“Gender diversity on boards of directors and business success”

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Gender diversity on Boards of Directors and business success

Abstract

This paper analyzes the relationship between gender diversity on Boards of Directors and business success. For this purpose, the authors used one sample of companies listed on the Madrid Stock Exchange. The paper analyzes a period of three years, between 2005 and 2007. A descriptive analysis has been carried out. Women's labor status has been studied in these three years. The paper also covers a panel analysis. The results show that there are few women in decision-making positions, and Gender diversity and business success are not related.

Keywords: business success, gender diversity, performance, government committees.
JEL Classification: M48.

Introduction

Companies and their behavior are strongly influenced by factors such as the economic environment, industry sector, and their specific characteristics. Nowadays, the economy is going through a very unstable situation due to a global crisis. In this context, companies must struggle to be competitive and flexible in order to adapt themselves to the situation. Therefore, it is important to know those variables that drive some companies to obtain better results. We will focus on business success using performance.

An increasing number of academic contributions reveal that gender diversity research enjoys a good deal of interest and development. Articles are often linked to decision-making areas. Research is trying to relate how diversity affects business performance. However, a review of the literature shows contradictory results. Some publications place together diversity and negative performance (Shrader et al., 1997; Pelled et al., 1999). Other publications that prove gender diversity has a positive link with performance (Carter et al., 2003; Erhart et al., 2003; Bonn et al., 2004), but there are also some publications which conclude that gender diversity and performance are not related at all (Zahra and Stanton, 1988; Randøy, Thomsen et al., 2006; Rose, 2007).

In the Spanish case, Fernández et al. (2004) found a positive stock market reaction to announcements about the adoption of good corporate governance practices. These practices are contained in the "Olivencia Report". The report was based on data gathered from 75 listed companies, during the period of 1998-2000.

The current code of "good corporate governance practices" was developed in 2006 by the National Securities Market. This code includes a recommendation for greater gender diversity on Boards of companies. Its implementation is not compulsory (art. 116), although companies not implementing it have to justify the reasons why they do not do so.

De Luis et al. (2007) consider that the stock market will ultimately value compliance with good corporate governance practices. It is supposed that companies which do implement such practices shall be rewarded. The rest of the companies could be questioned.

Nowadays, Spanish Government and diverse regulators are wondering about the scarcity of women on Spanish Boards. Spain has one of the lowest levels of diversity in the European Community (Heidrick and Struggles, 2005). Olcese et al. (2005) pointed out only 4% of Board Members in listed companies were women. Mateos et al. (2006), also indicate that women represent only 6.6% of the positions on the Boards of Directors of the 1,150 largest Spanish companies.

For these reasons, we propose:

- That an increase of female representation may achieve a better balance of equal opportunities.
- That it is necessary to establish if the practice of good corporate governance is related to company performance.
- That further studies about the stock market reaction to the announcements of the incorporation of women onto the Board of Directors of companies may lead to better results.
- Therefore, the purpose of this study is to determine whether gender diversity influences success in decision-making positions within companies listed on the Madrid Stock Exchange.

For this purpose, a descriptive study was carried out about the representation of women in decision-making positions. And secondly, a statistical technique has been applied to the empirical test of the hypothesis. Both of them are exposed with a view to testing the aim of this paper.

Thus, the presence of women in decision-making positions of the companies depends on:

- Firm size.
- The size of the Board of Directors.
- The number of Board meetings throughout the year.

We will not able to affirm that there is a direct relationship between the presence of women in a company and business success. All of this on the basis of assuming that the presence of women in positions of responsibility is very limited, as we will show in the descriptive study.

The paper is organized as follows. Section 1 offers the concept of gender diversity. Section 2 presents a description of the methodology used in the empirical study. A descriptive analysis will show the presence of women on Boards and in top management. Also, the relationship between women at the top and business success will be tested. The results of the above analysis are shown in Section 3. Finally, the last Section of the paper considers the conclusions and implications of the study.

1. Gender diversity

Corporate diversity is defined as the variation of the age, race, ethnicity, gender, and social/cultural identities among employees within a specific corporation (Marimuthu, 2008).

Van der Walt and Ingley (2003) defined diversity in the composition of the Board as the varied combination of attributes, characteristics and skills that their members have. This definition is also applied to the top management of an organization.

Women and minorities have historically been underrepresented on corporate boards of directors but this began to change in the 1990s (Farrell and Hersch, 2005). Usually two categories of diversity are considered. The first one is demographic diversity. This type is observable, because it is based on easily detectable factors, such as sex, race or level of education. The second type cannot be observed, and needs cognitive considerations because it refers to non-visible attributes such as knowledge, skills, profiles and individual capabilities (Pelled, 1996; Milliken and Martins, 1996).

Much of the research about diversity is articulated in demographic terms. The reason for this is that there are reliable databases which make objective measurement possible (Rosenzweig, 1998). Milliken and Martins (1996) find that demographic variables provide objective and valid representations of attributes related to non-observable diversity attributes, such as risk aversion and proactivity. Therefore, many empirical studies assume that cognitive variables are correlated systematically with demographic variables (Peterson and Philpot, 2007; Smith, 2007; Rose, 2007). As a result, gender diversity has generated a considerable amount of literature related to demographic diversity. One of the most frequent approaches is focusing on distributions by gender. Gender imbalance is a fact, whether at work or within a profession. This also happens in almost every geographical area.

In many recent studies, the theoretical framework takes good corporate governance to be central. Some of those works include references to the code reforms (Carrasco and Laffarga, 2006; 2007a; 2007b; Ruigrok et al. 2006). So, the existence of rejection on the basis of gender to the boards would be a symptom of poor corporate governance. Moreover, the connection between good corporate governance and performance is highlighted in the financial literature. Besides, the composition of boards has been extensively analyzed. Normally, studies have used agency theory and focused on the characteristic of "independence". In fact, major developments in this area link characteristics of the Board of Directors to the performance of the company. However, Carter et al. (2003) highlight that dominant theories are not conclusive in the study of corporate governance. These theories do not reveal that more diversity causes a significant impact on performance. Kiel and Nicholson (2003) suggest that no single theory offers, by itself, a comprehensive framework to make a solid link between diversity and performance. This is obviously due to the multidisciplinary nature of the topic, though some aspects of these theories could be used under different circumstances. Therefore, studies about diversity are based on agency theory, stakeholder's theory and resource dependence theory, which are also applied in studies about corporate governance.

Agency theory is the main theoretical approach underlying the idea that a more diverse board may improve performance. As a theory, it has launched one of the most productive areas in business literature. Agency theory suggests an inherent imperfection in the relationship between capital providers (principals) and fiduciaries (agents) of that capital. It is a long-held concept which argues that when corporate ownership is separated from corporate management, behaviors, decisions, and actions by managers will deviate from those required to maximize shareholder value. In other words, agency theory assumes a divergency between the interests of corporate managers and those of shareholders (Aguilera et al., 2008; Bushman and Smith, 2001; Coles and Hesterly, 2000). Asymmetric information and incomplete contracts lead to agency conflicts between capital providers and managers. These conflicts have associated costs. To the extent that certain

internal factors (corporate governance structures) reduce these costs, they might give an impulse towards a better performance. Weak corporate governance causes agency costs and, consequently, a poorer performance (Core et al., 2006). Hillman and Daziel (2003) suggest that Boards are the key to aligning the interests of shareholders and managers. This is the reason to consider gender diversity on Boards as a tool for reducing agency costs and, thus, improving performance. This argument is only acceptable if heterogeneous Boards are thought of as a tool for better control. This control depends on an expansion of points of view.

The Spanish case is different. Research in agency theory has been based on the U.S. model. Large-sized companies and dispersed ownership were used. Companies are family-owned structures or present a more concentrated ownership. Therefore, agency conflict between ownership and management are not so relevant. Moreover, the impact of reducing the associated costs is hardly significant. On the contrary, dependence on outside resources, or stakeholders, may prove crucial to survival or success. Smaller-sized firms do not experience a significant agency problem either (Forbes y Milliken, 1999). The Board does not control in a conventional way. Property rights and management are held by the same people. This is most evident in firms with an entrepreneurial profile. Nevertheless, all these limitations are not applicable to our sample. Our study is based on data from major companies listed on the Stock Exchange.

Based on the reasons above, some studies are focused on theoretical assumptions that explain the impact of diversity in the context of small and medium firms. Along these lines, different authors suggest the base is the impact of diversity on resource dependence theory, coming into the category of research on organizational behavior (Hillman and Dalziel, 2003). Resource dependence theory is used to analyze Board functions and actions (Gabrielsson and Huse, 2004). Thus, the focus of the relationship between ownership and management is shifted to the links of the company with its environment.

According to this framework, Boards are part of the organizations and their environment, and by providing the organization with information and resources, Boards help to create a cushion against an uncertain environment. This viewpoint suggests that, on an individual basis, Board members bring resources to the organization as a result of their backgrounds. In addition to the environmental perspective, a second framework argues that board members perform an internal control function and, through administrative efforts, can influence organizational efficiency. Both viewpoints suggest that properly structured governing boards have the potential to influence organizational outcomes. Earlier studies provided some empirical support for this relationship, particularly with regards to Board member occupation and gender (Siciliano, 1996).

Predictions about performance are similar to those of the agency theory if applied to gender diversity on Boards. In this context, diversity would expand to profiles of the directors, for example, in order to improve relations with competitors and customers, knowledge about the sector or possibilities of financial access. In short, an increase in the procuring of critical resources will lead to better performance. The dependent resource function will be very relevant in obtaining external financing for companies that lack access to capital markets (Voordeckers et al, 2007). Fryxell and Lerner (1989) suggest a need to develop a stakeholder theory of representation which may help to explain when underrepresented groups may make additional progress and intervention may be needed. Such a theory needs to link industry structural variables to the need for corporate responsiveness to specific stakeholder groups.

Stakeholder theory takes into account the interests of other agents associated with the firm (employees, customers, suppliers, banks, etc.). This theory is not only linked to interests of stakeholders. Recent literature has highlighted the contribution of the stakeholder approach to creating business value (Berman et al., 1999).

Gender diversity and presence of women on the Board of Directors could be considered good indicators of social responsibility. This could also be a signal oriented to stakeholders (Oakley, 2000; Ibrahim and Angelidis, 1994; Webb, 2004) on the characteristic of “independence”. In fact, major developments in this area link characteristics of Board of Directors to performance of the company. However, Carter et al. (2003) highlight that dominant theories are not conclusive in the study of corporate governance. These theories do not reveal that more diversity causes a significant impact on performance. Hillman et al. (2002) point out that greater gender diversity on the Board allows for more open government processes. These processes will guarantee stakeholder interests.

From a strategic perspective, one of the most important intangible resources for competitive advantage is corporate reputation (perception of stakeholders) (Roberts and Dowling, 2002). Several studies have explored the effects specific social and/or ethical responsibility issues may have on corporate reputation. While some of those works used “resource-based” or

"social identity" theories (De Luis et al., 2007), it is diversity that is distinctly and favourably viewed by analysts and institutional investors (Carter et al., 2003) and, subsequently, considered a relevant dimension (Berman et al., 1999). Since people or groups interested in establishing contracts with the firm will not need to incur additional costs to increase monitoring, good reputation could thus be materialized in profitability, or even in cost of debt reduction (Kang et al., 2007; Tacheva and Huse, 2006).

2. Methodology

2.1. Research question. The aim of this paper is to analyze whether gender diversity could be a company success variable, by considering agency theory, stakeholders theory, and resource dependence theory. Every theory offers a comprehensive framework on its own building relationships between diversity and performance. But various elements of theories can be applied in different circumstances. We tested the relationship between women on decision-making positions and business success. The hypothesis to be tested is presented below.

H_0: Women on decision-making positions are not related to business success.

2.2. Sample. The sample used in the analysis covers companies listed on the Madrid Stock Exchange. The database used is the Sistema de Análisis de Balances Ibéricos (SABI). 146 companies were analyzed. SABI offers financial information of each company. The analysis period is 2005-2007. Financial ratios were calculated for all this period. Since additional data were needed (for example, number of women and men in decision-making positions), corporate governance reports were also used to provide data.

The following filters were applied to the initial sample:

- Financial firms were eliminated. Their Balance sheet structure and operating income statement are different to those of the other companies in the sample. This type of firms could probably distort the analysis. So, 13 banks were eliminated.
- If equity was higher than zero was observed. All companies meet this requirement. In this case, none of them were eliminated.
- Companies with lost accounting data were removed. Exactly, 35 companies were deleted.

Also, firms that had extreme values were eliminated, since they distort the results. In total 15 companies were removed.

Therefore, after applying filters, the final sample consisted of 98 companies and 294 observations.

This sample was chosen for different reasons. First, it is a set of large companies, the most important in the Spanish stock market. In this sense, large corporations are firms politically hard-pressed to meet the minimum requirements in relation to gender parity, so the inclusion of women in greater or lesser degree probably reflects a conscious choice. Second, the sample size is statistically significant, with enough variation to have reliable statistical inferences. Third, the study allows conclusions to be drawn about the most important Spanish companies with greater incentives to carry out a policy of inclusion and promotion of women in leading positions of corporate responsibility.

2.3. Variables. The variables selected for analysis are listed in Table 1. The dependent variable is *WOMEN*. The review of the literature suggests several alternatives to determine the diversity measure. According to literature review, we have calculated the percentage of women on decision-making positions (Erhardt et al., 2003; Adams and Ferreira, 2004). This percentage is the ratio between the number of women on the Board and top managers divided into the total number of people on the Board and top managers.

There are four independent variables proposed. All of them are indicators of business performance. They are: the variables of Tobin's Q market and sales growth, (i.e., Carter et al., 2003; Rose, 2007) *ROA* and *ROE* (i.e., Smith et al., 2006; Erhardt et al., 2003). The control variables are size of the Board (i.e., Yermack, 1996; Andrés et al., 2005), sector of activity (i.e., Vafeas, 1999) and Board of Directors independence (i.e., Pearce and Zahra, 1992; Bozec and Dia, 2007). Company size is also considered.

Table 1. Dependent, independent and control variables

Denomination	Type	Definition
Dependent variable		
WOMEN	Numerical	Percentage of women members of the Board of Directors and top management
Independent Variables		
ROA	Numerical	Return on assets
ROE	Numerical	Return on equity
GSALES	Numerical	Formed from the difference between sales1 and sales0 divided into sales0
QTOBIN	Numerical	Formed from the ratio of market value of the company and the replacement cost of assets
Control variables		
SECTOR	Numerical	Classification of the companies based on list provided by the Madrid Stock Exchange
SIZE	Numerical	Firm size measured by the logarithm of total assets
BDTMSIZE	Numerical	Number of members on Board of Directors and top management (Board of Directors and top management size)

Table 1 (cont.). Dependent, independent and control variables

DUALITY	Dichotomous	Dummy, takes value 1 if the Chief Executive serves as Chairman of the Board of Directors, taking value 0 otherwise (Independency of Board of Directors)
MEETINGS	Numerical	Number of meetings of the Board of Directors (activity of the Boards of Directors)
PERNONEXE	Numerical	Percentage of non-executive members on Board of Directors (Independency of Board of Directors)

2.4. Empirical development. To test the hypothesis proposed in the paper, the analysis technique selected is a dependent model based on a linear regression for panel data. The proposed models were estimated using fixed effects and random effects, testing the validity of the random effects on fixed effects by the Hausman test.

Thus, the expression of the estimated models is as follows:

$$WOMEN_{it} = \beta_0 + \beta_1 \cdot ROA_{it} + \beta_2 \cdot ROE_{it} + \\ + \beta_3 \cdot GSALES_{it} + \beta_4 \cdot QTOBIN_{it} + \beta_5 \cdot Y_{it} + \varepsilon_{it}, \quad (1)$$

where *i* is the company, and *t* is the year; *WOMEN* is the dependent variable, women percentage in decision-making positions; *ROA*, *ROE*, *GSALES*, *QTOBIN* are the independent variables. They represent company performance; β are the parameters to be estimated; *Y* corresponds to a vector of other explanatory variables defined as control variables; ε is the error component.

3. Results

The descriptive analysis (Table 2) shows that the presence of women in positions of decision-making, in companies listed in stock market, is very low. That is, between 5.47%-7.16% of the top managers and 5.19%-6.85% on the Board of Directors. All this shows that the decision-making in Spanish listed companies is in the hands of men.

Table 2. Global situation of the Boards of Directors and top management

	2005	2006	2007
N. of members on Board of Directors	1.291	1.406	1.328
Women on Board of Directors	67	95	91
%	5.19%	6.76%	6.85%
Total Executive Directors	261	283	249
Women Executive Directors	8	12	9
%	3,07%	4,24%	3,61%
Total Proprietor Directors	562	610	614
Women Proprietor Directors	37	50	54
%	6.58%	8.20%	8.79%
Total Independent Directors	431	459	408
Women Independent Directors	17	26	25
%	3.94%	5.66%	6.13%
Women on top management	50	57	70
%	5.65%	5.47%	7.16%

This situation is worse when we look at Table 3. We realized that most of the companies only have one woman. Yet this information could result in a contagion effect. This means that the presence of women on Boards facilitates the incorporation of new women to them.

Five women on the Board is the maximum number of women. Only two companies have this number. However, the list of companies having no women on its Board is huge. 2006 is the year with fewer women: 60.8% of the companies have not got any women on their Board. 2005 is the opposite: 47.3%. This means that most of the Boards of the Spanish listed companies prefer uniformity, which means less gender diversity.

Table 3. Number of women on Board of Directors

	2005	2006	2007
Companies	120	129	124
Without women	73	61	64
1 woman	35	53	42
2 women	7	8	11
3 women	3	3	3
4 women	1	3	2
5 women	1	1	2
% without women	60.8%	47.3%	51.6%
% with women	39.2%	52.7%	48.4%

To study the influence of the explanatory variables on the explained variable, we have used the panel data methodology. Methodology combines data and the structural temporal dimension. Since this is a panel data set, we have time series observations on a sample of individual units, with observations in the period of 2005-2007 for the 294 items that make up our study sample (Arellano and Bover, 1990).

The main objective when we apply this method is to perform a dynamic analysis incorporating the temporal dimension of the data. We consider the observations of a group of individuals over a period of time so that we can see certain aspects that unequally affect the companies included in our sample. These are invariant in time and directly affect the decisions they make. In other words, we can observe the effects on the company.

The first step in a panel data analysis is to verify the existence of firm effects. That is why, we perform the Breusch and Pagan test (1980) or the Lagrangiano multiplier. With this we test if the variance of firm effects is significantly different from zero. After performing the Breusch and Pagan test on the existing data in our study sample (Table 4) we conclude that

there are business effects on our study, as there is a variance in them, so that the characteristics of each company influence the dependent variable.

Table 4. Results of Breusch and Pagan test

	Var	sd = sqrt (Var)
Women	81. 40074	9.022236
e	2.595896	5.094994
u	4.841754	6.958272
$Chi^2 = 47.25$		
Prob > Chi2 = 0.0000		

The next step is to determine whether such effects are fixed or random, so we conducted the estimations of fixed effects and random effects. Knowing that the consistent estimations are the fixed effects estimations and the more efficient estimates are the random effects. To answer the question of whether consistent and efficient estimates are significantly different, we introduce the Hausman test (1978). This test compares the model estimates of fixed effects and random effects. If it found systematic differences we can understand that there are a correlation between error and the business effects, so we should continue with the consistent estimates, that is, fixed effects estimations.

Once our data was tested with the Hausman test, what we obtained was that Prob > Chi^2 = 0.0004. Therefore, we reject the null hypothesis that the effects are random effects company and accept the alternative hypothesis. For this reason, we conclude that we should continue with the fixed effects estimates of our multiple linear regression models.

To correct the problems of autocorrelation, heteroscedasticity and multicollinearity we have obtained robust estimates of our multiple linear regression models. Our empirical results are thus robust, and the results for fixed effects are shown in Table 5.

Table 5. Independent variable coefficients and control for robust fixed effects model

	Coef.	t	P > |t|
ROA	-.0559813	-1.61	0.111
ROE	-.0140456	-0.51	0.610
GSALES	.0011005	7.24	0.000
QTOBIN	-1.448.292	-0.41	0.679
SECTOR	Omitted		
SIZE	1.010.071	2.49	0.015
BDTMSIZE	-.3292954	-3.28	0.002
DUALITY	1.125.436	0.56	0.580
MEETINGS	.8131927	2.75	0.007
PERNONEXE	.0163363	0.18	0.855

Thus, the presence of women in the decision-making positions of the companies is due to firm size, the size of Board of Directors and the number of meetings of the Board throughout the year. Furthermore, and confirming previous studies in the literature, we do not assert that there is a direct relationship between the presence of women in a company and its success or increase in performance, therefore accepting the null hypothesis initially stated.

Conclusions

This work, as an extension of previous studies, has analyzed the effect that the presence of women on the Board of Directors has on the result of companies being expressed through different concept accounting ratios and market value. Specifically, we have analyzed the organizational environments that facilitate the performance of their duties.

In recent years, the composition of the Board of Directors has received special attention because of its impact on Board independence and better monitoring of managers. Among the issues discussed with respect to this composition, gender diversity is especially outstanding. This can become a competitive advantage and a source of business value. Industrial complementarities between men and women and perspectives that diversity provides in deliberative processes can lead to a broader base of knowledge, creativity and innovation. Consequently, a diverse team will present a better preparation for better decision making and problem solving.

However, diversity also entails the possible emergence of a greater number of conflicts and a possible slowdown in decision making, which can be particularly bad in competitive environments in which speed may be crucial in making decisions.

The empirical evidence is not conclusive about the impact of gender diversity on corporate governance, on financial performance and business value, often yielding no direct effect on various measures of profitability.

The factors that motivate the inclusion of women in business are the size of the company, the size of the Board of Directors and the number of meetings of the Board throughout the year. However, there is not a direct relationship between business success and the presence of women on the Board of Directors, confirming previous results that were obtained in the literature.

There are several limitations to this study that should be considered for future works. First, the study is focused on companies listed on the Madrid Stock Exchange. These are large companies, which may be those in which there is potentially greater gender diversity on Boards and in top management. And second, we have not taken into account the behavioral differences between the women and men of the top management and board, as it would appear that the fact that there is a correlation between gender diversity and success may be due to the inclusion of women who are less skilled in business.

References

1. Adams, R.B. and Ferreira, D. (2004). "Gender diversity in the boardroom", ECGI Working Paper Series in Finance 58, http://www.ssrn.com/abstract=594506.pdf.
2. Aguilera, R.V., Filatotchev I., Gospel H. and Jackson, G. (2008). An Organizational Approach to Comparative Corporate Governance: Costs, Contingencies, and Complementarities, *Organization Science*. Vol. 19, No. 3, May-June 2008, 475-492.
3. Arellano, M., Bover, O. (1990). "La econometría de datos de panel", *Investigaciones Económicas*, 14, Vol. 1, 3-45.
4. Berman, S.L.; Wicks, A.C., Kotha, S. and Jones, T.M. (1999). "Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance", *Academy of Management Journal*, 42 (5), 488-506.
5. Bonn, I., Yoshikawa T., and Phan P.H. (2004). "Effects of board structure on firm performance: a comparison between Japan and Australia", *Asian Business & Management*, 3, 105-125.
6. Bozec, R., Dia, M. (2007), "Board Structure and Firm Technical Efficiency: Evidence from Canadian State-owned Enterprises", *European Journal of Operational Research*, 177, 1734-1750.
7. Breusch, T., Pagan, A. (1980). "The Lagrange multiplier and its applications to model specification in econometrics", *Review of Economics*.
8. Bushman, R.M. and Smith, A. J. (2001). "Financial Accounting Information and Corporate Governance", *Journal of Accounting & Economics*, Vol. 32, No. 1-3, December.
9. Carrasco, A. and Laffarga, J. (2006). "Los códigos de buen gobierno y la diversidad", 12 Encuentro ASEPUC, Universidad de Burgos.
10. (2007a). "La diversidad de género en el Código Unificado español y la práctica empresarial", *Pecvnia*, 4, 1-25.
11. (2007b). "La diversidad en el código de buen gobierno español", en AYALA, J.C. y grupo de investigación FEDRA (editores), Conocimiento, innovación y emprendedores. Camino al futuro, Universidad de la Rioja, 3, 349-3365.
12. Carter, D.A. Simkins, B.J. and Simpson, W.G. (2003). "Corporate Governance, Board Diversity and Firm Value", *The Financial Review*, 38 (1), 33-53.
13. Coles, J.W., & Hesterly, W.S. (2000). Independence of the chairman and board composition: firm choices and shareholder value, *Journal of Management*, 26 (2), 195-214.
14. Core, J.E., Guay, W.R. and Rusticus, T.O. (2006), "Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations", *The Journal of Finance*, 61 (2), 655-687.
15. De Luis, P., Martínez, A., Pérez, M. and Vela, M.J. (2007). "La diversidad de género en la alta dirección de las mayores empresas españolas", *Investigaciones Europeas de Dirección y Economía de la Empresa*, 13 (2), 33-53.
16. Erhardt, N.L., Werbel, J.D. and Shrader, C.B. (2003). "Board of director diversity and firm financial performance", *Corporate Governance: An International Review*, 11 (2), 102-111.
17. Fernández, E., Gómez, S. and Cuervo, A. (2004). "The stock market reaction on the introduction of best practices codes by Spanish firms", *Corporante Governance: An International Review*, 12 (1), 29-46.
18. Forbes, D.P. and Milliken F.J. (1999). "Cognition and corporate governance: understanding boards of directors as strategic decision-making groups", *Academy of Management Review*, 24 (3), 489-505.
19. Fryxell, G.E. and Lerner, L.D. (1989). "Contrasting corporate profiles: women and minority representation in top management positions", *Journal of Business Ethics*, 8 (5), 341-352.
20. Gabrielsson, J. and Huse, M. (2004). "Context, behavior and evolution: challenges in research on boards and governance", *International Studies in Management and Organization*, 34, 11-36.
21. Hausman, J.A. (1978). "Specification test in econometrics", *Econometrica*, Vol. 46, 1251-1271.
22. Heidrick & Struggles (2005). "Corporate governance in Europe: What's the outlook?", www.heidrick.com.
23. Hillman, A.J., Cannella, A.A. and Harris, I.C. (2002). "Women and racial minorities in the boardroom: how do directors differ?" *Journal of Management*, 28, 747-763.
24. Hillman, A.J. and Dalziel, T. (2003). "Board of directors and firm performance: integrating agency and resource dependence perspectives", *Academy of Management Review*, 28 (3), 383-396.
25. Ibrahim, N.A. and Angelidis, J.P. (1994). "Effect of board members' gender on corporate social responsiveness orientation", *Journal of Applied Business Research*, 10 (1), 35-40.
26. Kang, H., Cheng, M. and Gray, S.J. (2007). "Corporate governance and board composition: diversity and independence of Australian boards", *Corporate Governance: An International Review*, 15 (2), 194-207.
27. Kiel, G.C. and Nicholson, G.J. (2003). "Board composition and corporate performance: how the Australian experience informs contrasting theories of corporate governance", *Corporate Governance: An International Review*, 11 (3), 189-205.
28. Marimuthu, M. (2008). "Ethnic Diversity on Boards of Directors and Its Implications on Firm Financial Performance", *The Journal of International Social Research*, Vol. 1/4, Summer, 431-445.
29. Mateos, R., Escot, L. and Gimeno, R. (2006). "Análisis de la presencia de mujeres en los Consejos de Administración de las 1000 mayores empresas españolas", Documento de trabajo, Universidad San Pablo.
30. Milliken, F.J. and Martins, I.L. (1996). "Searching for common treads: understanding the multiple effects of diversity in organizational groups", *Academy of Management Journal*, 21 (2), 402-433.

31. Oakley, J.G. (2000). "Gender-based barriers to senior management positions: understanding the scarcity of female CEOs", *Journal of Business Ethics*, 27 (4), 321-334.
32. Olcese, A., Bescós, M., Botín-Sanz, A.P., De La Cruz, M.V., Jiménez, I. and Ureta, J.C. (2005). "Diversidad de género en los consejos de administración de las sociedades cotizadas y Cajas de Ahorro españolas", Papeles de la Fundación n 12, Fundación de Estudios Financieros, Madrid.
33. Pearce, J., Zahra, S. (1992). "Board Composition from a Strategic Contingency Perspective", *Journal of Management Studies*, 29 (4), 411-438.
34. Pelled, L.H. (1996). "Demographic diversity, conflict, and work group outcomes: an intervening process theory", *Organization Science*, 7 (6), 615-631.
35. Pelled, L.H., Eisenhardt, K.M. and Xing, K.R. (1999). "Exploring the black box: an analysis of work group diversity, conflict, and performance", *Administrative Science Quarterly*, 44 (1), 1-28.
36. Peterson, C.A. and Philpot, J. (2007). "Women's roles on U.S. Fortune 500 boards: director expertise and committee memberships", *Journal of Business Ethics*, 72, 177-196.
37. Randøy, T., Thomsen, S. and Oxelheim, L. (2006). A Nordic perspective on corporate board diversity, Nordic Innovation Centre.
38. Roberts, P.W. and Dowling, G.R. (2002). "Corporate reputation and sustained superior financial performance", *Strategic Management Journal*, 23, 1077-1093.
39. Rose, C. (2007). "Does female board representation influence firm performance? The Danish evidence", *Corporate Governance: an International Review*, 15 (2), 404-413.
40. Rosenzweig, P. (1998). "Managing the new global workforce: Fostering diversity, forging consistency", *European Management Journal*, 16 (6), 644-652.
41. Ruigrok, W., Peck, S., Tacheva, S., Greve, P. and Hu, Y. (2006). "The determinants and effects of board nomination committees", *Journal of Management Governance*, 10, 119-148.
42. Shrader, C.B., Blackburn, V.B. and Iles, P. (1997). "Women in management and firm financial performance: An explorative study", *Journal of Managerial Issues*, 9 (3), 355-372.
43. Siciliano, J.I. (1996). The relationship of board member diversity to organizational performance, *Journal of Business Ethics*, 15, 12, 1313-1320.
44. Smith, E. (2007). "Gender influence on firm-level entrepreneurship through the power structure of boards", *Women in Management Review*, 22 (3), 168-186.
45. Tacheva, S. and Huse, M. (2006). "Women directors and board task performance: mediating and moderating effects of board working style", European Academy of Management Conference, February, Oslo.
46. Van Der Walt, N. and Ingley, C. (2003). "Board dynamics and the influence of professional background, gender and ethnic diversity of directors", *Corporate Governance: an International Review*, 11 (3), 218-234.
47. Voordeckers, W., Van Gils A. and Van Den Heuvel, J. (2007). "Board composition in small and medium-sized family firms", *Journal of Small Business Management*, 45 (1), 137-156.
48. Webb, E. (2004). "An examination of socially responsible firms' board structure", *Journal of Management and Governance*, 8, 255-277.
49. Zahra, S. and Stanton, W. (1988). "The Implications of Board of Directors: Composition for Corporate Strategy and Performance", *International Journal of Management*, 5, 261-272.

Appendix. Sectors classification of the Madrid Stock Exchange

LIST OF COMPANIES BY SECTOR

2. Basic Materials, Manufacturing and Construction	3. Consumer Goods	4. Consumer Services
5. Financial Services and Real Estate	6. Technology and Telecommunications	

SECTOR: 1. PETROLEUM AND ENERGY	
Subsector: 1.1 Petroleum	Braskem,S.A. Cia.Española de Petroleos, S.A. Petroleo Brasileiro,S.A. (petrobras) Repsol Ypf,S.A.
Subsector: 1.2 Electricity and Gas	Centrais Ele. Brasileira S.A. Eletrobras Com.Energetica de Minas Gerais-cemig Companhia Paranaense de Energia-copel B Empresa Nacional de Electricidad (chile) Enagas, S.A. Endesa, Sociedad Anonima Enersis,S.A. Gas Natural Sdg, S.A. Iberdrola, S.A. Red Electrica de España, S.A. Union Fenosa,S.A. Usinas Siderurgicas de Minas Gerais,S.A.
Subsector: 1.3 Water and Other	Sdad.General Aguas de Barcelona, S.A.

1. Petroleum and Energy	3. Consumer Goods	4. Consumer Services
5. Financial Services and Real Estate	6. Technology and Telecommunications	

SECTOR: 2. BASIC MATERIALS, MANUFACTURING AND CONSTRUCION	
Subsector: 2.1 Minerals, Metals and Transformation	Acerinox, S.A. Arcelor,S.A. Cie Automotive, S.A. Companhia Vale Do Rio Doce Española del Zinc, S.A. Gerdau,S.A. Hullas del Coto Cortes, Minas de Cerredo Hullera Vasco Leonesa S.A. Lingotes Especiales S.A. Tubacex,S.A. Tubos Reunidos,S.A. Volcan, Compañia Minera S.A.A.
Subsector: 2.2 Manufacture and Assembly of equipment	Azkoyen S.A. Const.y Auxiliar de Ferrocarriles S.A. Duro Felguera, S.A. Elecnor S. A. Gamesa Corporacion Tecnologica, S.A. Mecalux, S.A. Nicolas Correa S.A. Sdad.Española del Acumulador Tudor,S.A. Zardoya Otis, S.A.
Subsector: 2.3 Construction	Acciona,S.A. Acs,Actividades de Const.y Servicios S.A Cia.Levantina, Edificacion de O.Publicas Corporacion Geo, S.A. de C.V. Fomento de Constr. y Contratas S.A. Grupo Ferrovial, S.A. Obrascon Huarte Lain, S.A. Sacyr Vallehermoso, S.A.
Subsector: 2.4 Construction Materials	Cementos Lemona S.A. Cementos Portland Valderrivas, S.A. Tableros de Fibras, S.A. Uralita, S.A.
Subsector: 2.5 Chemical Industry	Aracruz Celulose, S.A. Ercros S.A. Seda de Barcelona, S.A. (la) Suzano Petroquimica, S.A.
Subsector: 2.6 Engineering and Other	Abengoa, S.A. Befesa,Medio Ambiente,S.A. Inypsa Informes y Proyectos, S.A. Urbar Ingenieros, S.A.
Subsector: 2.7 Aerospace	European Aeronautic Defence Space Co.N.V

1. Petroleum and Energy	2. Basic Materials, Manufacturing and Construction	4. Consumer Services
5. Financial Services and Real Estate	6. Technology and Telecommunications	

SECTOR: 3. CONSUMER GOODS	
Subsector: 3.1 Food and Beverages	Agrofruse S. A. Baron de Ley, S.A. Bodegas Riojanas, S.A. Campofrio Alimentacion,S.A. Cia.Vinicola del Norte de España Ebro Puleva, S.A. Federico Paternina, S.A. Grupo Modelo,S.A. de C.V. Natra S.A. Pescanova, S.A. Sadia, S.A. Sos Cuetara, S.A. Viscofan, S.A.
Subsector: 3.2 Textiles, Clothing and Footwear	Adolfo Dominguez, S.A. Dogi International Fabrics, S.A. Industria de Diseño Textil,S.A."inditex" Industrias del Curtido S.A. Liwe Española, S.A. Sniace Tavex Algodonera,S.A.
Subsector: 3.3 Paper and Printing	Grupo Empresarial Ence,S.A. Iberpapel Gestion, S.A. Miquel y Costas & Miquel, S.A. Papeles y Cartones de Europa,S.A. Reno de Medici, S.P.A. Suzano Bahia Sul Papel e Celulose, S.A. Unipapel, S.A.
Subsector: 3.5 Pharmaceuticals and Biotechnology	Bayer A.G. Faes Farma,S.A. Natraceutical,S.A. Prim, S.A. Puleva Biotech,S.A. Zeltia, S.A.
Subsector: 3.6 Other Consumer Goods	Altadis, S.A. Grupo Elektra, S.A. de C. V. Indo Internacional S.A. Vidrala S.A.

1. Petroleum and Energy	2. Basic Materials, Manufacturing and Construction	3. Consumer Goods
5. Financial Services and Real Estate	6. Technology and Telecommunications	

SECTOR: 4. CONSUMER SERVICES	
Subsector: 4.1 Leisure, Tourism and Hospitality	Nh Hoteles, S.A. Sol Melia,S.A. Tele Pizza S.A.
Subsector: 4.2 Retail Trade	Distribucion y Servicio D & S S.A. Service Point Solutions,S.A.
Subsector: 4.3 Media and Advertising	Antena 3 de Television, S.A. Gestevision Telecinco,S.A. Net Servicos de Comunicacao, S.A. Promotora de Informaciones,S.A. Sogecable, S.A. Telefonica Publicidad e Informacion,S.A. Tv Azteca, S.A. de C.V.
Subsector: 4.4 Transport and Distribution	Cia.de Distribucion Integral Logista,S.A Cia.Logistica de Hidrocarburos Clh,S.A. Iberia, Lineas Aereas de España, S.A.
Subsector: 4.5 Highways and Parking	Abertis Infraestructuras, S.A. Cintra Conc.de Inf.de Transporte,S.A. Europistas Concesionaria Española, S.A.
Subsector: 4.6 Other Services	Corporacion Dermoestetica, S.A. Funespaña,S.A. Prosegur S.A., Cia. de Seguridad

1. Petroleum and Energy	2. Basic Materials, Manufacturing and Construction	3. Consumer Goods
4. Consumer Services	6. Technology and Telecommunications	

SECTOR: 5. FINANCIAL SERVICES AND REAL ESTATE	
Subsector: 5.1 Banking	Banco Bilbao Vizcaya Argentaria, S.A. Banco Bradesco S.A. Banco de Andalucia, S.A. Banco de Castilla, S.A. Banco de Chile Banco de Credito Balear S.A. Banco de Galicia, S.A. Banco de Sabadell, S.A. Banco de Valencia, S.A. Banco de Vasconia, S.A. Banco Español de Credito,S.A. Banco Guipuzcoano, S.A. Banco Pastor, S.A. Banco Popular Español, S.A. Banco Rio de la Plata, S.A. Banco Santander Central Hispano, S.A. Bankinter,S.A. Bbva Banco Frances,S.A. Corporacion Ubc Internacional,S.A. Santander Bancorp
Subsector: 5.2 Insurance	Corporacion Mapfre,S.A. Grupo Catalana de Occidente S.A.
Subsector: 5.3 Portfolio and Holdings	Alfa,S.A. de C.V. Bradespar,S.A. Cartera Hotelera, S.A. Cia.Inversiones Mobiliarias Barcino,S.A. Corporacion Financiera Alba, S.A. Dinamia Capital Privado,S.A. Hispana Holding S.A. Inv. Azalba,S.A. Popularinsa, S.A. Union Europea de Inversiones, S.A.
Subsector: 5.4 Invesment Company with Variable Capital (SICAV)	All
Subsector: 5.5 Real Estate and Other	Ahorro Familiar, S.A. Ayco Grupo Inmobiliario,S.A. Cia. de Inversiones Cinsa S.A. Española de Viviendas en Alquiler,S.A. Fadesa Inmobiliaria,S.A. Grupo Inmocaral,S.A. Inbesos, S.A. Inmobiliaria Colonial, S.A. Inmobiliaria del Sur, S.A. Inmobiliaria Urbis, S.A. Inmolevante, S.A. Metrovacesa S.A. Montebalito, S.A. Parquesol Inmobiliaria y Proyectos, S.A. Promociones y Conciertos Inmobiliarios S Renta Corporacion Real Estate, S.A. Rusticas, S.A. Sare Holding, S.A. de C.V. Sotogrande S.A.
	Testa Inmuebles en Renta,S.A. Urbanizaciones y Transportes, S.A.

1. Petroleum and Energy	2. Basic Materials, Manufacturing and Construction	3. Consumer Goods
4. Consumer Services	5. Financial Services and Real Estate	

SECTOR: 6. TECHNOLOGY AND TELECOMMUNICATIONS	
Subsector: 6.1 Telecommunications and Other	America Movil,S.A. de C.V. Avanzit, S.A. Jazztel, P.L.C. Tecnocom,Telecomunicaciones y Energia,S. Telefonica ,S.A. Telefonica Moviles,S.A. Telefonos de Mexico,S.A. de C.V.
Subsector: 6.2 Electronics and Software	Amper, S.A. Indra Sistemas, S.A., Serie A

Fig. 1. List of companies by sector