

# Do Female Directors on Corporate Boards Make a Difference in Family Owned Businesses?

**Barbara Sveva Magnanelli**

*John Cabot University*

**Luigi Nasta**

*LUISS Guido Carli University*

**Elisa Raoli**

*Catholic University of the Sacred Heart*

**ABSTRACT:** This paper investigates how the presence of female directors on corporate boards impacts the performance of family firms. This study enriches the literature on gender diversity on corporate boards and its effects on firm performance by focusing on a country in which family businesses are dominant. The empirical analysis is conducted on a sample of 165 Italian-listed firms from 2011 to 2016, representing the period during which the mandatory gender quota law was introduced and implemented in Italy. The results show a positive relationship between the presence of women on corporate boards and firm performance, specifically in family owned businesses. These findings lead to the conclusion that female directors do not have a negative impact on firm performance. And, given the domination of family businesses and a mandatory gender quota law in Italy, this study makes a regulatory and performance assessment not previously examined in the literature.

**JEL Classifications:** M1; M12; M48; M21.

**Keywords:** female quota; female directors; firm performance; family firms; family capitalism.

## I. INTRODUCTION

In recent decades, the literature has increasingly focused on gender diversity on corporate boards. The gender issue has been discussed against various theoretical backgrounds, including a corporate governance perspective (Terjesen, Sealy, and Singh 2009; Bear, Rahman, and Post 2010) and a business ethics perspective (Kelan 2008). Thus, different streams of literature have focused on the various features of gender diversity, and this research has been enriched by the introduction of mandatory gender quotas in a number of European countries (such as Norway, Spain, Finland, France, Iceland, and Denmark). As a consequence, within the European regulatory framework, the literature has started to explore the effects of mandatory gender quotas on such aspects of business as corporate governance quality, firm performance, gender representation, discrimination entanglement, and earnings quality (Dale-Olsen, Schone, and Verner 2013; de Cabo, Gimeno, and Escot 2011; Rose 2007; Srinidhi, Gul, and Tsui 2011; Ahern and Dittmar 2012).

Considering that the main goal of any for-profit firm is to maximize profits, two of the main questions we investigate are as follows: Does gender diversity on corporate boards truly benefit firms? Do firms obtain benefits in terms of performance through the introduction of gender quota laws? This study aims to enrich the corporate governance stream of literature investigating how women's presence on corporate boards impacts firm performance. While recent literature has focused on this topic (Ahern and Dittmar 2012; Dale-Olsen et al. 2013; Adams and Ferreira 2009), convergent results have not been achieved when examining different countries. The issue seems to be influenced by country characteristics, specifically in relation to corporate governance. Thus, in our study, we focus on the Italian context, which is characterized by family capitalism (Clarke

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We thank Joanna L. Ho (editor), Christo Karuna, Manuela Samantha Macinati, and the participants of the 2018 Sixth International Conference of the *Journal of International Accounting Research* for their helpful comments.

Editor's note: Accepted by Joanna L. Ho.

*Submitted: February 2018*  
*Accepted: November 2019*  
*Published Online: December 2019*

2007) with a “high degree of direct ownership concentration, both for listed and unlisted companies” (Bianco and Casavola 1999, 1058).<sup>1</sup>

We expect that the presence of women on corporate boards will positively affect firms’ results. In fact, women have been underrepresented on boards for decades, so there is no doubt that an increase in the presence of women on corporate boards brings greater diversity to the decision-making process. This issue is such a widespread concern that different countries have adopted legislation to achieve gender diversity on corporate boards and curb gender discrimination. To create gender balance on corporate boards, some countries have introduced soft or voluntary quotas, while others have embraced binding gender quota systems.

In Italy, the mandatory gender quota has been enforced since August 2012.<sup>2</sup> Within three board terms, firms must comply with the requirement that 33 percent of board seats be held by women.

Since the introduction of this law in Italy, few studies have focused on how firm performance is impacted by the mandatory gender quota for Italian corporate boards. Considering the peculiarities of Italian capitalism and the fact that the mandatory gender quota law causes a relevant change in terms of board composition, further empirical research is still needed in the Italian context. Indeed, this study is very timely as it investigates the initial period after passage of this regulation, when the presence of females on corporate boards substantially increased.

While there is a large body of literature covering female presence on boards in the U.S., the U.K., and a number of other countries (Vinnicombe, Bilimoria, Huse, Singh, and Burke 2008), little research has focused on women directors in Italy. Bianco, Ciavarella, and Signoretti (2015) analyzed women’s presence on boards with particular regard for the family firm context. Nevertheless, these authors investigated during a period that preceded the introduction of the mandatory gender quota, and in their conclusion, the authors themselves suggested exploring the topic in relation to female representation on boards of directors after the law was enforced. A more recent study (Magnanelli, Raoli, and Tiscini 2017) provides an overview of the state of the art for female directors in terms of presence, role, and remuneration on Italian corporate boards after the law’s enforcement. To trace some key points for future analysis, the authors describe the changes that occurred in the composition of Italian corporate boards after the implementation of the mandatory gender quota. De Vita and Magliocco (2018) focus on the effects of gender quotas in Italian boardrooms in a specific economic sector: banking. They did not find any relevant changes to key-decision rules, although female directors have tripled in listed banks in comparison to nonlisted banks, in which women were still underrepresented (with only 13 percent on boards of directors) during the observed period 2007–2016.

Taking into consideration the family capitalism characteristics typical of most Italian corporate ownership structures (in 2016, the percentage of family listed firms was 61.1 percent), this study analyzes the gender diversity issue through the following research question:

**RQ:** Does gender diversity on corporate boards have the same impact on firm performance for family and nonfamily firms?

The empirical answer is relevant for both practitioners and policymakers because the ownership of Italian firms is often concentrated in the hands of one main shareholder, who is frequently the family founder and/or a family member.

Clearly, the aforementioned ownership structure implies the development of different corporate governance mechanisms (i.e., two-tier system) and, more important, different agency problems (La Porta, Lopez-de-Silanes, and Shleifer 1999) from those that characterize firms with dispersed ownership (i.e., one-tier system).

We expect that the typical agency problems of family firms can be mitigated by the presence of female directors due to their personal attitudes and behavior (Rhode and Packel 2014; Adams and Ferreira 2009). The findings concerning the latter research question are relevant not only for the Italian financial markets, but also for all other financial markets around the world that are characterized by family capitalism (such as Spain, Portugal, and India).

To test our hypotheses, we use a sample of 165 Italian-listed firms obtained for the years 2011–2016, thus including years before and after the introduction of the female quota, and analyze the impact of the mandatory gender quota on firm performance.

<sup>1</sup> As *The Economist* highlighted, in all industry sectors of Italy, most firms are owned and managed by families, such as Zegna (Ermenegildo Zegna Holditalia S.p.A.) (fashion), Lavazza (Luigi Lavazza S.p.A) (coffee), and Ferragamo (Salvatore Ferragamo S.p.A.) (leather goods); see <https://www.economist.com/business/2011/03/10/keeping-it-in-the-family>

<sup>2</sup> The Italian Legislative Decree n. 120/2011 has transposed the “Directive of the European Parliament and of the Council (2010/2115(INI)) on improving the gender balance among non-executive directors of companies listed on stock exchange and related measure.” Article 1 of the Italian D.L. n.120/2011 states that one-third of board seats in listed firms must be held by the less represented gender within three board terms. If a firm has not complied with the regulation by the mandatory period, an administrative penalty will be applied by the CONSOB, the Italian stock exchange authority.

The hypotheses are tested through a panel model estimation. The results show that the mandatory gender quota has had a positive effect on firm performance. In fact, better outcomes are observed for firms with women on their corporate boards and firms that have already achieved the mandatory quota. Interestingly, this finding is confirmed when the firm is family owned.

The contributions of this paper are threefold. First, it extends the current literature by investigating the impact of the presence of female directors on firm performance within the Italian context, enriching the previous literature that focuses on a period prior to mandatory gender quotas (Bianco et al. 2015) and the relationship between female presence on corporate boards and firm performance only for the banking sector (De Vita and Magliocco 2018).

Second, taking into consideration the family capitalism context characterized by different corporate governance mechanisms in comparison to nonfamily firms, it is relevant to analyze the impact of board composition changes on family owned firm performance due to the mandatory gender quota law. Previous literature has investigated the impact of such changes on firm performance without making a distinction between family and nonfamily firms. Our contribution is to examine this relationship in the family business context.

Third, a contribution for practitioners arises. Our findings demonstrate that females on boards do not have a negative impact on firm performance; this is true for both family and nonfamily firms. This evidence helps overcome the lack of appointments of women as directors.

The rest of the paper is organized as follows: Section II outlines the literature review on female directors and develops the hypotheses of the paper; Section III outlines the sample, the variables, and the methodology used to test the hypotheses; Section IV presents the results; finally, Section V provides discussions and conclusions.

## II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The low proportion of females on corporate boards has attracted widespread attention from practitioners, regulators, and researchers (Farrell and Hersch 2005; Terjesen et al. 2009; Adams and Kirchmaier 2013), and investigations of the effect of gender diversity on corporate boards have increased over the past two decades with attention to several aspects of this topic.

Some studies have focused on female presence on corporate boards by examining the representation and impact of women in senior leadership positions within an organization (Terjesen et al. 2009; Burke 2000; Burgess and Tharenou 2002; Bear et al. 2010; Torchia, Calabro, and Huse 2011; Huse, Nielsen, and Hagen 2009; Bilimoria and Piderit 1994; Grosvold, Brammer, and Rayton 2007; Brammer, Millington, and Pavelin 2007, 2009; Carter, Simkins, and Simpson 2003; Erhardt, Werbel, and Shrader 2003). However, these studies do not refer to any regulatory framework due to the lack of specific regulations on this topic. The recent introduction of the mandatory gender quota regulation in several countries has opened a new stream of literature on the effect of this change on firms.

In this context, Norway was a pioneer in introducing a mandatory gender quota, and, as a consequence, several studies have been developed within the Norwegian context. For example, Wang and Kelan (2013) investigated the effect of the required 40 percent gender quota on corporate boards on the likelihood of women being appointed as board chairs or corporate CEOs. The authors provide evidence that the likelihood that a woman will be appointed as a board chair increases when the woman is older and better educated. Also within the Norwegian context, some scholars have focused on the effect of gender diversity on corporate decision policies (Matsa and Miller 2013) while others have measured the impact of a higher quota for females on firm performance (Dale-Olsen et al. 2013; Ahern and Dittmar 2012; Rose 2007).

In addition to the Norwegian context, a study conducted by Kotiranta, Kovalainen, and Rouvinen (2010) on a Finnish sample shows that the monitoring board process is more effective when the number of female directors is higher, thus leading to better firm performance.

Several scholars, analyzing other countries, have focused their attention on independent directors and demonstrated that female directors are independent directors more often than male directors, and are more likely to be outsiders (Bøhren and Staubo 2016; Adams and Ferreira 2009). de Cabo et al. (2011) investigated discrimination underlying the scarce presence of women; using a sample of Spanish-listed firms, they provide evidence of a positive relationship between the number of female directors already sitting on corporate boards and the likelihood of adding other female directors.

With regard to corporate governance, some authors have demonstrated that the presence of women on corporate boards and committees ensures higher diligence in terms of control, transparency, and disclosure, thus simultaneously providing better earnings quality (Adams and Ferreira 2009; Gul, Srinidhi, and Ng 2010; Srinidhi et al. 2011).

Kogut, Colomer, and Belinky (2014) highlighted that the size of the minimal quota to achieve equilibrium depends on the specific characteristics of the social networks and the rules by which directors are elected, and they showed that smaller quotas provide well-connected networks of female directors. In the same stream of literature, Zaichkowsky (2014) tests “critical mass theory” and establishes that three or more women sitting on corporate boards are necessary to make a difference. In particular, the author finds a positive association between the number of female directors and corporate governance effectiveness.

Konrad, Kramer, and Erkut (2008) focused on the minimal number of female directors necessary to make a true contribution to board effectiveness and found that one woman on a board could possibly make an impact but that, in this case, contribution is more likely to fall into the “token” category and be ignored by male board members. The authors reveal that with three or more female members, critical mass is achieved and gender diversity leads to better board performance.

Regarding the relationship between the presence of females on corporate boards and firm performance, the main body of literature on this topic relies on the idea that the different attitudes, experiences, and strengths of women compared to men add value to board decisions and board monitoring functions over management, thereby increasing firm performance and value (Rhode and Packel 2014; Adams and Ferreira 2009). The same conclusions were achieved in a study by Wooley and Ye (2010), who investigated the collective intelligence of a group. In their research, the authors find that women are more socially sensitive than men; thus, a higher proportion of women in a group implies greater social sensitivity, which translates to better final outcomes in terms of group performance.

Currently, studies investigating gender diversity and firm performance are increasing, although no convergent results have been achieved. Most of these studies have shown a positive relationship between female presence on the board and firm outcomes (Carter et al. 2003; Adams and Ferreira 2009; Campbell and Minguez-Vera 2008; Nguyen, Locke, and Reddy 2015; Liu, Wie, and Xie 2014; Low, Roberts, and Whiting 2015; Anderson, Reeb, Upadhyay, and Zhao 2011; Reguera-Alvarado, de Fuentes, and Laffarga 2017); nevertheless, other authors have found the opposite result (Adams and Ferreira 2009; Ahern and Dittmar 2012; Matsa and Miller 2013) or no significant outcomes (Miller and Triana 2009; Farrell and Hersch 2005; Adams, Gray, and Nowland 2010).

The absence of unequivocal evidence raises questions about the usefulness of gender quota laws, which are spreading worldwide. Both resource dependency theory (Zald 1969; Pfeffer 1972, 1973; Pfeffer and Salancik 1978) and human capital theory (Schultz 1961a, 1961b; Mincer 1958) maintain that board diversity has a positive relationship with firm performance (Carter et al. 2003; Erhardt et al. 2003), thus supporting the idea that different human capital is essential for better board and company performance. Considering the existing literature and the divergent results, this issue should be examined in relation to the context in which the law is applied. Thus, our first hypothesis aims at testing the positive relation between the mandatory gender quota and firm performance in the Italian context. We suggest that the different human capital brought by the presence of female directors within boards will lead to a more effective monitoring process and a more diversified decision-making process, and thus the mandatory gender quota will have a positive relationship with firm performance. Moreover, by embracing critical mass theory (Kanter 1977; Konrad et al. 2008), we posit that the mandatory quota, which in Italy is 33 percent, has a positive effect on firm performance. In his study, Kanter (1977) shows that in a male-dominated group, the influence of women is effective and relevant when women represent 20–40 percent of the group. Thus, we propose the following hypotheses:

**H1a:** A positive relationship occurs between the mandatory gender quota law and firm performance.

**H1b:** A positive relationship occurs between achieving the mandatory gender quota and firm performance.

Abundant literature has focused on the effects of female board presence on firms characterized by a separation between ownership and control. An important aspect that has rarely been investigated relates to the effect of the phenomenon when the firm is family owned. Previous studies (Bjuggren, Nordström, and Palmberg 2018) focused on the efficiency of female leaders (such as CEO and CFO) in family firms in comparison with nonfamily firms, while others (Jimenez 2009) provided an interesting review of the literature on the female presence in family firms without presenting empirical analyses.

We question whether the presence of female directors on corporate boards is relevant in terms of performance if the firm is family owned. Sarkar and Selarka (2017) analyze this issue in the Indian context, where the largest proportion of firms are family owned and managed. These authors find a positive relationship between the presence of women and firm performance when the firm is family owned. Nevertheless, the authors also find that the extent of family control can have a significant bearing on this relationship. Considering that many countries worldwide are characterized by family capitalism, we aim to fill the existing gap in the literature on this specific topic.

Previous literature has demonstrated that women have personal characteristics and attitudes that improve some governance aspects (Adams and Funk 2012; Matsa and Miller 2013; Singh, Point, and Moulin 2015). For instance, as pointed out by Singh and Vinnicombe (2004), women typically take their roles in boardrooms very seriously, which can lead to “more civilized behavior” and better governance. Adams and Ferreira (2009) show that women are better at monitoring functions and have fewer problems than male directors with regard to attending board meetings. Carter et al. (2003) assert that boards with gender diversity have a greater understanding of the marketplace and thus have better decision-making capabilities. Taking into account women’s personal attitudes and characteristics as mentioned above and addressed in the literature, we posit that the achievement of full compliance with the mandatory gender quota law has a positive and stronger impact on firm performance for family firms than for nonfamily firms. Our expectation arises from differences in some aspects of governance in family firms versus nonfamily firms. In fact, the agency problem for family firms typically arises between the main shareholder (the

**TABLE 1**  
**Sample Selection**

<b>Criteria</b>	
Borsa Italiana's Main Market (MTA)	244
Less:	
Exclusion of bank and financial services industries companies	(79)
Sample	165
Number of years considered (from 2011 to 2016)	6
Firm-level observations	990

family or family founders) and the minority shareholders (La Porta et al. 1999). Moreover, the governance of family firms is often characterized by intrafamily relations and conflicts that can distract from pursuing and achieving the main goal of the firm, namely, profit maximization (DeMott 2008). We support the idea that positive female characteristics in terms of attitude toward the business find a more fertile breeding ground within a family firm and could better balance the governance issues typical of family firms (Anderson and Reeb 2003; Pieper 2010). First, we posit that in family firms, the presence of women on boards can better assure the monitoring and effectiveness of the board by lowering agency conflicts and problems. Second, we posit that achieving the mandatory gender quota is supported by minority shareholders, thus establishing a better relationship between the family owners and these shareholders. In this way, agency problems are mitigated, thus allowing for better outcomes in terms of firm performance. Therefore, we propose the following hypothesis:

**H2:** The achievement of the required mandatory gender quota has a more positive impact on firm performance in family firms than in nonfamily firms.

### III. EMPIRICAL ANALYSIS

#### Sample and Data

The sample consists of a panel dataset of 165 Italian-listed firms during the period from 2011–2016. This allows us to analyze some years before and some after the introduction of the mandatory gender quota law. We chose a period after 2008 in order to mitigate the financial crisis effect on overall firms' performance. We gathered both qualitative and quantitative data at the firm level.

The data on board composition, firm ownership structure, and industry were taken from the Borsa Italiana, CONSOB, and Osiris databases. We focused on the Borsa Italiana's Main Market (MTA), which is mainly designed for medium-sized and large companies and included a total of 244 listed companies in 2016. We considered 17 of 19 industries in the "Super Sector" classification elaborated by Borsa Italiana, excluding banks and financial services industries due to their differences in financial reporting and corporate governance policies. Additional data on directors' characteristics and roles were hand collected from firms' published reports on corporate governance. The result of the data-collection process is a panel data set consisting of 990 firm-level observations (see Table 1).

Aligned with the existing literature (La Porta et al. 1999), we consider family firms to be those with an ultimate owner—a single individual or a family—that holds a minimum of 20 percent of the firm's shares.

#### Dependent Variable

To measure firm performance, two different approaches have been adopted in the literature: accounting measures and Tobin's Q. Following previous studies measuring relations between firm performance and board characteristics (Carter et al. 2003; Campbell and Minguez-Vera 2008; Coles, Daniel, and Naveen 2008; Carter, D'Souza, Simkins, and Simpson 2010; Darmadi 2011; Ahern and Dittmar 2012; Bebchuk, Martijn Cremers, and Peyer 2011) and a recent study by Reguera-Alvarado et al. (2017), we use Tobin's Q as a measure of performance in our regressions.

In fact, when dealing with a listed-firm sample, this ratio, which is a market-based "forward looking" ratio, captures future potential firm performance, which reflects the market's expectations for future earnings.

Although multiple methods have been proposed for calculating the Q ratio, the different approaches tend to yield very similar values for Tobin's Q (Perfect and Wiles 1994; Chung and Pruitt 1994). In our research, we use *Tobin's Q* as the

dependent variable (proxy for firm performance), and it is equal to the ratio between a firm's market value and its book value, where the firm's market value is calculated as the book value of assets minus the book value of equity plus the market value of equity (Adams and Ferreira 2009).

### Independent Variables

To test our hypotheses, various independent variables have been used.

- (1) *Mandatory Gender Quota*: a dummy variable that is equal to 1 for years 2013 to 2016, and 0 for years 2011 and 2012. As previously explained, the law was introduced in August 2012, meaning that the first application occurred in April 2013 (first available board renewal during the shareholders' meeting).
- (2) *Female Quota 33*: measures the achievement of the female quota at a level equal to the required 33 percent. Achievement of the female quota is measured through a dummy variable that is equal to 1 if female board representation has reached a level equal to or greater than 33 percent, and 0 otherwise.
- (3) *Family Firm Quota 33*: measures the effect of female directors in family firms through the interaction variable to test our second hypothesis, in which we question whether the relationship between the achievement of the mandatory gender quota on corporate boards is different for family firms than for nonfamily firms. The interaction variable is constructed as follows: *Female Quota 33 \* Family Firm Dummy*.

The result is a dummy variable that is equal to 1 if female board representation is at least 33 percent for a family firm, and 0 otherwise. In this case, the dummy variable might be equal to 0 for two reasons: (1) the company is not a family firm, or (2) the company is a family firm but female board representation has not reached the level required under the gender quota law (33 percent).

### Control Variables

Following recommendations in the existing literature (Campbell and Minguez-Vera 2008), we control for firm-specific characteristics that may affect firm performance. Specifically, we include board size, percentage of independent directors on corporate boards, financial leverage, and firm size, which is measured through the logarithm of total assets.

### Model

Given the nature of our dataset, we use a panel data estimation to test the hypotheses. The advantages of using panel data are described by Hsiao (1985) and Klevmarken (1989). Panel data allow us to control for individual heterogeneity, which means that we are able to check for variables that cannot be observed or measured, such as differences in business practices across firms, or variables that change over time but not across entities (i.e., national policies, federal regulations, and international agreements). This ability is fundamental because if these state- and time-invariant variables are not controlled, the results obtained could suffer from significant bias. This bias occurs in normal cross-sectional data that consist of multiple entities observed in a single time period and in time-series data in which a single entity is studied during multiple time periods.

Another important advantage concerns the fact that the cross-section dimension of panel data increases variability; thus, the amount of collinearity is decreased and, as a result, more informative data are obtained. These elements provide a more efficient and reliable estimation of parameters.

Panel data also allow for the improved study of the speed and dynamics of adjustments (for example, of a certain policy change). In our research, such improvements are fundamental elements since our study focuses on the effects of a legislative measure (Baltagi 1995).

Compared with regular time-series or cross-section regressions, a panel data regression presents a double subscript on its variables:

$$Y_{it} = a + X_{it}\beta + u_{it} \quad i = 1, \dots, n; \quad t = 1, \dots, t \quad (1)$$

where subscript  $i$  indicates the entities in the panel data and therefore denotes the spatial (or cross-sectional) dimension;  $t$  indicates the temporal (or time-series) dimension and represents time;  $X_{it}$  represents the independent variable in the regression for entity  $i$  at time  $t$ ; and  $\beta$  indicates the marginal effect on this independent variable on  $Y$ .

In our data set,  $n = 165$  Italian-listed companies and  $t = 6$  (time periods) from 2011 to 2016. Three regressions are run to test the hypotheses:

- (1)  $Firm\_Performance_{it} = \delta Mandatory\ Gender\ Quota + \beta Firm\_Characteristics_{it} + Industry\ Dummies + Year\ Dummies + \varepsilon_{it}$
- (2)  $Firm\_Performance_{it} = \delta Female\ Quota\ 33 + \beta Firm\_Characteristics_{it} + Industry\ Dummies + Year\ Dummies + \varepsilon_{it}$

**TABLE 2**  
**Descriptive Statistics**

Variable	n	Mean	Std. Dev.	Min.	Max.
2011					
<i>Tobin's Q</i>	165	1.041	0.467	-1.100	3.481
<i>Mandatory Gender Quota</i>	165	0.000	0.000	0.000	0.000
<i>Female Quota 33</i>	161	0.025	0.156	0.000	1.000
<i>Family Firm</i>	165	0.642	0.481	0.000	1.000
<i>Board Size</i>	161	9.447	3.666	3.000	22.000
<i>Independent Directors</i>	161	0.481	0.194	0.125	0.933
<i>Female Directors</i>	161	0.082	0.094	0.000	0.400
<i>Firm Size</i>	165	13.156	1.855	9.616	18.914
<i>Financial Leverage</i>	165	1.596	6.006	-25.017	46.081
2012					
<i>Tobin's Q</i>	165	1.134	0.620	-0.879	4.648
<i>Mandatory Gender Quota</i>	165	0.000	0.000	0.000	0.000
<i>Female Quota 33</i>	162	0.031	0.173	0.000	1.000
<i>Family Firm</i>	165	0.642	0.481	0.000	1.000
<i>Board Size</i>	162	9.679	3.640	3.000	22.000
<i>Independent Directors</i>	162	0.457	0.185	0.000	0.889
<i>Female Directors</i>	162	0.107	0.100	0.000	0.500
<i>Firm Size</i>	165	13.147	1.853	9.556	18.924
<i>Financial Leverage</i>	165	1.042	7.256	-77.678	36.716
2013					
<i>Tobin's Q</i>	165	1.407	1.095	-0.612	7.175
<i>Mandatory Gender Quota</i>	165	1.000	0.000	1.000	1.000
<i>Female Quota 33</i>	165	0.055	0.228	0.000	1.000
<i>Family Firm</i>	165	0.648	0.479	0.000	1.000
<i>Board Size</i>	165	9.582	3.561	3.000	21.000
<i>Independent Directors</i>	165	0.467	0.185	0.000	0.895
<i>Female Directors</i>	165	0.162	0.109	0.000	0.500
<i>Firm Size</i>	165	13.12	1.869	9.137	18.878
<i>Financial Leverage</i>	164	2.327	7.829	-7.676	70.149

*(continued on next page)*

$$(3) \text{ Firm\_Performance}_{it} = \delta \text{ Family Firm Quota 33} + \beta \text{ Firm\_Characteristics}_{it} + \text{Industry Dummies} + \text{Year Dummies} + \varepsilon_{it}$$

A problem arising in the estimation of the performance effects of female directors on boardrooms relies on the unobserved firm heterogeneity. This problem is mainly due to the omission of variables that could impact the choice of female directors as well as board performance. In fact, spurious correlations between gender diversity and firm performance can occur in case of unobserved firm variables and prejudice the estimated coefficients. For instance, it could even happen that firms with greater growth chances perform better and also have more women on their boards. To address the problem of omitted variable bias, we adopt the random effects model.

The random effects model assumes that the entity's error term is not correlated with the predictors, allowing time-invariant variables to play a role as explanatory variables. In our case, we include both year and industry dummies since they might have an influence on the dependent variable.

We then run a Hausman test to understand whether the random effects model could be used given the nature of our sample. This method tests whether the unique errors ( $u_i$ ) are correlated with regressors and the null hypothesis states they are not. The results obtained through Stata show a coefficient greater than 0.05. We do not reject the null hypothesis, and, for this reason, we can proceed with the random effects model.

#### IV. RESULTS

Table 2 shows descriptive statistics for the selected firms and boards for each year in our data.

Across the years, the control variables do not present relevant differences except for financial leverage. Indeed, while board size, firm size, and number of independents present a similar average value during the time period from 2011–2016, financial

TABLE 2 (continued)

Variable	n	Mean	Std. Dev.	Min.	Max.
2014					
<i>Tobin's Q</i>	164	1.313	0.695	-0.236	4.286
<i>Mandatory Gender Quota</i>	165	1.000	0.000	1.000	1.000
<i>Female Quota 33</i>	165	0.145	0.354	0.000	1.000
<i>Family Firm</i>	165	0.642	0.481	0.000	1.000
<i>Board Size</i>	165	9.691	3.390	3.000	24.000
<i>Independent Directors</i>	165	0.464	0.186	0.000	0.875
<i>Female Directors</i>	165	0.204	0.109	0.000	0.571
<i>Firm Size</i>	164	13.122	1.915	8.817	18.888
<i>Financial Leverage</i>	164	1.692	5.902	-18.150	67.231
2015					
<i>Tobin's Q</i>	156	1.441	0.794	0.391	4.612
<i>Mandatory Gender Quota</i>	165	1.000	0.000	1.000	1.000
<i>Female Quota 33</i>	159	0.340	0.475	0.000	1.000
<i>Family Firm</i>	162	0.617	0.488	0.000	1.000
<i>Board Size</i>	159	9.503	2.987	4.000	19.000
<i>Independent Directors</i>	159	0.435	0.150	0.000	0.818
<i>Female Directors</i>	159	0.281	0.083	0.000	0.556
<i>Firm Size</i>	156	13.145	1.959	8.518	18.851
<i>Financial Leverage</i>	154	1.657	4.158	-2.028	41.768
2016					
<i>Tobin's Q</i>	151	1.432	0.922	0.406	5.650
<i>Mandatory Gender Quota</i>	165	1.000	0.000	1.000	1.000
<i>Female Quota 33</i>	154	0.494	0.502	0.000	1.000
<i>Family Firm</i>	162	0.611	0.489	0.000	1.000
<i>Board Size</i>	154	9.597	2.853	5.000	17.000
<i>Independent Directors</i>	154	0.446	0.160	0.000	0.818
<i>Female Directors</i>	154	0.309	0.091	0.000	0.571
<i>Firm Size</i>	151	13.177	2.027	8.288	18.819
<i>Financial Leverage</i>	151	0.946	1.564	-6.863	6.477

leverage reveals a higher variance. The average value in 2013 is 2.327, whereas it decreases substantially in 2016 (0.946). The percentage of family firms tends to be constant during the time period, with a difference of around 2 percent in the last two years (from 64 percent to 61 percent).

The *Female Quota 33* variable increases every year from 2011 to 2016 and reaches an average value in the last year equal to 0.49. Then, on average, almost half of the firms in our sample achieve the required female quota of 33 percent during the years after the introduction of the law. For the dependent variable, the *Tobin's Q* ratio presents similar values across the observed years. Table 3 shows the correlations among the variables.

*Mandatory Gender Quota*, the percentage of *Female Directors*, and *Firm Size* present significant correlations with the *Tobin's Q* ratio. Specifically, the coefficient is positive for the first two variables and negative for *Firm Size*. As expected, the percentage of *Female Directors* is significantly correlated with *Mandatory Gender Quota*.

The results of the panel data estimation model for H1a and H1b are reported in Table 4.

To test H1a (a positive relationship exists between the mandatory gender quota regulation and firm performance), Model 1 is evaluated. The model shows a positive and significant coefficient ( $p < 0.000$ ) for the mandatory gender quota regulation effect, thus supporting H1a. The finding is consistent with the idea that the introduction of a mandatory gender quota regulation enhances firm performance. The finding is aligned with those of previous studies (Carter et al. 2003; Liu et al. 2014; Low et al. 2015; Anderson et al. 2011), indicating that female directors have a positive impact on firm performance.

Among the control variables, the percentage of independent directors presents a positive and significant coefficient ( $p < 0.1$ ), indicating that firms with a larger number of independent directors on their corporate boards outperform firms with a smaller number of independent board members (Reguera-Alvarado and Bravo 2017; Samara and Berbegal-Mirabent 2018). The significant coefficient of independent directors supports the results of other scholars who found that the relationship of most board characteristics and firm performance are jointly endogenous (Hermalin and Weisbach 2003; Nicholson and Kiel



**TABLE 3**  
**Correlation Matrix**

	<i>Tobin's Q</i>	<i>Mandatory Gender Quota</i>	<i>Female Quota 33</i>	<i>Family Firm</i>	<i>Board Size</i>	<i>Independent Directors</i>	<i>Female Directors</i>	<i>Firm Size</i>	<i>Financial Leverage</i>
<i>Tobin's Q</i>	1.000								
<i>Mandatory Gender Quota</i>	0.175***	1.000							
<i>Female Quota 33</i>	0.045	0.275***	1.000						
<i>Family Firm</i>	0.059 <sup>†</sup>	-0.017	-0.111***	1.000					
<i>Board Size</i>	-0.022	0.008	-0.115***	-0.071*	1.000				
<i>Independent Directors</i>	-0.020	-0.044	0.000	-0.226***	-0.018	1.000			
<i>Female Directors</i>	0.124***	0.520***	0.676***	-0.036	-0.050	-0.050	1.000		
<i>Firm Size</i>	-0.119***	-0.007	-0.062 <sup>†</sup>	-0.204***	0.498***	0.259***	-0.075*	1.000	
<i>Financial Leverage</i>	-0.044	0.028	-0.012	0.043	-0.037	-0.016	-0.007	-0.034	1.000

†, \*, \*\*, \*\*\* Indicate  $p < 0.1$ ,  $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$ , respectively.

2007; Bhagat and Bolton 2008). Following Jackling and Johl (2009), we ran a two-stage least squares panel regression, and the results do not show an endogeneity issue among the variables used in our analysis.

To test H1b (a positive relation exists between achievement of the mandatory gender quota and firm performance), Model 2 is evaluated. This model shows a positive and significant coefficient ( $p < 0.001$ ) for the achievement of the mandatory gender quota. This finding supports our hypothesis and shows that the achievement of full compliance with the law has a positive effect on firm performance.

Among the control variables, *Firm Size* presents a negative and significant coefficient ( $p < 0.100$ ), indicating that smaller firms outperform larger ones (LaFrance et al. 2006; Cannatelli 2013; Magnanelli, Raoli, and Sacchi 2015).

To further support our findings, we apply a difference-in-differences estimation, which is a quasi-experimental design that makes use of longitudinal data from treatment and control groups to obtain an appropriate counterfactual to estimate a causal

**TABLE 4**  
**Panel Data Estimation (Dependent Variable = *Tobin's Q*)**

	<b>Model 1</b>	<b>Model 2</b>
<i>Mandatory Gender Quota</i>	0.243*** (0.050)	
<i>Board Size</i>	-0.001 (0.008)	0.000 (0.009)
<i>Independent Directors</i>	0.223 <sup>†</sup> (0.128)	0.157 (0.132)
<i>Financial Leverage</i>	-0.003 (0.003)	-0.002 (0.003)
<i>Firm Size</i>	-0.040 (0.027)	-0.049 <sup>†</sup> (0.029)
<i>Female Quota 33</i>		0.155*** (0.045)
Constant	1.318** (0.177)	1.561*** (0.403)
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes
Number of Obs.	930	930
Number of Groups	162	162
Wald $\chi^2$	169.450	169.040
Prob > $\chi^2$	0.000	0.000

†, \*, \*\*, \*\*\* Indicate  $p < 0.1$ ,  $p < 0.05$ ,  $p < 0.01$ , and  $p < 0.001$ , respectively.  
Variables are defined in Appendix A.

**TABLE 5**  
**Difference-in-Differences Estimation (Dependent Variable = *Tobin's Q*)**

**Panel A: Totals**

	<b>Before</b>	<b>After</b>	
Control	310	458	768
Treated	9	153	162
	319	611	

**Panel B: Coefficients**

	<b>Coefficient</b>
<i>Intervention versus Control Group</i>	0.348*** (0.087)
<i>Treatment</i>	-0.353** (0.111)
<i>Difference-in-Differences</i>	0.325* (0.135)
<i>Board Size</i>	0.016* (0.008)
<i>Independent Directors</i>	0.144 (0.140)
<i>Financial Leverage</i>	-0.009* (0.004)
<i>Firm Size</i>	-0.008 (0.015)
Constant	0.772*** (0.199)
Industry Dummies	Yes
Year Dummies	Yes
Number of Obs.	930
Prob > F	0.000

†, \*, \*\*, \*\*\* Indicate  $p < 0.1$ ,  $p < 0.05$ ,  $p < 0.01$ , and  $p < 0.001$ , respectively. Variables are defined in Appendix A.

effect (Bertrand, Duflo, and Mullainathan 2004). Difference-in-differences estimation is typically used to estimate the effect of a specific intervention or treatment (such as the passage of a law, the enactment of a policy, or large-scale program implementation) by comparing the changes in outcomes over time between a population that is enrolled in a program (the intervention group) and a population that is not (the control group).

For this specific analysis, the treatment is represented by the introduction of the gender quota law in 2012, the intervention group is composed of firms that have reached the requested female quota (33 percent), and the control group is composed of firms that have not reached female representation equal to or greater than 33 percent, even after the introduction of the law.

Difference-in-differences relies on a less strict exchangeability assumption, i.e., in the absence of treatment, unobserved differences between the treatment and control groups will be the same over time.

The parallel trend assumption is the most critical to ensuring the internal validity of difference-in-differences models. It requires that in the absence of treatment, the difference between the “treatment” and “control” group is constant over time.

To test whether our sample conforms to this assumption, we followed Mora and Reggio (2015). The conclusion of the test is that both parallel assumptions are equivalent, meaning that the control and the treatment have common pretreatment dynamics. The difference-in-differences estimation is applicable to our sample. The results of the difference-in-differences estimation model are reported in Table 5.

The interaction term between the time and treatment group dummy variables in the regression model is positive and significant ( $p < 0.001$ ). This result supports our hypothesis since after the treatment (the introduction of the gender quota law),

**TABLE 6**  
**Panel Data Estimation (Dependent Variable = *Tobin's Q*)**

	<u>Model 3</u>
<i>Female Quota 33</i>	0.085† (0.050)
<i>Family Firm</i>	-0.049 (0.081)
<i>Female Quota 33 * Family Firm</i>	0.658*** (0.197)
<i>Board Size</i>	-0.003 (0.009)
<i>Independent Directors</i>	0.159 (0.131)
<i>Financial Leverage</i>	-0.002 (0.003)
<i>Firm Size</i>	0.085† (0.050)
Constant	1.561*** (0.403)
Industry Dummies	Yes
Year Dummies	Yes
Number of Obs.	928
Number of Groups	162
Wald $\chi^2$	86.8
Prob > $\chi^2$	0.000

†, \*, \*\*, \*\*\* Indicate  $p < 0.1$ ,  $p < 0.05$ ,  $p < 0.01$ , and  $p < 0.001$ , respectively.  
Variables are defined in Appendix A.

the intervention group (firms that achieved the required female quota of 33 percent) presents higher values for the dependent variable (the *Tobin's Q* ratio) than the control group.

Finally, to test H2 (firm performance is higher for family firms that achieved full compliance with the law), Model 3 is evaluated. The results are reported in Table 6.

The model shows a positive and significant coefficient ( $p < 0.001$ ) for the interaction variable *Female Quota 33 \* Family Firm*. Family firms that have achieved the level of female representation required by the gender quota law (33 percent) have higher values for the *Tobin's Q* ratio compared to family firms that have not met the law's requirements and nonfamily firms that have achieved the female quota. Thus, the hypothesis is supported by our findings.

Among the other variables, *Female Quota 33* shows a positive and significant coefficient ( $p < 0.1$ ), while the *Family Firm* dummy is not significantly associated with the dependent variable.

To ensure the robustness of these findings, we also apply a difference-in-differences estimation. For this analysis, the treatment is given by the introduction of the gender quota law. Thus, the intervention group is composed of family firms that have achieved the female quota (33 percent), and the control group is composed of family firms that have not reached a level of female representation equal to or greater than 33 percent, even after the introduction of the law, and of nonfamily firms that have achieved the female quota.

The interaction term between the time and treatment group dummy variables in the regression model is positive and significant ( $p < 0.01$ ), as shown in Table 7. This result supports H2, since after the treatment (the introduction of the gender quota law), the intervention group presents higher values for the dependent variable (the *Tobin's Q* ratio). Thus, family firms that have achieved full compliance with the mandatory gender quota outperform both family firms that have not achieved the female quota and nonfamily firms that have met the gender quota.<sup>3</sup>

<sup>3</sup> To ensure the robustness of the results, several additional analyses are performed. Specifically, we use return on assets (*ROA*) as the dependent variable instead of *Tobin's Q*. All of these tests yield results in line with the initial estimates and with the literature. The results of these tests are available in Tables 8 and 9.

**TABLE 7**  
**Difference-in-Differences Estimation (Dependent Variable = *Tobin's Q*)**

**Panel A: Totals**

	Before	After	
Control	312	533	845
Treated	7	76	83
	319	609	

**Panel B: Coefficients**

	Coefficient
<i>Intervention versus Control Group</i>	−0.389** (0.134)
<i>Treatment</i>	0.343*** (0.077)
<i>Difference-in-Differences</i>	0.324† (0.182)
<i>Board Size</i>	0.016* (0.008)
<i>Independent Directors</i>	0.140 (0.140)
<i>Financial Leverage</i>	−0.009* (0.004)
<i>Firm Size</i>	−0.008 (0.015)
Constant	0.816*** (0.217)
Industry Dummies	Yes
Year Dummies	Yes
Number of Obs.	928
Prob > F	0.000

†, \*, \*\*, \*\*\* Indicate  $p < 0.1$ ,  $p < 0.05$ ,  $p < 0.01$ , and  $p < 0.001$ , respectively.  
 Variables are defined in Appendix A.

## V. DISCUSSION AND CONCLUSIONS

This study enriches the literature on corporate governance by analyzing the presence of female directors on corporate boards. Researchers are still struggling with the features that a good governance system should have. Specifically, the issue of including female directors on corporate boards currently seems to be relevant from both an ethical and a board effectiveness point of view. Also, governors<sup>4</sup> and policymakers worldwide are demanding that corporate boards include women, who constitute the largest part of the population, although they are also questioning the outcomes of this mandatory inclusion.

The findings of H1a support the existing literature about the positive relationship between female directors and firm performance, which also aligns with human capital theory and previous literature. Researchers provided two viewpoints on the impact of gender diversity on corporate boards. The first proposition holds that skilled women with their human capital, network, and other characteristics relevant to the firm deserve opportunities to serve on boards and hold leadership positions. The second proposition suggests that the gender and ethnic diversity of directors results in better governance, thus leading to more profitable businesses. This study provides empirical support for the second proposition, demonstrating the positive relationship between gender diversity on boards and the financial performance of Italian family firms.

The main concept arising from the present study is that gender diversity leads to various human capital soft skills, which undoubtedly play a role in how a board operates and could therefore play an important role in terms of firm performance.

<sup>4</sup> See *Marketplace* at <https://www.marketplace.org/2018/10/01/california-law-says-corporate-boards-must-include-women/>

**TABLE 8**  
**Panel Data Estimation (Dependent Variable = ROA)**

	<u>Model 4</u>	<u>Model 5</u>
<i>Mandatory Gender Quota</i>	3.362* (1.636)	
<i>Board Size</i>	-0.130 (0.198)	-0.080 (0.206)
<i>Independent Directors</i>	1.108 (3.221)	1.120 (3.312)
<i>Financial Leverage</i>	-0.003 (0.085)	0.001 (0.085)
<i>Firm Size</i>	0.865* (0.425)	0.787† (0.457)
<i>Female Quota 33</i>		2.475† (1.339)
Constant	-11.232† (6.037)	-7.870 (6.044)
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes
Number of Obs.	912	912
Number of Groups	162	162
Wald $\chi^2$	36.19	27.44
Prob > $\chi^2$	0.000	0.000

†, \*, \*\*, \*\*\* Indicate  $p < 0.1$ ,  $p < 0.05$ ,  $p < 0.01$ , and  $p < 0.001$ , respectively. Variables are defined in Appendix A.

Moreover, as Bianco et al. (2015) pointed out, the pre-quota Italian system for selecting board members was not always based on merit; thus, the introduction of the mandatory quota has improved the whole selection process and resulted in younger and more qualified boards, leading to better firm performance. This conclusion is also supported by previous findings (Pastore and Tommaso 2016), confirming that new female directors are, on average, younger and more qualified (with a higher educational profile) than male directors.

Regarding the results for H1b, firms complying with the regulation experience a positive impact on performance, and this result leads to two main conclusions. First, the mandatory gender quota regulation has been adopted with a positive attitude by listed firms, demonstrating an openness to gender diversity and compliance with the regulation in the medium term. The inclusion of a higher number of females on corporate boards together with achieving the required quota are positive signals for financial markets, which explains the positive impact of the main independent variables on *Tobin's Q*.

Moreover, the descriptive statistics highlight that the average size of Italian corporate boards is nine to ten members. Considering the required quota of 33 percent, firms that have already achieved the quota have at least three female directors on their boards. This result is aligned with critical mass theory, thus supporting the idea that three or more women make a significant contribution in terms of board effectiveness (Konrad et al. 2008; Zaichkowsky 2014). The contribution of female board members, as stated in previous studies (Rhode and Packel 2014; Adams and Ferreira 2009; Wooley and Ye 2010; Kotiranta et al. 2010), is represented by better monitoring, more effective decision-making processes, and more positive attitudes, which lead to better performance.

Moreover, the study shows that the results related to the relationship between the mandatory quota for female directors and firm performance are enhanced when the firm is owned by a family. This outcome is particularly relevant due to the specific governance features of family firms. In Italy, family firms are relevant because they represent more than 85 percent (considering both listed and nonlisted firms) of the total number of businesses and constitute approximately 70 percent of employment opportunities, with 66 percent of these firms fully managed by family members, which is consistent with many other European countries worldwide.<sup>5</sup>

<sup>5</sup> For further details on the Italian family business context, data are available at <https://www.aidaf.it/en/aidaf-3/1650-2/>.

**TABLE 9**  
**Panel Data Estimation (Dependent Variable = ROA)**

	<b>Model 6</b>
<i>Female Quota 33</i>	1.861** (0.603)
<i>Family Firm</i>	4.914* (2.034)
<i>Female Quota 33 * Family Firm</i>	1.579* (0.679)
<i>Board Size</i>	-0.044 (0.212)
<i>Independent Directors</i>	1.920 (3.275)
<i>Financial Leverage</i>	-0.007 (0.085)
<i>Firm Size</i>	0.927* (0.434)
Constant	-10.574† (6.362)
Industry Dummies	Yes
Year Dummies	Yes
Number of Obs.	912
Number of Groups	162
Wald $\chi^2$	34.380
Prob > $\chi^2$	0.000

†, \*, \*\*, \*\*\* Indicate  $p < 0.1$ ,  $p < 0.05$ ,  $p < 0.01$ , and  $p < 0.001$ , respectively.  
Variables are defined in Appendix A.

As expected, the typical agency problems of family firms can be mitigated by the presence of female directors due to their personal attitudes and behavior (Rhode and Packel 2014; Adams and Ferreira 2009), which could result in a better balance for the typical governance issues of family firms, as noted in previous literature (Anderson and Reeb 2003; Pieper 2010). The results provide evidence that achieving full compliance with the gender quota regulation leads family firms to perform better compared to family firms that have not achieved the mandatory quota and nonfamily firms that have achieved the quota.

Women on the corporate boards of family firms still represent an unexplored stream of literature that needs to be further addressed. Thus, the findings of this paper are useful as a baseline for future research on this topic.

The findings are also interesting for practitioners. Indeed, knowledge of the impact of the presence of women on corporate boards in terms of firm performance might provide some insights for shareholders deciding who should sit on the board to maximize their profit. Finally, by analyzing the phenomenon with particular regard to Italian firms, this paper provides empirical evidence of the relationship within a specific type of ownership structure that is typical in many other countries around the world.

There are some limitations to our study that future research might address. First, to improve the analysis of the effects of female directors on family firms' corporate boards, future studies could consider the affiliation status of female directors to family owned firms. In fact, being affiliated with a family could change the approach to and behavior toward the business and management due to the personal interests handled within the firm. Second, future studies could investigate the characteristics of females (i.e., age, nationality, educational background) on corporate boards in greater depth and their impact on firm performance.

Finally, a cross-country analysis could identify cultural and governance aspects that might differ among contexts characterized by the strong presence of family businesses, such as in Italy. This study provides some insights for future research in countries in which family capitalism is dominant.

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## APPENDIX A

Variable	Definition
Dependent Variable <i>Tobin's Q</i>	Calculated as the ratio between the total market value of a company and its total asset value.
Independent Variables <i>Mandatory Gender Quota</i>	Measures whether firms have implemented the female quota. In 2012, the law was introduced in Italy and, starting from August 2012, firms were expected to have three board terms to be in compliance with the legislation. It is a dummy variable that is equal to 1 if the year is > 2012, and 0 otherwise.
<i>Female Quota 33</i>	Measures the achievement of the female mandatory gender quota at a level equal to 33 percent, as required. It is a dummy variable that is equal to 1 if the female quota is $\geq$ 33 percent, and 0 otherwise.
<i>Family Firm Quota 33</i>	The effect of female directors in family firms is measured through the interaction variable between <i>Female Quota 33</i> and <i>Family Firm Dummy</i> . The result is a dummy variable that is equal to 1 if the female quota is at least 33 percent in a board director of a family firm, and 0 otherwise.
Control Variables <i>Board Size</i>	Number of board members.
<i>Independent Directors</i>	Percentage of board members who are not officers of the firm.
<i>Financial Leverage</i>	Ratio between the long-term debt, as a proxy of financial debts, and the common equity of the firm (long-term debt/equity).
<i>Firm Size</i>	Measured as the natural log of the total assets.
<i>Industry</i>	Dummy variable identified by the Super Sector classification (Borsa Italiana).
<i>Year</i>	Dummy variable.

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