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Five shades of women: evidence from Italian listed firms

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Abstract

Purpose – This paper aims to examine empirically the impact of gender diversity on corporate performance by both comparing different positions occupied by female directors on the boards and their personal-specific characteristics.

Design/methodology/approach – The paper examines a sample of Italian listed companies during 2006–2015. To deal with endogeneity issues, the authors use a generalized method of moments as an empirical methodology.

Findings – The empirical findings show that the positive effect of both independent and executive women directors on firm performance is moderated by the specific characteristics of female directors. Specifically, the analyses show that foreign and busy females negatively impact on performance. Conversely, graduate female directors strengthen the positive link between executive women and firm performance.

Originality/value – The paper sheds light on the consequences of appointing different types of female directors (i.e. independent, executive, graduate, foreign and busy) on firm performance. Our empirical research that investigates the association between gender diversity and performance in the Italian context based on a longitudinal study, which involves a period of ten years, allowing consideration both of the years before and after the introduction of the gender quota law (Golfo–Mosca law).

Keywords Gender diversity, Firm performance, Board roles, Female directors

Paper type Research paper

1. Introduction

The topic of gender diversity on the board of directors and in top management is gaining the attention of both academic scholars and policymakers all over the world (Cambrea *et al.*, 2018; Willows and van der Linde, 2016; Zhao and Lord, 2016). Because of the legislation that requires a minimum percentage of women directors [1] on the board of listed and owned-state companies (Bianco *et al.*, 2015), many studies have investigated whether gender diversity can enhance board effectiveness (Adams and Ferreira, 2009), can improve firm performance (Dezsö and Ross, 2012; Lückerath-Rovers, 2013; Post and Byron, 2015) and

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make different corporate decisions, such as corporate social responsibility (CSR) initiatives (Byron and Post, 2016; Rao and Tilt, 2020), risk financial policies (Bernile *et al.*, 2018; Faccio *et al.*, 2016) and liquidity stock (Atif *et al.*, 2019). However, the evidence is not limited to explore the role of gender diversity in private companies but also aims to shed light on the gender effect within the organizations, such as the universities (Siboni *et al.*, 2016). Recently, Galizzi and Siboni (2016) investigate "whether" and "how" Italian state universities are promoters of gender equality and find that insufficient attention has been paid to strategies designed to create gender awareness in science or to support women leadership. Also, Baldarelli *et al.* (2016) look at the gender of authors in journals and the academic boards of academic accounting associations in Italy and observe a clear predominance of men in covering senior academic positions. Mazzotta *et al.* (2020) evaluate whether the gender composition of the board of directors affects strategic plans of Italian universities and disclose that the university strategic plan is a more gender-sensitive approach when the board of directors is heterogeneous.

The previous literature examining the impact of women directors on firm performance generally focuses on the percentage of women on the board and the critical mass effect (Campbell and Mínguez-Vera, 2008; Gyapong *et al.*, 2016; Joecks *et al.*, 2013; Rossi *et al.*, 2017). While there is considerable evidence that investigates the role of women directors (i.e. independent or executive) affecting dividend payouts (Chen *et al.*, 2017), earnings management practice (García Lara *et al.*, 2017) and cash holdings policies (Cambrea *et al.*, 2019), empirical studies that examine how different types of women directors can affect corporate performance are scarce. An exception is a paper of Liu *et al.* (2014), which analyses whether the effect of women directors on the performance of a sample of Chinese listed companies may change according to their role on the board. However, their findings are restricted to the Chinese institutional context and, therefore, are not generalizable to companies that operate in a different business environment.

Over the past years, much research has aimed to examine gender diversity topics in different countries (Aggarwal *et al.*, 2019). However, few empirical studies on the relationship between women directors and performance have been conducted in the Italian context. Martín-Ugedo *et al.* (2018), who examine a sample of listed companies in Italy over the period 2005–2011, show a negative effect of female directors' percentage on corporate performance. Also, Gordini and Rancati (2017) study the gender diversity–firm financial performance relationship in an unbalanced panel of 918 Italian listed companies during the years 2011–2014 and conclude that increasing the female representation on boards has a positive effect on Tobin's Q. Rossi *et al.* (2017) scrutinize 41 Italian listed companies during the period 2005–2013 and display the existence of a strong ability of women directors to affect corporate performance only when they are at least three on the board. These empirical studies are limited to investigate the effect of women directors on firm performance either the years before or the subsequent years after the introduction of the gender quota law (Golfo–Mosca law), thus not enabling to seize the law benefits, expressed in terms of increased participation of women on the boards. Besides, evidence on the Italian context primarily focuses on the impact of the percentage of female directors, leaving out from the analyses the different roles that women directors may fulfill on the boards.

Our paper bridges these gaps by disentangling the effect of the different types of women directors. The empirical research examines a sample of 193 Italian listed companies over the years 2006–2015. The period considered is new in Italian studies because it allows us to

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evaluate both the years before and after the introduction of the gender quota law (Golfo–Mosca law).

Italian corporate governance structures are characterized by a higher proportion of women independent directors and a lower level of executive females (Bianco *et al.*, 2015; Cambrea *et al.*, 2019). Consequently, we expect that women directors influence with a different intensity the corporate performance, according to the role they fulfill on the board of directors. Also, the Italian government has extended the law 120/2011 on gender quotas, which would have expired within the three years 2020–2022. The new version of the Golfo–Mosca law has increased to 40% the minimum percentage of women directors to sit on the boards of Italian listed companies and state-owned enterprises. Therefore, the Italian context seems appropriate to investigate what effect prevails on the board: the monitoring role, provided by independent directors, or the executive role.

The empirical findings, referring to a sample of 1,176 observations, show that women directors, in both independent and executive roles, can positively affect firm performance, even if with a different intensity. Specifically, the results reveal that women executive directors have a stronger positive effect on firm performance than women independent directors. Nevertheless, in additional analyses, we explore the moderating role of some demographic features of the women directors, such as the educational background, nationality and the number of other directorships. Interestingly, the results show that the positive effect of women independent and executive directors become negative when women are foreign and have more than two offices in other companies. Diversely, the positive impact of executive women directors is more pronounced when the women directors hold a degree.

Our contribution to the existing literature is threefold. First, the paper enriches the literature that investigates whether and how females affect corporate performance (Rossi *et al.*, 2017; Gordini and Rancati, 2017). While the prior literature suggests that larger participation of women directors in the boards can lead to either better or worse corporate performance (Post and Byron, 2015), the subsequent attempts to decompose the effect of female directors into the executive effect and the monitoring effect remain unknown (Liu *et al.*, 2014). Our study fills this gap by distinguishing both the different roles of women on the board and the moderating role of specific characteristics of the women directors in determining the performance of Italian listed companies. Whereas previous studies focus solely on women directors' ratio, we also exploit the importance of several specific characteristics, such as education, nationality and other directorships. Second, our paper is the first empirical research on a large sample of Italian companies, to the best of our knowledge, that examines a long period of ten years, allowing us to capture both the years before and after the introduction of the gender quota law (Golfo-Mosca law). Indeed, recent empirical studies analyze the characteristics of female directorship in Italy, but they look at: a restricted sample of companies (Rossi *et al.*, 2017), a short period of analysis (Gordini and Rancati, 2017) and years before the introduction of the quota law (Martín-Ugedo *et al.*, 2018). Considering that, on average, the board of directors of companies remain in office for three years, by using a long period of analysis allows us to take into account a real change in the composition of women directors on the boards that would not have been possible if the period under investigation was shorter. Finally, our results clarify the need to use a multi-theoretical approach in scrutinizing gender diversity. Our paper highlights that referring to a single theory is not enough to investigate how gender diversity may affect board functioning. Diversely, analyzing women directors' role from several different perspectives allows catching unobserved aspects of female directors that could unveil their contribution to the company board.

The remainder of this study is structured as follows: Section 2 presents a literature review and introduces the hypothesis development; Section 3 explains the sample selection

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procedure and describes the methodology; whereas Section 4 describes the data, the empirical results are presented and discussed in Section 5 and 6; finally, Section 7 presents the concluding remarks.

2. Background

2.1 Theoretical literature review

Legislative initiatives aimed to increase the number of female directors on the boards led researchers to investigate whether engaging a larger percentage of female directors has determined a positive or negative impact on the financial performance of companies. As a result, evidence on gender diversity is growing rapidly, helping to foster the interesting debate between academics and policymakers (Kang *et al.*, 2010). Despite the large number of studies, the empirical studies show conflicting results. On the one hand, corporate governance scholars find a positive effect of female directors on business performance (Conyon and He, 2017; Erhardt *et al.*, 2003; Liu *et al.*, 2014; Terjesen *et al.*, 2016); on the other hand, some studies highlight a negative effect (Abdullah, 2014; Adams and Ferreira, 2009; Ahern and Dittmar, 2012), underlining the disadvantages associated with the presence of female directors in the boardroom. Also, some empirical research does not detect a significant link between women and performance (Lückerath-Rovers, 2013; Marinova *et al.*, 2016; Rose, 2007; Rubino *et al.*, 2017).

Following the existing literature (Aggarwal *et al.*, 2019; Al-Dajani *et al.*, 2014; Jurkus *et al.*, 2011; Liu *et al.*, 2014; Saeed and Sameer, 2017), to investigate the role of gender diverse boards, our study uses the agency theory (Jensen and Meckling, 1976) and resource dependence theory (Pfeffer and Salancik, 1978).

According to the agency theory perspective, one of the main tasks of the board of directors is to monitor and discipline the top management team. For this purpose, the diversity of the board could be a useful tool to use to minimize potential agency problems (Erhardt *et al.*, 2003). Indeed, it seems that women impact similarly to the independent directors (Adams and Ferreira, 2009). Women directors appear to monitor the activity of the top management more severely, to have greater involvement than the directors do in decision-making and to have better conformity with the interests of shareholders (Carter *et al.*, 2003). Women directors were generally excluded from the old boys' club (Bianco *et al.*, 2015). Consequently, their participation on the board of directors can improve the board's independence and the monitoring functions (Rhode and Packel, 2014). Also, increasing the percentage of women directors makes a board more heterogeneous (Carter *et al.*, 2003). In turn, this relation leads to a more robust monitor of executive members, as diversity brings different viewpoints to board oversight (Anderson *et al.*, 2011). According to the agency theory lens, independent female directors may also contribute to better monitoring function because their reputation may be damaged when they are not good directors.

With regard to the resource dependence theory (Pfeffer and Salancik, 1978), board members represent resources for all businesses and work to create value for all shareholders. From this perspective, female directors are considered particularly valuable for improving the management of a company. They have different personal and relational skills compared to male directors, which allow them to have a heterogeneous and comprehensive board. In addition, as suggested by Huse and Solberg (2006), female directors appear to be better prepared than their male counterparts and seem to be very interactive, which makes them less dependent on management. Hillman *et al.* (2002) describe the benefits that women can bring to the board room and highlight that the majority of women directors come from nonbusiness positions and, hence, they are skilled in a variety of areas, such as marketing, public relations and law. Moreover, they have excellent ability to make alliances with the most influential actors (Huse and Solberg, 2006), have better capacity to

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relate to the external environment and to join their second board faster than the male directors (Hillman *et al.*, 2002). Female directors tend to invest more in research and development (R&D) by promoting business innovation and send positive business signals to the public regarding the ethical behavior of the company (Terjesen *et al.*, 2016).

2.2 Empirical literature review and hypotheses development

Conyon and He (2017) analyze the link between firm performance and gender diversity on a sample of US firms and, differently from other studies, they use a quantile regression methods. The empirical findings show that women have a positive effect on firm performance. However, the gender positive effect is not uniform, but it varies across the firm distribution. The authors show that female directors are able to better impact on conditionally high-performance firms compared to low-performance firms. Also, Low *et al.* (2015), who examine a sample of Asian firms, confirm the existence of benefits in appointing female directors on the boards. Nonetheless, the positive effect tends to disappear in countries that force the engaging of female directors trough the observance of a gender quota. Duppati *et al.* (2020) explore whether gender diversity affects firm performance in Singapore and India, which are two countries that have decided to handle gender questions in two different ways. While India obliges companies to include a mandatory percentage of women directors on their boards, Singapore adopts a soft law approach. The empirical findings do not highlight some differences from the observation of a mandatory requirement and show that increasing the ratio of female on boards improves companies' performance of both countries. Willows and van der Linde (2016) assess the board composition of the Johannesburg Securities Exchange top 40 companies and show the existence of conflicting results on the link between women representation and company performance. The different findings depend on the proxy used to measure firm performance (accounting vs market).

An interesting aspect of the study of women on the board is the concept of the "critical mass." Much research shows that female directors would be able to influence the work of the board only when they are more than three (Torchia *et al.*, 2011). In this vein, Joecks *et al.* (2013), who explore the existence of critical mass quota on a sample of 151 listed German firms for the years 2000–2005, confirm the need to appoint at least three women on the board to improve firm performance. On the same wavelength, Rossi *et al.* (2017) investigate the relationship between women on the board of directors, firm performance and corporate decisions of 41 Italian listed companies and find the strong ability of women directors to affect corporate decisions when they operate in a "critical mass" scenario. Also, Gyapong *et al.* (2016) document a positive and significant effect of gender diversity on firm value of 245 South African listed firms and highlight that companies with three or more women directors are associated with a greater firm value. Amore *et al.* (2014) analyze a large sample of Italian family firms and show that the cooperation between the female owner and the women directors is able to improve the quality of board advice and, as a consequence, corporate performance. Based on the notion that women cooperate more with women than with men (Greig and Bohnet, 2009), Xing *et al.* (2020) find that when a firm has women in a top management position, its accounting profitability increases with the proportion of women on the board of directors. However, the authors document a negative stock market reaction to the appointment of female top managers in the presence of women on the board and a less positive response when the appointed director also assumes the chief executive officer (CEO) position (Kang *et al.*, 2010).

It seems that large participation of females on the board of directors contributes to enhance the firm operating profitability of female-led companies. Chadwick and Dawson (2018) contribute to enlarge this stream of literature by distinguishing between financial and

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nonfinancial performance and comparing family and nonfamily businesses. From the analysis of large public firms from the S&P 500, their findings show that organizations with a female CEO and/or chief finance officer (CFO) outperform male-led companies in terms of nonfinancial performance both if family and nonfamily businesses. More women in top positions increase informational and social diversity benefits to the top management team and motivate women in the other roles of the companies (Dezsö and Ross, 2012). The impact of the women directors on firm performance may also depend on the size of the companies. In fact, Shehata *et al.* (2017), who examine the link between board diversity and firm performance in a large sample of small- and medium-sized enterprises (SMEs) located in the UK, find a significant negative association between females and SMEs firm performance. Differently, a study on listed nonfinancial firms in China (Li and Chen, 2018), which aims to shed light on the moderating role of firm size on the gender diversity firm performance relationship, demonstrates that women directors are capable to positively affect small companies performance only.

One of the typical limitations of many research papers is that they are based on a single country. By analyzing the relationship between women and performance in 35 countries, the empirical research of Zhang (2020) shows that the relationship between women and firm performance varies significantly across countries and underlines the importance of the social context when considering gender diversity. Similarly, Comi *et al.* (2020) study the effect of gender quotas on firm performance in three European countries, showing a negative influence in France and an insignificant effect in Spain. Differently, board females positively affect firm productivity of Italian companies. The authors clarify that the different impact of female directors across the three countries may be related to the heterogeneous differences in the law, in terms of presence of sanctions for noncomplainer countries. On contrary, the recent work of Martín-Ugedo *et al.* (2018), based on a sample of listed companies in Spain and Italy, reveals a positive impact of women in Spain and a negative effect of females in Italy. The authors ascribe the conflicting results to the cultural difference between the two contexts, such as their different masculine dimension.

Despite the presence of mixed results emerging from an analysis of the literature, both the agency and resource dependence approaches predict several benefits for the companies with a greater participation of females on the boards. Diversity boards are characterized by an effective and efficient board of directors, which can help to avoid opportunistic behavior from managers and to increase the company value. Although a large literature examining the relationship between women on boards and firm financial performance, several empirical and theoretical papers call further studies to clarify the role of female directors on the boards and their capabilities in affecting firm performance.

2.3 Independent female directors and firm performance

The concept of independence finds its origin in the agency theory, whose supporters theorize that the main task of independent directors is to supervise management activities to protect the interests of shareholders and to mitigate potential agency conflicts that might impact negatively on the value of the firms.

Increasing the proportion of women directors in corporate boards can positively affect the control role of boards because women directors are largely outside directors (Chen *et al.*, 2017; Daily *et al.*, 1999). Many studies acknowledge a diversity board as more independent (Adams and Ferreira, 2009; Terjesen *et al.*, 2016). The presence of women on the board should increase the profits of a company, both through a reduction in agency problems and by a different ability to observe internal issues (Rubino *et al.*, 2017). Several studies (Adams and Funk, 2012; Carter *et al.*, 2003; Rhode and Packel, 2014) observe a better ability to

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monitor the behavior of managers to act in the interest of shareholders on a heterogeneous board. A diverse board, composed of subjects with varied cultural knowledge is the bearer of many different points of view, which will contribute, among other things, to making management more vigilant. Terjesen *et al.* (2016) show that an independent board has a positive effect on corporate performance when there are female directors on the board. Diversely, when there are no women, or there are few, the main effect is negative. Also, Kang *et al.* (2010), who investigate a sample of Singaporean listed firms by using an event study, experience a positive market reaction when companies announce the appointment of independent women directors. Taking into consideration these assumptions, the presence of women on the board should increase the profits of a company, reduce the agency problems and improve the ability to control (Rubino *et al.*, 2017). Thus, according to the agency theory perspective, we expect that the presence of independent female directors can affect the performance of the company positively. Thus, we hypothesize:

H1. Independent female directors are positively associated with firm performance.

2.4 Executive female directors and firm performance

Many studies show that women cover few executive positions on the boards (Cambrea *et al.*, 2019; Lückerath-Rovers, 2013; Smith *et al.*, 2006). Ahern and Dittmar (2012) find that new female directors have a greater probability of assuming nonexecutive positions than male directors. As women directors have significantly less experience as CEOs, they are more likely to be appointed as nonexecutive managers. However, the literature on gender diversity suggests that executive women directors diversity can positively impact company performance by fostering firm's innovation (Bernile *et al.*, 2018; Saggese *et al.*, 2020) and board's capabilities to be more flexible (Harrison and Klein, 2007), dealing with ambiguity (Ryan *et al.*, 2007),and reducing the likelihood of excessive risk-taking in strategic decisions (Faccio *et al.*, 2016; Martín-Ugedo *et al.*, 2018). A longitudinal research on the USA for the period 1992–2004 states that it is not indifferent to choose the gender of the CEO. Indeed, Vieito (2012) show that companies managed by a female CEO perform better than those managed by a male CEO. Smith *et al.* (2006) show, despite the low percentage of executive women members in top management positions, that executive women tend to have a positive impact on company value. Also, Liu *et al.* (2014), comparing the effect of independent and executive females on business performance, reveal the more significant impact of women with executive power. The recent empirical research of Martín-Ugedo *et al.* (2018), based on a sample of Spanish publishing firms, shows that the presence of a CEO woman increases both the returns on assets and the returns on equity. Similarly, Strøm *et al.* (2014) study a global sample of microfinance institutions in 73 countries and find that female leadership, despite does not improve governance, leads to superior firm performance. Also, Amore *et al.* (2014), who investigate a sample of family-controlled firms in Italy, show that companies led by female CEOs perform better when at least 50% of board members are women. Women directors are perceived as a precious resource for businesses, where they are a source of unique skills and different points of view within the board, so they contribute to improve the quality of decision-making. Hence, corporate boards elevate their competence profile through the appointment of executive women directors (Kang *et al.*, 2010), resulting in better strategic decisions and firm performance (Judge and Zeithaml, 1992; Westphal, 1999). According to these arguments, we hypothesize as follows:

H2. Executive female directors are positively associated with firm performance.

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3. Research design

3.1 Sample and data

The hypotheses are tested on a sample of industrial firms listed on the Italian stock exchange in Milan and included in Datastream for the period 2006–2015 (ten years). This timeline allows for capturing the impact of the introduction of Law 120/2011 (Golfo–Mosca law), which forces companies to observe a minimum percentage of female directors on the boards. From the initial sample, we excluded banks and other financial institutions because their budgets are influenced by exogenous factors. Besides, we do not consider companies from the Alternative Investment Market (AIM), the sub-market of the Italian Stock Exchange designed to help smaller companies to access the capital market, and companies listed at Global Equity Market (GEM), the segment dedicated to the trading of shared of non-Italian issuers already listed on other European Union financial markets. These procedures have been adopted because companies listed on both AIM and GEM have not to comply with the recommendations on gender quota and, thus, they could invalidate the analysis. Finally, firms from which the data on corporate governance is not available were excluded. The data on the presence of women on the board of directors were collected manually by referring to the annual reports on corporate governance of the individual firms, available on the official websites and the website of the Italian Stock Exchange. All financial variables' data come from Thompson Reuters Datastream.

3.2 Variables

The dependent variable of the study is the ROA, which is an accounting measure of business performance. It is computed as operating income before depreciation scaled by total assets (Qiu and Wan, 2015). The main independent variables of the study are: *independent female directors* and *executive female directors*, calculated as the percentages of independent and executive women directors on the board, respectively. According to the empirical literature that investigates the relationship between female directors and firm performance (Adams and Ferreira, 2009; Ahern and Dittmar, 2012), to check the firm-specific effects, we used several control variables in the econometric model. *Firm size* is measured as the natural logarithm of total revenues. *Cash holdings* is computed by the ratio of cash and cash equivalents to the total assets. *Leverage* is calculated as total debt to total assets. *Cash flow* is defined as cash flow divided by total assets. *Sales growth* was a proxy to identify the firm's growth opportunities, measured as the sales of the company in year t minus sales in year t–1, divided by sales in year t–1. *Board size* is the number of members who sit on the board of directors. *CEO duality* is a dummy variable that takes a value equal to one if the CEO is also the chairperson of the board, and zero otherwise. *Independent directors* are identified by the ratio of independent directors on the board.

3.3 Empirical approach

To test our research hypotheses, we followed the empirical approach of previous studies on gender diversity (Liu *et al.*, 2014; Sila *et al.*, 2016; Terjesen *et al.*, 2016) and used the generalized method of moments (GMM), which accounts for both dynamic endogeneity and unobserved heterogeneity in panel data models. The GMM model offers more efficient and consistent estimates for the coefficients as compared with other estimation techniques (Ullah, Akhtar, and Zaefarian, 2018) and controls for the three significant sources of endogeneity: unobserved heterogeneity, simultaneity, dynamic endogeneity (Wintoki *et al.*, 2012). Considering that governance characteristics and firm performance can be endogenously determined (Adams and Ferreira, 2009), GMM allows us to mitigate the problem of the endogeneity of the variables related to the female directors by using lagged

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differences and lagged levels of dependent and independent variables as instruments (Roodman, 2009). This technique involves the estimation of a system of two simultaneous equations, one equation in levels and the other in first differences, estimated with lagged levels and first differences instruments (Campbell and Vera, 2009). To test whether the GMM system approach is valid, we calculate first- and second-order correlation tests (AR1 and AR2). The Arellano-Bond test developed by Arellano and Bond, (1991) shows the lack of problems of serial correlation of the second order. Consequently, the GMM estimation is valid. Thus, we can confirm that our results are robust to controlling for endogeneity and reverse causality.

3.4 Descriptive statistics

Table 1 presents the main statistics for the sample of firms analyzed.

ROA, the dependent variable of the study, is about 0.01. Referring to the main explanatory variables, the statistics show that female directors represent 12% of all the directors on the board. Instead, independent and executive women directors are around 5

Table 1.
Descriptive statistics

	Mean	SD	First quartile	Median	Third quartile
ROA	0.014	0.121	–0.006	0.024	0.052
Female directors	0.121	0.119	0.000	0.111	0.214
Independent female	0.052	0.092	0.000	0.000	0.091
Executive female	0.030	0.059	0.000	0.000	0.000
Graduate female	0.100	0.112	0.000	0.077	0.182
Foreign female	0.007	0.030	0.000	0.000	0.000
Busy female	0.028	0.060	0.000	0.000	0.000
Firm size	13.122	1.863	11.818	12.817	14.269
Cash holdings	0.109	0.111	0.040	0.078	0.142
Leverage	0.312	0.197	0.173	0.300	0.420
Cash flow	0.045	0.095	0.018	0.050	0.083
Sales growth	0.633	16.367	–0.072	0.021	0.116
Board size	9.491	3.153	7.000	9.000	11.000
CEO duality	0.266	0.442	0.000	0.000	1.000
Independent directors	0.394	0.187	0.286	0.375	0.500

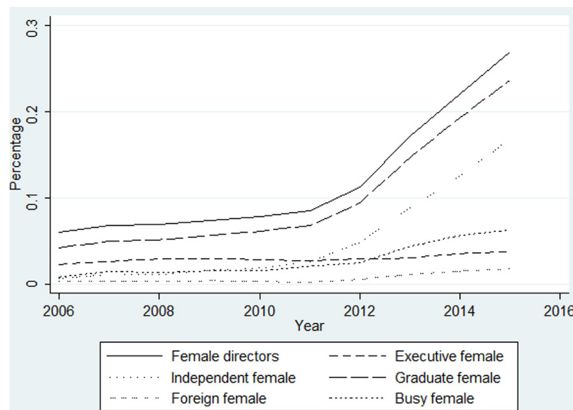

Figure 1.
Evolution of the different types of female directors: 2006–2015

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and 3% of directors, respectively. Regarding the characteristics of female directors, the data shows that 10% of the members of the board of directors are women graduates. Busy female directors, those with more than two other directorships, are almost 3% of the members. Finally, only 0.007% of the board's members are foreign women.

Figure 1 shows that although the percentage of women has grown increasingly over the years, not all different types of directors have grown proportionally. Descriptive data show that only the percentage of graduate and independent women follows the growing trend of the total percentage of female directors. On the contrary, the proportion of foreign and executive women has remained constant over the years.

Table 2 shows the correlations among all the independent variables. In general, problems of correlations due to multicollinearity are negligible, as obtained from the correlation matrix and variance inflation factor (VIF) test, not shown for reasons of brevity.

4. Empirical results and discussion

Table 3 shows the results of the analysis that examines the role of female directors in determining firm performance.

In general, the estimated coefficients of the control variables are in line with the indications from previous studies. Firm performance is positively correlated to cash

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	ROA	1													
2	Female directors	0.0122	1												
3	Independent female	0.0000979	0.651***	1											
4	Executive female	0.0165	0.430***	−0.106***	1										
5	Graduate female	0.0110	0.881***	0.726***	0.212***	1									
6	Foreign female	−0.00336	0.272***	0.277***	−0.00526	0.303***	1								
7	Firm size	0.140***	−0.121***	0.0807**	−0.221***	−0.0449	0.0624*	1							
8	Cash holdings	0.0905***	0.0203	0.00822	0.0834**	0.00780	−0.00731	−0.0304	1						
9	Leverage	−0.277***	0.0132	0.0861**	−0.159***	0.0694**	0.0254	0.0778**	−0.214***	1					
10	Cash flow	0.452***	−0.0802**	−0.0569*	−0.0551*	−0.0879***	−0.0232	0.253***	−0.0925***	−0.247***	1				
11	Sales growth	−0.0220	0.0261	0.00412	0.0325	0.0352	−0.00884	−0.0412	0.00262	−0.00568	−0.0465	1			
12	Board size	0.0476	−0.0509	0.0473	−0.163***	0.00546	−0.0517	0.512***	−0.0248	0.0133	0.115***	−0.0308	1		
13	CEO duality	−0.0247	0.00358	−0.0674*	0.0424	−0.0440	−0.0398	−0.169***	0.0608*	−0.0379	−0.0455	0.0116	−0.211***	1	
14	Independent directors	0.0177	−0.00769	0.271***	−0.176***	0.0903***	0.0505	0.331***	−0.102***	0.172***	0.0307	−0.0287	0.185***	−0.171***	1

Notes: *, ** and *** indicate the statistical significance of each coefficient at a level of 0.10, 0.05 and 0.01, respectively

Table 2. Correlation matrix

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Variable	(1) ROA	(2) ROA
Female directors	**0.202*** (0.003)**	
Independent female		**0.255*** (0.000)**
Executive female		**0.297*** (0.000)**
L.ROA	–0.130** (0.012)	–0.233*** (0.000)
Firm size	0.015 (0.287)	0.017 (0.174)
Cash holdings	0.143*** (0.000)	0.156*** (0.000)
Leverage	–0.489*** (0.000)	–0.479*** (0.000)
Cash flow	0.397*** (0.000)	0.359*** (0.000)
Sales growth	0.001*** (0.000)	0.001*** (0.000)
Board size	–0.001 (0.424)	0.000 (0.705)
CEO duality	–0.004 (0.589)	0.002 (0.721)
Independent directors	–0.012 (0.420)	–0.015 (0.284)
Constant	–0.106 (0.575)	–0.152 (0.372)
AR(1) *p*-value	0.0078	0.0058
AR(2) *p*-value	0.2792	0.3177
Year dummies	Yes	Yes
Observations	1,176	1,176
Number of ID	193	193

Notes: *, ** and *** indicate the statistical significance of each coefficient at a level of 0.10, 0.05 and 0.01, respectively

Table 3. Relationship between female directors and firm performance

holdings, cash flows and sales growth. Diversely, we find a negative relationship between leverage and performance.

Looking at the table, the results inherent the generic proxy *female directors* show that the coefficient of the female director is positive and statistically significant ($\beta = 0.202, p < 0.01$). The empirical results show that increasing the percentage of female directors in the board has a positive effect on firm performance.

The regressions in Column 2 permit the clarification of what is the predominant effect. Concerning the hypotheses previously formulated, in Column 2 of Table 3, we have split the continuous variable *Female directors* into two variables according to their roles on the board of directors. This operation allows us to test whether the position fulfilled by the female director might determine their impact on firm performance. By examining female directors who are independent of the main shareholder, the econometric results show the statistical significance of the *independent female* with a positive sign ($\beta = 0.255, p < 0.01$). Consistent with the findings of previous studies, which investigate large samples of companies in two developed countries like the USA and Italy (Chen *et al.*, 2017; Rubino *et al.*, 2017) and firms in two developing countries as China and Turkey (Ararat *et al.*, 2015; Liu *et al.*, 2014), our results show supporting evidence for the impact of gender diversity on corporate performance through monitoring channels. Our findings are coherent with those of previous studies (Rubino *et al.*, 2017; Terjesen *et al.*, 2016), which attribute the positive result to the efficient monitoring of female directors on corporate management, determining a reduction of opportunist behavior that can negatively impact on the company. The greater presence of independent women seems associated with increased transparency and lower managerial opportunism. Moreover, female independent directors are tough monitors and can increase the board's monitoring intensity. All these positive effects make independent female directors as valuable members of the board, which lead to a reduction of agency costs and, consequently, higher firm performance.

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The findings shown in Column 2 of Table 3 confirm *H2*. The coefficient of the variable *executive female* is positive and statistically significant ($\beta = 0.297, p < 0.01$). Consistent with Smith *et al.* (2006), who show that the proportion of women in top management positions tends to have positive effects on the performance of Danish companies, the results show that the presence of female directors with executive power improves corporate performance. The empirical results are also in line with Liu *et al.* (2014), who analyze a sample of listed companies in China and show that female executive directors determine a stronger positive effect on firm performance. Therefore, our evidence is coherent with studies conducted in both developed and developing studies. The positive result can be explained by referring to the resource dependence theory (Pfeffer and Salancik, 1978), which states that all members of the board of directors, thanks to their specific characteristics, are able to improve the board, supporting company management in making decisions. Specifically, the female directors with an executive role, thanks to the different skills and abilities compared to those of male directors, are able to impact positively on company performance. Our results are particularly interesting because of the scarcity of studies examining the link between women executive and corporate performance. Indeed, although it is noticed a general increase of the women's presence on boards, at the same time, it is widely recognized that women directors are mainly found to act as nonexecutive directors (Willows and van der Linde, 2016). Consequently, the lower percentage of women executives dissuades academic scholars from exploring such aspects of gender diversity.

Our study integrated previous research by indicating that a diversity board, in terms of the larger presence of women in both positions of independent and executive directors, enhances the effectiveness of monitoring function of the board and the quality of advice and counsel provided by the board of directors.

Despite the empirical results, Table 3 clearly shows the existence of a positive effect of both independent and executive female directors on performance, the relationship between gender diversity and performance could be dependent on some kind of personal specific characteristics of the female directors, such as their education levels, their nationality and the number of directorships held in other companies. All these factors might be able to amplify rather than reduce the positive effect of female directors. To appreciate the significance of these moderating factors, observing the ability to influence both the sign and the intensity of the relationship is a way to understand the role played by different female directors on the board. The controversial results reported in the literature on the direct link between females and performance may also depend on the role of these moderating factors, where interaction with female directors could drive the main effect on performance.

Table 4 shows the empirical evidence with regard to the relationship between female directors and firm performance influenced by personal specific variables. In particular, Columns 1–3 of Table 4 report the findings of the moderating role on the link between independent female directors and performance, whereas Columns 4–6 show the results related to the ability of the three proxies in moderating the link between executive female directors and performance.

From an empirical point of view, to measure the moderating effect, we use three interaction variables between our main independent variables (independent female directors and executive female directors) and, alternatively, some variables related to the personal specific characteristics of female directors. Specifically, to measure education, we use in the regressions a variable named *graduate*, which identifies the percentage of women that have a degree from a university. To test the impact of nationality, we consider a variable named *foreign* in the econometric model. It represents the ratio of foreign female directors in the boards. To investigate

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Table 4. The moderating role of female director's specific characteristics on the relationship between independent and executive females and firm performance

Variable	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA
Independent female	**0.802***(0.000)**	**0.396***(0.000)**	**0.287***(0.000)**			
Independent*Graduate	**–0.675***(0.000)**					
Independent*Foreign		**–6.948***(0.000)**				
Independent*Busy			**–1.504***(0.006)**			
Executive female				**–0.581***(0.000)**	0.160(0.206)	–0.073(0.231)
Executive*Graduate				**0.857***(0.003)**		
Executive*Foreign					**–8.448***(0.000)**	
Executive*Busy						**–0.543**(0.010)**
Graduate female	0.168**(0.035)			0.404***(0.000)		
Foreign female		0.924***(0.000)			0.777***(0.000)	
Busy female			0.100(0.244)			–0.005(0.928)
L.ROA	–0.352***(0.000)	–0.167***(0.000)	–0.330***(0.000)	–0.260***(0.000)	–0.056(0.362)	–0.135***(0.001)
Firm size	0.003(0.704)	0.016(0.187)	0.002(0.881)	0.003(0.766)	0.023*(0.065)	0.020*(0.087)
Cash holdings	0.186***(0.000)	0.184***(0.000)	0.148***(0.000)	0.155***(0.000)	0.135***(0.000)	0.132***(0.000)
Leverage	–0.596***(0.000)	–0.596***(0.000)	–0.571***(0.000)	–0.573***(0.000)	–0.542***(0.000)	–0.501***(0.000)
Cash flow	0.355***(0.000)	0.324***(0.000)	0.315***(0.000)	0.314***(0.000)	0.339***(0.000)	0.409***(0.000)
Sales growth	0.001***(0.000)	0.001***(0.000)	0.001***(0.000)	0.001***(0.000)	0.001***(0.000)	0.001***(0.000)
Board size	–0.001(0.451)	–0.000(0.803)	–0.000(0.765)	–0.002*(0.057)	0.000(0.820)	–0.000(0.742)
CEO duality	–0.004(0.504)	0.002(0.786)	0.001(0.836)	0.005(0.399)	–0.000(0.961)	0.002(0.787)
Independent directors	–0.046***(0.001)	–0.004(0.801)	–0.020(0.112)	–0.027*(0.058)	–0.001(0.970)	–0.006(0.645)
Constant	0.010(0.928)	–0.105(0.539)	0.118(0.453)	0.076(0.580)	–0.170(0.322)	–0.134(0.414)
AR(1) *p*-value	0.0028	0.0023	0.0074	0.0087	0.0094	0.0111
AR(2) *p*-value	0.5369	0.3411	0.4019	0.3879	0.3011	0.3018
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,176	1,176	1,176	1,176	1,176	1,176
Number of ID	193	193	193	193	193	193

Notes: *p*-value in parentheses ***$p; < 0.01$; **$p < 0.05$; *$p < 0.1$

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the number of directorships in other companies, we built a variable named *busy*, which identifies the proportion of female directors that serves on two or more boards.

The empirical results show that both the relationships between independent female directors and executive female directors and corporate performance are significantly influenced by some specific characteristics of female directors. Specifically, the econometric results show that education moderates the link between independent and executive female directors and performance in a different way. Diversely, those relationships are negatively moderated by both the nationality of the female directors and their status as busy directors.

Concerning the moderating effect of the educational background, shown by the proxy *graduate*, the coefficient of the interaction variable between *Independent* and *Graduate* variables is negative and statistically significant ($\beta = -0.675$, $p < .01$). The result shows that the educational level negatively moderates the link between independent female and performance. Surprisingly, the positive impact of independent female directors is lower when female directors hold a university degree. It is plausible that graduate female directors have greater capabilities compared to nongraduate female directors, especially on monitoring activities and in disciplining management. Consequently, as suggested by Adams and Ferreira (2009), sometimes a gender-diversified board, characterized by excessive monitoring of the CEO, can badly affect the performance of the board, undermining the benefits that women can bring.

On the contrary, the coefficient of the interaction variable between *Executive* and *Graduate* variables is positive and statistically significant ($\beta = 0.857$, $p < .01$). This finding shows that the educational level positively impacts on the link between executive female and performance. This positive effect is in line with the previous literature that highlights how a good educational background in top executive teams leads to an appointee with the most relevant expertise and skills to excel in the role (Adams *et al.*, 2015; Erhardt *et al.*, 2003).

Regarding the moderating role of the variables *foreign* and *busy*, the results seem to highlight the negative consequences of having directors on the board of directors who may be less present at board meetings or be heavily engaged in activities deriving from positions on other boards. In both cases, the existing literature highlights the potential disadvantages of assuming profiles with these characteristics on the board of directors. Several studies show that foreign directors have a lower percentage of participation in company boards than national directors (Hahn and Lasfer, 2016; Masulis *et al.*, 2012), thus causing inefficiencies in the functioning of the board and delays in the decision-making process. These weaknesses negatively impact company performance. Similarly, the number of appointments also appears to affect the functioning of the board negatively. Our results seem to confirm that busy female directors are less effective due to the increased time commitment associated with multiple board appointments. The findings are in line with empirical evidence that demonstrates that directors with numerous board seats exhibit a higher tendency to be absent from board meetings (Jiraporn *et al.*, 2009). Furthermore, time constraints of busy directors potentially cause them to be lower-quality monitors (Core *et al.*, 1999) and less able to advise management effectively (Fich and Shivdasani, 2006), which adversely affects firm performance.

5. Summary and conclusion

The paper investigated the effects of different types of female directors on firm performance on a sample of listed companies in Italy. After analyzing the relationships between both independent and executive female directors and firm performance, our research aimed to test whether this link may be affected by other specific characteristics, such as the education of female directors on the board, their nationality and the number of other positions they hold in other boards of directors.

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The empirical analyses, conducted on a sample of 193 listed companies during 2006–2015, highlights a positive and significant relationship between both independent and executive female directors and firm performance. However, after the consideration of some moderating variables, related to personal and specific characteristics of the female directors, the econometric findings show conflicting effects. Specifically, when both independent and executive females are foreign directors and sit on more than other two boards of directors, their presence seems to reduce performance. Differently, regarding the moderating role of education, the econometric results indicate a controversial effect. In detail, when executive female directors hold a university degree, the findings show the strongest positive impact on performance. Diversely, the independent women who are graduates appear to reduce the positive influence on firm performance.

Our findings are especially significant as they contribute to resolve both conceptual-theoretical and empirical disputes about the impact of women directors on the performance of companies. The recurrent empirical question is *which of the two roles can female directors perform the best?* The findings indicate a need to discriminate among different "types" of female directors. Overall, our analysis suggests that focusing solely on the role of the women might obscure the true relationship between female directors and firm performance.

Corporate governance scholars should consider this aspect in addressing conceptual and empirical controversies in the relationship between gender diversity and firm performance. Based on our results, the contribution of this paper to the literature on corporate governance is threefold. First, the paper enlarges the literature that examines the effect of board diversity on company outcomes by analyzing how mixed peculiarities of women can differently affect firm performance. Secondly, the research is the first evidence, to the best of our knowledge, of the association between gender diversity and performance in the Italian context based on a longitudinal study, which involves a period of ten years, allowing consideration both of the years before and after the introduction of the gender quota law (Golfo–Mosca law). Finally, our results suggest studying the issue of gender diversity through a multi-theoretical approach. A single theory does not allow us to adequately observe the role of the female in companies, thus reducing useful theoretical sources that stimulate in-depth considerations on their real role in corporate governance.

Our paper is not without limitations. First, the evidence that emerged from the study should be interpreted taking into consideration bias induced by the limited sample, which includes only Italian listed companies. Consequently, the results do not allow a direct comparison with other studies based on different contexts from the Italian one. Future research could explore how the evolution of women on the board, in terms of other qualitative characteristics, could affect both the board efficiency and firm value. Two main aspects could be further explored. The first one is the field of the university degree. Our data do not permit us to distinguish about the types of degree. However, it is plausible that a director holding a degree in a business subject may be more comfortable in managing companies' activities instead of a board member who has a degree in economics, accounting, legal and/or financial matters (Ruigrok *et al.*, 2007). A second important aspect is related to the status of the busy director. The increase in the minimum percentage of female directors on the board, which grew from 20% in 2012 to 30% in 2015, did not lead to an increase in female directors on the board, but resulted from the increase in positions for female directors who already had positions on the board of directors (Liu *et al.*, 2014). This consequence could, on the one hand, negatively impact the functioning of the board, as demonstrated in our empirical analyses, but at the same time, it could have benefits for companies deriving from the greater experience of female directors. Considering that a further increase in the minimum percentage up to 40% has been envisaged, a further increase in the positions of

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female directors is expected. Therefore, further studies could investigate how the role of female directors is combined in the case of simultaneous multiple positions. Second, another limitation of our work is that our research does not consider the different types of ownership of the companies. From the investigation of other types of majority shareholders, such as family, state, institutional investor (private equity fund and/or hedge fund) and foreign ownership, may originate dissimilar findings. For instance, recent evidence shows that family firms are primarily appointing family females as directors (Chadwick and Dawson, 2018). We believe it is essential to analyze the consequences on performance arising from the nominating in the boards female directors belonging to the family owner from those external to the family shareholders. Therefore, in future research, scholars could investigate this critical aspect of the debate of women directors, which promises to highlight a differential impact on firm outcomes depending both on the type of firm and whether women belong to the family or not. Finally, we could not include any women's professional features in our research. Future studies can use some professional characteristics that could moderate the link between female directors and firm performance. For instance, academic research could explore the female directors' international experience as one of the drivers of women's managerial capabilities.

Our findings have practical implications for policymakers and institutional actors who have strongly supported gender diversity both in boards and top management teams. First, although the law 120/2011 obliges companies to appoint women, the desire of the government was that the different categories of female directors could grow in a uniform way, which did not happen. The small number of women in executive positions, especially for the CEO role, has made it difficult to analyze their effectiveness in the board of directors. Policymakers can use this research to determine the issue of inequality and provide efficient instruments to correct existing disparities between women and men in obtaining top corporate executive positions. Second, another practical implication that originates from the results is that it is not enough to impose women's presence on corporate governance to have good management results. Hiring women directors, both in independent and executive roles, is not a guarantee of better financial performance. Our results suggest it is also fundamental to consider female directors' specific features to be appointed in the firm corporate governance systems, such as education, nationality and the number of other directorships. For instance, we need to know whether employing as an independent director a woman who holds multiple appointments can ensure strong monitoring of the management or otherwise she becomes too busy to monitor managers adequately.

Note

1. For simplicity reasons, women directors and female directors are used interchangeably.

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