1986) test (5% level). We can also observe a positive and significant abnormal return on day +1, but only using the Corrado (1989) test. Therefore, it seems that the announcement of female appointments to Spanish boards is positively viewed by investors. This evidence is similar to that reported by Rosenstein and Wyatt (1990) and Block (1999).

From panel B of table 7, we can observe that the sample companies earn positive abnormal returns in different windows surrounding the announcement date. Specifically, for the Corrado (1986) test we can observe that the abnormal returns are significant at the 1% level in the (-2, 2) window, and that they are also significant in the (-1, 1) and (3, 3) windows, but at the 5% level. Therefore, we can observe that the positive reaction of the market only takes place in the event period. Using the Share Time Series test, however, we find that abnormal returns are not significant in all cases, which is similar to the results reported by Farrell and Hersch (2004) for the U.S. market. As a result, we are unable to draw any firm conclusion about the impact of female board appointments. However, we believe that the Corrado (1989) test is a more appropriate test, owing the size of the sample (Martín, 2003a).

Table 7: Event Studies Analysis

Panel A: Average Abnormal Returns (AARs) and Cumulative Average Abnormal Returns (CAARs) in the Event Period. Date of communication to the CNMV.

Day	AAR (%)	CAAR$_{(t,0)}$ (%)	Statistical Tests	
			Share Time Series	Corrado
-10	-0.20	-0.81	-0.70	0.08
-9	0.24	-0.60	0.60	0.61
-8	-1.05	-0.85	-2.151**	-2.90**
-7	0.37	0.21	0.71	0.60
-6	0.34	-0.16	1.58	0.55
-5	0.00	-0.49	-0.01	-0.46
-4	-0.75	-0.49	-2.98***	-2.38**
-3	-0.51	0.26	-1.49	-0.86
-2	0.67	0.77	1.872*	2.21**
-1	0.13	0.10	0.581	0.56
0	-0.03	-0.03	-0.15	0.16
1	0.25	0.22	1.41	1.35*
2	-0.22	0.00	-0.87	-1.17
3	-0.38	-0.38	-1.18	-0.57
4	-0.13	-0.51	-0.48	-0.60
5	-0.22	-0.73	-0.81	0.08
6	-0.04	-0.77	-0.12	-0.39
7	0.13	-0.64	0.51	0.83
8	0.37	-0.27	1.979*	1.10
9	0.08	-0.19	0.46	0.77
10	-0.22	-0.42	-0.98	-1.63

Panel B: Cumulative Average Abnormal Returns (CAARs) for Different Periods

Period	CAAR$_{(t1,t2)}$ (%)	Statistical Tests	
		Share Time Series	Corrado
(0,1)	0.219	0.769	1.499*
(-1,0)	0.102	0.325	0.712
(-1,1)	0.350	0.894	2.055**
(-2,2)	0.800	1.212	3.092***
(-3,3)	-0.089	-0.156	1.664**
(-7,7)	-0.403	-0.483	-0.098
(-9,9)	-0.767	-0.875	-0.520
(0,10)	-0.415	-0.668	-0.084
(4,10)	-0.039	-0.066	0.115

Notes ***, **, * denote significance at the 1%, 5% and 10% levels, respectively.

The CNMV is a Spanish institution similar to the U.S. SEC.

6. Conclusions

In this paper we study the impact of the gender composition of Spanish boards of directors. Spain can be characterised as a country that has a low proportion of women occupying highly responsible positions in business, a situation that does not seem to have improved over the last decade.

Two forms analyses are carried out: in the first, we examine the relationship between women's presence on the board, measured by several variables, and firm value (measure by a proxy for Tobin's Q) using a panel data methodology. In the second, we examine the stock market reaction to the announcement of a woman's appointment to the board of directors using an event study.

One of the contributions of this study is that, to the best of our knowledge, it is the first to examine this issue in the context of the Spanish market, or indeed in any other market classified under the continental system. As far as we are aware, all existing studies have been undertaken in markets classified as Anglo-Saxon. A second contribution arises from the fact that existing studies do not use panel data to control for potential biases in the estimation procedure.

Our findings demonstrate that both the percentage, and the presence, of women on the board of directors do not affect firm value. We also show that firm value has no influence on these two variables.

With regards to the event study analysis, our evidence is inconclusive. We observe positive abnormal returns around the announcement of a woman's appointment to the board of directors when we use a non-parametric test. However, we do not find a significant stock market reaction when we use a parametric test. Nevertheless, we consider the non-parametric test to be more appropriate, given the characteristics of our sample.

REFERENCES

Adams, R. B. and D. Ferreira, (2002): "Diversity and incentives in teams: Evidence for corporate boards, Dissertation, University of Chicago.

Agrawal, A. and C. R. Knoeber (1996): "Firm performance and mechanisms to control agency problems between managers and shareholders", *Journal of Financial and Quantitative Analysis*, vol. 31, pp. 377-397.

Aja, E., Carbonell, F., Pereda, C., Actis, W., De Prada, M. A., Funes J. and I. Vila (2000): "La inmigración extranjera en España. Los retos educativos", *Colección de Estudios Sociales*, nº 1-2000, Fundación La Caixa, Barcelona.

Aldama Report (2003): "Report of the Special Commission for the Promotion of the Transparency and the Security in the Financial Markets and in Listed Companies", Madrid.

Alexander, J., Nuchols, B., Bloom, J. and S. Lee (1995): "Organizational demography and turnover: An examination of multiform and nonlinear heterogeneity", *Human Relations*, vol. 48, pp. 1455-1480.

Andreoni, J. and L. Vesterlund (2001): "Which Is The Fair Sex? Gender Differences In Altruism", *The Quarterly Journal of Economics*, MIT Press, vol. 116, pp 293-312.

Arellano, M. and O. Bover (1990): "Un estudio econométrico con datos de panel", *Investigaciones Económicas*, vol. 14, pp. 3-45.

Ballesta, J. P. S. and E. García-Meca (2005): "Audit qualifications and corporate governance in Spanish listed firms", *Managerial Auditing Journal*, vol. 20, 725-738.

Beekes, W., Pope, P. and S. Young (2004): "The link between earnings timeliness, earnings conservatism and board composition: Evidence from de UK", *Journal of Corporate Governance*, vol. 12, pp. 47-59.

Bilimoria, D. and S. Piderit (1994): "Board committee membership: effect of sex –based bias", *Academy of Management Journal*, vol. 37, pp. 1453-1477.

Blau, P.M. (1977): *Inequality and Heterogeneity*, New York: The Free Press.

Block, S. (1999): "The role of non-affiliated outside directors in monitoring the firm and the effect on shareholder wealth", *Journal of Financial and Strategic Decisions*, vol. 12, pp. 1-8.

Brammer, S., Millington A. and S. Pavelin (2007): "Gender and Ethnic Diversity Among UK Corporate Boards", *Corporate Governance: An International Review*, Vol. 15 (2), pp. 393-403.

Brancato C. K. and D. J. Patterson (1999): "Board diversity in U.S. corporations: Best practices for broadening the profile of corporate boards", *Research Report 1230-99-RR*, The Conference Board.

Böhren, O. and R. O. Ström (2005): "Aligned, informed, and decisive: characteristics of value-creating boards", *Working paper, Norwegian School of Management BI*, Oslo, September.

Brown-Kruse, J. and D. Hummels (1993): "Gender Differences in Laboratory Public Goods Contribution: Do Individuals Put their Money where their Mouth is?", *Journal of Economic Behavior and Organization*, vol. 22, pp. 255-267.

Carleton, W. T., Nelson, J. M. and Weisbach (1998): "The influence of institutions on corporate governance through private negotiations: Evidence from TIAA-CREF, *Journal of Finance*, vol. 53, pp. 1335-1362.

Carter, D. A., Simkins, B. J., and W. G. Simpson (2003): "Corporate governance, board diversity, and firm value", *Financial Review*, vol. 38, pp. 33-53.

Catalyst (2004): "The bottom line: Connecting corporate performance and gender diversity", *Catalyst*, New York.

Cervantes Institute (1999): "Anuario 1999", *Centro Virtual Cervantes*, Madrid.

Corrado, C. J. (1989): "A nonparametric test for abnormal security-price performance in event studies", *Journal of Financial Economics*, Vol. 23, pp.385-395.

Cox, T. H. and S. Blake (1991): "Managing cultural diversity: Implication for organizational competitiveness", *Academy of Management Executive*, vol. 5, pp. 45-56.

Cox, T.H., Lobel, S.A. and P. L. McLeod (1991): "Effects of ethnic group cultural differences on cooperative and competitive behavior on a group task", *Academy of Management Journal*, vol. 4, pp. 827-847.

Curdová, A. (2005): "Discrimination against women in the workforce and the workplace", *Committee on Equal Opportunities for Women and Men*, Parliamentary Assembly, Doc. 10484.

Daily, C. M., Certo, S. T., and D. R. Dalton (1999): "A decade of corporate women: Some progress in the boardroom, none in executive suite", *Strategic Management Journal*, vol. 20, pp. 93-99.

Demsetz, H. and B. Villalonga (2001): "Ownership structure and corporate performance", *Journal of Corporate Finance*, vol. 7, pp. 209-233.

Diamond, D. W. (1984): "Financial Intermediation and delegated monitoring", *Review of Economic Studies*, vol. 51, pp. 393-414.

Du Rietz, A. and M. Henrekso: (2000): "Testing the female underperformance hypothesis", *Small Business Economics*, vol. 14 (1), pp. 1-10.

Earley, P. C. and E. Mosakowski (2000): "Creating hybrid team cultures: An empirical test of transnational team functioning", *Academy of Management Journal*, vol. 43, pp. 26-49.

Eisenhardt, K. M. (1989): "Making fast strategic decisions in high-velocity environments", *Academy of Management Journal*, vol. 32, pp. 543-576.

Erhardt, N. L., Werbel, J. D. and C. B. Shrader (2003): "Board of directors diversity and firm financial performance", *Corporate Governance: An International Review*, vol. 11, pp. 102-111.

Fama, E. F. and M. C. Jensen (1983): "Separation of ownership and control", *Journal of Law and Economics*, vol. 26, pp. 301-325.

Farrell, K. A. and P. L. Hersch (2004): "Additions to corporate boards: the effect of gender", *Journal of Corporate Governance*, article in press.

Farrell, K. A. and P. L. Hersch (2005): "Additions to corporate boards: the effect of gender", J*ournal of Corporate Finance*, Vol. 11, pp. 85-206.

Fenwick, G. D. and D. J. Neal (2001): "Effect of gender composition on group performance", *Work & Organization*, vol. 8, pp. 205-225.

Fernández, A. I., Gómez-Ansón, S. and C.Fernández-Méndez (1998): "El papel supervisor del consejo de administración sobre la actuación gerencial. Evidencia para el caso español", *Investigaciones Económicas*, vol. 22, pp. 501-516.

Friederich, S., A. Gregory, J. Matatko, and I. Tonks (2000): "Stock price patterns around directors' trades on the London Stock Exchange", *Working paper*, London School of Economics.

Gerke, W., Bank, M. and M. Steiger (2003): "The changing role of institutional investors – A German perspective", In Hopt, K. J. y E. Wymeersch (Eds.), *Capital Markets and Company Law*, pp. 357-385. New York: Oxford University Press.

Hambrick, D. C., Cho, T. S. and M. J. Chen (1996): "The influence of top management team heterogeneity on firms' competitive moves", *Administrative Science Quarterly*, vol. 41, pp. 659-84.

Heidrick and Struggles 2007: "Corporate Governance in Europe: 2007 Report"*,* Paris.

Hermalin, B. and M. S. Weisbach (1991): "The effect of board composition and direct incentives on corporate performance", *Financial Management*, vol. 20, pp. 101-112.

Hillier, D. and P. McColgan (2001): "Insider ownership and corporate value: an empirical test from the United Kingdom corporate sector", *Financial Management Association (FMA) Meeting*, Paris.

Himmelberg, C. P., Hubbad, R. G. and D. Palia (1999): "Understanding the determinants of managerial ownership and the link between ownership and performance", *Journal of Financial Economics*, vol. 53, pp. 353-384.

Jackson, S. E., A. Joshi and N. L. Erhardt (2003): "Recent research on team and organizational diversity: SWOT analysis and implications", *Journal of Management*, vol. 29, pp. 801-830.

Jehn, K. A. and K. Bezrukova (2003): "A field study of group diversity, group context, and performance", *working paper: The Wharton School*, University of Pennsylvania, Philadelphia.

Jianakoplos, N. A. and A. Bernasek (1998): "Are Women More Risk Averse?", *Economic Inquiry*, vol. 36, pp. 620-630.

Judge, W. Q. and A. Miller (1991): "Antecedents and outcomes of decisions speed in different environmental contexts", *Academy of Management Journal*, vol. 34, pp. 449-463.

Kesner, J. F. (1988): "Directors characteristics and committee membership: an investigation of type, occupation, tenure and gender", *Academy of Management Journal*, vol. 31, pp. 66-84.

Kini, O., W. Kracaw and S. Mian (1995): "Corporate takeovers, firm performance, and board composition", *Journal of Corporate Finance*, vol. 1, pp. 383-412.

La Porta, R., Lopez de Silanes, F., Shleifer, A. and R. Vishny (1998): "Law and Finance," *Journal of Political Economy*, vol. 106, pp. 1113-55.

La Porta, R., Lopez de Silanes, F., Shleifer, A. and R. Vishny (2002): "Investor protection and corporate valuation", *Journal of Finance*, vol. 57, pp. 1147-1170.

Lau, D. C. and J. K. Murnighan (1998): "Demographic diversity and faultlines: The compositional dynamics of organizational groups", *Academy of Management Review*, vol. 23, pp. 325-340.

López-Iturriaga, F. J. and J. A. Rodríguez-Sanz (2001): "Ownership structure, corporate value and firm investment: A simultaneous equations analysis of Spanish firms", *Journal of Management and Governance*, vol. 5, pp.179-204.

Martín Ugedo, J. F. (2003a): "Equity rights in Spain: Flotation costs and wealth effects", *Journal of Business Financial and Accounting*, vol. 30, pp. 1277-1304.

Martín Ugedo, J. F. (2003b): "Metodología de los estudios de sucesos: Una revisión", *Investigaciones Europeas de Dirección y Economía de la Empresa*, vol. 9, pp. 197-244.

Miller, C. C., Burker, L. M. and W. Glick (1998): "Cognitive diversity among upper-echelon executives: Implications for strategic decision processes", *Strategic Management Journal*, vol. 19, pp. 39-58.

Morck, R., Sheleifer, A. and R. W. Vishny (1988): "Management ownership and market valuation: An empirical analysis", *Journal of Financial Economics*, vol. 20, pp. 293-315.

Nowell, C. and S. Tinkler (1994): "The Influence of Gender on the Provision of a Public Good", *Journal of Economic Behavior and Organization*, vol. 25, pp. 25-36.

Organisation for Economic Co-operation and Development: 2006a, "OECD Labour Force Statistics by Age and Sex", Paris: OECD. http://stats.oecd.org/wbos/default.aspx

Pfeffer, J. (1983): "Organizational demography", *Research in Organizational Behavior*, vol. 5, pp. 299-357.

Randøy, T., Thomsen, S. and L. Oxelheim (2006): "A Nordic Perspective on Corporate Board Diversity", *Working Paper, Nordic Innovation Centre*, Oslo.

Richard O. C. (2000): Racial diversity, business strategy, and firm performance: A resource-based view, *Academy of Management Journal,* Vol. 43, pp. 164-177.

Richard, O. C., Barnett, T., Dwyer, S. and K. Chadwick (2004): "Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions", *Academy of Management Journal*, vol. 47, pp. 255-266.

Robinson, G. and K. Dechant (1997): "Building a business case for diversity", *Academy of Management Executive*, vol. 11, pp. 21-30.

Rose, G. (2007): "Does female board representation influence firm performance? The Danish evidence", *Corporate Governance: An International Review*, vol. 15 (2), pp. 404–413.

Rosenstein, S. and J. G. Wyatt (1990): "Outside directors, board independence, and shareholder wealth", *Journal of Financial Economics*, vol. 26, pp. 175-191.

Seiler, M. J. (2000): "The efficacy of event study methodologies: Measuring EREIT abnormal performance under conditions of induced variance", *Journal of Financial and Strategic Decisions*, vol. 13, pp. 101-112.

Shrader, C. B., Blackburn, V. B. and J. P. Iles (1997): "Women in management and firm financial value: An exploratory study", *Journal of Managerial Issues*, vol. 9, pp. 355-372.

Smith, K. G., Smith, K.A, Olian J.D., Sims, H.P., O'Bannon, D.P and J.A. Scully (1994): "Top management team demography and process: The role of social integration and communication", *Administrative Science Quarterly*, vol. 39, pp. 412-438.

Smith, N., Smith V. and M. Verner (2006): "Do women in top management affect firm performance? A panel study of 2,500 Danish firms", *International Journal of Productivity and Performance Management*, vol. 55, pp. 569-593.

Tajfel H. and J. Turner (1985): *The social identity of inter-group behavior* in Worchel S. and W. Austin (Eds.), "Psychology and Intergroup Relations", pp. 7-24, Chicago: Nelson-Hall.

Tsui, A., Egan, T. and C. O'Really (1992): "Being different: Relational demography and organizational attachment", *Administrative Science Quarterly*, vol. 37, pp. 549-579.

Watson, W. E., Kumar, K. and L. K. Michaelsen (1993): "Cultural diversity's impact on interaction process and performance: comparing homogeneous and diverse task groups", *Academy of Management Journal*, vol. 36, pp. 590-602.

Weisbach, M. (1988): "Outside directors and CEO turnover", *Journal of Financial Economics,* vol. 20, pp. 431-460.

Williams, K. and C. O'Reilly (1998): *Forty years of diversity research: A review*, in Staw B. M. and L. L. Cummings (Eds.), "Research in Organizational Behavior", pp. 77-140, Greenwich, CT: JAI Press.

Yermack, D. (1996): "Higher market valuation of companies with a small board of directors", *Journal of Financial Economics*, vol. 40, pp.185-211.

APPENDIX

Appendix: Correlation Matrix

	PWOMEN	DWOMAN	LNCON	LEVER	ROA	SIZE
Q	0.281***	0.205***	-0.337***	-0.099**	0.466***	-0.101**
PWOMEN		0.822***	-0.040	-0.081	0.179***	0.015
DWOMAN			0.127***	-0.043	0.235***	0.079
LNCON				-0.073	-0.099***	0.381***
LEVER					-0.201***	0.115**
ROA						0.051

Note: ***, ** denote significance at 1% and 5% levels, respectively.