

Gender Diversity in Top Positions: Is it Profitable? ¹

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Abstract

This study investigates gender diversity on Boards and Top Management of Spanish firms and its effects on financial performance. The paper also investigates the moderator effect of Gender diversity on Top Management in the relationship between gender diversity on Boards and financial performance, and vice versa. The results show a positive impact in some performance measures and a negative moderator effect. To avoid the endogeneity problem a two-stage least square (2SLS) methodology has been used. The results justify the recent law and Good Corporate Governance Code that forces the Spanish firms to be proactive.

Keywords: gender diversity, corporate governance, firm performance.

Introduction

The use of “best practices” codes in corporate governance is a very important topic nowadays for both researchers and legislators (Andrés *et al.*, 2005) because of the implications on firm performance. Scholars evidence that the declared degree of compliance with corporate governance codes has positive impacts on stock valuation, for example in Spanish (Fernandez *et al.*, 2004) or German companies (Goucharov *et al.*, 2006). A “best practice” proposed in some countries is the increase of female representation on corporate boards. The goal is to get a gender balance: no more than 60 and no less than 40 percent of either gender. This goal is defended by policy makers so there is an extensive body of laws in many countries.

Given the emphasis being placed on boards and top management diversity as a part of good corporate governance, as well as the support this goal has from Governments, the relationship between gender diversity and shareholder value creation deserves both theoretical and empirical investigation.

Apart from the ethical issues, this paper only takes into account the financial perspective, attempting to show if gender balance on top positions has a positive effect on financial performance in Spanish firms. After showing up the social and political context in Spain, the paper related some theoretical considerations and the hypothesis to test. For the empirical study we have used a sample of Spanish firms. To avoid the endogeneity problem a two-stage least square (2SLS) methodology has been used. The concluding section provides a discussion of the implications of the findings for firms and institutions, as well as the limitations of the research and future research directions.

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Social and Political Context

Studying this issue in Spain is adequate for several reasons. On the one hand, women participation in Spanish work force has increased a lot. Nowadays, it is similar to countries around it, such as Germany, France, or United Kingdom. In the last decade (1998-2007), employment ratio of women in Spain has become 54.7 percent from 35.8 percent, while Europe's mean has become 58.3 percent from 51.6 percent and in United States has stayed around 66 percent.

On the other hand, the social and political commitment by equality of opportunities between women and men has caused legislative changes in the latter years, so Spain has become one of the more advanced countries in this issue. These efforts are reflected in the political level. Since 2006, 50 percent of Senior Ministers in Spain are women; amount only reached by Norway and Sweden. In 1998, 13.3 percent in Lower or Single House were women, becoming 10th place in world ranking in 2008 with 36.3 percent (higher than Norway), while in Sweden, 1st country in the 19998 ranking with 40.4 percent of women, became 47 percent in 2008. In spite of that, women hold relatively few of the highly visible decision-making positions in Spain. In 2006, women were 4 percent of members of highest decision-making body, compared to 27 percent in Norway (Eurostat, 2008).

Specifically, the Constitutional Act 3/2007 of 22 March for Effective Equality between Women and Men calls for a balanced presence of women and men on corporate boards which is compulsory for public administrations and firms but it is only recommended for private companies to introduce affirmative actions.

Article 75. Women' participation in mercantile companies' boards of directors: "Companies obliged to present unabridged financial statements of income will endeavour to include a sufficient number of women on their boards of directors to reach a balanced presence of women and men within eight years of the entry into effect of this Act".

Spain has also followed the observed trend in majority of developing countries to include gender diversity in good corporate governance codes. The Code Conthe (approved in 2006) says:

"When women directors are few or non existent, the board should state the reasons for this situation and the measures taken to correct it, in particularThe company makes a conscious effort to include women with the target profile among the candidates for board places"

These suggestions are justified as an efficient objective. Missing the opportunity to use the talent from 51 percent of the population is not efficient to companies, apart from the ethical-political character that adequate gender diversity could provide. They recognize that male-dominated corporate boards are a self-induced phenomenon so the lack of diversity will not be corrected without an intentional effort.

We cannot speak yet about the advances that these norms will bring, but, with the current data we can already see several changes. In 2008, first year that Spanish firms had to inform about gender issues, the number of women on boards was 6 percent and 8 percent the next year (2009), while in previous years it had remained about 3 percent.

Theoretical Considerations

Research into gender balance on both board and top management positions has used two points of view: the financial and the ethical. The financial approach is the one most used

in order to explain the benefits that women, or at least a gender balance, would give to the firm's performance. Different theories support this approach: agency theory (Carter *et al.*, 2003; Jurkus *et al.*, 2011), a resource-based view of the firm (Schyns and Sanders 2005), or social theories (Kent and Moss 1994; Nielsen and Huse, 2010). As for the ethical approach, gender balance on corporate boards is an important social issue related to the equality of opportunities between women and men, which has been studied by feminist theories (Ely and Padavic 2007; Cinar and Hakan 2008; Syed and Murray 2008; Dezso and Ross, 2008) and the corporate social responsibility approach (Carroll 1991). From this ethical approach, it has been examined how a firm's gender balance behaviour is influenced by the managers' system of values and psychology with respect to equality of opportunities. In this article we show only theories from the financial approach.

Agency theory

Agency theory is the theoretical framework most often used by investigators in finance and economics to understand the link between board characteristics, management team and firm value. The arguments of Fama and Jensen (1983) propose a very important role for the board as a mechanism to control and monitor managers. The main argument derived from agency theory is board independence which is critical for boards to function in the best interest of the shareholders. Kesner (1988) found that because of the likelihood of their being outsiders (except in family businesses where ownership and control are not separated), women have a great deal to offer boards. Fondas (2000) argues that the presence of women directors helps a board execute its strategic function because they may have a slight edge over men in terms of impacting strategic planning. Carter *et al.* (2003) also argue that diversity may increase board independence because people with a different gender, ethnicity, or cultural background might ask questions that would not come from directors with more traditional backgrounds; however, these scholars find difficulties to link board diversity to the incentives for directors to build their reputations as expert monitors.

Agency theory is also used to explain gender diversity in top management. Jurkus *et al.* (2011) show that diversity is significantly negatively related to agency costs in firms in less competitive markets and suggest that increasing diversity in management can have beneficial effects in firms where strong external governance is absent. Therefore, the increasing number of women in management may explain performance improvements and reductions in agency costs (in some but not all markets).

Resource-based view of the firm

The resource-based view of the firm offers another rationale for the arguments of putting women on corporate boards and, mainly, on top management. Firms can develop strong competitive advantages by accumulating or controlling unique or difficult to duplicate bundles of resources, as well as dynamic capabilities that integrate, build and reconfigure internal and external competencies to address rapidly changing environments (Prahalad and Hamel, 1990; Barney, 1991, 2001; Teece *et al.*, 1997). Structural/cultural models propose that social structures, systems, and arrangements that channel and define gender differences due to discrepancies in status and power are the cause for differences in leadership attributed to gender (Bartol *et al.*, 2003) Given the body of research supporting the hypothesis of gender differences (Rosener, 1995; Yammarino *et al.*, 1997; Earley and Mosakowski, 2000; Burke and Collins, 2001; Eagly and Johannesen-Schmidt, 2001; Schyns and Sanders, 2005), it follows that such differences could potentially be a resource given the extent to which each gender contributes different and complementary competencies to the task of management.

Katzenbach *et al.* (1995) state that many firms have underutilized human resources in this modern era of international competition and organisational change. The underutilized

management human resources tend to include females (Rosener, 1995; Daily *et al.*, 1999) who might otherwise bring different perspectives to the firm. By better utilizing the contributions of women (and minorities), firms can become more creative and accepting of change. The female directors form an elite group of women who provide role models for younger women. If these younger women move to firms where they know that women can achieve top positions because there are women directors, with them goes the firm's investment in recruitment, training and development, the corporate knowledge, and the corporate reputation as a women-friendly employer (Bilimoria, 2006). On the other hand, firms with greater representation of women demonstrate that they have drawn their top executives from a larger labour pool, which can further enhance organisational performance. Appold *et al.* (1998) and Bilimoria (2000) found that corporate reputations were enhanced by the visible presence of women on the board, and some major investors (such as large pension funds) showed a preference to invest in firms demonstrating diversity in board appointments. Burke (2000) also notes that women can add important symbolic value both inside and outside the organisation, linking the firm with other constituencies. Bilimoria and Wheeler (2000) see women directors as champions for change because they tend to be younger than their male counterparts and are open to relatively newer ideas and approaches to doing business.

Theories of social psychology

The theories of social psychology describe the impact of socialization and categorization on organisational outcomes. Social identity theory argues that women and men leaders behave somewhat differently because gender roles exert some influence on leadership roles in terms of the expectations leader they and others hold (Blau, 1977; Eagly, 1987; Eagly *et al.*, 2004). Firstly, managers identify themselves as members of an elite group and are therefore socialized into its norms (Kent and Moss, 1994). Secondly, women and men have different process of socialization, so that, different professional experiences and values of women can help increase their influence on boards and enhance decision-making. (Nielsen and Huse, 2010).

Research Hypotheses

There are empirical studies that find mixed relations from gender diversity to firm performance because they depend on the measures of performance and women on boards and top management. For example, Schrader *et al.* (1997) in their study of 200 US large firms found that the percentage of women manager (in the year 1992) was positively and significantly related to financial performance measures (ROS, ROA, ROI, and ROE in the years 1992 & 1993), but the percentage of female top managers and the percentage of women on board were not significantly related. Smith *et al.* (2006) use panel data for the 2,500 largest Danish firms during the period 1993-2001 and conclude that, after controlling for characteristics of the firm and direction of causality, the relationship is ambiguous and depends both on the measure of performance and the measure of the proportion of women in management. Regarding women in top management positions, the positive effect of female top CEOs is only significant for gross value added/turnover. However, extending the definition of top management to include vice-directors, the estimated coefficients turn significant for three out of four firm performance measures. Turning to the female representation on boards of directors, the result are more mixed. When including a variable measuring the proportion of women among all board members, there is only one positive and significant coefficient found negative, though insignificant. Furthermore, the authors demonstrate that the positive performance effects are mainly related to female managers with a university degree while female CEOs who do not hold a university degree have a much

smaller or insignificant effect on firm performance. Next, female members of board of directors elected by the staff seem to have positive effects on firm performance, but this positive effect does not carry over to other female board members, where the effect is negative – a result, which the authors think may be explained by the fact that a significant part of the women on boards have family ties to the owners.

Other studies only use single measures of firm performance and female representation on boards and top management but their conclusions are also ambiguous. For example, Rose (2007) did not find any significant relationship between the percentage of women on the boards of directors of the largest listed Danish firms and firm performance (measured by Tobin's Q). Du Rietz and Henrekson (2000) did not find a significant relationship either after controlling for firm size and industry in a sample of Swedish firms. On the contrary, Krishnan and Park (2005) found that the proportion of women on top management teams explained positively firm performance (return on assets) in a sample of 679 Fortune 1000 firms. Litz and Folker (2002) found that small retail hardware stores characterised by greater management team gender-balance reported superior profitability than stores that were either exclusively or disproportionately single gender-managed. Welbourne (1999) found that the presence of women on a firm's top management team appears to have a positive impact on the firm's short-term performance (measured as Tobin's Q) as well as on long-term performance (measured as three-year stock price growth and growth in EPS).

According to the theoretical arguments explained in the previous section, we propose the next hypothesis:

Hypothesis H1a: The greater the gender diversity of executive boards, the greater the firm performance

Hypothesis H1b: The greater the gender diversity of management teams, the greater the firm performance

The presence of women on a company's board of directors is highly positively associated with gender diversity in its top management team (Bilimoria, 2006) so we propose positive relation between gender diversity on boards and financial performance may be moderated by gender diversity on top management and vice versa. Several studies found this positive effect on performance is achieved when the number of women on top positions increases. This happens because women contribute new experiences (Nielsen and Huse, 2010); improve the corporate reputations (Bilimoria, 2006); avoid underutilized human resources (Daily *et al.*, 1999); reduce agency costs (Jurkus *et al.*, 2011) and so on. These effects could not be cumulative because, according to resource-based view, perhaps these women provide similar resources and therefore their contribution is redundant and less valuable, so that we propose the next hypothesis:

Hypothesis H1c: the greater gender diversity on boards, the less positive the relationship between gender diversity on top management and financial performance, and vice versa. The greater gender diversity on top management, the less positive the relationship between gender diversity on boards and financial performance.

We will find an endogeneity problem because of simultaneous causality (Ryan and Haslam, 2009). It is also plausible to anticipate some effects from firm performance to gender diversity, but the empirical evidence is ambiguous as well. On the one hand, the eventual higher level of women on boards may be a result of higher levels of firm performance as company managers feel more secure and hence open to more diverse board appointments. And the perception of higher risks could reverse the tendency to appoint women to board

positions in some companies. Following these arguments, Carter *et al.* (2003) studied 638 *Fortune 1000* firms and found that firm value (Tobin's Q) positively explained the presence of a female director and the percentage of women on the board, after controlling for a number of other factors (number of board meetings, board size, industry, and firm size). Adams and Ferreira (2003) studied 1,462 large US firms and found that after controlling for firm and board size, firms facing more variability in their stock returns had fewer women on their boards of directors.

On the other hand, women might be placed in positions of leadership in periods of general financial downturn in company performance. Appointing women to board positions in those circumstances could be seen as a corporate strategy designed to signal to the shareholders that radical change is on the way. Thus, Ryan and Haslam (2005) found that during a period of overall stock-market decline, UK FTSE100 companies which appointed women to their boards were more likely to have experienced consistently bad performance in the preceding five months than those who appointed men. The authors argue that while women are now achieving more high profile positions, they are more likely than men to find themselves on a "glass cliff" such that their positions are risky or precarious.

To avoid the endogeneity problem, we need to find variables, other than performances that explain the women presence on the board and the top management. Some empirical evidence suggests that the representation of women on boards of directors is greater in larger firms (Agrawal and Knoeber, 2001; Carter *et al.*, 2003). In part, this is because a positive relation exists between board size and firm size: larger boards have more seats available, potentially allowing for greater representation by women

Consistent with previous studies in Spain (Mateos *et al.*, 2010, 2011; Carrasco and Laffarga, 2007; del Brio and del Brio, 2009) we propose gender diversity arises in family firms and with higher number of seats in board. On the contrary, being listed on the Stock Exchange has a negative relation to women presence on the Boards. This kind of firms usually has less proportion of dominical positions and women usually have these positions because of the difficulty to be independent and/or executive members. This proposal is consistent with results in other countries (Carter *et al.*, 2003; Adams and Ferreira, 2003). So we propose the next hypothesis:

Hypothesis H2a: The greater the board size, the greater the gender diversity on executive boards.

Hypothesis H2b: Family business helps the women presence, so greater gender diversity on executive boards.

Hypothesis H2c: Firms listed on the Stock Exchange don't help the women presence, so minor gender diversity on executive boards.

To explain the presence of women on Top Management we use previous researches that study this topic and show factors positively related to gender diversity, mainly the firm size and the Top Management team size (Dwyer *et al.*, 2003; Smith *et al.*, 2006; Bilimoria, 2006). We have also taken characteristics of industry. Graham and Hotchkiss (2008) studied the influence of industry on equal employment opportunity outcomes and found that the "Glass Ceiling Component" (measures the extent to which women are represented in the upper levels of the organization) is positively related to industry with higher proportion of female workers. For that, we propose the next hypothesis:

Hypothesis H3a: The greater the firm size, the greater the gender diversity on Top Management teams.

Hypothesis H3b: The greater the female segregated industry, greater gender diversity on Top Management teams.

Hypothesis H3c: The greater the Top management team size, the greater gender diversity on Top Management teams.

Methods and Measures

We used a two-stage least squares (2SLS) analysis in order to account for the possible reverse causality. A problematic causal variable is the dependent or endogenous variable whose error term is correlated with the other dependent variable error term. The problematic causal variable is replaced with the substitute variable in the first stage. Instrument variable is used to create a new variable by replacing the problematic variable. In ordinary least square method, there is a basic assumption that the value of the error terms is independent of predictor variables. When this assumption is broken, two-stage least squares (2SLS) regression analysis helps us to solve this problem. Given the existence of the instrument variable, two-stage least squares (2SLS) regression analysis uses the following two methods:

1. In the first stage of the two-stage least squares (2SLS) regression analysis, a new variable is created using the instrument variable.
2. In the second stage, the model-estimated values from stage one are then used in place of the actual values of the problematic predictors to commute an OLS model for the response of interest.

The variables used in the analysis are chosen in light of theoretical considerations and empirical determinants of issue. We apply a set of instrumental variables that have been proved to be useful by a large number of empirical studies.

To measure the gender diversity, we use the Blau's index (Blau, 1977). The index is constructed as:

$$D = 1 - \sum p_i^2$$

Where D is diversity and p_i is the proportion of the total population from group i . If the entire population is from a single group, D will equal zero. If we increase the number of groups, and have the extreme case of each individual belonging to his or her own unique group, D will approach 1 in value. So a higher value of D means more diversity. In our case, we have two different groups: males and females, so the maximum possible value for D will be 0.50, where each group represents 50 percent of the population.

The index has been criticized if we use it to measure some types of diversity, such as racial or ethnic diversity (Rushton, 2008), because, as Blau recognized, the index ignores the substantive content of people's social attributes and positions. But this critique is not applicable for our goal. It is true that the index value is equal if we have 10 percent men 90 percent women or if we have 90 percent men and 10 percent women. It is evident that the situation is not equal, mainly if we think in term of equality of opportunities, but our objective is getting the gender balance presence in the board and, as we have defined, a gender balance presence is reached when there are not less than 40 percent or no more than 60 percent of one sex, no matter if there are more men or women.

Our empirical model can be expressed with the following two equations: for the first stage, we use the following equations:

$$BIB_t = c + b_1 BS + b_2 FB + b_3 LSM + b_4 FS + b_5 FSI + b_6 MTS + e'_t$$

$$BIM_t = c + b_1 BS + b_2 FB + b_3 LSM + b_4 FS + b_5 FSI + b_6 MTS + e'_t$$

Where *BIB* is Blau Index on Boards and *BIM* is Blau's Index managers. The instrumental variables are: Board size (*BS*), Family business (*FB*), Listed in Stock Market (*LSM*), Firm size (*FS*), Female segregated industry (*FSI*) and Management Team Size (*MTS*). As control variable, we use the Firm Age.

For the second stage, we use the unstandardized predicted value from first stage.

$$FP_t = c + b_1 \hat{BIB}_t + b_2 \hat{BIM}_t + b_3 AGE_t + e_t$$

Where the dependent variable FP_t are different measures of financial performance: Return on shareholders funds, Return on total assets, Profit margin, Net assets turnover, Productivity and Gross value added/Sales. The explanatory variables are: Unstandardized predicted value Gender diversity on Boards (\hat{BIB}_t) and Unstandardized predicted value Gender diversity on Management (\hat{BIM}_t). We also use the firm age as a control variable (AGE_t). Our results were robust to the 2SLS procedure.

Our original sample contains detailed firm, board and director level data, for the largest Spanish industrial and service firms, classified by sales, in the year 2004. We chose this date in order to avoid the influence the law could be over the performance. The sources for the data were proxy statements, firms' web site, and '*Fomento de la Producción*' and SABI (*Sistema de Análisis de Balances Ibéricos*) databases. We use the SABI database to obtain comparative and reliable financial information for each firm, and to complete and double-check the composition of executive boards indicated in the *Fomento* lists.

We elaborated a data set with the firms that conform to the definition of large firms in the European Union (European Union Official Bulletin L124; 20 May 2003): employees ≥ 250 ; gross sales ≥ 50 millions euros; and assets ≥ 43 millions euros. We excluded from the '*Fomento de la Producción*' list those firms that: a) did not conform to this definition of large firm; b) there was not information available about the composition of boards and top management; and c) there was not economic and financial information for year 2004 in the *Fomento* list and the SABI database for all measures of firm performance assessed in this study. The final data set contains complete information from 779 firms on gender diversity and firm performance. For all firms, we constructed two variables measuring the gender diversity of boards and top management, using the Blau's index of heterogeneity, one for the boards and one for the top management teams. To do this, we looked for the names of the top managers and members on boards in the '*Fomento de la Producción*' and SABI databases, and inferred their genders from the first name(s). In this study, top management includes executive directors of all functional areas in the firm: operations, financial, etc. Then we obtained the available economic and financial information of these firms to assess firm performance through the following measures: return on shareholders funds, return on total assets, profit margin, net assets turnover, productivity, and gross value added/sales.

Results

Table 1 shows descriptive data and correlations between variables in the study.

Insert Table 1 here

27 firms (3.5 percent) have a gender balance on boards and 31 firms (4.1 percent) on manager team, with Blau's Index values between 0.48 and 0.50. On the contrary, we have 469 firms (60.2 percent) which have a homogeneous composition on Board and 517 (69.2 percent) which have a homogeneous composition on manager team. According to Blau's Index definition, this means that everybody is either men or women, although there is only one case with 100 percent of women.

Table 2 shows results in the first stage of analysis. The first regression confirms hypothesis 2a, 2b and 2c. A positive significant relationship between number of seats on board and Blau's Index exists. There is also the same relationship when firm is familiar and we also show a negative relationship when the firm is listed on the stock market.

It is interesting to observe that two variables that we had not proposed as related to gender diversity on boards are statistically significant: Firm size, measured as the (*ln*) number of employees with a negative relation, and management team size. The reason could be explained in relation to the three previous variables. On the one hand, family business are smaller, so that it seems reasonable that as gender diversity arise in family business, it also arise in small firms. On the other hand, women have more difficulty entering to Boards as independent/executive members; so that, it seems natural that the higher manager team size, the higher possibility that women access these positions.

The second regression in table 2 confirms the influence of three variables to explain gender diversity on management teams. Firms in female segregated industry have a positive and significant relation to gender diversity. We can also observe that the higher management team size the higher gender diversity, so we can confirm the hypothesis 3b and 3c. Nevertheless we cannot confirm the hypothesis 3a, because contrary to what we thought, the (*ln*) number of employees has a significant and negative relation to gender diversity on management teams. This should not surprise us because the highest size firms are often in manufacturing sectors, usually male segregated which influences in gender diversity negatively as we have seen.

Insert Table 2 here

Table 3 shows the second stage of 2SLS analysis. We have carried out a regression analysis for each one of the performance measures: return on shareholders funds, return on total assets, profit margin, net assets turnover, productivity, and gross value added/sales. As explanatory variables, we have used two latent variables: "unstandardized predicted value Gender diversity on boards" and "unstandardized predicted value Gender diversity on managers". Their values come from the previous regressions. We use Firm age as control variable.

Insert Table 3 here

In every case, gender diversity on boards as well as on management team is significant and the relation to performance is positive. Nevertheless we find different results in relation to performance variable used.

Both gender diversity variables are significant in "Return on Total Assets" only but they are not statistically significant in "Profit Margin" and in "Gross Value Added/Sales". Gender Diversity on Boards is significant in "Return on Shareholders Funds" and "Productivity" while Gender Diversity on Management is significant in "Net Assets Turnover".

Insert Table 4 here

Interaction Effects

We want to observe the interaction effects between both gender diversity and we create a new interaction latent independent variable: "Blau's Index boards x Blau's Index managers". The instruments for this new variable are the product of all the remaining non-scaling variables across the two constructs. Since there are three non-scaling variables for

each gender diversity variables we get nine new instrumental variables. Thus the original 2SLS model was run with one new explanatory variable (Blau's Index boards x Blau's Index managers) and nine new instrumental variables. These models appear to be superior to the original specification (table 4). Now both gender diversity variables and the new interaction term variable are significant to explain three performance measures: "return on shareholders funds", "return on total assets" and "productivity". As in the previous model, the relation between gender diversity and financial performance is positive so we can confirm the hypothesis 1a and 1b, at least for these three performance measures. On the contrary, the relation between the new interaction term and financial performance is negative, so we can say that the positive effect in financial performance to arise gender diversity (or increase the number of women) on boards is moderated when gender diversity on management increase too. Or vice versa, the positive effect in financial performance to increase the number of women managers is minor when the women on boards increase too.

Discussion

This paper attempts to provide empirical support for the notion women, or at least gender balance, on top positions in the Spanish firms improve the financial performance.

The literature has provided evidence that gender diversity in management and boards can affect firm performance, but also has provided evidence that firm performance affect number of women on top positions. We have used the two-stage least squares (2SLS) methodology to avoid this endogeneity problem. Our results were robust to the 2SLS procedure. This procedure has allowed us to observe the two kinds of relations independently.

First, we have observed the factors increase gender diversity. Gender diversity on Boards increase when the numbers of seats are higher, the management team size is higher and the firm is familiar. On the contrary, higher numbers of employees and to be listed on Stock Market have a negative effect. Gender diversity on Management Teams increase when the numbers of managerial posts are higher, the firm is in a female segregated sector and decrease when the numbers of employees is higher.

Secondly, we have observed the relationship between gender diversity and financial performance. Although increasing diversity does not improve every financial performance, this study shows that gender diversity in both levels (Boards and Top Management) is significantly positively related to some of them like "return on shareholders funds", "return on total assets" and "productivity".

Finally, we have observed the interaction effects. As expected, a negative interaction effect between the Blau's Index boards and Blau's Index managers (on financial performance) was found to be statistically significant. In other words, the positive effect of gender diversity in both levels (Boards and Top Management) on financial performance is not cumulative. In spite of it, the positive effect on financial performance justifies the Constitutional Act as well as the advice in good corporate governance Code that has been taken in Spain recently.

Two limitations of the study suggest implications for future research. First, the lack of significant results in every performance measure as well as low R^2 obtained. Future research should repeat this study with more recent data, after the legal and social requirements from the norms have been putting into effect to observe if these requirements have had the effect we would expect.

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Table 1. Descriptive statistics and correlations

		Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9
1	Blau's Index boards	0.119	0.163	0.0	0.5	1.000								
2	Blau's Index managers	0.102	0.163	0.0	0.5	0.326**	1.000							
3	Board size	7.07	4.531	1	41	0.111**	0.027	1.000						
4	Family business	0.26	0.436	0	1	0.287**	0.037	0.019	1.000					
5	Listed on Stock Market	0.12	0.324	0	1	-0.102**	-0.044	0.425**	-0.025	1.000				
6	Firm size (ln)	6.987	1.155	5.51	11.96	-0.060	-0.066	0.378**	0.069	0.359**	1.000			
7	Female segregated industry	0.348	0.476	0	1	0.056	0.110**	0.114**	0.091*	-0.003	0.222**	1.000		
8	Management team size	4.62	2.79	1	20	0.181**	0.325**	0.194**	0.015	0.109**	0.183**	-0.005	1.000	
9	Firm age	33	21.7	1	118	-0.013	-0.038	0.203**	-0.005	0.248**	0.102**	-0.179**	0.135**	1.000

** Correlation is significant at 0.01 level (bilateral).

* Correlation is significant at 0.05 level (bilateral).

Table 2. OLS Regression of Gender Diversity

Dependent variables	Gender diversity on Boards		Gender Diversity on Top Management	
	Coeff	Std. error	Coeff	Std. error
Independent variables				
Constant	0.144***	0.036	0.158***	0.035
Board size	0.006***	0.001	0.000	0.001
Family business	0.106***	0.012	0.011	0.012
Listed on Stock Market	-0.068***	0.019	-0.005	0.019
Firm size	-0.020***	0.005	-0.025***	0.005
Female segregated industry	0.013	0.012	0.044***	0.012
Management team size	0.011***	0.002	0.023***	0.002
Firm age	0.000	0.000	0.000	0.000
Model statistics				
Number of observations	779		779	
F statistic	20.969***		21.405***	
Ajusted R2	0.152		0.155	

Note: +p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 3. 2SLS analysis of financial performance

Dependent variables	Return on shareholders funds	Return on total assets	Profit margin	Net assets turnover	Productivity	Gross value added/Sales
Independent variables						
Blau's Index boards	101.592* (50.985)	20.949** (7.560)	8.148 (13.799)	-4.824 (4.789)	3.975*** (1.159)	-0.599 (0.446)
Blau's Index managers	19.543 (51.545)	19.048* (7.643)	17.028 (13.950)	13.852** (4.842)	0.273 (1.171)	0.134 (0.451)
Control variable						
Firm age	0.198 (0.122)	0.059** (0.018)	0.088** (0.033)	-0.022+ (0.011)	0.002 (0.003)	0.001 (0.001)
Constant	-10.280 (7.078)	0.458 (1.093)	-0.298 (1.916)	3.860*** (0.665)	1.399*** (0.161)	0.286*** (0.062)
Model statistics						
Number of observations	779	779	779	779	779	779
F statistic	3.466*	14.776***	3.565*	4.618**	7.037***	1.216
Ajusted R2	0.009	0.050	0.010	0.014	0.023	0.001

Note: +p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 4 2SLS analysis of financial performance and interactions effects.

Dependent variables	Return on shareholders funds	Return on total assets	Profit margin	Net assets turnover	Productivity	Gross value added/Sales
Independent variables						
Blau's Index boards	301.114*** (94.098)	47.916*** (13.431)	28.249 (23.023)	-11.058 (8.102)	9.285*** (2.214)	1.088 (0.836)
Blau's Index managers	225.423** (87.759)	47.952*** (12.526)	36.270+ (21.472)	2.272 (7.556)	4.605* (2.064)	1.920* (0.780)
Blau's Index boards * Blau's Index managers	-1523.927** (575.280)	-207.841* (82.114)	-159.068 (140.752)	64.247 (49.534)	-39.417** (13.533)	-12.769* (5.113)
Control variable						
Firm age	0.135 (0.138)	0.051* (0.020)	0.081* (0.034)	-0.019 (0.012)	0.001 (0.003)	0.001 (0.001)
Constant	-21.610* (8.634)	-1.526 (1.232)	-1.150 (2.112)	4.380*** (0.743)	1.194*** (0.203)	0.183* (0.018)
Model statistics						
Number of observations	779	779	779	779	779	779
F statistic	4.199**	13.299***	2.982*	3.319**	5.634***	2.230+
Adjusted R2	0.016	0.064	0.010	0.017	0.023	0.006

Note: +p<0.1; *p<0.05; **p<0.01; ***p<0.001