

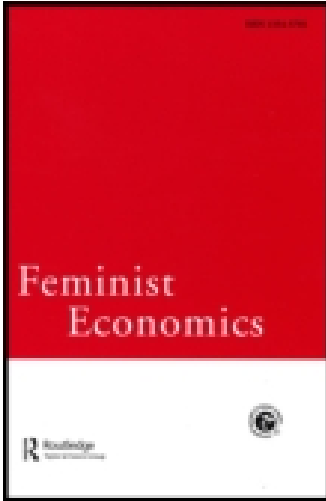
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Firm Performance and Women on the Board: Evidence from Spanish Small and Medium-Sized Enterprises

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FIRM PERFORMANCE AND WOMEN ON THE BOARD: EVIDENCE FROM SPANISH SMALL AND MEDIUM-SIZED ENTERPRISES

Juan Francisco Martín-Ugedo and Antonio Minguez-Vera

ABSTRACT

This study examines gender diversity on boards of directors in a sample of nonfinancial Spanish small and medium-sized enterprises (SMEs) for 2003–8, finding that the probability of women on the board increases with firm performance, defined as return on assets, and family ownership, but diminishes with corporate ownership and firm risk. It also finds, when examining the full sample, a positive effect of the presence of women board members on firm performance. The study also obtains a similar positive effect in most subsamples, including in firms with corporate ownership, where family connections play less role in the election of board members, and in firms in the secondary and tertiary sectors, which are characterized by having greater proximity to final consumers than those in the primary sector.

KEYWORDS

Gender, women's labor force participation, ethics

JEL Codes: G30, J16

INTRODUCTION

Women's presence on boards of directors has become an important topic on academic and social grounds. Thus, in recent years there has been increased social pressure to include more women on these boards. As a consequence, the average number of women in boardrooms has increased in Europe. However, women's representation is still at a low level compared to the United States, and there is wide variation across countries ([Catherine Albert-Roulhac 2008](#)).

The board of directors has many functions, including monitoring and controlling managers, providing information and counsel, monitoring compliance with applicable laws and regulations, providing connections to the external environment, and appointing the CEO. Scholars have argued

that women directors may have an important influence on the board's working style and processes, and, consequently, on firm performance (Idalene Kesner 1988; Catherine M. Daily, S. Trevis Certo, and Dan R. Dalton 1999; Kathleen A. Farrell and Philip L. Hersch 2005). In fact, as Morten Huse, Sabina Tacheva Nielsen, and Inger Marie Hagen (2009) point out, the main argument for promoting women has been that diversity is important for corporate value creation. However, the evidence examining the link between gender diversity on the board and financial performance is limited.

David A. Carter, Frank P. D'Souza, Betty J. Simkins, and W. Gary Simpson (2010) recently examined the influence of both gender and ethnic diversity on financial performance. When reviewing theory and previous empirical evidence, they stressed that they had located only seven empirical studies that specifically test the link between board gender diversity and the financial performance of the firm. None of those papers focuses on small and medium-sized enterprises (SMEs). As we will show, we have found more previous empirical evidence on the relation between gender diversity and firm performance than Carter et al. (2010), but the volume of evidence is very limited compared to the volume of empirical evidence on other gender topics. Our main objective is to examine the effect of gender diversity of boards of directors of Spanish SMEs on firm performance, defined as return on assets. In addition, and as a preparatory analysis, we also examine the variables that may influence the presence of women on boards.

Spain has one of the lowest levels of women's representation on boards in the European Union, which stood at 8.5 percent in 2008. In fact, in response to the challenge of underrepresentation of women on boards, several measures, such as *Código Unificado de Buen Gobierno* (Unified Good Governance Code [2006]), and *Ley de Igualdad* (Gender Equality Act [2007]), have been passed.

Catherine M. Daily, Patricia P. McDougall, Jeffrey G. Covin, and Dan R. Dalton (2002) have examined the influence of several characteristics on women's representation, such as board composition (outsiders versus insiders), CEO duality (that is, the coincidence of the post of CEO and chairman of the board of directors in the same person), CEO willingness to engage in entrepreneurial behavior, frequency of meetings, member involvement, board elections, and board-member power. Compared to large firms, SME boards tend to be more homogeneous, less structurally complex, and less formalized (Daniel P. Forbes and Frances J. Milliken 1999). Therefore, the range and depth of tasks developed by each member are more varied and intense than in large firms, with each member having a greater chance to influence decisions (William Q. Judge and Carl P. Zeithaml 1992).

SME directors may be entrepreneurs with relatively little experience, and the board's knowledge and skills may be particularly critical for effectiveness (Michael Gorman and William A. Sahlman 1989). In addition,

shared ownership is usually more concentrated in SMEs, which means that shareholders are often represented directly, and the control function is less important because shareholder rights and managerial responsibilities will reside in the same people (Forbes and Milliken 1999). Thus, board composition, including gender diversity, is more relevant in SMEs' decision-making processes, and consequently, SMEs are more suitable sites to study the contributions of women.

The Spanish market is considered to be in the Continental system or Civil Law system, in contrast with the US market, which provides most of the available evidence (Renée B. Adams and Daniel B. Ferreira 2009; Carter et al. 2010), and which belongs to the Common Law or Anglo-Saxon system. The differences between the two systems are large, but can be summarized in three points: companies in the Anglo-Saxon system tend to have a relatively dispersed shareholder structure; there is more investor protection; and the internal control mechanisms, which include the board of directors, are relatively weaker (Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny 2002). Thus, the study of internal mechanisms is particularly interesting in Civil Law system countries. Finally, in the empirical analysis, we employ System Generalized Method of Moments (System GMM) methodology, which makes it possible to control for heterogeneity and endogeneity. This methodology has rarely been used in the study of this topic.

With regard to results, this paper shows that the probability of women's presence on the board of Spanish SMEs increases with firm performance and with the presence of a family member as major shareholder, but diminishes with firm risk and when a corporation is the main shareholder. Our results also show that the presence of women on the board exerts a positive effect on firm performance. Similar evidence is obtained for different subsamples examined, such as the subsample of firms that have a corporation as main shareholder, and firms belonging to the secondary and tertiary sector. This evidence confirms that the presence of women on the board is positive for economic reasons.

THE SPANISH CONTEXT

In recent decades, a strong move to incorporate women in the workforce has taken place in Spain. According to the Instituto Nacional de Estadística (INE; Spanish Statistics Institute), in 2006, 48.6 percent of workers were women, whereas in the 1960s women comprised only about 21 percent of the workforce. Women have also dramatically increased their participation as university students, the majority of whom graduate in business or other related fields.

However, there is a gap between these indicators and the access of women to top management positions. The average proportion of women directors

has increased in the EU from 5 percent in 2001 to 8.1 percent in 2007. Nonetheless, this is still a small figure. Focusing on 2007 data, even if the gap has been reduced in recent years, figures are still larger for the US (13.6 percent) and Canada (11.2 percent) than for Europe. There are also important differences between countries within the EU. For example, Portugal has the fewest women on boards – 0.7 percent. In contrast, Norway and Sweden present the largest figures, with women occupying, respectively, 37 percent and 21.3 percent of director positions. In Spain, women's presence in the boardroom is at about 3.1 percent, similar to Italy (2.3 percent) and Japan (2 percent; Corporate Women Directors International [CWDI] 2007; Albert-Roulhac 2008).¹ Spanish data improve when the thirty-five most capitalized listed firms (IBEX 35) are excluded. In this case, the percentage of women directors rises to 6.7 percent in 2006. The larger percentage may be explained by the fact that in non-IBEX 35 firms women represent the family shareholder interests in a larger proportion.

To correct women's low presence on the boards, in May 2006 the Comisión Nacional del Mercado de Valores (CNMV; Spanish Securities and Exchange Commission) passed the Unified Good Governance Code, which recommends that boards should reflect the diversity of knowledge, gender, and experience required to perform its functions with effectiveness, objectivity, and independence and suggests positive discrimination to achieve gender balance. In March 2007 the Spanish parliament approved the Gender Equality Act, which recommends that at least 40 percent of directors are women by 2015. Companies that do not comply with this quota will be unable to negotiate for public contracts.

These recommendations echo a Norwegian law approved in January 2003 requiring that women make up 40 percent of boards by 2008. Between 2003 and 2008, the percentage of women on Norwegian boards quadrupled to roughly 40 percent, placing Norway at the top of European countries for women's representation on boards (Harald Dale-Olsen, Pål Schøne, and Mette Verner 2013).

The Spanish legislation is noncompulsory and focuses on large firms.² Testing whether women on the board contribute to improvements in firm performance is important. A positive result could support legislative changes leading to a greater presence of women, not only in Spain, but also in other countries. In addition, knowing the determinants of women's presence is a reference point for public policy aimed at indirectly increasing the number of women board members in SMEs.

BOARD DIVERSITY: THEORY, EMPIRICAL EVIDENCE, AND HYPOTHESES

Group diversity may be defined as the variety of individual attributes within a group (Peter M. Blau 1977). These attributes are very diverse,

which leads [Frances J. Milliken and Luis L. Martins \(1996\)](#) to classify them into two main types: observable and nonobservable. Observable diversity includes visible attributes such as race, age, or gender, which may be connected with some prejudice, stereotypes, or bias. Nonobservable diversity is associated with less visible or underlying attributes such as technical abilities, education, functional background, and length of service in the organization, personality characteristics or values, and socioeconomic background ([Milliken and Martins 1996](#)).

The determinants of the number of women directors

Hypothesis 1 examines different variables that may have an influence on the presence of women and the diversity of SME boards. Discrimination and the possibility that women candidates are not correctly assessed are possible explanations for a reduced number of women. However, another factor that may influence the presence of women on the board is the reduced pool of women candidates, possibly due to occupational segregation ([Farrell and Hersch 2005](#); [Ruth Mateos de Cabo, Ricardo Gimeno, and Lorenzo Escot Mangas 2011](#)). Family responsibilities may also interrupt women's professional development. According to the Spanish Woman's Institute, in 2006, 97 percent of people who were not seeking employment due to family reasons were women ([Mateos de Cabo, Gimeno, and Escot Mangas 2011](#)). Gender differences in time use over the life cycle may also exert an influence on the number of women candidates (Dominique [Anxo, Letizia Mencarini, Ariane Pailhé, Anne Solaz, Maria Letizia Tanturri, and Lennart Flood 2011](#)).

As a consequence, the demand for such women will outstrip supply with the result that the women concerned will be able to choose where to work, and they will choose the boards of more successful and profitable companies ([Adams and Ferreira 2009](#)). This suggests that, as we have hypothesized, the performance of a firm will have a positive influence on the proportion of women on the board.

Another factor that may influence the presence of women on the board is risk aversion. Several studies have shown that women are more risk averse than men ([Pierre Colletette and Paul G. Aubry 1990](#); [Nancy Ammon Jianakoplos and Alexandra Bernasek 1998](#)). For example, [Robert A. Olsen and Constance M. Cox \(2001\)](#) find gender differences in risk aversion for professionally trained investors. Another example of men and women's different attitudes toward risk is found in firm debt policies; studies have found lower debt levels in women-run firms ([Olsen and Cox 2001](#); [Barbara J. Orser, Allan L. Riding, and Kathryn Manley 2006](#)). [Mary A. Lundeberg, Paul W. Fox, and Judith Puncocar \(1994\)](#) also suggest that women are substantially less confident than men in their investment decisions, and thus they are more cautious.

Considering these arguments, we propose that firms with less risk will have a higher proportion of women on their boards. In most countries, women's participation in family firms has increased since the nineteenth century. In fact, [Susan Baines and Jane Wheelock \(1997\)](#) suggest, for the United Kingdom, that family participation in small businesses is the norm rather than the exception, and they point to the importance of the role of women in those firms.

Family business offers women abundant opportunities. As an example, most women perceive their family business as a reservoir of great careers ([Dennis T. Jaffe 1991](#)). When a woman works outside the family domain, she may face the so-called glass ceiling no matter how talented she is.

In addition, empirical research demonstrates that women enter family businesses in order to balance work and family responsibilities ([Sandra L. Fielden, Marilyn J. Davidson, Adel J. Dawe, and Peter J. Makin 2003](#)). While most businesses cannot afford to hold a position open for an employee out on medical, personal, health, educational, or recreational leave, most family businesses will have a paid job waiting after a prolonged period of absence. This is particularly important for women whose ability to cope with home and work remains a constant juggling act ([Patricia M. Cole 1997](#)). These peculiarities are also applicable to the board of directors. This implies that many women accede to the board on the basis of family ties ([Ruth Mateos de Cabo, Ricardo Gimeno, and Lorenzo Escot Mangas 2006](#)). Discrimination would, therefore, be less in this kind of firm. These arguments lead to our additional claim that firms with a family member as the main shareholder have a higher proportion of women on their boards.

The influence of gender diversity on firm performance

Hypothesis 2 focuses on the effect of gender diversity on firm performance. The effects of diversity on the functioning and performance of work groups have been characterized as a double-edged sword or mixed blessing ([Milliken and Martins 1996](#); [Sabina Tacheva Nielsen and Morten Huse 2010b](#)). That is, there may be both positive and negative effects.

Most arguments related to information/decision-making theories predict a positive influence of diversity on group outcomes. Thus, [Gail Robinson and Kathleen Dechant \(1997\)](#) argue that greater diversity in working groups implies a better knowledge of the market and a better identification with customers and employees, thereby increasing the group's ability to penetrate markets. Similarly, the more diverse a group is, the more different views and perspectives its members will have, as well as more alternative solutions to a problem, leading to more realistic decisions being adopted ([Anna M. Morrison 1992](#)). So, diversity may increase creativity and innovation and may improve problem solving ([Robinson and Dechant 1997](#)). [Milliken and Martins \(1996\)](#) suggest that a diverse team has access to a larger network

and to a larger pool of information, skills, and support that fall within the network.

In addition, Catherine M. Daily and Dan R. Dalton (2003) affirm that women directors may have nontraditional backgrounds and provide unique perspectives, experiences, and work styles as compared to their male counterparts. The presence of women may enhance the board's deliberations as women's communication style may be more participative and process oriented. Women's presence may also improve the image of the firm, and this may have a positive effect on customer behavior (Nina Smith, Valdemar Smith, and Mette Verner 2006).

Another argument that could be a positive influence of gender diversity on firm performance is a belief that women are qualitatively oriented while men are quantitatively oriented (Marilyn Loden 1985). The tasks developed by the board (monitoring and controlling managers, providing information and counsel to managers) fall under a large number of categories, including distinctions between strategic and financial control (Loden 1985; Sabina Tacheva Nielsen and Morten Huse 2010a). The strategic control is generally long term and qualitatively oriented, while financial control is usually short term and quantitatively oriented. Women directors may exert a better influence on the firm than men on tasks related to corporate social responsibility and strategic control (John Rand and Finn Tarp 2011).

Arguments that greater diversity may have negative effects on group outcomes come from social identification and categorization theories. According to these theories, individuals divide the group members into in-groups (individuals similar to themselves) and out-groups (individuals dissimilar to themselves), having a tendency to perceive positively the former and negatively the latter (Nielsen and Huse 2010b). Thus, a more diverse group may be less integrated and the likelihood of dissatisfaction and turnover is higher (Milliken and Martins 1996). In addition, heterogeneous groups are more likely to present communication and coordination difficulties that reduce the effective use of knowledge and skills and, as a consequence, there is less cohesion and interpersonal attraction and fewer mutually satisfying interactions among members (Forbes and Milliken 1999).

The fact that women may have fewer relationships with boards of other firms (Deborah Dahlen Zelechowski and Diana Bilimoria 2004), and are less likely to have business occupations (Kesner 1988), may also have a negative influence on firm performance. Renée B. Adams and Daniel B. Ferreira (2002) point to the possibility that women board members have no influence, either positive or negative on firm performance, arguing that women managers reject feminine stereotypes and values, and thus they predict that women behave very similarly to men.

Previous empirical evidence on the effect of gender diversity on firm performance in the US is inconclusive, but generally supports a positive

relationship. For example, Charles B. Shrader, Virginia B. Blackburn, and Paul Iles (1997) and Theresa M. Welbourne, Cynthia Cychota, and Claudia J. Ferrante (2007) find a positive relation between gender diversity and different measures of firm performance. Graham D. Fenwick and Derrick J. Neal (2001) find that gender composition is positively related to some measures of performance but has no relation with other measures. Gedaliahau H. Harel, Shay S. Tzafrir, and Yehuda Baruch (2003) also find that women promoted into management achieve better results in terms of performance and effectiveness than men. Farrell and Hersch (2005) found no significant relationship between gender diversity and firm performance. Shrader, Blackburn, and Iles (1997) also find no significant relationship between gender diversity on some accounting measures of performance, but a negative relationship with other accounting measures. Finally, Karen A. Jehn and Katerina Bezrukova (2004) report a negative and significant relationship between the percentage of women board members and several accounting measures of financial value. Adams and Ferreira (2009) also find, on average, that the effect of gender diversity on firm performance is negative.

The evidence in Europe is also inconclusive. Kevin Campbell and Antonio Mínguez-Vera (2008) find a positive effect of gender diversity on firm value for quoted Spanish firms. Anita Du Rietz and Magnus Henrekson (2000), for a sample of Swedish firms, and Smith, Smith, and Verner (2006), for Danish companies, do not find any influence of the presence of women on the boards on performance. Trond Randøy, Steen Thomsen, and Lars Oxelheim (2006) obtained a similar result for larger firms from several Scandinavian countries (Denmark, Norway, and Sweden). However, Øyvind Bøhren and Reidar Ø. Strøm (2007) report a negative relationship between the presence of women on Norwegian boards of directors and firm value.

Following most previous evidence that points to a positive influence of the presence of women on boards on firm performance, we propose a second hypothesis: Gender diversity on boards of directors will have a positive effect on firm performance.

Figure 1 illustrates the model with the expected relationships between the main variables.

As highlighted, gender diversity has important implications from an economic point of view. That is, the presence of women on the board affects the governance of the firm, and thus, it may influence the firm value.

Were it not the case that the presence of women on the board exerts an influence on firm performance, gender diversity would be primarily an ethical issue. That is, it would be immoral for women to be excluded from corporate boards, and gender diversity would lead to a more equitable outcome for society. Thus, women's presence on the board should not be regarded as a means to an end, but as a desirable end in itself (Stephen Brammer, Andrew Millington, and Stephen Pavelin 2007).

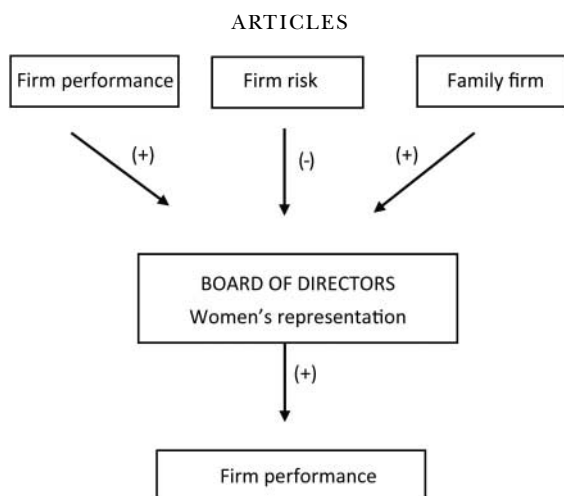


Figure 1 Relations and hypotheses to be tested

If gender diversity on the board does have a positive influence on performance, then there would also be positive economic arguments for the presence of women on the board. On the other hand, if the presence of women on the board has a negative influence, then this issue would become a dilemma, given that ethical arguments would lead to the promotion of women's presence on the board, but economic arguments would suggest the opposite.

SAMPLE, DATA, AND METHODOLOGY

The sample includes nonfinancial SMEs for 2003–8. To define SME, we used the size criterion proposed by the European Commission (2003). Following this criterion, SMEs employ fewer than 250 people and have either an annual turnover not exceeding €50 million, or an annual balance sheet total not exceeding €43 million. Data were collected from the System of Analysis of Iberian Balance Sheets (SABI) database, which provides information on 900,000 Spanish firms. Once firms with no data, extreme values, or erroneous data are excluded, the remaining firms were used to construct an unbalanced panel comprising 42,979 observations. In order to avoid anomalies in accounting data, we required that firms have information on debt, age, and assets, and that all of these variables had positive figures. We eliminated firms without information about board of directors and companies whose total assets and total liabilities did not match. Also, companies showing extreme values for firm performance might alter the results and were therefore excluded. Specifically, we excluded companies

that were below the 1 percent and above the 99th percentile (Kevin J. Stiroh and Adrienne Rumble 2006).

The gender makeup of the board was measured in several ways. First, it is measured by a dummy variable that indicates the presence of at least one woman on the board, Gender. Second, the proportion of women on the board (Percent Women) is included and calculated as the number of women on the board of directors divided by the total number of directors. Finally, two measures of gender diversity are considered. The first one is the Blau Index (Blau 1977), calculated as $1 - \sum_{i=1}^n P_i^2$, where P_i represents the proportion of directors in each category (women or men) and n is the number of categories, which in this case is two (women and men). The maximum and the minimum value of this variable are 0.5 (when there is the same number of women and men on the board) and 0 (when there are only men or only women directors), respectively. The second index is the Shannon Index (Claude E. Shannon 1948), and it is measured as $-\sum_{i=1}^n P_i \ln P_i$, where P_i and n are defined in the same way as in the Blau Index. The range of values is between 0, when there is no gender diversity, and 0.69 when the proportion of each category is the same.³ Both indexes are analogous but the Shannon Index is more sensitive to small differences in the gender composition of the board.⁴

Some researchers emphasize that a board is gender diversified when it contains both men and women (Amy E. Randel 2002). Thus, a board composed only of women would lack gender diversity, which is why diversity indexes are more suitable measurements of diversity than the proportion of women on the board or a dummy variable indicating the presence of women on the board. This study employs all of these variables.

To measure the firm performance, we employ the Return on Assets.⁵ Two different variables are employed to compute risk. We estimate the logarithm of the variability of the return on assets over the previous five years as a measure of a firm's operational risk, Oper. Risk (Elizabeth Grace 2004). The level of debt, Financial Risk, computed as the ratio of total debt to total assets, is employed as a measure of financial risk.

Three variables were incorporated that indicate the type of major shareholder: Family (binary variable that takes a value of 1 when the major shareholder is a family member and 0 otherwise), Corporate (binary variable that takes a value of 1 when the major shareholder is a corporation and 0 otherwise), and Institution, which indicates the presence of an institutional investor as major shareholder.

Different control variables are also used, specifically, the age of the firm; the firm size measured by the logarithm of total assets; and the logarithm of the total number of directors (Farrell and Hersch 2005).

Panel A of Table 1 reports the mean and the standard deviation figures for all the variables. The most relevant figure is that the mean percentage of women on Spanish SMEs' boards of directors is 8.4 percent. This percentage

Table 1 Descriptive statistics

Panel A: Means and standard deviations				
<i>Variable</i>		<i>Mean</i>	<i>Standard deviation</i>	
Gender		0.229	0.420	
Percent Women		0.084	0.196	
Blau Index		0.076	0.158	
Shannon Index		0.113	0.228	
Return on Assets		5.901	9.223	
Oper. Risk		5.339	1.903	
Financial Risk		0.615	0.221	
Family		0.627	0.483	
Corporate		0.359	0.479	
Institution		0.010	0.074	
Firm Size		14.586	1.541	
No. Directors		0.973	0.780	
Firm Age		8.664	0.530	
Panel B: Means by year				
	<i>Gender</i>	<i>Percent Women</i>	<i>Blau Index</i>	<i>Shannon Index</i>
2003	0.218	0.069	0.069	0.105
2004	0.255	0.093	0.085	0.127
2005	0.228	0.083	0.076	0.112
2006	0.231	0.085	0.077	0.114
2007	0.228	0.091	0.078	0.115
2008	0.217	0.085	0.074	0.109

Notes: Variables are defined as follows: Gender (binary variable that takes a value of 1 when there is at least one woman on the board of directors, and 0 otherwise); Percent Women (percentage of women on the board of directors); Blau Index (Blau Index of diversity); Shannon Index (Shannon Index of diversity); Return on Assets; Oper. Risk (firm operational risk, calculated as the logarithm of the variability of Return on Assets); Financial Risk (financial risk, calculated as total debt over total assets); Family (binary variable that takes a value of 1 when the major shareholder is a family member, and 0 otherwise); Corporate (binary variable that takes a value of 1 when the major shareholder is a corporation, and 0 otherwise); Firm Size (measured by the logarithm of total assets); No. Directors (logarithm of the number of directors on the board); Firm Age (logarithm of firm age).

is low, but it is higher than the value calculated for large Spanish firms (3.1 percent; see [Albert-Roulhac \[2008\]](#)). Moreover, only 23 percent of Spanish SMEs have one or more women on their boards. These figures show large inequalities between men and women. Panel B of Table 1 shows the evolution of gender variables by year. Figures do not show a significant variation in gender composition of Spanish SMEs boards over time.

To analyze the determinants of women's presence on the board, we estimate the following equation:

$$\begin{aligned} \text{Gender Diversity}_{it} = & \beta_0 + \beta_1 \text{Return on Assets}_{it-1} + \beta_2 \text{Oper. Risk}_{it-1} \quad (1) \\ & + \beta_3 \text{Financial Risk}_{it-1} + \sum_{j=4}^5 \beta_j \text{TYP}_{jit-1} \\ & + \sum_{j=6}^8 \text{CV}_{jit-1} + \psi_t + \eta_i + \varepsilon_{it} \end{aligned}$$

where Gender Diversity includes, in different analyses, the women dummy variable, Gender, the proportion of women on the board, Percent Women, and the Blau and the Shannon Indexes. The return on assets is employed as a measure of firm performance, Return on Assets. Two measures of firm risk are included: the firm's operational risk and the financial risk. TYP are the dummy variables relative to the type of main shareholder (family or corporation).⁶ CV represents the control variables (Firm Size, No. Directors, and Firm Age). The terms ψ_t , η_i , and ε_{it} represent the time effects, individual effect, and random disturbance, respectively. All of the independent variables have been lagged one period.

The second model examines the influence of gender on firm performance:

$$\text{Return on Assets}_{it} = \beta_0 + \beta_1 \text{Gender Diversity}_{it} + \sum_{j=2}^4 \beta_j \text{CV}_{it} + \psi_t + \eta_i + \varepsilon_{it} \quad (2)$$

where the control variables, CV, are the debt ratio, Financial Risk; the firm age; and the firm size. The other variables are as in Equation 1.

Equations are estimated using panel-data methodology, applying the System GMM technique (Richard Blundell and Stephen R. Bond 1997). This methodology makes it possible to control, first, for individual heterogeneity, introducing an individual effect, η_i (Charles P. Himmelberg, R. Glenn Hubbard, and Darius Palia 1999) and, second, for macroeconomic effect on the dependent variable using time-dummy variables. In addition, System GMM estimation solves the endogeneity problem that may appear when the independent variables and the dependent variable are determined simultaneously, as in our case.

This methodology has important advantages when compared to others. The ordinary least-squares (OLS) estimations do not take into account the unobservable heterogeneity of the firms and consider the variables as being exogenous. The fixed effects estimation addresses the problem of

unobserved heterogeneity, but not the endogeneity. The two-stage least-squares (2SLS) estimate takes into account the endogeneity, but it is not efficient in samples with a large number of companies and small number of years as in the case of the sample analyzed in this study, and it also has the problem of the choice of instruments ([Manuel Arellano and Stephen R. Bond 1991](#)).

RESULTS

In Table 2, we present the results that relate to the determinants of women's presence on the board of directors and board diversity. As already mentioned, all of the independent variables have been lagged one period in this analysis. We find that firms with higher performance, Return on Assets, have, on average, more women on the board and larger board diversity. That is, it seems that women are choosing to serve on the boards of firms with higher levels of performance. This result supports aspects of our first hypothesis.

Focusing on the risk variables, another element of our first hypothesis, the evidence is also conclusive. We find that the firm's operational risk has a negative influence on the presence of women directors and on board diversity, but also find a negative and significant effect of financial risk on the presence of women on the board and board diversity. The results for these two variables point to a preference of women to work in firms with lower risk, which is consistent with our original hypothesis. This result is in line with the arguments provided by [Collerette and Aubry \(1990\)](#) and [Jianakoplos and Bernasek \(1998\)](#).

In Table 2 we present results suggesting that women's presence on the board and diversity increase when there is a family member as a major shareholder, but that women's presence on the board diminishes when a corporation is the main shareholder. These results confirm the third element of our first hypothesis.

As [Mateos de Cabo, Gimeno, and Escot Mangas \(2006\)](#) point out, it is probably easier to achieve a positive work-life balance in family firms. Consequently, promoting this type of firm can improve the number of women engaged in senior management. The results also indicate that the size of the firm has a negative impact on gender equality. This evidence reinforces the notion that small and family firms are more likely to appoint women to their boards of directors. The logarithm of the number of directors has no impact on the presence of women on the board and gender diversity. This evidence is contrary to what was expected and to the findings of [Bastian Bergmann, and Søren Holt \(2012\)](#) who found a positive relationship between gender diversity on the board and board size. They explain this result by the pressure in large firms toward gender equality. If firms hire women directors to meet equality laws or for social pressure, then

Table 2 System GMM regressions of the determinants of the presence of women on the board of SMEs

<i>Variable</i>	<i>Gender</i>	<i>Percent Women</i>	<i>Blau Index</i>	<i>Shannon Index</i>
Constant	-0.082 (0.080)	0.219*** (0.038)	-0.040 (0.029)	-0.097** (0.043)
Return on Assets	0.001** (0.0005)	0.0007*** (0.0002)	0.0004** (0.0002)	0.0006** (0.0003)
Oper. Risk	-0.005* (0.003)	-0.003** (0.001)	-0.002** (0.001)	-0.003* (0.001)
Financial Risk	-0.088*** (0.021)	-0.038*** (0.010)	-0.036*** (0.007)	-0.0851*** (0.011)
Family	0.020*** (0.006)	0.012*** (0.003)	0.013*** (0.002)	0.018*** (0.004)
Corporate	-0.065*** (0.016)	-0.038*** (0.007)	-0.033*** (0.006)	-0.045*** (0.009)
Firm Size	-0.006** (0.002)	-0.005** (0.001)	-0.004*** (0.001)	-0.005** (0.001)
No. Directors	0.005 (0.003)	0.001 (0.001)	-0.0002 (0.001)	0.0001 (0.001)
Firm Age	0.059*** (0.008)	0.017*** (0.001)	0.025*** (0.003)	0.040*** (0.004)
z ₁	0.000	0.000	0.000	0.000
z ₂	0.000	0.000	0.000	0.000
m ₂	0.29	0.32	0.31	0.27
Sargan	131.3(104)	128.7(104)	132.4(104)	129.9(104)

Notes: Definition of variables may be found in the notes to Table 1. ***, **, * denote statistical significance at 1, 5, and 10 percent levels, respectively. Standard errors are in parentheses. *F* statistic (test of combined significance); Hausman (Hausman specification test), *z*₁ and *z*₂ are two Wald tests of the joint significance of the reported coefficients and the joint significance of the time dummy variables, respectively (asymptotically distributed as λ^2 under the null hypothesis of no relationship, probability is shown); m₂ is a second-order serial correlation test using residuals in first differences, asymptotically distributed as $N(0,1)$ under the null hypothesis of no serial correlation; Sargan is a test of the overidentifying restrictions, asymptotically distributed as λ^2 under the null hypothesis of no correlation between the instruments and the error term, degrees of freedom in parentheses.

the board size will increase. If women replace men or the board is selected for economic reasons, then a relationship between gender diversity and size is not expected.

Finally, older firms have, on average, larger women's presence on the board and diversity. Perhaps in this type of firm the successors (widows, daughters, granddaughters) of the shareholders have easier entry onto the board, creating more gender diversity.⁷

The goodness-of-fit tests indicate that the variables included in the model have high explanatory power (Wald test and Rep λ_2). In addition, Wald

tests of the joint significance of the time dummies, Time λ_2 , validate the use of such variables. These results show that the inclusion of these binary variables is important since they model for the impact of changes in the macroeconomic environment.

The z_1 Wald test indicates the combined significance of the independent variable coefficients, while z_2 reports the joint significance of the time dummies. The m_2 statistic indicates that in all the models there is no second-order serial correlation in the first-difference residuals, showing that the models are not misspecified. Sargan's test shows a lack of correlation between the error term and the instrument used. Figures obtained on these tests confirm the validity of the estimation results.

Table 3 shows the results of estimating Equation 2. Models 1 and 2 show that firms with at least one woman on their boards, Gender, and firms with a larger proportion of women directors, Percent Women, have, on average, higher firm performance, Return on Assets. This result supports our second hypothesis, and it is in line with most previous evidence for large and quoted firms (Shrader, Blackburn, and Iles 1997; Welbourne, Cycyota, and Ferrante 2007).

Table 3 System GMM regressions on firm performance (ROA) of SMEs

Variable	Model 1	Model 2	Model 3	Model 4
Constant	24.059*** (1.370)	23.690*** (1.518)	23.514*** (1.364)	23.665*** (1.368)
Gender	0.896*** (0.416)			
Percent Women		1.123* (0.642)		
Blau Index			2.582*** (0.932)	
Shannon Index				1.791*** (0.667)
Financial Risk	-11.789*** (0.298)	-11.899*** (0.297)	-11.824*** (0.297)	-11.810*** (0.297)
Firm Age	-0.511*** (0.155)	-0.548*** (0.154)	-0.636*** (0.154)	-0.631*** (0.155)
Firm Size	-0.473*** (0.130)	-0.490*** (0.129)	-0.437*** (0.128)	-0.451*** (0.129)
z_1	0.000	0.000	0.000	0.000
z_2	0.000	0.000	0.000	0.000
m_2	0.01	0.03	0.01	0.01
Sargan	80.40(76)	75.43(76)	78.25(76)	83.14(76)

Note: Definition of variables may be found in the notes to Tables 1 and 2. ***, **, * denote statistical significance at 1, 5, and 10 percent levels, respectively. Standard errors are in parentheses.

These results show that women's presence on the board is positive from an economic point of view. This evidence is especially relevant because it focuses on SMEs that have to face a very competitive market environment (Nittana Southiseng and John Walsh 2010).

In Models 3 and 4 of Table 3, we employ the Blau Index and the Shannon Index to examine the gender diversity on the board of directors. Focusing on the Blau Index, the results for Model 3 show a positive effect of this variable on firm performance. This suggests that gender diversification leads to more effective boards. This conclusion is confirmed by Model 4, which employs the Shannon Index in the analysis.

This result, together with the result observed in Table 2 in connection with the determinants of women directors, shows that the relationship between gender diversity and firm performance is endogenously determined. This evidence would give support both to Farrell and Hersch (2005), who find that women tend to serve in better-performing firms; and to Brook Turner (2007), who points out that firms with higher performance are more likely to add women to the board.

For the control variables, the debt ratio has a negative and significant effect on firm performance. This result may imply that SMEs use more debt in their capital structure than would be desirable. This could be because stockholders may be averse to raising equity for fear of losing control of the firm. Therefore, SMEs may be adopting an inappropriate capital structure (Joshua Abor 2007).

We also find that older firms are less profitable than younger firms. This result suggests that younger firms may have less inertia and fewer bureaucratic processes. They can be more agile and flexible in response to environmental changes (Richard N. Foster and Sarah Kaplan 2001). Finally, smaller firms are more profitable.

In order to go deeper into the analysis, the regressions of Equation 2 were repeated splitting the sample according to characteristics of the firm (Tables 4 and 5) and the industry sectors (Table 6).

More specifically, in Table 4, two different subsamples are examined. In Panel A we consider firms whose main shareholder is a family member, and in Panel B we consider firms whose main shareholder is a corporation.

The results in Panel A show that the presence of women on the board and the diversity (indexes) of firms with a family member as main shareholder do not exert any statistical influence on performance. However, when the main shareholder is a corporation (Panel B), we find that there is a positive and significant effect for all gender variables on firm performance. These results are very interesting, given that the access of women to boards of family businesses is often associated with kinship, not with work experience or training. The opposite happens with companies owned by corporations, where the election of board members is more objective and relies to a greater extent on the qualifications of candidates. Thus, we may conclude that it is

Table 4 System GMM regressions on firm performance (ROA) of SMEs by type of firm

Panel A: Family firms				
<i>Variable</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Constant	22.941*** (1.682)	23.203*** (1.654)	22.830*** (1.704)	22.902*** (1.709)
Gender	0.150 (0.582)			
Percent Women		−0.042 (0.769)		
Blau Index			0.913 (1.114)	
Shannon Index				0.628 (0.819)
Financial Risk	−11.453*** (0.459)	−11.374*** (0.453)	−11.424*** (0.458)	−11.427*** (0.459)
Firm Age	−1.844*** (0.260)	−1.717*** (0.258)	−1.870*** (0.259)	−1.878*** (0.259)
Firm Size	0.299 (0.203)	0.204 (0.200)	0.318 (0.203)	0.317 (0.203)
z_1	0.000	0.000	0.000	0.000
z_2	0.000	0.000	0.000	0.000
m_2	0.24	0.23	0.24	0.24
Sargan	82.35(76)	81.41(76)	89.30(76)	83.15(76)
Panel B: Corporations				
<i>Variable</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Constant	11.348*** (4.330)	10.704** (4.364)	10.803** (4.299)	10.864** (4.294)
Gender	1.197* (0.696)			
Percent Women		3.663** (1.554)		
Blau Index			4.014** (1.900)	
Shannon Index				2.464* (1.308)
Financial Risk	−11.702*** (0.793)	−11.746*** (0.789)	−11.692*** (0.788)	−11.688*** (0.788)
Firm Age	−1.245*** (0.276)	−1.246*** (0.272)	−1.267*** (0.272)	−1.260*** (0.274)
Firm Size	0.714** (0.349)	0.762** (0.351)	0.761*** (0.344)	0.754** (0.344)

(Continued).

FIRM PERFORMANCE AND WOMEN ON THE BOARD

Table 4 Continued

z_1	0.000	0.000	0.000	0.000
z_2	0.000	0.000	0.000	0.000
m_2	-0.90	-0.90	-0.93	-0.92
Sargan	91.87(76)	90.98(76)	91.50(76)	91.33(76)

Notes: Definition of variables may be found in the notes to Tables 1 and 2. ***, **, * denote statistical significance at 1, 5, and 10 percent levels, respectively. Standard errors are in parentheses.

important to include women on boards, but this inclusion must be based on economic rather than affective reasons. Qualified women whose opinions will be listened to on the board of directors, thus improving its effectiveness, must be selected (Nina Smith, Valdemar Smith, and Mette Verner 2012).

In Table 5, we also examine two different subsamples. Specifically, in Panel A we consider small firms and in Panel B, medium-sized firms.

Table 5 System GMM regressions on firm performance (ROA) of SMEs by firm size

Panel A: Small firms				
Variable	Model 1	Model 2	Model 3	Model 4
Constant	32.040*** (1.857)	32.691*** (1.809)	31.805*** (1.835)	31.936*** (1.842)
Gender	1.019* (0.614)			
Percent Women		2.205*** (0.795)		
Blau Index			2.821** (1.249)	
Shannon Index				1.651* (0.894)
Financial Risk	-11.260*** (0.348)	-11.424*** (0.340)	-11.239*** (0.341)	-11.323*** (0.342)
Firm Age	-0.690*** (0.174)	-0.610*** (0.172)	-0.732*** (0.172)	-0.714*** (0.173)
Firm Size	-1.066*** (0.179)	-1.148*** (0.177)	-1.021*** (0.176)	-1.038 (0.177)
z_1	0.000	0.000	0.000	0.000
z_2	0.000	0.000	0.000	0.000
m_2	-0.46	-0.44	-0.46	-0.46
Sargan	79.92(76)	79.21(76)	80.03(76)	80.11(76)

(Continued).

Table 5 Continued

Panel B: Medium-sized firms				
Variable	Model 1	Model 2	Model 3	Model 4
Constant	43.858*** (4.900)	43.493*** (4.916)	43.797*** (4.914)	43.948*** (4.912)
Gender	−0.100 (0.608)			
Percent Women		−1.089 (1.180)		
Blau Index			−0.487 (1.423)	
Shannon Index				−0.307 (1.032)
Financial Risk	−13.223*** (0.645)	−13.144*** (0.637)	−13.208*** (0.644)	−13.215*** (0.645)
Firm Age	−0.454* (0.235)	−0.454* (0.233)	−0.445* (0.235)	−0.444* (0.235)
Firm Size	−1.676*** (0.348)	−1.654*** (0.350)	−1.677*** (0.349)	−1.687** (0.349)
z ₁	0.000	0.000	0.000	0.000
z ₂	0.000	0.000	0.000	0.000
m ₂	0.37	0.37	0.37	0.637
Sargan	77.45(76)	77.87(76)	78.07(76)	77.52(76)

Notes: Definition of variables may be found in the notes to Tables 1 and 2. ***, **, * denote statistical significance at 1, 5, and 10 percent levels, respectively. Standard errors are in parentheses.

The results show that the presence of women and gender diversity (indexes) exert a positive effect on the performance of small firms (Panel A). However, these variables exert no statistically significant effect on performance when the sample examined is medium-sized firms. The explanation may lie in the capacity of board members to make decisions. Given that small firms usually have smaller boards ([Audra L. Boone, Laura Casares Field, Jonathan M. Karpoff, and Charu G. Raheja 2007](#)),⁸ in small firms each board member has greater power. Thus, women board members may have more influence in small firm, and so the firm benefits more from their contribution.

Table 6 shows the results depending on sector. Panel A shows the results for the primary sector. No significant effects were found regarding the relationship between the gender variables and firm value. These firms, mainly involved in mining, fishing, and agriculture usually have fewer women and are characterized by their distance from the final consumer.

Nevertheless, for the secondary sector (Panel B) and the tertiary sector (Panel C), firm performance is higher for firms with more women directors and more gender diversity. This evidence is in line with the arguments presented by [Brammer, Millington, and Pavelin \(2007\)](#) about the relative importance of women's presence in sectors where firms have greater proximity to final consumers.

Table 6 System GMM regressions on firm performance (ROA) of SMEs by sectors

Panel A: Primary sector				
<i>Variable</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Constant	8.424*** (1.217)	8.509*** (1.223)	8.484*** (1.219)	8.505*** (1.216)
Gender	-0.014 (0.326)			
Percent Women		0.714 (0.540)		
Blau Index			0.503 (0.798)	
Shannon Index				-0.094 (0.595)
Financial Risk	-5.516*** (0.295)	-5.514*** (0.290)	-5.476*** (0.297)	-5.532*** (0.296)
Firm Age	0.077 (0.134)	0.048 (0.134)	0.081 (0.134)	0.081 (0.134)
Firm Size	-0.190*** (0.071)	-0.182*** (0.070)	-0.201*** (0.071)	-0.197*** (0.071)
z_1	0.000	0.000	0.000	0.000
z_2	0.000	0.000	0.000	0.000
m_2	0.39	0.39	0.44	0.40
Sargan	67.20(76)	66.32(76)	67.68(76)	67.98(76)
Panel B: Secondary sector				
<i>Variable</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Constant	13.446*** (3.620)	10.023** (3.832)	14.160*** (3.664)	14.371*** (3.632)
Gender	2.887*** (0.536)			
Percent Women		16.327*** (2.229)		
Blau Index			8.004*** (2.881)	

(Continued).

Table 6 Continued

Shannon Index				4.984*** (0.486)
Financial Risk	-25.184*** (1.937)	-23.862*** (1.907)	-23.844*** (1.894)	-24.223*** (1.906)
Firm Age	-7.910*** (0.655)	-7.290*** (0.655)	-7.286*** (0.680)	-7.391*** (0.680)
Firm Size	5.000*** (0.483)	4.762*** (0.497)	4.531*** (0.485)	4.600*** (0.486)
z_1	0.000	0.000	0.000	0.000
z_2	0.000	0.000	0.000	0.000
m_2	-0.54	-0.17	-0.12	-0.22
Sargan	76.36(76)	72.95(76)	74.01(76)	75.11(76)

Panel C: Tertiary sector

Variable	Model 1	Model 2	Model 3	Model 4
Constant	6.534 (6.165)	6.185 (6.701)	5.847 (5.436)	5.841 (5.357)
Gender	11.377** (5.506)			
Percent Women		11.232* (6.513)		
Blau Index			22.277** (10.773)	
Shannon Index				17.972** (7.925)
Financial Risk	-2.285 (2.862)	-1.070 (0.762)	-2.706 (2.175)	-2.093 (2.316)
Firm Age	-2.375*** (0.643)	-2.409*** (0.606)	-2.647*** (0.504)	-2.654*** (0.512)
Firm Size	1.244*** (0.308)	1.514*** (0.329)	1.517*** (0.276)	1.476*** (0.267)
z_1	0.000	0.000	0.000	0.000
z_2	0.000	0.000	0.000	0.000
m_2	-1.31	-0.75	-1.10	-1.20
Sargan	70.33(76)	62.32(76)	69.77(76)	64.69(76)

Notes: Definition of variables may be found in the notes to Tables 1 and 2. ***, **, * denote statistical significance at 1, 5, and 10 percent levels, respectively. Standard errors are in parentheses.

CONCLUSION

In this paper, we examine the presence of women on boards of Spanish SMEs. In particular, we examine whether firm performance, risk, and family

ownership influence the presence of women on the board. We also examine the effect that women on the board may have on firm performance.

The results for the whole sample show that the presence of women on the board has a positive effect on firm performance, which is consistent with most previous empirical evidence focused on listed firms. Given that we also find a positive influence of firm performance on the presence of women on the board, we may conclude that the relationship between those two variables is endogenous.

When the whole sample is divided into different subsamples, some results are notable. For example, the presence of women on the boards of family-owned firms does not exert any statistical influence on firm performance. However, when the main shareholder is a corporation, we find that there is a positive and significant effect for all variables of gender on firm performance. These results are very interesting, since the access of women to boards of family businesses is often associated with kinship. The opposite happens with corporations, where the election of board members is more objective and relies to a greater extent on the qualifications of candidates. Thus, we may conclude that it is important to include women on boards, but this inclusion must be based on economic rather than affective reasons. Qualified women, whose opinions will be listened to on the board of directors, thus improving its effectiveness, must be selected.

Results also vary depending on sector. In the primary sector, results show no significant influence of gender variables on firm value. These firms usually employ few women and are characterized by their distance from the final consumer. Nevertheless, the secondary and tertiary firms present a positive and significant relationship with firm value. This evidence is in line with the argument about the relative importance of women's presence in sectors where firms have greater proximity to final consumers.

The evidence presented in this paper shows that the presence of women on the board leads to positive economic results. Thus, their presence on boards is beneficial for more than ethical reasons. As a consequence, politicians should follow the example of countries such as Norway and promote legislative changes to increase the presence of women on boards.

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NOTES

- ¹ For Spain, they used firms included in IBEX-35 index (thirty-five top companies in market capitalization).
- ² For an empirical analysis examining gender discrimination on the boards of Spanish large firms, see [Ruth Mateos de Cabo, Ricardo Gimeno, and Lorenzo Escot Mangas \(2011\)](#).
- ³ It assumed that $P_i \ln P_i = 0$ when $P_i = 0$.
- ⁴ Stefan Baumgärtner (2006) goes into detail about the differences between these two indexes.
- ⁵ For quoted firms, Tobin's Q is usually employed as a measure of firm performance. For the sample we examine in this study, such a measure cannot be employed due to the lack of market values of the stocks.
- ⁶ In order to avoid the perfect multicollinearity problem, the dummy indicative of the presence of an institution as major shareholder, Institution, is not included in the model.
- ⁷ Alternatively, the same analyses are performed separately including the variables Family and Corporate. The results do not change. We have also replaced the Family or Corporate variables with Institution. The results show no significant effect of the variable Institution. This variable is marginal, being present only in less than 2 percent of companies.
- ⁸ We also observe a positive correlation between firm size and board size in our sample.

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