

THE GENDER COMPOSITION OF THE BOARD AND FIRM PERFORMANCE. THE ROLE OF REGULATORY MEASURES

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Abstract

The gender composition of the board of directors can affect the quality of its monitoring role and thus the financial performance of the firm. The relationship between female representation and firms' performance represents a crucial issue in the debate on the effects of board gender quotas. The evidence on this relationship is mixed. Many studies analyze whether female top executives and women on boards of directors have a significant effect on firm performance. Many governments have introduced regulations regarding the gender composition of the boards of directors of private firms in order to improve equality of opportunity. This study examines the relationship between management diversity and firm performance for the 180 companies listed during 2008 - 2014. No evidence suggests that regulatory measures, on average, improve firm performance.

Keywords: Boardrooms; Gender quota; Firm Performance; Regulatory Measure

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1 Introduction

Diversity among individuals within a group can be traced to their personal or demographic characteristics (Jackson S. E., Stone V. K., Alvarez E. B., 1993). The former are recognitory and immutable attributes (age, sex, culture, etc.). The latter, on the other hand, are subjective qualities (social status, education, life experiences, etc.). Some scholars (Konrad A., Gutek B. 1987) speak of differences with respect to the members of a group, while Wittenbaum and Stasser (1996) speak of them in terms of variations in information and/or expertise.

Adopting a system of Diversity Management (DM) in firms and therefore exploiting the diversity of individuals, can lead to an improvement, but also a deterioration, in company performance or, finally, not have a significant effect. Certainly there are numerous exogenous and endogenous variables that impact the ability of a company to achieve its objectives effectively. Business results are linked to characteristics of creativity, innovation and optimal problem-solving in individuals whose task is to make strategic and operational decisions.

The main issue regarding gender diversity is whether to have 'feminism of equity' or 'feminism of difference', that is, whether women should be included on boards for gender representation for its own sake or for the business benefits they will bring to the board (Gregory-Smith et al, 2014). Scholars have yet to show empirically whether gender quotas 'shatter the glass ceiling' or improve board decision-making or firm performance so that they can plead the business case for board gender diversity (Maseko, 2015).

The proportion of women reaching top positions

is still very low; in most countries women hold few corporate board seats and numerous studies continually confirm this situation. The annual reports by Catalyst are extremely interesting. According to the recent studies going back to October 2014 it is the countries of northern Europe that have achieved the best results in trying to deal with gender diversity (Fig. 1).

A study carried out by the Credit Suisse Research Institute (CSRI) of three thousand businesses in various sectors and countries comes, however, to a more problematic conclusion: on average, women occupy only 13% of the high level managerial positions (chief executives and those depending directly on them), and the highest percentage, recorded in North America, does not exceed 15%. It is also true that, according to the CSRI, of 2,360 listed companies throughout the world in the period 2005-2011, the shares of the firms with at least one woman on the Board of Directors had, in the 6 years preceding 2012, an improved performance of 26% compared to the others. The results led scholars to conclude that high levels of performance demonstrate women's qualities of leadership, talent and strategic capacity.

According to McKinsey's research (Women-matter Report 2013) companies with a "critical mass" of female executives perform better than those with no women in top management positions. But women are still underrepresented at the board level. The problem is not only at the top: women are outnumbered at all levels, and are increasingly outnumbered as they rise through the ranks; the reason is not one glass ceiling, but a pipeline toward the top that is leaking women at every transitional point.

Figure 1. Women’s share of board seats at stock index companies parity

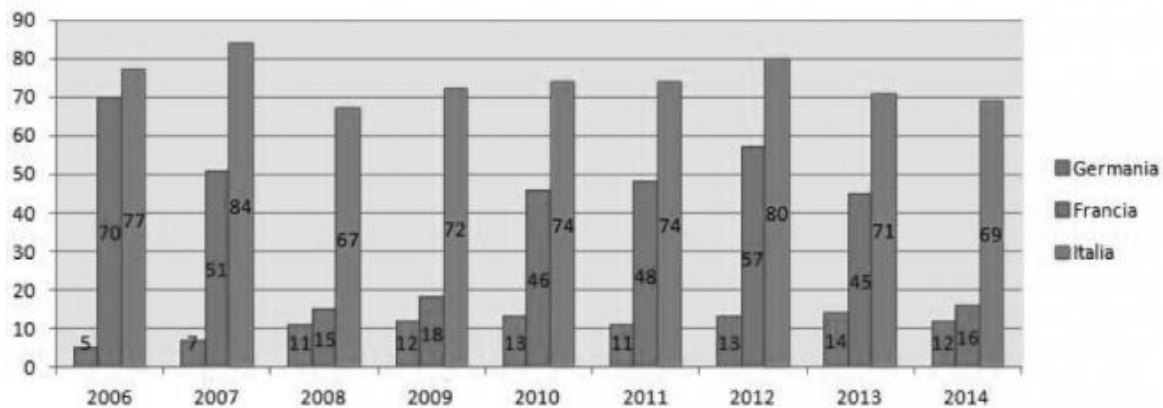
United States	19.2%
Canada	20.8%
Norway	35.5%
Finland	29.9%
France	29.7%
Sweden	28.8%
Belgium	23.4%
United Kingdom	22.8%
Denmark	21.9%
Netherlands	21.0%
Germany	18.5%
Spain	18.2%
Switzerland	17.0%
Austria	13.0%
Ireland	10.3%
Portugal	7.9%
Australia	19.2%
Hong Kong	10.2%
India	9.5%
Japan	3.1%

Source: Catalyst Census: women board directors. (Countries in the data set without stock market indices are not included).

Italy, according to the Global Gender Gap 2014 report, through which the World Economic Forum updates the statistics on the gender gap in the world, is situated in the 69th position out of 142 countries classified according to their performance; there has certainly been an improvement compared to 2013, but a worsening with respect to the pre-crisis period, which shows the negative effect of the economic crisis

and the blocking of reforms in favour of reconciliation of family and work and of gender equality in the job market. Other countries that are similar to ours, like Germany and France, have seen a clear improvement of their positions as a result of policies that are more favourable to women and their position in the economy and in politics (Fig. 2).

Figure 2. Evolution of the Gender Gap Index 2006-2014. Comparative ranking of countries



Source: Global Gender Gap World Report 2014

Some governments introduced legislation regulating the gender composition of the boards of directors of private firms in order to promote equal opportunities. Most legislative initiatives are motivated by the belief that the presence of women on boards could affect the governance of companies in significant ways. Many researchers are proponents of mandatory quotas on the grounds that equal opportunities are unattainable without enforcement of quota legislation to ensure equality through the principle of proportional representation (Gregory-Smith et al, 2014; Kamonjoh 2014; Storvik 2011). The

claim that having more women (or minority groups) as top executives or members of boards of directors has a positive effect on shareholder value and firm performance is a strong argument for having more women in top management (Smith N., Smith V., M. Vener, 2005).

On the other hand, critics of mandatory gender quotas for boards worry that quotas could produce a backlash, if female appointees are ‘tokens’ or if female directors are untrained or inexperienced (Mosako, 2015; Covert, 2014). Some researchers advocated cultural change instead of mandatory

quotas on the grounds that legislation or quotas cannot be considered capable of tackling deeply engrained cultural belief (Kilday et al, 2009; Lansing and Chandra, 2012).

We ask the following question: do quota-based policy initiatives affect business performance significantly? To examine this question we compare the performance of listed Italian companies before and after legislative intervention regarding the recruitment of female directors—The answer to this question can help us understand the effect that group composition has on board effectiveness and the likely success or failure of governance proposals advocating greater diversity. The relationship between female representation and firms' performance represents a crucial issue in the debate on the effects of board gender quotas. The evidence on this relationship is mixed.

In this paper, we provide new evidence that is relevant to this debate by investigating the hypothesis that gender diversity in the boardroom does not - a priori – have positive effects on company performance. In other words, diversity and performance are correlated, but diversity and, therefore, the promotion of legislative measures in favour of the presence of women on boards of directors do not necessarily lead to better company results.

The study will deal with gender diversity, starting from an analysis of the international literature (section two) and then of the legislative provisions introduced in the various European countries (section three), carry out an empirical analysis (section four) and, finally, the conclusions will be formulated (section five).

2 Background and literature review

Many scholars and researchers have dealt with gender diversity and tried to measure and interpret the impact of female presence in the work environment. In outline, predictions from empirical evidence are ambiguous. Besides the ambiguous theoretical predictions, the diverse empirical evidence may be due to different estimation methods. In some studies, no controls for other factors are included (Smith, N., Smith V. and Verner M., 2005).

Many aspects have been investigated and they constitute the basis for the positions in favour of the introduction or reinforcement of gender diversity in the top positions of company management.

Some, on the other hand, have produced equally interesting results and have refuted studies and research that showed a positive relationship between female presence on boards and company performance.

It is equally true that both sides adduce results using different tools of measurement and, therefore, not single indicators.

By way of example, Cristian Deszo and David Ross (2012) studied the effect of gender diversity on

boards in the top 1500 companies as classified by Standard&Poor Composite during the period 1992-2006. It emerged from the study that female representation in top management leads to an increase in the value of the enterprise. The positive impact of female representation in top management on firm performance is an increase in a firm's innovation intensity, in which context the improvements in group decision-making associated with gender diversity and the managerial attributes of women managers themselves are likely to be especially important.

They find that female representation in top management improves firm performance, but only to the extent that a firm's strategy is focused on innovation, in which context the informational and social benefits of gender diversity and the behaviors associated with women in management are likely to be especially important for managerial task performance.

Another study found an association between gender diversity and firm innovation since firms with more women on boards were found to spend more on R&D (Kulik, 2011).

The origin of this can be found in the concept of informational diversity. When people are brought together to solve problems in groups, they bring different information, opinions and perspectives, unique experiences to bear on the task at hand. A male and a female engineer might have perspectives as different from one another as an engineer and a physicist—and that is a good thing (Antonio, 2014).

Yet there are also arguments that greater gender diversity may serve to reduce firm performance. Scholars suggest that members of homogeneous groups tend to communicate more frequently as they are more likely to share the same opinion and experience. Furthermore, homogeneous boards in terms of gender are hypothesized to report less conflict as compared to heterogeneous ones. For these reasons, gender diverse teams are likely to experience more interpersonal incompatibilities and disagreements about their tasks and decision-making processes than gender homogeneous ones (Earley and Mosakowski, 2000; Tajfel and Turner, 1986; Williams and O'Reilly, 1998).

One pioneering study - Shrader, Blackburn, and Iles, 1997 – which theorized about and empirically studied the relationship between female representation at various levels of management and firm performance, used accounting measures. The research focused on a sample of 200 American firms using as a measure of performance ROS, ROA, ROI, ROE correlated with the variable of the percentage of women. The researchers were unable to find any significantly positive relation between the percentage of female members of U.S. boards and several accounting measures of financial performance, and found significantly negative relations in some cases.

However, constrained by data limitations, this study did not control for many observable factors that might influence firm performance (e.g., leverage or

firm age), and, more importantly, failed to account for (a) the unobservable heterogeneity associated with particular firms or time periods that might simultaneously affect the level of female representation in top management and firm performance.

The study by Carter, Simkins and Simpson (2003) went a step further, in that it correlated the ROA index with a stock measure, Tobin's Q; this latter measure was used for the first time in this type of study; both were correlated with a dummy. They found a positive and a significant relationship between Tobin's Q and the proportion of women on the boards of Fortune 1000 firms, after controlling for size, industry and other corporate governance measures

In 2009 Adams and Ferreira conducted a study in which the behaviour of the men on a board in the presence of women was observed- studying above all the "Gender effect" and therefore the correlation with company performance. The research was conducted using ROA and Tobin's Q as indicators. The results were very interesting: if in the first instance company performance seemed to have a positive correlation with "gender diversity", the situation subsequently changed. The authors discovered in fact that the impact of gender variety within the board is positive when the female presence is weak and does not assert itself. They find direct evidence that more diverse boards are more likely to hold CEOs accountable for poor stock price performance; CEO turnover is more sensitive to stock return performance in firms with relatively more women on boards. In their data, this effect is stronger and more robust than the previously shown effects of board independence on CEO turnover. Gender diversity has beneficial effects in companies with weak shareholder rights, where additional board monitoring could enhance firm value, but detrimental effects in companies with strong shareholder rights.

More recently, though, the idea that women are selectively recruited for leadership positions in organizations that are failing has been challenged by more extensive archival investigation. The study conducted by Haslam et al. (2010) used a binary dummy (women present on the board) and number of women (%). The performance variables used were ROE, ROA and Tobin's Q and the sample was composed of 126 English firms present in the FTSE index 100 (2001-2005). The choice to use both measures was made because the former were based on documents produced within the firm, while the latter, influenced by the reaction of the market, reflect the behaviour and perceptions of investors. The study was conducted in two stages: a preliminary analysis, going back to the year 2005, in which the authors noted that in the months preceding the appointment of the women, the companies showed a worse value, while in the three months following their appointment, the situation improved and the difference in their

performance was no different from that of companies that had appointed men.

The critical features of this model are that it sees the relationship between the appointment of women to leadership positions in companies and those companies' poor stock-market performance as mediated by perceptions of organizational crisis, and that it differentiates between the perceptions that feed into stock-market behaviour and the underlying reality of companies' actual financial performance.

Subsequently analyzing the accounting variables ROA and ROE, correlations between company performance and female presence on the boards did not emerge. The research continued with the use of Tobin's Q, which, however, showed the negative impact on the performance of firms with at least one woman on the board, compared to others which did not have even one.

Haslam et al. observe that: "Companies with male-only boards enjoyed a valuation premium of 37% relative to firms with a woman on their board. Results support claims that women are found on the boards of companies that are perceived to be performing poorly and that their presence on boards can lead to the devaluation of companies by investors.

Some studies lead to the conclusion that women are selected for positions of leadership when (and only if) there is a high risk of failure of companies (Haslam and Ryan, 2008; Ashby, Ryan e Haslam, 2007; Bruckmuller e Branscombe, 2010). More specifically, archival and experimental work has demonstrated that female leaders are more likely to be appointed in a time of poor performance or when there is an increased risk of failure, and, as such, their leadership positions can be seen as more precarious than those of men (Ryan M. K., Haslam A. S., Hersby M. D. and Bongiorno R., 2011). It is also possible that the appointment of a woman to a high level position can be interpreted by investors as a sign of difficulty or decline of the company (Higgins and Gulati, 2006; Trevis Certo, 2003). From a study by Post and Byron (2014) it emerged that having more women on a board of directors does not improve the financial performance of a company, but improves how a board (however it is composed) makes decisions. According to these authors, although the relationship between female board representation and market performance is near-zero, the relationship is positive in countries with greater gender parity (and negative in countries with low gender parity), perhaps because societal gender differences in human capital may influence investors' evaluations of the future earning potential of firms that have more female directors.

3 The formalization of gender diversity through affirmative action. The regulatory measures

National and European legislation, in general, takes into account the changes that have led to the birth of

Diversity Management, with which it tries to manage the various types of diversity present in firms. Of course, the differences regard a multiplicity of elements: equal opportunities policies are imposed legislatively (implementation) and their aim is to favour the entry of minorities into the job market (aim), with assimilation as a basic assumption; Diversity Management is a voluntary initiative of the firm to promote the professional growth of employees at the various levels of the organizational pyramid (aim) and, ultimately, integration.

The first step towards achieving gender equality was taken in 1957 with the founding treaty of the European Community which sanctioned the principle of equal treatment between men and women. This was followed by the Charter of Fundamental Rights of the European Union in 2000 and then the Road Map for equality between men and women” (2006-2010), which defines the priority sectors for intervention and proposes for each of them aims and crucial actions able to facilitate their implementation.

As for the introduction of forms of affirmative action, there was a succession of these in Europe with a gradual timing for the achievement of the objective.

Norway was a pioneer of laws on women's quotas, intervening on 13 June 1997, with Law n. 45, later modified in 2003, and again legislating in 2006, when it made it obligatory for newly instituted public limited companies to have a female presence of at least 40% on their control and governing bodies. Two years later, the objective was achieved and the same obligation was extended to all public limited companies. Thus the percentage of women's presence on Boards of Directors increased from 22% in 2004, to 28,8% in 2006, to 33% in 2007 and to 44,2% in 2008.

However, the law has not improved the gender balance in the other positions in companies not subject to the above criteria. A study on this was carried out by Wang and Kelan (2013) which posed the question whether the gender quota has a positive impact on the presence and the appointment of women managers, and whether the percentage of women managers has a consequent positive impact on the presence and appointment of other women managers. The researchers used as a control variable the number of women as a percentage. The sample included 87 Norwegian firms (period 2001-2010) that adopted a model of a dualistic type. The empirical results indicate that the gender quota and the resulting increased representation of female directors provide a fertile ground for women to take top leadership positions. The likelihood of female CEOs' appointment increases with the percentage of independent directors and directors' qualifications, especially those for female directors. However, the gender quota has no significant impact on the gender gaps between female and male directors after its full compliance. Moreover the study shows that the women have independent managerial roles in the

firms, so that the firm is able to comply with the regulation being imposed. Until 2005, when the percentage of women managers in the law on quotas was not certain, this grew from 7% in 2001 to 20% in 2005, while from 2005 a greater rate of increase can be observed, that is, when the law became compulsory. It was, however, the percentage of independent managers that grew significantly from 42% in 2005 to 60% in 2010, and, as was said, women are more likely to occupy the role of independent managers compared to their male colleagues, even if this gap narrowed from 2003 to 2005.

It is interesting to note that a recent research showed that the Norwegian law has not only affected gender diversity on boards in Norway, but has also had spill-over effect in other neighbouring countries: female participation in top management in Finland and Sweden increased significantly before 2006 (Adams and Kirchmaier, 2013).

An actual women's boom was observed in French corporate boards following the passage of the Copé-Zimmermann Act in 2011. Anticipating the 40% quota for female directors by 2017, large companies began recruiting more women so that the percentage of women on boards increased by about 20 points in 6 years to reach 28% in 2013 (Sabatier, 2015).

The women's rights agenda received a boost in 2004. To provide more opportunities for Spanish women to achieve elected office, the Spanish Parliament approved a new so-called “Law of Equality” in March 2007. The ad hoc legislation came into force in 2007; it encouraged the gradual extension of women's presence, so that a presence of at least 40% will be reached by 2015. There is, however, no sanction for not complying with the recommended limits, even if there have been signs of progress: the percentage of women on boards of directors of the biggest quoted companies in Spain has more than doubled, from 4% in 2006 to 10% in 2010.

In Germany, on 6 March 2015, the law was passed under which, from 2016 108 large German companies quoted on the stock market will have to reserve 30% of seats on the boards of directors, otherwise the seats will remain vacant.

Let us now come to our country. Italy is still in 69th position, out of 142 countries, in the global gender gap index of the World Economic Forum which measures social and economic inequalities between the sexes. Initiatives began in fact late with respect to other countries (Assinews, 2015).

In Italy, it was only on the 12th of August 2011 that law 120/2011 on gender equality - known as the Golfo-Mosca law – came into force. It established an important novelty in the sphere of Italian corporate law: the board of quoted companies expiring from the 12 August 2012 will have to be renewed reserving a quota of at least a fifth of its members for the less represented gender: women. At the end of 2014, there was an increase of 22% of women on the CEOs of quoted companies and 24% in state controlled

enterprises (EuNews, 2014). Women, from the second and third renewal of the corporate bodies, will have to make up at least a third by 2022, when the second important deadline established by the Golfo-Mosca will fall: the end of its effectiveness in terms of removal of the obstacles that have for so long limited access to roles of command with a temporal validity of ten years (Il Sole24ore, 2012). The aim is to make a law no longer necessary and, from 2023, to overcome the issue of gender, nominating for corporate offices those who have the most suitable characteristics for that role, whether it be a man or a woman. Companies are equipping themselves to comply with the changes that the law has introduced. Through the trade associations (for example Assonime), many have participated in the debate and the consultations which Consob has taken into account in the formulation of the new art. 144 - undecies of the Issuer Regulations.

Since the Consob study that goes back to 2014 “following the promulgation of Law 120/2011, womens' representation has grown considerably. At

the end of June 2014, more than 22,2 % of the board chairs were held by women (11,6 % at the end of 2012), while at least one woman sits on the board of directors in 220 companies (169 at the end of 2012).

Gender composition is more balanced in companies that renewed the board after the after Law 120/2011 came into force: in particular, on average the percentage of women is 2,5% in the 138 companies that carried out the first renewal of the governing body, 3,8% in the 6 companies that have effected a second renewal and 1,5% in the 99 enterprises in which, on the 30 June 2014, the law had not yet been applied. The women hold mainly non-executive offices: they are independent executives in 64% of cases, while they are chief executives in only 3,1 % of cases.” (Consob, 2014). For the time being, the vast majority of listed companies has a representation on of female directors; the number of women on boards is constantly growing even in comparison with last year (Fig. 3):

Figure 3. Female representation on corporate boards of Italian listed companies

	female directorship (1)		diverse-board companies (2)	
	no.	Weight on the total number of directorship	no.	weight on total number of companies
2008	170	5.9	126	43.8
2009	173	6.3	129	46.4
2010	182	6.8	133	49.6
2011	193	7.4	135	51.7
2012	288	11.6	169	66.8
2013	421	17.8	202	83.5
2014	520	22.2	220	90.5

Source: Consob (end of the year; for 2014, end of June), Data on corporate boards of Italian companies with ordinary shares listed on Borsa Italiana spa - Mta Stock Exchange. Companies under liquidation at the reference date are excluded. 1 Figures refer to the board seats held by women. 2 Diverse-board companies are firms where at least one female director sits on the board.

In general, women are well represented in companies with a high market capitalisation, especially in the financial sector, while their presence is lower in the industrial sector, (Consob, 2014).

Thus, finally, the European Union requested 30% gender quotas on boards of directors by 2015: the law was promoted by the European commissioner for Justice Viviane Reding, who asked quoted and state controlled enterprises to commit themselves to increasing women's presence on boards of directors by 30% by the end of 2015 and by 40% by the end of 2020 (Cuomo, Mapelli).

4 Empirical Research

In this study a sample of companies quoted on the Italian Stock Exchange in the period from 2008 to 2014 was analysed. The total number of companies was 183, although at first it was more than 380. This is because the intention was to examine only those companies that were listed in the reference period without interruption and without taking into

consideration those that were listed after 2008 but present in the following years. All of which was aimed at ensuring a more precise and methodical analysis, free of the possible complications and difficulties of analysis that might have arisen taking a broader, but non homogeneous, sample. Moreover, the companies belonging to the financial sector (about 30), were evaluated in the sample in the initial steps, then excluded from the database due to lack of information and impossibility of obtaining it.

The first stage of the analysis was the collection of data from the databases of the Italian Stock Exchange (for the names of the companies and checking of registration data), of Consob (to verify the composition of the corporate boards and women's presence on them), from Aida for the number of employees per company, from Worldscope and Datastream for the economic-financial values EBITDA, ROE, ROA.

On the basis of the study by Adams and Ferreira, I reworked the data collected in a table. The initial sample size was 183, but, because of the impossibility of retrieving the data and because of the substantial

differences in the business model, I preferred to exclude the companies belonging to the financial sector (about 30). Therefore the total number of firm-year observations was 1085 (153 non-financial companies in seven years).

Tab. 1 shows measures regarding the corporate boards of the sampled companies: the size of the board; Firm Has Female Director is a dummy variable

that is one if the firm has female directors in a given year; Firm Has Only One Female Director is a dummy variable that is one if the firm only has one female director; Fraction Female Director is the fraction of female directors on the corporate board. For each measure mean, standard deviation, and the maximum and minimum values are shown.

Table 1. The measure of board gender composition

Measure of board gender composition	Number of observations	NA	Mean	SD	Min	Max
Board Size	1085	0	9.35	3.23	2	22
Firm Has Female Directors	1085	0	0.63	0.48	0	1
Firm Has Only One Female Director	1085	0	0.32	0.47	0	1
Fraction Female Director	1085	0	0.12	0.12	0	0.52

Tab. 2 shows a comparison of companies with female directors with those without. I considered the accounting measures ROE, ROA, EBITDA and the number of employees.

In the 1085 observations made over the years, about 680 companies in the 7 years had women in them, but almost 400 did not have even one.

Table 2. Firm characteristic

Firm characteristic	Mean for firm-years with female directors n= 688	Mean for firm-years without female directors n= 397	Difference
ROE	-11.83	-11.63	-0.20
ROA	0.05	1.38	-0.59
EBITDA	268561.67	890805.40	-622243.73
No. Of Employees	915.25	1303.14	-387.89

The following table was constructed taking as a model the study by Haslam et al.. Present in it is the number of companies observed by year excluding those belonging to the financial sector. The second measure was obtained by calculating the mean number of women subdivided by year. We can note that the trend of this presence is upward, but it was only from 2012, the year of the effective introduction of the Golfo-Mosca law on women's quotas, that there was a greater increase in women's presence. The third measure was obtained on the basis of a binary dummy

which has the value of 1 when the companies have women present on the boards and zero, when women are not present. The calculation was made by correlating this variable as a percentage with the number of companies observed excluding financial companies (N).

The last measure is a mean value of the relationship between the women on corporate boards and the total number of individuals present on the boards (board size) – Tab. 3.

Table 3. Women and board composition

Measure	Year						
	2008	2009	2010	2011	2012	2013	2014
N	155	155	155	155	155	155	155
Mean number of women on board	0.59	0.66	0.71	0.73	1.04	1.51	2.46
7.717.918.1011.0816.3026.32Percentage of companies with women on board	46.45	49.67	52.25	53.54	66.45	80.00	95.48
6.69 Mean percentage of board members who are women							

The table that follows (Tab. 4) summarizes the correlation of the intercept β_0 , the independent variables “Fracton Female Directors”, “Board Size” and “number of employees”, with the independent

variables ROA, ROE and EBITDA. For each observation an R2 (between 0 and 1) is obtained, that is, a determination coefficient which indicates the goodness of fit of the model to the data. The closer it

is to 0, the less will be the goodness of fit and vice versa. The significant relationship of our model is given by the independent variable “Fraction Female Directors” in relation to the dependent variables ROE and EBITDA; furthermore the intercept β_0 relative to

the dependent variable EBITDA is significant. This means that an increase in female presence leads to a mean reduction in performance, as measured by the indicators.

Table 4. Performance of company (part one)

Independent Variable	Dependent Variable: ROA	Dependent Variable: ROE Dependent Variable: EBITDA	
Intecept	-1.197e+00 [1.110]	-4.287e+01 [1.418]	5.546e+05* [2.031]
Fraction Female Directors	-3.491e+00 [1.110]	-2.308e+02** [2.666]	-2.315e+06** [2.912]
Board Size	2.785e-01** [2.680]	5.061e+00. [1.747]	-1.22e+04 [0.463]
Number of Employees	7.316e-05 [0.999]	9.882e-06 [0.005]	2.676e+02*** [14.326]
Number of observations	799	799	821
R2	0.01	0.01	0.21
Regression Type	Ordinary least squares	Ordinary least squares	Ordinary least squares

(Asterisks indicate significance at 0.001 (***), 0.01 (**), 0.05 (*), 0.1 (.) levels).

Continuing the analysis, since the linear regression was not enough to bring about the emergence of correlations between the independent and dependent variables, we used the fixed effects regression model in order to understand the impact in the regression function. With regard to the ROA, the variable that influences positively is the size of the

board, while the EBITDA is influenced by the number of employees, again positively. The most significant results for the purposes of this study is the negative impact produced by women's presence on the boards on the independent variable ROE. This means that, using this method, a decrease of the return on equity is shown (Tab. 5).

Table 5. Performance of company (part two)

Independent Variable	Dependent Variable: ROA	Dependent Variable: ROE	Dependent Variable: EBITDA
Fraction Female Directors	-1.96929374 [0.5696]	-4.5699e+02*** [3.3446]	-210115.638 [1.0845]
Board Size	0.56904546* [2.4255]	5.7213e+00 [0.6128]	8643.205 [0.6525]
Number of Employees	0.00016201 [0.4263]	-2.7278e-03 [0.1835]	230.065*** [10.6160]
Number of observations	799	799	821
R2	0.01	0.02	0.15
Firm fixed effect	Yes	Yes	Yes
Regression Type	Fixed effects	Fixed effects	Fixed effects

(Asterisks indicate significance at 0.001 (***), 0.01 (**), 0.05 (*), 0.1 (.) levels).

Basing myself on the above table, I showed the impact that the independent variables had on the ROE in two periods: the one from 2008 to 2011, when law 120/2011 on women's quotas was not yet in force, and the second, from 2012 to 2014, when the law was applied by the corporate boards which changed their internal composition coercively. The result that emerges is a change that is significant and is a sign of the impact generated by women's presence. Up to 2011, in fact, the impact was highly significant and the

sign was positive. From 2012, it has a negative significance. The analysis was made on the ROE because it is the only one that generated significant findings with respect to the other dependent variables, therefore the only one deserving further analysis. This means that women's presence on boards should not actually be considered in absolute terms a component with a positive impact on performance results; this evidence does not provide support for quota-based policy initiatives (Tab. 6).

Table 6. Performance of company (part three)

Independent Variable	Dependent Variable: ROE	
	Year: 2008-2011	Year: 2012-2014
Fraction Female Directors	4.7354e+02*** [3.5714]	-1.0597e+03* [2.3959]
Board Size	7.7852e+00 [1.0009]	-1.6867e+01 [0.3570]
Number of Employees	5.1965e-03 [0.4665]	1.3386e-03 [0.0095]
Number of observations	534	265
R2	0.03	0.05
Firm fixed effect	Yes	Yes
Regression Type	Fixed effects	Fixed effects

Let us comment on the robustness of our estimates. We preferred the fixed-effect model. Time-invariant covariates (economic sector, independency proxy, business segments) were not included in the model, thus seemed not to have adequately captured the firms' heterogeneity. Thus according to our data, business segments, size and the ownership structure (relating to the degree of independence or a family ownership) have no impact on business performance. In other words, although it appears a simplification of the study, the choice of emphasizing one particular aspect of the phenomenon being investigated, board gender composition, would facilitate our analysis. However we wanted to explain only the impact of reform on board composition and therefore on business performance. To do this we considered one variable: the role of regulatory measures in the recruitment of female directors. As a result of this choice we therefore evaluated whether such measures actually constitute a discriminating factor for the achievement of performance goals. According to our results, accelerating gender diversity on boards would not enable companies to approach their best performance level. Our analysis thus emphasizes the economic results for listed companies that promote more women to boards. However, our quantitative analysis cannot specify what mechanism underlies the negative impact.

5 Conclusions

The aim of the present study was to verify the impact of corporate board composition on company performance; in particular, we wanted to investigate the effect of regulatory intervention concerning gender diversity – women's quotas – on the results obtained by companies. There is a theoretical as well as an empirical motivation for dealing with this issue of diversity management. In the theoretical section of the paper, we argue that according to the existing theory the influence can be positive as well as negative. The empirical motivation comes from the increasing focus of the government on the gender composition of top executives and boards of directors of firms. In fact, the proportion of women who reach top positions in the

business sector is still very low in most countries, though it has been increasing in some countries.

The results obtained by these studies are of undeniable interest; on the basis of these we have therefore examined the regulatory contents regarding gender policies to see, as a final step, to what extent such interventions have had positive effects on company performance.

No evidence suggests that regulatory intervention – women's quotas – would improve firm performance. Proposals for regulations enforcing quotas for women on boards must then be motivated by reasons other than improvements in governance and firm performance.

More generally, the conclusion from these empirical studies is open to interpretation. First of all, no controls for other factors are included. For instance size and age of the firm (which are factors known to affect firm performance) may correlate with the percentage of females on boards, and thus it may blur the picture if not controlled for. Further, there may be a number of other unobserved factors which are important for firm performance, but which will perhaps never be observable for the researcher.

A further problem with many of the existing studies is that the samples used are based only on the largest (listed) firms for which it is possible to get reliable information. Therefore, the results may not be representative of all firms in Italy. It is indeed important to emphasize the importance of the characteristics of the Italian productive fabric in the interpretation of labour outputs. Last but not least, the effect of the economic condition of the country on company performance, of particular importance during the period of development of the present study, should be remembered.

Finally, the limitations of the study relate to the diversity of the data and information present in the databases consulted and therefore a reduced homogeneity on which to develop our analysis; the indicators used might tend to be restricted with respect to the measure we wish to give to company performance.

To sum up, the study needs to be developed further in order to verify the correlation investigated

so as to understand better the effects of regulatory interventions in our country regarding women's quotas and gender theory on company performance.

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