



Family owners and the appointment of family and non-family women directors. Where is the ownership point where preferences change?

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ABSTRACT

We analyse the impact of voting rights in the hands of the dominant family owner on the presence of women directors in a sample of listed family firms in Spain during 2007–2020. As distinctive features of this paper, we examine whether women directors have or do not have family ties with the dominant family owner, use the control-chain methodology to identify the ultimate or dominant owner of Spanish listed firms and analyse a curvilinear association between family ownership and the appointment of family and non-family female directors in family firms. Drawing on socioemotional, agency and stewardship theories, our results show that when the voting rights of the dominant families are low, they appoint more female directors with family associations. The results also indicate that when family voting rights are high, family founders appoint more non-family women directors to benefit from their industry-specific expertise and objective advice. Overall, our findings suggest that when a certain level of family ownership is reached there is a need to reduce the appointment of women directors with family ties in order to move towards a more balanced and diversified board with a wider representation of skills, knowledge, diverse experiences and talent.

ARTICLE HISTORY

Received 8 February 2021
Accepted 18 January 2022

KEYWORDS

Board of directors; family firms; family ties; critical mass; gender diversity; women directors

JEL Codes

G10; G35; G41

1. Introduction

Female representation on boards of directors is a relevant issue for academia, media and governments around the world. However, in most countries, the presence of women in the highest decision-making positions is still scarce. Consequently, the lack of female member representation on boards of directors has become a global phenomenon worldwide (Nguyen et al., 2020; Terjensen & Singh, 2008). According to Walt and Ingley (2003), boards should reflect the structure of society, which today is multicultural, with more diverse backgrounds and greater gender sensitivity. In this line, gender diversity improves creativity, innovation and quality decision-making on the board of directors and affects firms' corporate social responsibility and corporate governance (Bear et al., 2010; González et al., 2020; Kang et al., 2007).

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Family firms are not immune to the increasing pressure from both society and investors to appoint women to their boards. In this sense, family firms tend to be more socially responsible than non-family firms because of the dominant family desires to maintain a good reputation (Dyer & Whetten, 2006). Family firms have realised that they need to move from 'male-dominated boards', and have questioned whether their boards are effective enough in a complex economy that demands more sophisticated talent, expertise and entrepreneurial skills. Additionally, the change in the business climate has increased the number of daughters and wives who have demanded their rightful places in family firms. In this line, Bianco et al. (2015) show that in the majority of diverse-board of Italian listed firms at least one of the women has a family connection with the controlling owner and in 47.3% of diverse-board firms female directors are exclusively family members.

Despite the growing attention to board gender diversity in family firms (Martinez Jimenez, 2009; Nelson & Constantinidis, 2017), the evidence still questions whether the appointment of women directors matters at all (Chadwick & Dawson, 2018; Holton, 2000). These concerns are even greater in family firms, where the benefits of female appointments to their boardrooms have hardly been questioned, thus arguing that the presence of female directors in these firms may conform more to family representation (e.g. succession) than to merit (Cole & Cole, 1997). In this sense, we focus on control in family firms to analyse the impact of gender diversity on firm performance since in family firms social logics are likely prevalent rather than the economic logics. Then, when analysing gender diversity in family firms we follow the socioemotional wealth theory (SEW) and consider that family firms have socioemotional goals based on an emphasis on reinforcing family identity, family ties and maintaining family dynasty. This desire to perpetuate the business, as well as the alignment between the family's reputation and its success may provide family women directors with special incentives that affect the firm's strategic decisions.

Furthermore, according to the concept of gender diversity, more focused on the 'skill' versus the 'representation' perspective, family and non-family women may bring different skills, viewpoints, expertise and knowledge so that their effects on family firms may be different. Attributes such as benevolence, universalism and tradition can work better when female directors have family ties with the firms (Schwartz, 1992). However, women with family ties may also increase nepotism and entrenchment. On the other hand, female directors without family ties may provide integrity, independence and impartial judgement to board decisions, but they may also erode some of the internal social ties that improve trust, coordination and knowledge-sharing in family firms (Stewart & Hitt, 2012). The above discussion suggests that the effect of family ties on the association between board gender diversity and family firm performance is an open question and that when board gender diversity is examined in family firms, the question of family ties must be considered.

Drawing on socioemotional, agency and stewardship theories, we study the factors that influence the appointment of women to family boards, analysing the specific control effect of the dominant family owner. As a distinctive feature of this paper, we examine whether female directors have or do not have family ties with the dominant family owner, which allows us study gender diversity from the 'skill' versus the 'representation' perspective.

We empirically examine board gender diversity in Spain, where family-owned businesses have a significant influence on Spanish economic development, approximately 65–70% of all listed firms. Additionally, Spanish family firms fall under a legal system that, unlike Anglo-Saxon countries, provides weak protection to outside investors and where the significant use of ownership structures permits the separation of voting and cash flow rights (Faccio & Lang, 2002; García-Meca et al., 2015; Martínez-Jiménez et al., 2020; Sacristán-Navarro & Gómez-Ansón, 2007; Santana-Martín & Aguiar-Díaz, 2006). This high level of control by Spanish family firms allows us to study the effect of the variation in ownership on board composition, which has not been studied previously in the context of family gender diversity. Spain also represents a typical model of corporate governance prevalent in continental European countries, with active family members on the boards of family-owned businesses (Miralles-Marcelo et al., 2012). Concerning gender diversity requirements, the reform of the Spanish Unified Governance Code (2015) in June 2020 urges an increase in female representation on publicly traded company boards to 40% by 2022. However, this female quota is not mandatory, merely a recommendation. Additionally, Spain is one of the European countries with the lowest presence of foreign directors in their firms (Spencer Stuart, 2020), leaving gender as the main type of diversity evident on Spanish boards. Therefore, Spanish family firms allow analysis in isolation of the effect of gender diversity on corporate performance. These features collectively provide a highly interesting environment in which to study the determinants and consequences of a diverse family of boards of directors.

Using a dataset of Spanish boards, we find that when the voting rights of the dominant families are low, they appoint more female directors with family associations. These results confirm the agency theory perspective, which maintains that firms with little family power may designate more female directors with family ties to protect family interests. The results also indicate that when family voting rights are high, family founders may be more interested in the advisory role of directors suggested by the stewardship theory, thus appointing more outside women directors to benefit from their industry-specific expertise and objective advice.

This study contributes to the existing literature in several central ways. First, this study adds evidence to the drivers of female presence in family firms (Bianco et al., 2015; Cabrera-Suarez & Martín-Santana, 2015) and shows that the appointment of females with and without family ties is highly related to family control. Second, by studying curvilinear relationships, we contribute to the literature that supports the need to examine non-linear relationships, in gender studies, since we find that the influence of family ownership on female appointments is curvilinear and conditioned by the level of family power. Third, this paper contributes to the literature on intrafamily conflicts in family businesses. Then, although recent papers have explored differences between family and non-family firms, it is needed to move beyond and explore conflict-related issues in family businesses (Basco et al., 2019; Kubíček & Machek, 2020), such as conflicts coming from gender diversity. Finally, this paper contributes to the literature on board gender diversity in family firms (González et al., 2020; Nguyen et al., 2020) and shows the difficulties in the co-existence of female directors with and without family ties, given their different aims and incentives.

2. Background and hypotheses

2.1. *Determinants of female director appointment in family firms*

Although in family firms the female role traditionally has been occupied by daughters and wives, this situation is changing in recent years, namely, because increasing numbers of women are, fortunately, deciding to enter the business world (Martinez Jimenez, 2009). Previous literature on the antecedent of women of directors shows a range of individual-, social-, firm- and country-level factors that can explain or predict the presence or absence of these women in boardrooms (Nguyen et al., 2020). However, the question of hiring a family or non-family woman as a board director and the explanatory factors has been scarcely studied in family firms. Most of the existing research does not consider this distinction. According to Bettinelli (2011), in family firms, board membership is negotiated by the relative power of the owners, who are not simply investors and who often pre-empt the selection of skilled and value-adding directors. In this sense, dominant family owners have the ability and the incentives to influence the design of the corporate governance system, particularly regarding the composition of the board and the different roles of board members (Dahya et al., 2008). Thus, board structure is shaped by the costs and benefits derived from company control and the director's ability to advise internal agents.

From a socioemotional perspective, family objectives might differ from profit maximising goals and may involve maintaining family control, pursuing long term and more risk-averse aims and supporting trans-generational succession as well as family reputation (Gomez-Mejia et al., 2001; González et al., 2020). The family ownership stake gives the dominant families the power to ensure that the firm pursues family interests (Anderson & Reeb, 2003; La Porta et al., 1999; Villalonga & Amit, 2006). According to this view, the primary function of family directors in firms with little family ownership is to monitor the actions of managers in order to protect the family's goals (Bettinelli, 2011). Supporting this argument, Jaskiewicz and Klein (2007) note that when the level of goal alignment between owners and managers is low, a family firm is likely to appoint board members who have close, long-standing ties to the family, and who can be relied upon to comprehend and appreciate the traditions and values inherent in the family. Their results might point to a substitution effect on family control between ownership and family presence on the board.

Moreover, family values such as nepotism, altruistic attitudes towards relatives or maintaining harmony also lead family firms to more frequently refuse the appointment of independent directors, even when their inclusion could improve the family firm's financial interests (Singal & Gerde, 2015). At this point, family harmony and employment tend to be far more important than other traditional financial goals such as profit maximisation (Voordeckers et al., 2006). Thus, a lower family ownership stake reduces family power, thereby increasing the need for greater board control and increasing the likelihood of women with family ties being appointed. This low ownership family control also reduces the likelihood of non-family women being appointed since family women are more concerned with non-financial family interests than non-family women are (Vandebeek et al., 2016). However, as the level of family ownership increases from a low to an optimum level (inflection point), it offers the family strong incentives, power and information to control the board's behaviour, reducing the importance of

family appointments with the aim of achieving non-financial family goals. Similarly, this higher level of ownership increases the likelihood of independent non-family women being appointed since the preservation of socioemotional family wealth has already been achieved through high family ownership, and there is a greater need to move towards more balanced and diversified boards with a wider representation of skills, knowledge and talent (Walt & Ingley, 2003).

According to the above arguments, since the low level of family ownership increases the likelihood of the appointment of family female directors rather than female directors with no family ties, given that the dominant family needs a solid family director sub-group with strong cohesion in order to achieve the family's goals. In such a context, family women share greater trust and more common interests with other family directors than non-family female directors do, and thereby affect cohesion and the performance of family director sub-groups (Uhlener et al., 2007; Vandebek et al., 2016). However, the presence of family directors, combined with strong control, might exacerbate emotional disagreements and tension among family and non-family directors, which could ultimately prove detrimental to board effectiveness (Li & Hambrick, 2005; Minichilli et al., 2010).

Stewardship theory also provides an alternative explanation for describing the relationship between family owners and boards (Anderson & Reeb, 2003). According to this theory, the main role of the board is to serve and advise rather than to discipline and monitor, as agency theory states (Davis et al., 1997). Then, when family control is sufficiently high, family founders can be more interested in attracting women directors outside the family to benefit from their industry-specific expertise and objective advice that complements the family knowledge. These non-family women could be considered better advisors than female family directors, being better able to recognise problems and encourage the exploration of new options. Additionally, when family ownership is high, the resource dependent role of the board of directors also arises. A board of experienced outside non-family directors may be fundamental to overcome family lack of resources and complement management with experience, skills and knowledge, providing a valuable source of competitive advantage (Castaldi & Wortman, 1984). Non-family women directors are, hence, seen as instruments to facilitate access to financial resources critical to family firm success, as well as sources of advice and counsel in specific areas where knowledge is limited (Johannisson & Huse, 2000). In this regard, a high level of family control increases the scrutiny on family actions and the reputation concerns of the dominant family. This effect may raise incentives to appoint women without family ties.

From a different perspective, one of the main roles of boards is to reduce agency conflicts. Low family ownership may further agency conflicts with non-family managers and directors, increasing the likelihood of family women being appointed to monitor the actions of managers and protect family goals (Bettinelli, 2011). This low level of family ownership increases the role of boards of directors vis-à-vis mitigating intra-family agency costs and helps to achieve the goals of the whole family (Corten et al., 2017). Family women might thus reduce intra-family agency conflicts more than non-family women since women with family ties have traditionally shown interest in maintaining peace and harmony within family firms and have helped to avoid conflicts among relatives (Martinez Jimenez, 2009). Family women are concerned about the necessities of the entire family, are sensitive to individual needs and are flexible with regard to the

roles and judgements that are vital to the well-being and survival of the family firm. Family women also have strong incentives to protect the family reputation and to avoid conflicts among the relatives who work together in the firm.

However, an increase in the level of family ownership from moderate to high, combined with the presence of family female directors, might trigger conflicts with other stakeholders, since a board, which lacks the necessary independence to act as an effective control mechanism adds to a family's ability and incentive to engage in opportunistic action (Bona Sánchez et al., 2014). This could increase the likelihood of independent non-family women being appointed to the board. Family women might therefore play a differentiating role in the agency conflicts that arise within the family due to family relationships based on emotions, conflicts among parents and offspring or sibling rivalry (Gomez-Mejia et al., 2001).

Considering the above theoretical arguments, we suggest a curvilinear association between family ownership and the appointment of family and non-family female directors in family firms. Hence, although the likelihood of family female directors being appointed increases in low to moderate levels of family ownership, when a certain level of family ownership is reached (inflection point) there is a need to reduce the appointment of these family women directors with family ties in order to move towards a more balanced and diversified board with a wider representation of skills, knowledge and talent. Therefore, we test the following hypotheses:

H1: There is an inverted U-shaped relationship between family ownership and the appointment of family female directors.

H2: There is a U-shaped relationship between family ownership and the appointment of non-family female directors.

3. Research design

3.1. Sample

The initial sample comprises 98 non-financial firms listed on the Spanish stock market at the end of 2020 included in the Osiris database. Therefore, we obtained unbalanced sample 1157 firm-year observations, with 95% of the firms having five or more observations during the 2007 to 2020 period. This sample accounts for 97% of Spanish market capitalisation of non-financial firms listed in 2020. In our regression analysis, the variables are winsorised at 1% to eliminate outliers. Our sample starts in 2007, when the Spanish Good Governance Code gives greater relevance and transparency about gender diversity to the board of directors.

3.2. Family firms

We use the control-chain methodology to identify the ultimate or dominant owner of Spanish listed firms. The control-chain methodology allows us to identify the total ownership structure through which the dominant owner controls the firm (e.g.

Claessens et al., 2002; Faccio & Lang, 2002; Gomez-Mejia et al., 2007 ; La Porta et al., 1999; Santana-Martín & Aguiar-Díaz, 2006). This method is important because it allows for a correct specification of ownership structure in an environment where the use of pyramids is predominant (Bona Sánchez et al., 2011; Francis et al., 2005; La Porta et al., 1999). Therefore, we define a firm as a family firm as if the main shareholder is an individual or family who directly or indirectly holds a stake of voting rights equal to or above an established level of control, which, consistent with previous literature, is 10%. Thus, the identification of a family as the dominant owner by using this methodology prevents mistakes prevalent in pyramid ownership settings such as assigning a shareholder a level of voting and cash flow rights that does not correspond to his/her real holding. Moreover, this methodology prevents the researcher from identifying a shareholder as a dominant owner when he/she does not occupy the final position in the control chain.

3.3. Board gender diversity

Data on the presence of women on board come from García-Meca et al. (2022). Accordingly, we hand-collected information about the presence of women on the board of directors of family firms from 2018 using various sources. We examined the board composition using the Annual Corporate Governance Reports published by the Spanish Security Exchange Commission (CNMV). Thus, when we identify a woman as a director, we analyse her family relationship with the dominant family owner through family names, from the firms' websites or by directly asking the firms.

3.4. Variables

To analyse the likelihood that at least one of the company's directors is a woman, we define *DFam_WD* and *DNonFam_WD* as dummy variables that take the value of one if at least one of the members of the board of directors is a woman, and she has or does not have a family relationship with the dominant family owner, respectively; otherwise, their value is zero. Moreover, in order to further explore the relationship between female directors and family ownership, we define *FamyWomen* and *NonFamyWomen*, respectively, as the percentages of family and non-family female directors sitting on boards of directors.

Data on family firms come from García-Meca et al. (2022), who applied a control-chain methodology to identify the dominant or ultimate owner of the Spanish listed. In this research, we add data from 2018. The control-chain methodology allows us to identify the total control structure through which the ultimate or dominant owner controls the firm (Claessens et al., 2002; Faccio & Lang, 2002; La Porta et al., 1999; Ruiz-Mallorquí & Santana-Martín, 2011; Sacristán-Navarro & Gómez-Ansón, 2007). The control-chain methodology offers an accurate specification of the ownership structure in a context in which the use of pyramids prevails (Bona Sánchez et al., 2011; Francis et al., 2005; La Porta et al., 1999). A firm is thus defined as a family firm where the ultimate shareholder is an individual or family who, either directly or indirectly, holds a voting rights stake that is equal to or exceeds an established level of control. Consistent with the previous literature, this established level is 10%.

Identifying a family as the dominant owner using this method thus prevents the mistakes often found in pyramidal ownership settings, such as assigning a level of voting and cash flow rights to shareholders that fails to reflect their real holding. Furthermore, this method does not allow researchers to identify shareholders as dominant owners when they do not occupy the final position in the chain of control. On average, the same family is seen to control family firms for 90% of the years analysed (100% in terms of the median), with 99% of these firms having family members on the board. Therefore, we include the variable *Voting* as the percentage of voting rights in the hands of the dominant family owner.

Moreover, the use of pyramid structures allows dominant owners to retain control and facilitate the stability of their control (Cuervo, 2002). Consequently, the use of pyramids could reduce the pressure on the dominant family owner to promote board diversity. In this line, Kang et al. (2007) showed that concentration of power is negatively associated with gender. For this reason, we control the effect of the use of pyramidal structures on the probability that a family firm has at least one woman as director using the variable *Pyramid*, measured as the difference between voting and cash flow rights in the hands of the dominant family owner. In this line, for family firms, the successful succession process between generations increases the control of the dominant family on board composition. This increased family control enhances the relevance of family reputation (Anderson & Reeb, 2003; Campopiano et al., 2014; Dou et al., 2014; Dyer & Whetten, 2006). We therefore include the variable *Generation* as a measure that identifies which family generation controls the firm. This variable takes the value of one to four depending on whether the family firm is first, second, third or fourth generation, respectively. Consistent with Bear et al. (2010), we expect this measure to positively affect the likelihood of the existence of female directors.

To control for the effect of other variables that could potentially affect the investigated relationship, we include the variable *Size*, measured as the natural logarithm of total assets. Therefore, consistent with previous literature, we expect firm size to positively affect the likelihood of the presence of women directors (Farrell & Hersch, 2005; Peterson & Philpot, 2007; Terjensen & Singh, 2008). On the other hand, the early literature shows that corporate performance influences the selection process. Therefore, we include the growth opportunities, *MTB*, defined as the market value of equity divided by the book value of equity. However, the sign of the relationship between corporate performance and the selections of woman directors is unclear (Farrell & Hersch, 2005). Moreover, Gillan & Starks (2000) argue that institutional investors can compel firms towards greater diversity. For this reason, we control the power of these stakeholders through the variable *Debt*, measured as total debt divided by total assets as a control variable. Additionally, to control for the effect of the bargaining power of the president of the board, we include the variable *Presi_dual* as a dummy variable that takes the value of 1 if the president of the board has an executive role and zero otherwise. The presence of a dual president and CEO could influence the composition and the effectiveness of board monitoring (Bear et al., 2010). All the variables are defined in the Appendix.

4. Results

4.1. Descriptive statistics

Table 1 (Panel A) shows the evolution of gender diversity in Spanish listed family firms during 2007–2020. The panel details the percentage of family businesses and the presence of women as members of the board of directors. The results show that most Spanish listed companies have a family member as a dominant owner, consistent with earlier research focusing on the Spanish market (Santana-Martín & Aguiar-Díaz, 2006; Gomez-Mejia et al., 2007; Ruiz-Mallorquí & Santana-Martín, 2011; Bona Sánchez et al., 2011; Guerra Pérez et al., 2015).

Regarding the presence of women on the boards of directors of family firms, the results show an increase in female directors. In 2007, 45.10% of family firms had at least one woman as director. By 2020, the percentage rose to 93.33%. Moreover, the results show a greater presence of boards of directors with women directors who have a family relationship with the dominant owner. However, when we analyse the percentage of female directors, we find an increase in women directors without family ties, from 4.01% of the board of directors in 2007 to 17.43% in 2020. Panel B (Table 1) shows that half of the family businesses analysed are in the first generation and only 20% reach or that exceed the third generation. Panel C of Table 1 reports tests of the mean comparisons between firms with and without gender diversity on their boards. Mean comparisons show that family and non-family companies with gender diversity on their boards are significantly larger and display greater divergence among the dominant owners' voting and cash flow rights. However, family firms with and without gender diversity on their boards do not differ with regard to voting rights of the dominant owner, debt and growth opportunities. Finally, Panel D of Table 1 reports the correlations among the continuous variables and suggests that multicollinearity does not affect subsequent regressions. Nevertheless, we conducted a formal test to ensure that multicollinearity was not present in our regressions. In particular, we calculated the Variance Inflation Factor (VIF) for each independent variable included in the estimated model. The highest VIF for our models was well below 5, indicating that multicollinearity was not a problem in our sample (Studenmund, 1997).

4.2. Gender diversity board and family dominant owner

To test our hypotheses, we first estimate a Probit Model with instrumental variables to solve potential endogeneity problems. The concentration of voting rights can influence the presence of women on the board. However, it is also possible that the presence of women leads to a greater concentration of power in the hands of the dominant family owner. Therefore, we consider ownership as an endogenous variable that is estimated using a set of instrumental variables, Z_{it} , uncorrelated with the error term. Thus, we have estimated a binary choice model whose probability should be between 0 and 1. Therefore, the probability that a company has a female director is determined by the following distribution:

$$DWD_{it} = 1Pr(DWD_{it} = 1) = F(x'_{it}\alpha)$$

$$DWD_{it} = 0Pr(DWD_{it} = 0) = 1 - F(x'_{it}\alpha)$$

$$DWD_{it} = F(x'_{it}\alpha) + u_{it}$$

Table 1. Descriptive statistics and matrix correlation

Panel A. Gender diversity and family firm													
	2007	2008	2009	2010	2011	2012	2014	2015	2016	2017	2018	2019	2020
Family firms	67.11	65.79	70.13	67.96	68.35	68.35	69.72	70.00	64.77	63.74	63.22	65.17	67.42
Family firms with board gender diversity	45.10	52.00	62.96	62.26	61.11	61.11	61.82	66.07	73.68	84.48	85.45	91.38	93.33
Family firms with a family woman director	37.25	36.00	33.33	33.96	33.33	31.58	32.73	33.93	36.84	46.55	40.00	41.38	40.00
Family firms with a non-family woman director	19.61	26.00	38.89	35.85	35.19	42.59	43.64	48.21	54.39	65.52	70.91	79.31	81.67
Women directors ^a (%)													
Mean	14.33	14.73	15.04	15.76	16.07	16.64	17.75	18.30	19.11	19.25	21.60	22.14	24.24
Median	11.11	11.80	12.50	12.50	13.33	15.38	16.66	16.66	16.66	17.64	18.75	20.00	23.07
S.D.	7.95	8.09	7.95	8.28	8.36	9.04	9.03	9.73	9.92	9.61	11.13	11.06	11.24
Min	4.70	5.00	5.00	5.26	5.00	5.00	5.55	5.55	5.55	6.25	7.14	6.66	6.66
Max	37.50	37.50	37.50	40.00	40.00	40.00	40.00	50.00	50.00	57.14	57.14	57.14	66.66
Family women directors (%)													
Mean	12.29	10.36	8.07	8.59	9.11	8.71	8.84	8.62	8.13	8.13	8.08	7.31	6.97
Median	8.01	8.01	6.90	6.66	6.66	6.25	6.90	6.25	3.33	8.33	8.33	0	0
S.D.	10.39	10.39	10.16	11.07	11.59	11.52	11.36	11.70	10.56	9.66	9.00	9.76	10.04
Min	0	0	0	0	0	0	0	0	0	0	0	0	0
Max	37.5	37.5	37.50	40.00	40.00	35.71	35.71	38.46	36.36	33.33	28.57	37.50	42.85
Non-family women directors ^a (%)													
Mean	4.01	5.23	7.16	7.76	7.94	8.81	9.47	10.22	12.06	11.61	13.13	14.40	16.19
Median	0	2.77	7.14	6.66	6.66	8.33	8.01	10.00	11.11	11.11	12.50	14.28	16.66
S.D.	5.50	6.13	6.71	8.02	8.68	7.93	8.63	8.39	10.00	9.95	10.60	10.32	10.00
Min	0	0	0	0	0	0	0	0	0	0	0	0	0
Max	16.66	18.18	22.22	25.00	30.76	30.76	30.76	33.33	33.33	33.33	41.66	38.46	36.36
Panel B. Descriptive statistics of count variables													
	1 st	2 nd	3 rd	4 th									
Generation of family firms (%)	51.13	26.02	16.79	6.05									

(Continued)

Table 1. (Continued).

Panel C. Descriptive statistics of continuous variables											
Family firms with board gender diversity N= 546						Family firms without board gender diversity N= 223					
	Mean	Median	S.D.	Min	Max	Mean	Median	S.D.	Min	Max	t-Student
Voting	38.30	31.94	20.80	11.00	81.30	37.47	29.89	21.71	10.10	89.33	0.49
Size	13.93	14.15	1.95	8.29	17.47	12.87	12.74	1.45	10.27	17.72	7.36***
Debt	66.22	67.59	21.64	28.08	93.31	65.01	63.33	21.10	28.08	93.39	0.71
MTB	2.26	1.55	2.09	0.43	8.61	2.44	1.60	2.30	0.49	8.61	-1.04
Pyramid	5.65	0.00	9.27	0.00	37.84	4.27	0.05	6.90	0.00	30.00	2.01***

Panel D. Descriptive statistics of continuous variables											
	FamilyWomen	NonFamilyWomen	Voting	Size	Generation	Debt	Pyramid	VIF			
NonFamilyWomen	-0.19***										
Voting	0.25***	-0.15***						1.16			
Size	-0.06**	0.24***	-0.01					1.15			
Generation	0.17***	0.01	-0.10***	-0.003				1.06			
Debt	-0.07***	0.03	0.08***	0.28***	-0.02			1.15			
Pyramid	0.22***	-0.09	0.36***	0.01	-0.10***	0.04		1.13			
MTB	-0.004	0.03	0.03	0.03	-0.21***	0.04	0.10***	1.10			

FamilyWomen and NonFamilyWomen, are the percentage of family and non-family female directors on the board, respectively. Voting, are the voting rights in the hands of the dominant family owner. Pyramid, is the difference between voting and cash flow rights in the hands of the dominant family owner. Generation, this variable takes the value of one to four depending on whether the family firm is first, second, third or fourth generation and so on, respectively. Size, is the natural logarithm of the total assets. Debt, is total debt divided by total assets. MTB, is the market value of equity divided by the book value of equity. Presi_dual, is a dummy variable that takes the value of one if the president of the board has an executive role and zero otherwise. The Sasabuchi test confirms a quadratic relation. ***, **, * Statistically significant at 1%, 5% and 10%, respectively.

where α is the vector of parameters to estimate and u_{it} is the error term. Thus, to test our hypotheses, we performed the specification of the vector of the parameter and the error term of the initial model as follows:

$$\begin{aligned} DWD_{it} = & \alpha_0 + \alpha_1 VOTING_{it} + \alpha_2 VOTING^2_{it} + \alpha_3 SIZE_{it} + \alpha_4 GENERATION_{it} \\ & + \alpha_5 DEBT_{it} + \alpha_6 PYRAMID_{it} + \alpha_7 MTB_{it} + \alpha_8 PRESI_DUAL_{it} + \delta_k + \theta_j \\ & + \mu_{it} \end{aligned} \quad (1)$$

Therefore, the variable δ_k estimates the industry effect and the variable θ_j estimates the year effect, both through dummy variables.

Moreover, we estimate the relationship between voting rights on the hand of dominant family board gender diversity and the percentage of family and non-family women directors using the generalised method of moments (GMM). Therefore, GMM enables us to deal with possible endogeneity problems and reverse causality. Following Pindado et al., panel data allow us to control for individual heterogeneity by modelling it as a single effect and to reduce the risk of obtaining biased results due to the correlation between the error term and the explanatory variables. Consequently, the error term is split into four elements: 1.) the firm-specific effect, 2.) the year effect captured with dummy variables to control the impact of macroeconomic factors on firm performance and to relieve the problem of cross-sectional correlation (Peterson & Philpot, 2007), 3.) the industry effect captured by using industry dummy variables and 4.) random error. The second problem is the reverse causality. In this sense, board composition can influence firm performance. However, dominant family owners may be more likely to change the board composition in low-performing firms (Hermalin & Weisbach, 2001; Villalonga & Amit, 2006). To test our hypothesis, the system GMM can be regarded as the most appropriate method for estimating board gender diversity-related firm performance. This method can account for the endogeneity of all time-dependent explanatory variables (Wintoki et al., 2012). As these authors argue, the GMM method uses a set of internal instruments (the lags of the explanatory variables) and removes the need for external instrumental variables since it is difficult to find an external instrument that complies with the conditions, which are critical for any given instrument. We use the variables on the right-hand side of the model lagged two to five times as instruments, with the exception of the year and industry effect variables, which are considered exogenous. The consistency of GMM estimates depends both on the absence of second-order serial autocorrelation in the residuals and on the validity of the instruments. To check for potential model misspecification, we use the Hansen statistic of overidentifying restrictions. We next examine the m2 statistic developed by Arellano & Bond (1991) to test for the absence of second-order serial correlation in the first difference residual. Finally, we conduct three Wald tests; specifically, a Wald test of the joint significance of the reported coefficients (z1), a Wald test of the joint significance of industry dummies (z2), and a Wald test of the joint significance of time dummies (z3).

Table 2 shows the results of estimating a Probit Model with instrumental variables and GMM. Therefore, the results suggest a nonlinear relationship (\pm) between the dominant family owner's voting rights and the likelihood of having a woman director and a woman director with family ties and the percentage of family women directors (Models 1 and 3,

Table 2. Board gender diversity and dominant family owner.

Probit models with instrumental variables				
	<i>DFam_WD</i> (Model 1)	<i>DNonFam_WD</i> (Model 2)	<i>FamyWomen</i> (Model 3)	<i>NonFamyWomen</i> (Model 4)
<i>Voting</i>	0.14** (2.10)	-0.092** (-1.98)	0.134*** (3.63)	-0.558** (-1.97)
<i>Voting</i> ²	-0.002*** (-2.18)	0.0009** (1.95)	-0.002*** (-3.57)	0.005** (1.98)
<i>Size</i>	0.52* (1.90)	2.85*** (8.88)	4.562*** (2.75)	3.09 (0.94)
<i>Generation</i>	1.86*** (2.91)	0.63 (1.15)	0.550 (1.55)	2.16** (2.19)
<i>Debt</i>	-0.10 (-0.54)	0.05*** (3.42)	0.58*** (4.15)	0.572*** (3.25)
<i>Pyramid</i>	0.008 (0.21)	-1.42*** (-2.72)	-2.427*** (-2.54)	0.827 (0.42)
<i>MTB</i>	0.44** (2.24)	0.38** (2.52)	0.405*** (4.22)	0.39 (1.53)
<i>Presi_dual</i>	1.51** (1.97)	-0.295 (-0.63)	0.007 (0.10)	-1.28 (-0.49)
<i>Industry effect</i>	Yes	Yes	Yes	Yes
<i>Year effect</i>	Yes	Yes	Yes	Yes
<i>Constant</i>	-15.89*** (-2.68)	-43.39*** (-8.14)	-14.59 (-1.59)	-20.73 (-1.54)
<i>Log pseudo-likelihood</i>	-143.31	-838.86		
<i>Wald χ^2</i>	403.6***	218.31***		
<i>Pseudo R²</i>	0.27	0.38		
<i>Wald test of exogeneity</i>	17.37***	19.78***		
<i>M²</i>			-0.29	0.87
<i>Z¹</i>			18.83***	26.1***
<i>Z²</i>			4.51***	5.00***
<i>Z³</i>			5.54***	8.22***
<i>Hansen test</i>			28.05	22.65
<i>Sasabuchi test (Utest). Voting</i>	3.64**	2.72***	2.79***	2.50***

DFam_WD and *DNonFam_WD* are dummy variables that take the value of one if at least one member of the board is female and has or does not have a family relationship with the dominant family owner, respectively; otherwise, their value is zero. *FamyWomen* and *NonFamyWomen*, are the percentage of family and non-family female directors on the board, respectively. *Voting*, are the voting rights in the hands of the dominant family owner. *Pyramid*, is the difference between voting and cash flow rights in the hands of the dominant family owner. *Generation*, this variable takes the value of one to four depending on whether the family firm is first, second, third or fourth generation and so on, respectively. *Size*, is the natural logarithm of the total assets. *Debt*, is total debt divided by total assets. *MTB*, is the market value of equity divided by the book value of equity. *Presi_dual*, is a dummy variable that takes the value of one if the president of the board has an executive role and zero otherwise. The Sasabuchi test confirms a quadratic relation. Hansen, test of over-identifying restrictions, under the null hypothesis that all instruments are uncorrelated with the disturbance process. The Sasabuchi test confirms a quadratic relation. M^2 , statistic test for lack of second-order serial correlation in the first-difference residual. Z^1 , Wald test of the joint significance of the reported coefficients. Z^2 , Wald test of the joint significance of time dummies. Z^3 , Wald test of the joint significance of industry dummies ***, **, * Statistically significant at 1%, 5% and 10%, respectively.

respectively). This means that the influence of voting rights of family owners on the appointment of female family directors is first positive and then negative (linear and quadratic terms positive and negative, respectively) (H1). These results confirm the agency theory perspective, which maintains that firms with little family power may appoint more female directors with family associations to protect family interests and reduce agency costs.

To determine the inflection point (IP), we derive the optimal level of voting rights of the dominant family owner at the maximum point that the board has at least one-woman director and one-woman family director and the percentage of family women directors. Accordingly, we computed that the inflection points at which the family voting rights

Table 3. Board gender diversity and dominant family owner. Sensitivity analysis.

	Probit models with instrumental variables		Generalised method of moments estimates	
	<i>DFam_WD</i> (Model 5)	<i>DNonFam_WD</i> (Model 6)	<i>FamyWomen</i> (Model 7)	<i>NonFamyWomen</i> (Model 8)
<i>Voting</i>	0.12** (2.10)	-0.08* (-1.77)	0.26** (2.26)	-1.45* (-1.74)
<i>Voting</i> ²	-0.002** (-2.28)	0.0008*** (1.67)	-0.004** (2.26)	0.012* (1.73)
<i>Size</i>	0.299 (1.03)	0.21*** (6.28)	0.24 (0.77)	0.38* (1.95)
<i>Generation</i>	2.81*** (5.04)	0.51 (0.91)	3.94** (2.13)	4.82** (2.45)
<i>Debt</i>	0.03* (1.89)	0.02** (2.34)	0.04*** (3.73)	0.23** (2.09)
<i>Pyramid</i>	-0.068** (-2.26)	-1.29** (-2.53)	-0.20** (-2.13)	-0.13 (0.37)
<i>MTB</i>	0.31* (1.85)	0.18* (1.64)	0.33 (1.30)	1.91 (1.34)
<i>Presi_dual</i>	1.91*** (2.88)	0.01 (1.00)	1.25 (0.26)	1.05 (0.71)
<i>Industry effect</i>	Yes	Yes	Yes	Yes
<i>Year effect</i>	Yes	Yes	Yes	Yes
<i>Constant</i>	-15.76*** (-3.61)	-33.34*** (-6.27)	-17.11* (-1.67)	79.97** (2.03)
<i>Log pseudo-likelihood</i>	-92.24	-183.75		
<i>Wald χ^2</i>	38.85***	113.60***		
<i>Pseudo R²</i>	0.25	0.18		
<i>Wald test of exogeneity</i>	11.5***	14.5***		
<i>M²</i>			-0.27	0.10
<i>Z¹</i>			3.94***	8.84***
<i>Z²</i>			6.36***	16.90***
<i>Z³</i>			7.18***	36.66***
<i>Hansen test</i>			19.64	5.35
<i>Sasabuchi test (Utest). Voting</i>	2.88***	1.95***	3.22***	2.01***

DFam_WD and *DNonFam_WD* are dummy variables that take the value of one if at least one member of the board is female and has or does not have a family relationship with the dominant family owner, respectively; otherwise, their value is zero. *FamyWomen* and *NonFamyWomen*, are the percentage of family and non-family female directors on the board, respectively. *Voting*, are the voting rights in the hands of the dominant family owner. *Pyramid*, is the difference between voting and cash flow rights in the hands of the dominant family owner. *Generation*, this variable takes the value of one to four depending on whether the family firm is first, second, third or fourth generation and so on, respectively. *Size*, is the natural logarithm of the total assets. *Debt*, is total debt divided by total assets. *MTB*, is the market value of equity divided by the book value of equity. *Presi_dual*, is a dummy variable that takes the value of one if the president of the board has an executive role and zero otherwise. The Sasabuchi test confirms a quadratic relation. Hansen, test of over-identifying restrictions, under the null hypothesis that all instruments are uncorrelated with the disturbance process. The Sasabuchi test confirms a quadratic relation. M^2 , statistic test for lack of second-order serial correlation in the first-difference residual. Z^1 , Wald test of the joint significance of the reported coefficients. Z^2 , Wald test of the joint significance of time dummies. Z^3 , Wald test of the joint significance of industry dummies ***, **, * Statistically significant at 1%, 5% and 10%, respectively.

begin to impact negatively on family gender diversity were 35% ($IP_{DFam_WD} = \alpha_1/2\alpha_2$; $0.14/2 \times -0.002$) and 33.5% ($IP_{Fam_WD} = \alpha_1/2\alpha_2$; $0.134/2 \times -0.002$). However, the results indicated a nonlinear U-shaped effect (-/+) of voting rights in the hands of dominant family owners on the propensity to have a woman director without family ties (Models 2 and 4; H2). This trend means that the balance between family- and non-family female directors changes as family control increases, and furthermore, that the probability of appointing non-family women increases when family control is above the breakpoint. To determine the inflection point, we first derive the optimal level of voting rights of

a dominant family owner at the minimal point that the board has at least one-woman non-family director and the percentage of non-family women directors. Accordingly, the inflection points at which the voting rights of the dominant family owner began to positively impact on non-family woman director was 51.1% ($IP_{DNonFam_WD} = \alpha_1/2\alpha_2; -0.092/2 \times 0.0009$) and 55.8% ($IP_{FNonFam_WD} = \alpha_1/2\alpha_2; -0.558/2 \times 0.005$). This finding confirms that when family control is sufficiently high, family founders may be more interested in the advisory role of directors suggested by the stewardship theory and may appoint more outside women directors to benefit from their industry-specific expertise and objective advice. Therefore, the results show that dominant family owner tends towards more skills and less representation when family control is ensured. Regarding the control variables, the results show that the use of pyramidal structures negatively and significantly affect gender diversity. However, the rest of control variables have a positive effect on the presence of a woman directors.

As a sensitivity analysis, we extend our analysis to the incidence of voting rights in the hands of dominant family owner on female director appointment in family firms and the percentage of family and non-family women directors. Therefore, in order to check whether our results are sensitive to the definition of family firms, we define a family firm as a company where the main owner is a family or an individual who directly or indirectly owns a stake of the voting rights equal to or above 25%. The results in Table 3 (Models 5 to 8) are in line with the previous results shown in Table 2.

4.3. Discussion

We study how voting rights in the hands of dominant family owners can influence the presence of women as directors.

As regards the influence of dominant family shareholders on the appointment of family female directors, our study reveals a U-shaped inverse relationship (\pm) between dominant family owners' voting rights and the presence of family women on the board. These results confirm Hypothesis 1 and suggest that when the degree of family control is low, family firms increase the appointment of female directors with long-standing and close connections in order to improve family sub-group cohesion. At this point of low family control, appointing female directors who are seen as 'family delegates' and whose mission is to protect the interests of the family may be deemed valuable. Appointing female directors may be justified for socioemotional reasons, with the suggestion being that, compared to family men, family females are more loyal to the family, more altruistic, less conflictive, more sensitive to individual needs and more flexible with regard to the roles and judgements that are vital to the well-being and survival of the family firm. They are also considered to be 'emotional leaders' who help the family to achieve peace and harmony (Martinez Jimenez, 2009).

Additionally, and confirming Hypothesis 2, when family control is high enough, dominant family shareholders may consider that the specific attributes of family female directors that increase family firm cohesion are not as relevant when compared to other needs, such as the existence of greater board professionalisation or less conflict with other stakeholders. At this point, appointing professional and independent directors may prove to be more important than preserving socioemotional family wealth (which has already been achieved through strong family control).

This paper also contributes to the agency theory of both principal-principal conflict and intra-family conflict. Specifically, we suggest that the level of family ownership affects intra-family agency costs. This is due to the fact that family women have a keen interest in maintaining peace and harmony within family firms and avoiding conflicts among relatives, in comparison to non-family women directors. This study also notes that agency costs between controlling and minority shareholders (principal-principal agency problem) may increase when there is too great a presence of family women directors in family firms (beyond the optimal point) since it might affect the independence required to act as an effective control mechanism and, therefore, increase a family's ability, and indeed incentive, to engage in opportunistic behaviour. Therefore, this research evidences the relevance of analysing the different goals pursued by female directors depending on their family ties. In this regard, analysing the double effect of family ties and gender diversity on dividend payments also offers a promising research venue. We feel that research into the link between family women directors and dividends is still scant and embryonic and may be more complex than has thus far been studied (linear effects). This may differ significantly across firms with different levels of board gender diversity (critical mass theory) and family ties.

5. Concluding remarks

Society and investors are pressuring companies to appoint women to their boards. Accordingly, at present, boardroom diversity is an important topic. However, prior literature regarding the gender diversity of boards of directors in family firms is still scarce and fragmentary. Furthermore, many authors question whether family firms should be held to the same governance guidelines and recommendations that apply to other companies. In this paper, we extend our knowledge about the presence of women as directors in family firms. In particular, we examine the impact of voting rights in the hands of the dominant family owner on the presence of women as directors in a sample of listed family firms in Spain during 2007–2013.

Our results show that when the voting rights of the dominant families are low, they appoint more female directors with family associations. However, we notice that dominant family owners tend towards more skills and less female representation when family control is ensured.

The results suggest that when family voting rights are high, family founders may be more interested in the advisory role of directors, thus appointing more non-family women directors to benefit from their industry-specific expertise and objective advice. This paper shows the need not to consider all women directors as a homogeneous group because their roles on the board may depend on their incentives, attributes, and ability to influence firm performance.

We note that our research design is subject to limitations related to the difficulty in assessing family ties. Nevertheless, to build our sample of female family-associated directors, we took advantage of the regulatory requirement in Spain to publish directors' *curricula vitae* in their firm's annual corporate governance reports. Additionally, the data were collected in Spain, which both limit the possibility of generalising our results and opens promising avenues for future international studies.

Acknowledgments

We thank the Spanish Ministry of Economics, Industry and Competitiveness for financial support ECO2017-82259-R); (ECO2017-84132-R). All the remaining errors are solely the authors' responsibility.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix. Definitions of variables

<i>DFam_WD</i>	Dummy variables that take the value of one if at least one of the members of the board of directors is a woman and she has a family relationship with the dominant family owner
<i>DNonFam_WD</i>	Dummy variables that take the value of one if at least one of the members of the board of directors is a woman and she has not a family relationship with the dominant family owner
<i>FamWomen</i>	Percentages of family women directors sitting on boards of directors.
<i>NonFamWomen</i>	Percentages of non-family women directors sitting on boards of directors
<i>Voting</i>	The voting rights of the family dominant owner.
<i>Pyramid</i>	The difference between voting and cash flow rights in the hands of the dominant family owner
<i>Generation</i>	Takes the value of one to four depending on whether the family firm is first, second, third or fourth generation, respectively
<i>Size</i>	The natural logarithm of total assets
<i>MTB</i>	The market value of equity divided by the book value of equity
<i>Debt</i>	Total debt divided by total assets as a control variable
<i>Presi_dual</i>	Dummy variable that takes the value of 1 if the president of the board has an executive role and zero otherwise
