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Women on Board of Directors and Firm Performance: The Moderating Role of Female Ownership. Empirical Evidence from the Italian Wine Industry



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Abstract

Many studies have investigated the impact of female directors on firm performance, but the results are still largely inconclusive. This paper aims to analyse the direct relationship between these variables and to explore the moderating role of female owners on the relationship between females on board of directors and firm performance. The main hypotheses are tested, through a panel regression model with cross section random effects, on a sample of 380 firms over the period 2008-2012. Our main findings show that the presence of women on company board does not affect firm performance. However, this relationship becomes significant when we consider the moderating role of the female presence in ownership. Implications for theory and practice are also discussed.

Keywords: Women on Board; Female Ownership; Performance; Gender Diversity; Moderating Variable.
JEL Codes: G30; G34; J16.

1 Introduction

In recent years, gender diversity on corporate board has attracted the attention of both researchers and practitioners (Gallego-Álvarez, García-Sánchez and Rodríguez-Domínguez, 2009). Cultural changes and laws establishing equal employment opportunity between males and females, such as «pink quotas», are some of the key factors that have driven this growing interest (Cotter, 2004). Organisations have begun to recognise female human resources as an important source of competitive advantage (Rogelberg and Rumery, 1996) and equal opportunity laws have pushed organisations to employ women in key roles (Ali, Kulik and Metz, 2011). As a result, women's representation in firms has increased (Kalev, Kelly and Dobbin, 2006) and levels of gender diversity on boards have grown. This situation has encouraged several scholars to analyse the effect

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of female directors on corporate performance (Acs *et al.*, 2011). Despite numerous studies, mainly focused on large firms, research findings are not conclusive on the impact of female directors on firm performance. Theories and empirical research suggest that gender diversity on boards can lead to either positive or negative effects (e.g., Jackson, Joshi and Erhardt, 2003; Svyantek and Bott, 2004; Van Knippenberg and Schippers, 2007; Shore *et al.*, 2009). Gender diversity can be a source of competitive advantage (Cox and Blake, 1991) because women can exert a positive effect on performance through resources such as creativity, innovation (McMahan, Bell and Virick, 1998), and problem solving (Rose, 2007). Moreover, women increase a firm's possibility to penetrate markets, because they provide greater legitimacy to corporations and improve their reputations. In addition, they can improve a firm's understanding of the market place (Carter *et al.*, 2003; Campbell and Minguez-Vera, 2008). However, gender diversity implies heterogeneous teams, in which men and women act with different leadership styles (Fenwick and Neal, 2001). Consequently, team members tend to communicate less frequently (Cox and Blake, 1991; Watson, Kumar and Michaelsen, 1993; Earley and Mosakowski, 2000) and are usually less cooperative (Tajfel and Turner, 1985; Williams and O'Reilly, 1998). These behaviours could increase conflicts, which can negatively affect firm performance (Pelled, 1996).

Mixed evidence emerges and suggests overcoming the direct relationship between females on board (F.o.B.) and firm performance. Therefore, the academic debate could benefit by investigating the role of moderating variables with the aim to disentangle the relationship and shed new light on the issue. In this paper, we propose to consider the female presence in ownership (F.O.) as a moderating variable, because we believe that a different level of female representation in ownership can influence women, who sit on corporate boards. We focus our attention on small and medium enterprises (SMEs), where owners leave a personal mark on strategic decisions (Amore, Garofalo and Minichilli, 2014), and where owners and board members generally overlap (Brunninge, Nordqvist and Wiklund, 2007). Therefore, we think that a female or a male-dominated ownership could have a different impact on the relationship between F.o.B. and firm performance as a consequence of the different entrepreneurial capital of female compared with its male counterpart (Shaw *et al.*, 2009).

These arguments are tested on a sample of 380 Italian firms operating in the Italian wine industry, over the period 2008-2012. We consider F.o.B. as the percentage of female members on the board (Du Rietz and Henrekson, 2000; Watson and Robinson, 2003), and F.O. as the proportion of equity owned by women (Boden and Nucci, 2000; Collins-Dodd, Gordon and Smart, 2004). These two indicators provide a continuous measure of female intensity in the company. As performance measurement, we use ROS as an indicator of economic performance, and the debt/total assets ratio as the degree of financial leverage. Our main findings suggest that having women on board does not improve firm performance. However, results become significant when we consider the moderating effect of female presence in ownership. Specifically, for low levels of female in ownership (i.e. high level of males in ownership) the relationship between females on board and firm performance is positively sloped. On the contrary, for high levels of females in ownership (i.e. low levels of male in ownership) the relationship between F.o.B. and firm performance is negatively sloped.

Our paper contributes to both theory and practice. First, by focusing on the role of female ownership as a moderator, our study allows us to overcome the direct relationship between females on board and firm performance, and tries to provide an explanation the mixed evidence on the issue. Moreover, by considering the interaction effect between a female presence on board and in ownership, the work encompasses a wider perspective in the study of women in firms which have usually focused on one category of female presence (director, manager, or entrepreneur). Second, we do not compare male-run firms with women-controlled firms, as earlier studies do, but our methodological approach focuses on a growing degree of female intensity on board and in ownership. This approach allows us to consider the effect of board dynamics of a single woman (man) in a male (female) dominated board (Litz and Folker, 2002; Terjesen, Sealy and Singh, 2009). Third, although our study is a preliminary investigation, and firms in our sample belong all to the same industry (wine), we contribute to advance the literature with regard to gender diversity by studying the role of women on SMEs' performance, unlike previous studies which have focused on large firms. Finally, our contribution offers an important implication for practitioners as it highlights that female involvement only on board is not sufficient for influencing firm performance. Instead, when women are also present as shareholders the female presence on boards becomes significant. In particular, a low women's representation in ownership is better than a high presence.

The remainder of the paper is structured as follows: in the next section, we review the literature on F.o.B and firm performance relationship and formulate our first hypothesis according to the resource-based view and resource-dependence theory. Female ownership as a moderating step in the relationship is then introduced. Sample characteristics, descriptive statistics and methods are shown in the third section. Finally, results and findings are presented and discussed, in order to draw implications and provide suggestions for further research.

2 Female on Board and Firm Performance: A Resource-based Perspective

The Resource-based view (hereafter RBV) identifies the source of firm competitive advantage in tangible and intangible corporate resources (Barney, 1991). Furthermore, it specifies that these physical, organisational, and human resources should be valuable, rare, and inimitable (Barney, 1991; Grant, 1991). In addition to the RBV, the resource dependence view underlines the strong link between these resources and firm performance (Pfeffer and Salancik, 1978; Hillman and Dalziel, 2003). In particular, according to this theory, the competencies and abilities possessed by those who direct the company affect business performance (Pfeffer and Salancik, 1978; Barney, 1991; Harrison and Leitch, 1996). In SMEs the board of directors exerts a fundamental service role (Gabrielsson and Winlund, 2000; Johannisson and Huse, 2000; Mustakallio *et al.*, 2002). Board members provide expertise and advice, exert a strategic role (van den Heuvel, Van Gils and Woordeckers, 2006) and, ultimately impact on financial performance and firm survival. From this perspective, female directors are a source of

competitive advantage (Cox and Blake, 1991; Watson, Kumar and Michaelsen, 1993; Shrader, Blackburn and Iles, 1997; Farrell and Hersch, 2005), because women add complementary skills and capabilities, making the board more balanced (Litz and Folker, 2002). Women hold specific resources such as creativity and innovation (McMahan, Bell and Virick, 1998), and they can enhance board decisions through more creative and participative discussions (Daily and Dalton, 2003). It can also be considered as problem solvers (Rogelberg and Rumery, 1996), because they are able to tackle issues from a wider variety of perspectives and consequently, this generates a greater number of alternatives to solve firm problems (Rose, 2007). Moreover, women influence working style and board processes with a potentially beneficial effect on board results (Anna *et al.*, 2000; Watson, 2002; Farrell and Hersch, 2005). Women demonstrate greater openness towards others, and their relational oriented leadership style has positive effects on both internal and external company relations (Book, 2000; Bruni, Gherardi and Poggio, 2004; Gundry, Ben-Yoseph and Posig, 2002). Women's representation increases a firm's possibility to penetrate markets, because it provides greater legitimacy to corporations and improves their reputations, in addition to causing a better understanding of the market place (Carter *et al.*, 2003; Campbell and Minguez-Vera, 2008).

Finally, women on the whole show higher levels of commitment, are more scrupulous in carrying out duties, more responsible and show greater freedom of opinion. Boards with a significant presence of women are more focused on control of strategy by identifying specific criteria to measure corporate objectives and by monitoring corporate strategies implementation.

Based on the previous arguments, and in line with previous studies (Adler, 2001; Carter, Simkins and Simpson, 2003; Erhardt, Werbel and Shrader, 2003; Harel, Tzafrir and Baruch, 2003; Catalyst, 2004; Adams and Ferreira, 2004; Welbourne, Cychota and Ferrante, 2007; Davis *et al.*, 2010), we propose the following hypothesis:

H_p 1: A female presence on board positively influences firm performance.

2.1 The moderating role of Female Ownership

Considering the female presence on boards only gives a parsimonious interpretation regarding the effect that females have on firm performance, especially with regard to SMEs. Studies on corporate governance in small and medium-sized enterprises show that the separation between ownership and control is unusual (Minguez-Vera and Lopez-Martinez, 2010). In SMEs owners are directly involved in the company as board members (Daily and Dollinger, 1992; Harris, Martinez and Ward, 1994; Feltham, Feltham and Barnett, 2005) or they are able to influence board decision making. From a resource-based perspective, owners support the company with tangible and intangible resources, leave a personal mark on strategic decisions (Amore, Garofalo and Minichilli, 2014) and put into the enterprise's economic, social, cultural and symbolic resources (Bourdieu, 1986). Very often, entrepreneur's resources characterise firm specific resources and overlap with them (Miller, 1983; Kotey and Meredith, 1997). On the basis of this theoretical and empirical evidence, studying the effect of female presence in ownership on the relationship

between F.o.B. and firm performance can be a way to better understand board dynamics and behaviours of women directors.

A female presence in ownership increases self-confidence among women on board and develops a stronger exchange of information. However, women are less effective than men in competitive environments (Gneezy *et al.*, 2003), are less attentive to financial performance and tend to favour non-monetary goals. Their major goal is self-fulfilment and achievement (Buttner and Moore, 1997; Weiler and Bernasek, 2001). From a resource-based perspective (Penrose, 1959; Barney, 1986; Barney, 1991), female-owned businesses underperform compared with male ones (Hisrich and Brush, 1984; Fasci and Valdez, 1998; Watson, 2002; 2006; Shaw *et al.*, 2009) because women are not able to provide the firms with high levels of entrepreneurial – social, human and financial – capital (Shaw *et al.*, 2009). Scholars justify the reduced human capital as women tend to have lower managerial education and training (Gottschalk and Niefert, 2013). From a financial point of view, women are less able to raise financial capital, also because they suffer from discrimination in lending (Becchetti and Trovato, 2002; Carter *et al.*, 2003; Marlow and Patton, 2005). Moreover as Watson (2010) suggests, the varying level of external funding between male and female controlled SMEs is the result of personal choice rather than bank discrimination. Female owners appear to be characterised by a higher degree of risk aversion than male entrepreneurs (Slovic, 1966; Wagner, 2001; Welch, Welch and Hewerdine, 2008; Ferrary, 2009). Women and men may differ in their risk propensity for different causes, such as concave utility over outcomes, loss aversion, and weighting of probabilities (Van Geen, 2014). All these aspects are behavioural characteristics, but women and men's innate preferences are modified by pressure to conform to gender-stereotypes (Booth and Nolen, 2012). This last aspect does not have to be underrated, because often stereotype threat can suppress performance (Good and Harder, 2008). Nevertheless, risk perception of owners is particularly significant for SMEs because of an overlap between business and personal risk.

This theoretical and empirical evidence leads us to believe that a female-dominated ownership negatively affects the relation between female presence on board and firm performance, due to greater risk aversion and a lower level of entrepreneurial capital provided to the firm. Consequently, we test the following hypothesis:

H_p 2: A high (low) level of female ownership negatively (positively) moderates the relationship between females on board and firm performance.

3 Methods

This section presents the data collection process, variables measurement and the main methods used to test our hypotheses. We test the main hypotheses through quantitative methods based on Italian survey data designed as a longitudinal study (2008-2012).

3.1 Data collection and sample

We collected the main data for our analysis from Italian wine firms. Italy is a leading country in the production of wine. In this industry, 922 (24.6%) women hold key roles in firms (as either owners, directors or managers) (Ulysses database, Infocamere, 2010). This percentage is marginally higher than the national average, which stands at 23.3% (Unioncamere Report, 2010). For our sample selection, we focused only on joint stock companies, limited companies, and cooperatives. The decision to limit the analysis to these type of firms stemmed from the need for highly reliable accounting data. For partnerships and sole proprietorships the usual accounting standards could present exceptions or simplifications that do not always permit a feasible comparison of financial data. Taking data from the main official databases (ISTAT, Business Registers and Wine Business Associations), we identified a population of approximately 950 companies. We applied a simple random sampling technique, with a confidence level of 99% and an interval of confidence of 5%. Therefore, we obtained a sample size of 390 companies, which we randomly selected from a list provided by the Chamber of Commerce through the generation of a sequence of 390 random numbers.

For all companies in our sample we collected financial data (from 2008 to 2012) from different sources such as the Chamber of Commerce and AIDA (Bureau Van Dijk) database. The Chamber of Commerce provided the historical business profiles (which report a range of information on company, owners, directors, and so on) and the corporate financial statements for each company. From the AIDA database, we collected addition financial information. We excluded 10 companies for which we did not find all necessary information for the analysis: 5 of them were not operative, 3 were in liquidation, and for 2 the access to financial records was not allowed. As a result, 380 companies were used in the final sample. From the data collection, we obtained an unbalanced panel data of 1715 firm/year observations suitable for testing our hypotheses.

3.2 Variables and measures

Dependent variables. Our main dependent variables are two performance measurements: ROS as a measure of corporate performance, and debts/total assets ratio as degree of financial leverage. We preferred to use ROS rather than ROA, because the first is less subject to manipulation. In line with Barber and Lyon (1996), this indicator was calculated as the EBITDA/Sales ratio. We chose to consider financial leverage, in order to verify the capability of women to raise capital as a prerequisite to finance businesses.

Independent variable. Our main independent variable is females on board (F.o.B.). We measured it as percentage of female members on boards (Du Rietz and Henrekson, 2000; Watson, 2001; Watson, 2003; Watson and Robinson, 2003), on the basis of information provided by the Chamber of Commerce. This indicator provides a continuous measure from zero to one. The two extremes identify, respectively, the case of a «masculine» board and the case of a «feminine» board.

Interaction variable. To test the interaction effect, we considered the product between females on boards (F.o.B.) and female ownership (F.O.). The latter was calculated as the percentage of equity owned by women (Chell and Baines, 1998; Fasci and Valdez, 1998; Boden and Nucci, 2000; Collins-Dodd, Gordon and Smart, 2004).

Control variables. As control variables, we considered *company size* as the natural logarithm of total assets; *company age* as the natural logarithm of the number of years of existence of the company; *governance structure*, as a dummy variable with value 1 when there is a Sole Director at the head of the company and 0 otherwise; *location*, represented by two dummy variables for companies located in Central Italy and for those located in the South (plus Islands) of Italy. Companies located in the North are the baseline of the analysis. Furthermore, we also considered the percentage of *owners who sit on board* (O.o.B.) in order to control the influence that ownership has on the board, and the familiness of the company, which we measured as *Family power*. Family power is a continuous measurement of family influence on a company. It is calculated on the basis of historical data provided by the Chamber of Commerce using the following calculation (Klein, 2000; Astrachan, Klein and Smyrniotis, 2002; Jaskiewicz *et al.*, 2005):

$$FP = \% EQ_{Fam} + \% BoD_{Fam}$$

where:

FP = Family Power

% EQ_{Fam} = Percentage of capital held by the family

% BoD_{Fam} = Percentage of family members on the company Board.

The indicator varies from zero to two. The two extremes identify, respectively, a non-family business and a strong family business (Giovannini, 2010). To establish whether owners and board members belong to the same family, *i*) we collected information about family on the official company website or in business publications, *ii*) we checked if members have the same surname (Sacristan-Navarro, Gomez-Anson and Cabeza-Garcia, 2011), *iii*) we considered everyone living at the same address as belonging to the same family (Gallucci and D'Amato, 2013; Molly, Laveren and Deloof, 2010). This variable was included to control for spurious effects arising from the relationship between female intensity in ownership and firm performance. In SME family firms, the presence of women in ownership might be merely an expedient to constitute a company, which continues to be carried out by men while women have no effective role. Finally, financial leverage measured as Debts/Total assets and profitability expressed as ROA (EBITDA/total assets) were considered as control variables, respectively, in the model with ROS as a dependent variable and with financial leverage as dependent variable.

3.3 Methodology

To test our hypotheses we use a panel regression model with cross section random effects and with time fixed effects. A panel model with cross section fixed effects is substantially inappropriate (Wooldridge, 2002) because our main independent variable (F.o.B.) and

our interaction variable (F.O. × F.o.B.) are time-invariant. We test the appropriateness of the panel specification against a simple pooled model with the *Lagrangian Multiplier Test* (*LM Test*). The *LM* tests the hypothesis that the variance across entities is zero, which means that significant difference across units does not exist. In our case, the *LM test* is always significant at a high level ($p < 0,1\%$) thus the null hypothesis is rejected (Table 4). Therefore, we specify our model as a panel model with a cross section random effect. However, our results are also substantially confirmed by estimating a pooled model with time fixed effects (see Table 5 in Appendix A).

We estimate a regression model for each performance indicator. The general specification of the estimated model was the following:

$$= \beta_0 + \beta_1 (\text{F.o.B.})_{(i,t)} + \beta_2 (\text{F.O.})_{(i,t)} + \beta_3 (\text{F.o.B.} \times \text{F.O.})_{(i,t)} + \\ + \beta_4 (\text{Control Variables})_{(i,t)} + \beta_5 (2008-2012) (\text{Year Dummy Variables}) + \varepsilon_{(i,t)}$$

Each model is estimated in two steps. In the first step, we include the control variables, and the F.O. and F.o.B. variables. The interaction term (F.o.B. × F.O.) was included in the second step.

The control of heteroskedasticity and serial correlation of the data was carried out by calculating the robust standard errors using the Huber White Sandwich estimator for clustered data (Rogers, 1993; Wooldridge, 2002). In order to reduce multicollinearity due to the interaction term (F.O. × F.o.B.), we use a mean centering procedure. Finally, it should be noted that simultaneity bias due to reverse causality between females on board or in ownership and firm performance does not affect our results, as the first two variables are time-invariant in the time-span of our study. This evidence is coherent with the literature, which shows that corporate governance processes are sticky with respect to firms (especially if small family firms) that change their governance slowly in response to economic conditions (Black, Jang and Kim, 2006).

4 Results

Tables 1, 2 and 3 show descriptive statistics and the correlation matrix. In Table 1, companies are segmented with respect to the degree of female participation in ownership and on board. The analysis shows that 39% of companies are completely male-controlled. Women appear on board but not as owners in 10% of the firms. In 27% of firms, women are present as owners but not as board members. Finally, in 24% of cases, women are both in ownership and on board; in particular, only 2% of the companies are exclusively female-controlled. Consequently, women are more likely to be present in ownership rather than on board.

In Table 2, we present the average values of the main variables for different degrees of female intensity in ownership and on board.

First, we observe that male-controlled and female-controlled companies differ sharply. Companies run by men are larger, have a higher average age, achieve higher levels of revenues and are on average more indebted than companies run by women. Concerning

Table 1: Classification of Companies for Differing Rates of Female Intensity in Ownership and on the Board

Female intensity...		N	%
In ownership = 0	on the Board = 0	147	39
In ownership = 0	on the Board > 0	39	10
In ownership > 0	on the Board = 0	104	27
In ownership > 0	on the Board > 0	90	24
Total		380	100

Table 2: Average Values of the Main Variables for Differing Rates of Female Intensity in Ownership and on Board

Female intensity Firm...	F.O. = 0 F.o.B. = 0	F.O. = 0 F.o.B. > 0	F.O. > 0 F.o.B. = 0	F.O. > 0 F.o.B. > 0	F.O. > 0.5 F.o.B. > 0.5	F.O. = 1 F.o.B. = 1
Size (€/000)	13,319	21,076	7,724	13,809	6,047	3,530
Age (years)	22	31	19	25	14	9
Profitability (ROS)	6.9%	6.2%	11.4%	11.4%	11.6%	7.4%
Leverage (D/TA)	28.6%	26.2%	28.3%	27.6%	23%	14.6%

company profitability, a slight and not very significant advantage in female-run companies emerges. Compared with female-run firms, the presence of both men and women in ownership and on board delineate a scenario in which firms are larger, more indebted, and more profitable.

Table 3 shows the *mean*, *standard deviation* and *correlation* coefficients of variables used in the analysis. To calculate the mean of our variables, we first calculated the average value of each variable at the firm level, during the time span 2008-2012, and subsequently, we calculated the average across companies. The sample consists, on average, of small firms with an average age in 2012 of approximately 24 years. Governance is based in 55% of the companies on the figure of the Sole Director. Moreover, companies in our sample show an average value for Family Power equal to 1.66. Therefore, they are prevalently family firms. Finally, in terms of female involvement in ownership and on boards, the average values of the F.O. and F.o.B. variables are quite modest (18.8% and 15.3% respectively). In particular, the F.O. variable shows an average value 3.5% higher than the F.o.B. variable. This indicates a greater presence of women in business ownership than on boards. The sample shows a level of profitability, expressed by ROA, equal to about 7.5% and a level of ROS of approximately 10.2%. The level of debt to total assets is around 27%.

As regards the correlation matrix, a negative correlation exists between female presence in ownership, and company size and age. Therefore in line with the literature, female owned businesses are younger and smaller. Instead, a positive and significant correlation emerges between F.P., and female presence in ownership and on board. Although these values are not high, they show that women, fulfill the owner or manager role in family firms. Finally, F.O. and F.o.B. are positively correlated, indicating that the level of women on board is greater when the level of female ownership is higher.

However, the correlations between the regressors are quite modest in both models. Therefore, multi-collinearity does not represent a problem for our analysis. This circum-

Table 3: Descriptive Statistics and Correlation Matrix

	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. ROS	.102	.106	1								
2. Leverage (<i>ln</i>)	-1.675	1.207	-.094***	1							
3. Company size (<i>ln</i>)	8.719	1.204	.077**	.21***	1						
4. ROA	.075	.079	.582***	-.283***	-.115***	1					
5. Company age (<i>ln</i>)	2.803	.94	.009	.122***	.351***	-.01	1				
6. F.o.B.	.153	.268	.052 [†]	-.02	.015	.03	-.003	1			
7. F.O.	.188	.273	.033	-.006	-.209***	.06*	-.097***	.371***	1		
8. F.P.	1.66	.6	-.003	.15***	-.152***	.023	.016	.132***	.18***	1	
9. O.o.B	.786	.343	.010	.12***	-.171***	.014	.022	.117***	-.036	.388***	1
10. Governance*	-	-	-.128***	.055 [†]	-.245***	-.078**	-.183***	-.174***	.105***	.264***	.127***

* Dummy variable.

Table 4: Results of Panel Regression with Random Effects (non-Standardised Coefficients)

	R.O.S.		Leverage	
	1	2	3	4
Company size	.006 (1.36)	.006 (1.39)	.231*** (4.45)	.231*** (4.49)
Governance structure	-.033** (-3.26)	-.032** (-3.20)	.005 (.04)	.027 (.23)
Company age	.005 (.99)	.005 (.91)	.119 [†] (1.83)	.111 [†] (1.70)
Leverage	-.011** (-3.05)	-.011** (-3.12)		
Family Power (F.P.)	.002 (.24)	.001 (.11)	.295* (2.56)	.263* (2.27)
Owner on board (O.o.B.)	.018 (1.25)	.021 (1.42)	.411* (2.10)	.476* (2.47)
Profitability (ROA)			-2.226*** (-5.36)	-2.225*** (-5.38)
Females on board (F.o.B.)	.014 (.87)	.035 [†] (1.78)	-.242 (-1.14)	.239 (.91)
Female ownership. (F.O.)	.001 (.11)	.018 (.93)	.230 (1.08)	.613** (2.65)
F.o.B. × F.O.		-.060 [†] (-1.69)		-1.355** (-3.05)
Constant	-.004 (-.09)	-.008 (-.17)	-4.705*** (-9.03)	-4.763*** (-9.22)
Wald χ^2	57.16***	58.86***	100.71***	115.92***
LM Test χ^2	793.52***	786.73***	1505.00***	1512.60***
N	1,623	1,623	1,630	1,630

Notes: [†] $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Z-statistic values are in brackets. Standard errors are robust to heteroskedasticity and serial correlation. All models include year dummy variables and location dummy variables.

stance is confirmed also by variance inflation factors (VIF), which do not exceed the threshold value of 2 (Neter, Kutner, Wasserman and Nachtsheim, 1996; Hair, 2010). Moreover, the condition index, estimated for both regression models, ensures that collinearity is not a problem.

Table 4 provides an overview of the estimated models.

For our two dependent variables, we show the results of the panel models testing the hypothesis 1 (columns 1 and 3) and the hypothesis 2 (in columns 2 and 4). In particular, in order to test hypothesis 1, we consider the control variables and the variables F.O. and F.o.B. To test hypothesis 2, we add the interaction term between F.o.B. and F.O.

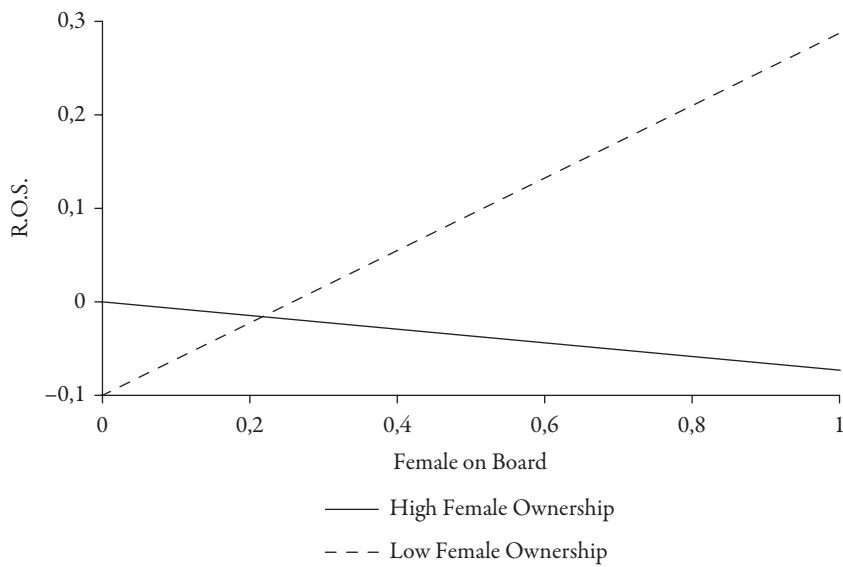


Figure 1: Relationship between F.o.B. and R.O.S. for Different Levels of F.O.

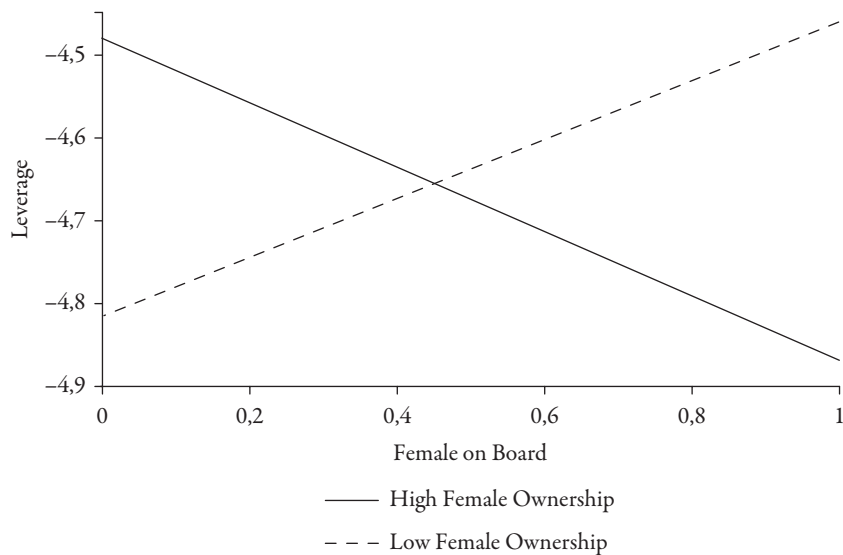


Figure 2: Relationship between F.o.B. and Leverage for Different Levels of F.O.

All models are significant. The significance of the coefficients for the variable F.o.B. is determined on the basis of a one-tailed z-distribution.

In both models exposed in column 1 and 3, respectively, our main independent variable (F.o.B.) is not significant, thus hypothesis 1 is not supported. On the contrary, the interaction term (F.o.B. × F.O.) is marginally significantly and negatively associated to ROS ($\beta = -0.06, p < .1$), in column 2; and highly significantly and negatively associated to leverage ($\beta = -1.355, p < .01$), in column 4. Therefore, hypothesis 2 is not rejected.

Figures 1 and 2 show, respectively, the effects of the F.o.B. variable on R.O.S. and financial leverage for different levels of the moderating variable (F.O.). The levels of the moderating variable were calculated as the average of the variable plus/minus a standard deviation.

As concerns the moderating effect of the F.O. variable on the relationship between F.o.B. and ROS, the results show that the F.o.B. variable has a relevant and positive effect on profitability when F.O. is below the average. In other words, for low levels of female presence in ownership (that is in the case of a high percentage of male owners), women on boards exerts a positive impact on profitability (Figure 1). As regards leverage, we observe that for high levels of female ownership the relationship between F.o.B. and leverage is negatively sloped (Figure 2). Therefore, companies with female-dominated boards are less indebted for high levels of female ownership. Instead, in companies where ownership is dominated by men, there is a positive relationship between F.o.B. and leverage.

5 Discussion and Conclusion

This article has investigated the effect that female presence on boards has on firm performance and the influence that female owners exert on this effect. Our main findings have shown that female presence on boards does not significantly affect firm performance. Therefore, the analysis of the direct effect between females on boards and firm performance does not allow us to fully understand the role of women in firms. Studying the interaction effect between female presence on boards and in ownership has allowed us to reach more interesting results. Specifically, we have found that female presence in ownership moderates the relationship between F.o.B. and firm performance. In more detail, our results suggest that a low presence of women in firm ownership positively influences women who sit on company board, while a high female presence in ownership negatively moderates the influence of females on board on firm performance. When a few women are in ownership, a stronger information exchange is developed, as a consequence female directors' self-confidence increases, and women on boards are able to fully express their abilities (Amore, Garofalo and Minichilli, 2014). Moreover, male presence in ownership offers a support to women in terms of a partial overcoming of their traditional risk aversion and their low propensity towards financial leverage. Instead, when the majority share is held by women, the risk perception felt by women who sit on boards grows and their influence on performance becomes negative, both in terms of ROS and leverage. Therefore, a female preponderance in companies (in ownership and on board) can be harmful, and it would be more advisable to have a gender balanced team. In mixed groups women's perceptions change (Booth and Nollen, 2012) and they exhibit a different risk propensity. Moreover, a growth in the male presence could compensate for some female weaknesses, by increasing risk propensity and facilitating the access to credit, and consequently producing significant benefits on profitability. Actually, men are less risk adverse, and the banking system tends to consider male owners as more reliable and more suitable to fulfil the role of guarantor.

Despite our study is a preliminary investigation, it offers important implications for researchers, firms, and policy makers. It could be considered a first step towards an in depth analysis on the gender diversity-firm performance relationship, through the identification of moderating variables that are able to better explain the differences in

performance of companies that have males and females at the head. From a corporate governance perspective, our results highlight the need to fully exploit the strengths of women to increase the opportunity to create value. Finally, policy makers have to make an effort to put in place the most appropriate measures to remove obstacles preventing the full development of women's skills in order to reduce the negative effects of token representation (Kanter, 1977) and minority groups (Spencer, Steele and Quinn, 1999).

Despite our interesting findings, the work is subject to certain limitations. First, as stated in the methodology section, the survey is based mainly on secondary data. Therefore, there is the risk that we can have failed to exactly represent women power in companies (in the calculation of the F.O. and F.o.B. variables). Actually, women might only play fictitious roles in a company. We have tempted to control for this risk by including family power as a control variable. However the risk of biased results still remains. Second, other significant information that was needed as control variables in our analysis (for example, levels of exports, investment in R&D), could not be sourced from the documents we employed in the analysis. Finally, research findings underline the effect of gender diversity on firm performance, but they do not identify the potential causes (for example, styles of leadership, commitment to management, competencies) of such effects. Therefore, we suggest to investigate these aspects in further research. Moreover, it would be useful and interesting to extend similar analyses using a wider sample and which would evaluate further the consistency of our results.

Appendix A

In this section, we present the results obtained by estimating the previous models through a simple pooled regression with time fixed effects. The models were estimated by including location dummies and year dummies, and using robust standard errors to heteroskedasticity and serial correlation. The significance of the main dependent variable (F.o.B.) was determined on the basis of a one-tailed t-distribution.

Table 5 shows the adjusted R^2 and *F-change* values and reports their level of significance in order to provide information on the explanatory contribution offered by the additional variables included in the models at each step. The results reported in Table 5 confirm those reported in Table 4. The sign and significance of the coefficients for the main dependent variable (F.o.B.) and interaction term (F.o.B. \times F.O.) are the same as those presented in Table 4.

Table 5: Results of Pooled Regression (non-Standardized Coefficients)

	R.O.S.		Leverage	
	1	2	3	4
Company size	.008† (1.92)	.009† (1.96)	.220*** (3.90)	.220*** (3.91)
Governance structure	-.034** (-3.45)	-.034** (-3.42)	.056 (.48)	.066 (.58)
Company age	.001 (.08)	-.000 (-.03)	.081 (1.16)	.070 (.99)
Leverage	-.011** (-2.67)	-.012** (-2.78)		
Family Power (F.P.)	.006 (.74)	.006 (.58)	.271* (2.33)	.247* (2.10)
Owner on board (O.o.B.)	.014 (1.08)	.018 (1.31)	.381* (2.05)	.436* (2.32)
Profitability (ROA)			-3.895*** (-7.31)	-3.858*** (-7.23)
Female on board (F.o.B.)	.014 (.89)	.038† (1.91)	-.256 (-1.36)	.117 (.47)
Female ownership. (F.O.)	.006 (.39)	.023 (1.28)	.224 (1.12)	.508* (2.29)
F.o.B. × F.O.		-.068† (-1.96)		-1.084** (-2.63)
Constant	-.016 (-.34)	-.020 (-.43)	-4.320*** (-7.68)	-4.350*** (-7.76)
Adj. R ²	.061	.064	.1601	.1743
F-change	8.52***	6.09*	23.18***	13.52***
N	1,623	1,623	1,635	1,635

Notes: † $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$.

T-statistic values are in brackets. Standard errors are robust to heteroskedasticity and serial correlation. All models include year dummy variables and location dummy variables.

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