Soft gender diversity regulations for boards of directors: The moderating role of firm ownership and control structure

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Women are significantly underrepresented worldwide on corporate boards of directors, leading to board gender diversity regulations. Drawing from agency and socioemotional wealth theories, we investigate the moderating effect of ownership structure, shareholder identity, and shareholder control on how gender diversity codes and soft quotas influence women's representation on boards. We analyse our sample of Spanish Stock Exchange firms using panel data Tobit models. The results show that a single large shareholder enhances the positive impact of regulations, while multiple blockholders diminish it. Blockholder identity also matters: family control of board seats and families as the sole large shareholders reduce the positive impact of board gender diversity regulations on women's board representation. In family firms, the balance of power between family and non-family shareholders also affects the impact of regulations. Our findings highlight the need to consider firm ownership and control structure when developing regulations to promote board gender diversity.

Keywords: Corporate governance; board of directors; female directors; women on boards; gender diversity regulation; ownership and control structure

Introduction

Women are significantly underrepresented worldwide in the upper echelons of corporations, which has brought regulations concerning board gender diversity to the centre of public debate. Governments and multilateral organisations have taken action through regulations concerning gender diversity on boards based on the 'comply or explain' provision in corporate governance codes and/or through the enactment of quota legislation requiring that a certain percentage of directors be allocated to the underrepresented gender. An additional distinction can be made between types of quotas: soft quotas lack non-compliance sanctions, and hard quotas entail sanctions for non-compliance. Twelve European countries have adopted gender-diversity quotas, seven with sanctions and five without. Twenty-three European countries have issued 'comply or explain' corporate governance codes with recommendations that diversity be considered when directors are appointed and/or targets are established (EICG, 2021). Overall, nineteen European countries have approved soft regulations (quotas: Finland, Spain, Island, Denmark, The Netherlands, and Switzerland; and/or codes: Sweden, Denmark, Luxembourg, Poland, Ireland, the United Kingdom, Greece, Romania, Slovenia, Latvia, and Lithuania), and seven enacted hard regulations/quotas (Norway, France, Belgium, Italy, Germany, Austria, and Portugal).

Spain is one of the countries that has approved soft regulations concerning board gender diversity. In 2006, a new code of good governance, the Spanish Unified Good Governance Code, for the first time in Spain recommended that listed firms' annual corporate governance reports include a gender diversity section with detailed information on gender distribution throughout the year and at year end. One year later, the Spanish Equality Law set a 40% soft quota without sanctions to be met by 2015 by large firms that are required to present unabridged financial statements.

The previous literature has independently analysed the impact of gender diversity regulations on woman on boards and of meso-level factors such as board types, firms, or industries. The implications of the Norwegian hard quota on corporate outcomes have been thoroughly analysed (e.g., Bøhren & Staubo, 2015; Casey et al., 2011; Wang & Kelan, 2013). Some scholars have also investigated the effects of the Italian (Ferrari et al., 2018; Solimene et al., 2017) and French (Rebérioux & Roudaut, 2016) hard quotas. The implications of soft regulations (soft quotas and/or code recommendations) have received less attention in the academic literature. Some studies have analysed their impact on board gender diversity, pointing to diversity increases after the issuance of the Spanish soft quota regulation (Reguera-Alvarado et al., 2017). However, compared to hard regulations, soft quotas do not lead to a substantial increase in board gender diversity (Mateos de Cabo et al., 2019; Palá-Laguna & Esteban-Salvador, 2016); the Australian code recommendation had little impact (Chapple & Humphrey, 2014), and there was a non-significant increase following code recommendations in Canada (Willey, 2017).

However, enacting gender diversity regulations is not the only driver of women's representation on boards. A firm's ownership and control structure also influence proposals and women's selection for board seats, both in the absence of gender diversity regulations and following soft board gender regulations. Previous studies point to the importance of meso-level factors (types of boards, firms, or industries) in women's access to boards (Kirsch, 2018). For instance, they reveal a positive impact of ownership concentration (Bianco et al., 2015) and family ownership (Martín-Ugedo & Minguez-Vera, 2014) on women's representation on boards of directors.

The non-punitive character of soft board gender diversity regulations explains their modest impact on female representation on boards and implies that various firm factors may lead to differential changes in board gender composition. Our study aims to

contribute to the literature by jointly analysing the institutional determinants of gender diversity, that is, gender diversity regulations, specifically soft regulations (codes and soft quotas), which have received less attention in the literature, and firm-level determinants of gender diversity, that is, firm ownership and control. Through this lens, our study contributes to the literature that investigates the impact of board gender regulations by introducing how firm ownership and control structure may moderate the positive effect of gender diversity soft legislation on women's board representation. Additionally, regarding the corporate ownership and control literature, our study goes one step further. It not only considers the influence of ownership structure and shareholder identity on women's representation on boards (Martín-Ugedo & Minguez-Vera, 2014; Bianco et al., 2015), but also the influence of control. It investigates both the potential moderating role of ownership structure and shareholder identity in the impact of board gender regulations and how the control shareholders exercise shapes firms' strategies and outcomes, that is, women's representation on boards and/or willingness to follow the norm.

Drawing on agency theory (and the agency and socioemotional wealth perspectives for family firms), we hypothesise that the largest shareholders of any typology, and also specifically families, will moderate the effect of soft gender diversity regulations by reducing the positive link generally associated with this measure. Other large shareholders who attempt to contest the largest shareholder will, by contrast, enhance the positive effect of soft board gender regulations regarding women's board representation; while families as other large shareholders will collude with the family's largest shareholders or follow their behaviour regarding appointing non-family female directors to boards and reduce the positive effect of board gender regulations regarding women's board representation. To test our hypotheses, we use as our sample the entire population of the Spanish Stock Exchange's listed non-financial firms from 2003 to 2013

(114 firms and 1,066 observations). The results of the analysis support the hypothesis that some firm ownership and control structure characteristics moderate the positive relationship between soft board regulations and women's representation on boards, highlighting the importance of ownership structure, but especially control structure and shareholder identity.

Our research contributes to theory, practice, and policy. First, in contrast to agency theory predictions, the increase in the percentage of female directors due to gender diversity regulations is reinforced when there is a single large owner. Conversely, the presence of multiple large blockholders hampers the positive impact of soft regulations on board gender diversity. Second, and consistent with agency theory and SEW logic, when the family occupies a large number of board seats, they exercise their control over the company to prevent appointment of female directors that are not family members; additionally, when all large shareholders of a firm are families, a similar negative moderating role emerges. Third, differential behaviour is observed in family firms for other blockholders that coexist with the largest family shareholder. Indeed, agency theory predictions for multiple shareholders are met in family firms: other large shareholders enhance the impact of gender diversity regulations but only when they have more total voting rights than the family and are able to contest family strategies. For practitioners and investors, our research provides insights into how different shareholders behave when faced with non-punitive regulation and how they assess and promote gender diversity on boards depending on their shareholdings, control over the firm, alliances and identity. For policymakers, our findings highlight the need to consider firm ownership and control characteristics when issuing non-punitive gender diversity regulations. Ownership and control structures are of importance and influence women's representation on boards as well as the effectiveness of the gender diversity regulation itself.

The rest of the paper is organised as follows. Section 2 describes the Spanish institutional context and recent corporate reforms. Section 3 explains the theoretical framework and hypotheses to be tested. Section 4 describes the database, variables, and methodologies we employed in the analysis. We present our results in Section 5 and summarise our conclusions in Section 6.

The Spanish institutional context

Spanish listed firms are characterised by high ownership concentration (Sacristán-Navarro et al., 2015). Companies are frequently controlled by major internal shareholders (individuals, other firms, and families), who usually combine the executive and directorship roles (Sanchez-Marin et al., 2010).

Spanish corporate governance rules are structured around a double system based on hard (i.e. company law and securities market law) and soft (Code of Good Governance) legal rules. Spain's one-tier corporate governance system requires a unified board that performs both management and supervisory functions. Spanish directors are classified as non-executive (i.e. either purely external, independent, or proprietary in representing large shareholders, as the legal system mandates a proportional representation of shareholders on the board) or executive. Legislation also requires that listed firms publish corporate governance reports annually on their websites and submit them to the Spanish Supervisory Agency (CNMV), detailing board composition, rules of organisation, board functioning and committees, and compliance with the Code of Good Governance (for further details, see Mateu de Ros & Vidal, 2019).

Board gender diversity is partly explained by a country's institutional context (Grosvold et al., 2016). Today, Spain ranks high in the World Economic Forum's (2020) Global Gender Gap. However, female representation in leadership positions is low. Spain

is among the lowest ranked European countries in appointing women to leadership positions (European Women on Boards, 2019), although Spain's 22% share of female directorships is similar to today's 22.3% average in OECD countries (27.2% in the UK and 21.7% in the US) (OECD, 2021), probably due to the legislative initiatives and the general debate and pressure to increase board gender diversity. Women's representation in senior management positions has increased but was still low in 2019 at 16% (CNMV, 2021).

Spain was one of the first countries to introduce both gender recommendations in codes and a board gender quota through specific regulations. In 2006, a new Code of Good Governance approved by the Securities Exchange Commission, the Spanish Unified Good Governance Code, recommended that large publicly traded Spanish firms' annual corporate governance reports include a gender diversity section with detailed information on the gender distribution throughout the year and at year end.[1] The rationale behind this recommendation is that a good gender mix is not 'just an ethical-political or corporate social responsibility question' but makes economic sense as low female representation on boards constitutes sub-optimal resource utilisation. The code also considered men's domination in senior posts as self-perpetuating, and, consequently, a direct effort was needed to increase women's board representation (Palá-Laguna & Esteban-Salvador, 2016).

The code was revised in 2013 and 2015. Although the 2013 Unified Good Governance Code did not introduce the recommended gender diversity modifications to the 2006 code, the 2015 Good Governance Code of Listed Companies introduced a specific target, requiring that 30% of the directors on boards of listed companies be

[1] Recommendation 15: "When women directors are few or non-existent, the board should state the reasons for this situation and the measures taken to correct it…."

women by 2020.[2] In June 2020, the 2015 Good Governance Code of Listed Companies was revisited, increasing the target proportion of female directors from 30% to 40% by 2022.

In 2007, one year after the 2006 Code was approved, Spain enacted a gender quota for large limited companies. The Spanish Equality Law (Section 75) sets a 40% soft quota by 2015 that is sanction free for large firms that are required to present unabridged financial statements. Similar to the code, the quota rationales were mainly political and linked to social justice (González-Menéndez & Martínez-González, 2012; Mateos de Cabo et al., 2019). The quota was defended by the governing socialist party, PSOE, based on justice and equality as supporting arguments. However, the conservative PP opposed it, citing limits to business freedom and principles of merit (Lombardo & Verge, 2017).[3] Spain's two most representative business organisations (the Spanish Confederation of Business Organizations and the Spanish Confederation of Small and Medium Enterprises) also opposed the quota (Lombardo & Verge, 2017). Most Spanish female directors believed that their merit would be questioned following the quota (González-Menéndez & Martínez-González, 2012), which may, to a large extent, explain the choice of a soft quota (Mateos de Cabo et al., 2019). In October 2018, the Spanish Deputy Prime Minister from the Socialist Party announced a new quota law, potentially with sanctions. In April 2019, the Socialist Party won the elections, but this new board gender quota has not yet been enacted. Additionally, a Directive proposal was presented by the European

[2] Recommendation 14: "The board of directors should approve a director selection policy that: […] c) […] should pursue the goal of having at least 30% of total board places occupied by women directors before the year 2020…."

[3] Article 75: "[…] Companies obliged to present unabridged financial statements of income will endeavour to include a sufficient number of women on their boards of directors to reach a balanced presence of women and men within eight years of the entry into effect of this Act…."
Additional provision one: "Balanced presence or membership […] will be understood to mean the presence of women and men in the context in question in a manner such that neither sex accounts for more than sixty nor less than forty per cent of the total."

Commission in November 2012. The EU Directive proposal set a minimum 40% proportion of each gender for non-executive directorships in listed companies. Although the proposal was backed by the European Parliament in 2013, it has not yet been approved (and therefore has not been implemented) (European Parliament, 2021).

Figure 1 summarizes regulations regarding board gender diversity in Spain.

-Insert Figure 1-

Theoretical framework and hypotheses

Board gender diversity regulations may be adopted through gender recommendations in corporate governance codes and/or through gender quotas, with or without sanctions in cases of noncompliance with the set targets. Most of the regulations that aim to increase female representation on boards have been enacted in Europe. Today, more than twenty European countries include board gender diversity recommendations in corporate governance codes and/or have approved gender board quotas. Previous research has mainly focused on the implications of punitive quotas, especially the Norwegian quota (Bøhren & Staubo; 2015; Casey et al., 2011; Wang & Kelan, 2013), and, to some extent, the Italian (Ferrari et al., 2018; Solimene et al., 2017) and French (Rebérioux & Roudaut, 2016) quotas. However, the implications of gender diversity recommendations in corporate governance codes and board gender quotas without sanctions have been rarely studied, with some exceptions. Willey (2017) and Chapple and Humphrey (2014) analysed the impact of gender recommendations in corporate governance codes on gender diversity on boards in Canada and Australia, respectively. While Willey (2017) reports no significant increase, Chapple and Humphrey (2014) find a slight increase in the number of women on boards. Research on sanction-free gender quotas mainly focuses on the Spanish quota (Martínez-García et al., 2020; 2021; Mateos de Cabo et al., 2019; Palá-

Laguna & Esteban-Salvador, 2016) and suggests it has a limited positive impact on women's representation on boards. From a multi-country perspective, Lending and Vähämaa (2017) report that quotas (with and without sanctions) promote board gender diversity in Europe, and Sojo et al. (2016) state that, for a worldwide sample, quotas increase the number of women on boards, but codes do not. Martínez-García and Gómez-Ansón (2021) report that punitive quotas and codes have a positive influence on women's board representation but sanction-free quotas have no significant impact on the number of women on boards in European countries. In sum, most of these studies support a positive effect of gender diversity regulations on women's board representation.

Enactment of gender board regulations in the form of codes and quotas is not the only driver of women's representation on boards. Previous literature shows that meso-level factors (types of boards, firms, or industries) influence women's access to boards (Kirsch, 2018). Board gender diversity reflects the director selection process and voting at the general shareholder meeting and is influenced by firm ownership structure (Bianco et al., 2015; Martín-Ugedo & Minguez-Vera, 2014). We argue that firm ownership and control structure also influence how gender diversity legislation impacts women's board representation. Specifically, drawing from agency theory and socioemotional wealth, we consider how the existence and control of the largest shareholder of any typology, and families in particular, as well as the ownership and control of other large shareholders of any identity and families within family firms, may shape firm compliance with soft gender diversity regulations.

Ownership and control

The presence of large shareholders is common worldwide (La Porta et al., 1999), and large shareholders may either mitigate or exacerbate agency costs (Shleifer & Vishny,

1997). Large shareholders may reduce agency problems by protecting investors in dispersed ownership corporations in the presence of managerial entrenchment and expropriation; this is the classic agency problem, known as the principal–agent or Type I agency problem (Jensen & Meckling, 1976). However, they may also expropriate minority shareholders, engendering principal–principal problems, also known as Type II agency problems (Villaonga & Amit, 2006). In this case, they may choose governance mechanisms, including board composition, that are closer to their own objectives (Desender et al., 2013) and that influence firm performance (Villalonga & Amit, 2006). Large shareholders, especially if they are alone, hold larger stakes in a firm and may, according to agency theory, use control enhancement mechanisms to be in a strong position to control firm strategies and corporate structure and extract the private benefits of control. The capacity of large shareholders to extract the private benefits of control will be higher the greater their firm ownership and control. In civil law countries, such as Spain, shareholder protection is lower and ownership concentration is high (La Porta et al., 1999; Sacristán-Navarro et al., 2015; Baixauli-Soler et al., 2016); thus, conflicts of interest commonly arise between large shareholders and minority shareholders (Type II agency problems).

Board characteristics are determined by endogenous and exogenous organizational design variables; among them are firm ownership, the concentration and identity of large shareholders, and the composition of the management team. Gender diversity is also a board characteristic. Previous studies suggest that female directors are more likely to promote better monitoring practices than male directors (Baixauli-Soler et al., 2016) and diminish tunnelling practices (Adams & Ferreira, 2009). This is the case not only because they are more frequently outsiders, but also because they are more diligent (Kirsch, 2018) and independent than men as they are not part of ‘old boy

networks'. Thus, from an agency theory perspective, female directors may reduce principal-principal problems; the largest shareholders who aim to extract the private benefits of control will therefore be reluctant to appoint women to boards as they may prevent them from engaging in practices to extract the private benefits of control. Higher levels of ownership and control allow shareholders to choose governance characteristics that are closer to their own objectives (Adams et al., 2010). Thus, large blockholders, and among these, the largest shareholders, will be better able to both engage in tunnelling and control the firm's governance structure the higher their company ownership and control. Considering these arguments, we propose the following:

H1a: The ownership and control of the largest shareholder decreases the positive influence of codes and soft quotas on board gender diversity.

The presence of multiple blockholders is also common worldwide, and Spain is no exception (Sacristán et al., 2015). Large shareholders and, in particular, the largest, may not only find themselves in conflict with minority shareholders, but also with other large shareholders (Edmans, 2014) who aim to prevent expropriation of wealth by the largest shareholders (Bloch & Hege, 2003). However, this monitoring and competitive role towards the largest shareholders designed to prevent (or reduce) Type II agency problems is not the only behaviour other large shareholders may have towards the major shareholders. Other multiple blockholders may also collude with the largest shareholder, enhancing Type II agency problems (Jara-Bertin et al., 2008). Thus, the existence of other large shareholders may lead to other possible interactions and behaviours towards the largest shareholder: collusion and contestability (Bennedsen & Wolfenzon, 2000; Zwiebel, 1995). That is, other large shareholders may primarily look out for their own interests, using their control rights to maximise their own utility, and collude with the largest shareholder to forming controlling coalitions to obtain private control benefits

(Zwiebel, 1995). Alternatively, they may contest the largest shareholder's excess power to reduce agency costs (Bennedsen & Wolfenzon, 2000; Pfeffer, 1992). Factors such as the number of other large shareholders, the extent of their voting rights, how the rights are apportioned among them, and the final power distribution, that is, whether the main owner's voting rights exceed those of the other large shareholders, will influence the interactions and behaviours among them (Sacristán et al., 2015).

The previous literature has explored the determinants of the number of multiple large shareholders (Kang et al., 2018) and how they influence firm value (Sacristán-Navarro et al., 2013), leverage and tunnelling (Boateng & Huang, 2017), reducing agency costs (Rossi et al., 2018), CSR reporting (Cao et al., 2019), and executive compensation (Fang et al., 2018). Previous research, although scant, has also dealt with possible conflicts and interactions in the boardroom among multiple large shareholders (Zwiebel, 1995; Bennedsen & Wolfenzon, 2000; Bloch & Hege, 2003; Kang et al., 2018). The existence of multiple shareholders may shape board composition, as relationships between large shareholders could be competing for director appointments or cooperating and jointly appointing directors. However, the implications of possible collusive or contestability behaviours of other large blockholders regarding gender diversity in board regulations have not been studied. The monitoring role of female directors (Baixauli-Soler et al., 2016) and their impact on reducing tunnelling practices (Adams & Ferreira, 2009) predicts that other large shareholders, when colluding with the largest shareholder, will hinder women's board representation, while other large shareholders looking for efficient monitoring and to contest the largest shareholder will increase the number of female directors on boards. Previous research tends to support the contestability effect of multiple blockholders on women's board representation. A greater variety of

shareholders, interests, and points of view increases women's board representation (Bianco et al., 2015). Thus, we propose the following:

H1b: The existence and control of other large shareholders enhances the positive influence of codes and soft quotas on board gender diversity.

Family ownership and control

Families are the most prevalent type of largest shareholder worldwide (La Porta et al., 1999). From an agency point of view, as the largest company shareholder, families aim to maintain firm control, may pursue their own interests, extract private benefits of control and treat the company as a family employment service (Type II agency problems) (Shleifer & Vishny, 1997; Sacristan et al., 2015). The appointment of family members to boards (García-Ramos et al., 2017) is one of the strategies families may use to maintain control of firms (Villalonga & Amit, 2008). In fact, boards of family firms tend to be passive and dominated by family members (Collin & Ahlberg, 2012). Regarding board gender diversity, previous research shows that family ownership increases women's representation on boards, mainly because of the appointment of female family members as directors (Martín-Ugedo & Mínguez-Vera, 2014). Thus, following agency theory, families appoint family members as directors to maintain control over the board. The SEW logic suggests that family firms are motivated by preservation of SEW in their strategic decision-making (Berrone et al., 2012). The roles of female directors differ depending on their affiliation with the family objectives (Poletti-Hughes & Briano-Turrent,2020); non-independent female directors (family-affiliated) will tend to align their decisions with those of the family to preserve family ownership and control (Berrone et al., 2012). It follows that families will prefer appointing female family directors over female independent directors. Given that the pool of potential male and female family

directors is limited, when new soft board gender regulations are approved, large shareholder families who are not willing to lose control of the board will appoint fewer female directors due to the limited pool of family female directors.

This leads us to propose the following:

H2a: Ownership and control by a family as the largest shareholder decreases the positive influence of codes and soft quotas on board gender diversity.

For family firms, one of the most frequent combinations with other large shareholders is a family as the largest shareholder plus other families as large shareholders (Sacristán et al., 2015). Other large shareholder families may collude with the largest shareholder family (Zwiebel, 1995) or they may contest the largest shareholder family's excess power, reducing Type II agency problems (Bennedsen & Wolfenzon, 2000; Pfeffer, 1992). It could be argued that, when all large shareholders of a firm are families, they share a similar identity and may have common interests (e.g. similar fiscal, generational, and transition problems), and, thus, may be more prone to cooperate and collude. However, sharing a similar identity could also motivate families as other large shareholders to differentiate themselves from the largest family shareholder (increasing contestability) and from each other (intensifying rivalry between them) (Sacristán et al., 2015). In this regard, Jara-Bertín et al. (2008) and Pindado et al. (2011) support families as other large shareholders colluding with the largest family shareholder. Moreover, following the SEW framework, families as other large shareholders will also prefer to appoint female family directors over non-family female directors. Whether due to collusion or because they are making strategic decisions to preserve family wealth, families as other large shareholders will also favour appointing family female directors over independent directors, which will restrict the pool of possible female directors. Thus, we favour the collusive argument and SEW logic and hypothesise the following:

H2b: The presence of families as sole large shareholders decreases the positive influence of codes and soft quotas on board gender diversity.

Sample, variables, and methodology

Sample

The initial sample is all the Spanish Stock Exchange's listed non-financial firms from 2003 to 2013 (132 firms and 1,119 observations); financial firms are excluded as they have different regulatory and governance characteristics (Prowse, 1997). Following this initial sample, we excluded subsidiary firms (defined as businesses which are 90% or more owned by another listed firm), companies with no information available for at least four consecutive years, and merged firms. After applying these filters, the final sample is an unbalanced panel of 114 listed non-financial firms and 1,066 firm-year observations, evenly distributed over the study period. On average, 46.81% of the sample firms have no women on their boards (Table 1). The manually collected data for corporate governance come from the Annual Corporate Governance Reports completed by each firm at the Spanish Supervisory Agency (Comisión Nacional del Mercado de Valores [CNMV]), and data for economics and finance come from the SABI (Sociedad de Análisis de Balances Ibéricos) database, the Madrid Stock Exchange, and CNMV.

-Insert Table 1-

Variables

Table 2 shows the variables used in the analysis. Board gender diversity, the dependent variable, is measured by the percentage of *female directors* on a board. Board gender regulations relate to legislation that aims to improve women's representation on boards. Therefore, the Spanish Unified Good Governance Code, popularly known as the Conthe

Code, approved in 2006, and the Spanish Equality Law, passed in 2007, are considered by estimating a dummy variable. *Code and soft quota* equals one from 2007 onward and zero before 2007, as 2007 was the first year the Conthe Code was applied and the year the Equality Act was passed.

Firm ownership (defined based on voting rights, following La Porta et al., 1999) and control variables relate to the largest shareholder's ownership and control, the existence and control of other large shareholders, and family ownership and control, that is, whether the largest shareholder or all large shareholders are families. The largest shareholder related variables include one continuous variable that captures the total voting rights held by the first largest ultimate shareholder[4] (*first largest voting rights*) and two dummy variables that identify whether the firm has only one large shareholder (*controlling shareholder alone*) and, if the firm has multiple large shareholders, whether the first largest shareholder has more voting power than the rest of the owners (*first largest controls*). The existence, ownership, and control of other large shareholders are captured by a dummy variable related to the *presence of multiple* large blockholders, defined as shareholders owning more than 3% of the firm's shares, their voting rights (*multiple voting rights*) and a dummy variable that equals one if the firm has multiple large shareholders and the largest shareholder has less voting power than the rest of the owners (*other multiple controls*).

Family ownership and control variables include a dummy variable that identifies family as the largest shareholder and equals one if the firm has a family or an individual

[4] We apply the ultimate owner methodology and define the largest ultimate shareholder as the first largest shareholder who holds more than 10% of the company's voting rights (La Porta et al., 1999). The 10% boundary is one of the most common approaches used in the literature to define large shareholdings (Rodríguez Ariza et al., 2017). Moreover, as the sample firms are all listed firms, 10% ownership is sufficiently large to attain control. To identify the ultimate shareholders of each sample firm and the percentage of common shares they hold, we follow the chains of control.

as the first ultimate shareholder holding more than 10% of shares[5] (*family ultimate shareholder*), the total voting rights held by the largest family ultimate shareholder (*family voting rights*), the percentage of family member directors of the largest family ultimate shareholder (*family directors*), and a dummy variable that equals one if all significant shareholders (i.e. those owning more than 3% of a firm's shares) are families and individuals and zero otherwise (*all families*). To identify the ultimate shareholders of each sample firm and the percentage of common shares they held, we followed the chains of control (adding up the voting rights of various family members). Family members were identified by their surnames (first or second); members related by blood and marriage were also considered.

Finally, we include various firm characteristics as control variables: the number of directors (*board size*); the percentage of *independent directors*: the percentage of *proprietary directors*; the firm *market to book ratio* and *return on assets* as measures of company growth and performance, respectively; the volatility coefficient (*beta*) as a risk measure; the number of years since the firm was founded (*age*); the natural logarithm of the book value of total assets as a measure of company size (*assets*(*ln*)); and the firm's *leverage*.

-Insert Table 2-

Methodology

Given that our dependent variable is zero-truncated for 46.81% of the observations (see Table 1), we apply panel data Tobit models to deal with the characteristics (i.e. distribution) of our dependent variable as follows:

[5] Firms with a family or individual ultimate shareholder who holds more than 10% of the voting rights are classified as family firms (i.e. if *family ultimate shareholder*=1).

$$E[Female\ directors_{it}|X_{it}, X_{it-1}, Female\ directors_{it} > 0] = \alpha_0 + \beta_1 Code\ and\ soft\ quota_t +$$
$$+ \beta_2 Ownership\ and\ control_{it-1} + \beta_3 Code\ and\ soft\ quota_t \times Ownership\ and\ control_{it-1} +$$
$$\beta_4 CV_{it-1} + \sum_{j=1}^{6} I_{ij} + \sum_{t=2004}^{2013} D_t + \varepsilon_{it} \quad (1)$$

where $Female\ directors_{it}$ is a continuous and zero-truncated variable capturing the proportion of female directors in firm i and year t; $Code\ and\ soft\ quota_t$ denote gender diversity regulations in Spain, $Ownership\ and\ control_{it-1}$ is a vector of ownership and control characteristic variables (*First largest voting rights, Controlling shareholder alone, First largest controls, Presence of multiple, Multiple voting rights, Other multiple controls, Family ultimate shareholder, Family voting rights, Family directors,* and *All families*) for firm i and year $t-1$; $Code\ and\ soft\ quota_t \times Ownership\ and\ control_{it-1}$ represents the interaction between soft gender regulations and firm ownership and control characteristic variables to examine the moderating impact of ownership and control structure on the relationship between regulations and board gender diversity as stated in the research hypotheses, and CV_{it-1}denotes control variables (*Board size, Independent directors, Proprietary directors, Market to book ratio, Return on assets, Beta, Age, Assets,* and *Leverage*). The variable *code and soft quota* is estimated at year t, while the other independent and control variables are estimated at year $t-1$ to control for reverse causality endogeneity problems that are inherent in corporate governance studies. $\sum_{j=1}^{6} I_{ij}$ is a set of industry dummy variables, $\sum_{t=2004}^{2013} D_t$ is a set of time dummy variables, and ε_{it} represents the random error term. Panel data models control for unobservable heterogeneity by decomposing the random error term ε_{it} into two parts: a combined effect (μ_{it}), which depends on individual and time periods, and an individual effect (η_i), which captures firm characteristics.

Results and discussion

Descriptive statistics and bivariate correlations

Table 3 presents the descriptive statistics of the study's dependent and independent variables. During the study period, the percentage of *female directors* increased from 4.19% in 2003 to 11.96% in 2013 (Panel A), with a mean of 7.87% (Panel B). The first largest shareholders hold on average 30.73% of the firm's voting rights (*first largest voting rights*), and most of the sample firms have more than just one large shareholder, as only 12.10% of the firms have only one largest shareholder (*controlling shareholder alone*). Most companies (87.80%) have multiple shareholders (*presence of multiple*), and the voting rights they hold average 21.19% (*multiple voting rights*). Less than half the firms (43.06%) have multiple shareholders where the first largest shareholder has more voting power than blockholders (*first largest controls*), whereas 44.75% of the firms also have multiple shareholders but the second, third, and fourth large shareholders overall have more voting power than the largest owner (*other multiple controls*).

The results reveal that 68.37% of the firms are classified as family firms (i.e. firms with a family or individual ultimate shareholder who holds more than 10% of the firm's voting rights; *family ultimate shareholder*=1) and families as the largest shareholders hold on average 24.80% of the voting rights (*family voting rights*). Directors who are members of the largest family shareholder account for 15.47% (*family directors*), and 28.42% of firms are controlled by family owners (*all families*).

On average, a board comprises 10.96 directors (*board size*), of which 33.37% are *independent directors* and 39.71% are shareholder representatives (*proprietary directors*). Moreover, firms are 45 years old (*age*), they have a 1.51 *market to book ratio*, a 0.04 *return on assets* ratio, a 0.60 volatility coefficient and a 0.67 *leverage* ratio.

-Insert Table 3-

Table 4 reports the bivariate correlations among the variables in the analyses. The dependent variable *female directors* is highly correlated with the *first largest shareholder voting rights* and the existence of a single largest shareholder (*controlling shareholder alone*), as well as with family ownership and control variables (*family ultimate shareholder*, *family voting rights*, *family directors*, and *all families*). By contrast, the existence and voting power of other large multiple shareholders (*presence of multiple*, *multiple voting rights*, and *other multiple controls*) are negatively correlated with the percentage of *female directors*. As expected, the overall first largest shareholder ownership and control variables and family ownership and control variables are negatively correlated with variables related to other large shareholders. Although some of the variables show statistically significant correlations, an analysis of the variance inflation factors (VIF) shows no evidence of multicollinearity because no VIF is above 5.

-Insert Table 4-

Bivariate analysis

Table 5 shows the differences in the percentage of *female directors* depending on firm ownership and control structures (Panel A) and the ownership and control held by families (Panel B). The test we use to measure statistical differences is the Mann-Whitney U test, and differences are estimated before and after board gender diversity initiatives are enacted and for the whole study period. The share of *female directors* is higher in firms where voting rights held by the first largest shareholder are above the mean pre-event (6.91% versus 3.42%) and post-event (11.35% versus 8.25%). Although firms with a *controlling shareholder alone* show higher percentages of female directors than firms with multiple shareholders, the differences are not significant; nor do *Multiple voting rights* seem to be significantly associated with higher levels of female directors. By contrast, the share of women directors is significantly higher when multiple shareholders

coexist and the *first largest controls* the firm but only before regulations were enacted (6.37% versus 3.52%). On the contrary, for firms with multiple shareholders where the first shareholder has less voting power than the rest of the owners (*other multiple controls*), the percentage of women directors is significantly lower before and after regulations, although the differences are smaller and less significant after regulations. Overall, regulation seems to increase the share of women directors on boards but results show a higher (lower) increase when there are multiple large shareholders and multiple blockholders have more (less) voting power than the first largest shareholder, partially supporting Hypotheses 1a and 1b.

Panel B reports a positive and significant association between female directors and family ownership and control before and after regulations (except *all families* after regulations), not supporting Hypothesis 2a. Before regulations, the percentage of female directors is significantly higher in firms where all shareholders are families. However, after regulations, the increase in the percentage of women directors was higher among firms where not all significant shareholders are families (from 3.80% to 9.08%) than in firms completely owned by families (from 7.49% to 10.42%), resulting in no significant differences after regulations and supporting Hypothesis 2a.

-Insert Table 5-

Influence of firm ownership and control structure on the impact of board gender diversity regulations

To test our hypotheses, we analyse how ownership and control structure affect the impact of initiatives that promote board gender diversity. Tables 6 and 7 summarise the results of the regression models. Table 6 pertains to Hypotheses 1a and 1b related to the influence of the largest shareholder and the role of other large shareholders, while Table 7 pertains to Hypotheses 2a and 2b regarding family ownership and control.

The results of Model 1 in Table 6 show that voting rights in the hands of the first largest shareholder (*first largest voting rights*) directly increase board gender diversity, although the existence of a *controlling shareholder alone* (Model 2) or a first largest shareholder who controls the firm when there is more than one significant shareholder (Model 3) do not seem to directly influence board gender diversity. Although the results do not show a moderating role of the first largest shareholder's voting rights or the control they exercise over other multiple shareholders (Models 1 and 3), the results of Model 2 reveal that the existence of a single largest shareholder enhances the positive influence of gender diversity regulations (*controlling shareholder alone×code and soft quota*) on the percentage of *female directors*. This positive moderating role contradicts Hypothesis 1a based on the prevalence of Type II agency problems and greater ability to engage in tunnelling and control the firm's governance structure, avoiding the better monitoring practices and diligence of female directors, which have been suggested by previous studies to diminish tunnelling practices (Baixauli-Soler et al., 2016; Adams & Ferreira, 2009, Kirsch, 2018). Indeed, it seems to reveal that the private benefits of control exerted by the largest single shareholder over minority investors may be overcome by the owner's willingness to signal commitment to good governance practices following soft gender diversity regulations.

In Table 6, Models 4 to 6 report the results regarding the impact of the existence and control of other large shareholders. In general, neither the existence of blockholders nor their shareholding or the control they exercise as a group directly increases gender diversity on boards. There could be various explanations for these results. For example, other large shareholders may not find it advantageous to encourage firms to appoint female directors, or they simply may not be interested in gender diversity issues. Alternatively, since these models do not distinguish between the different identities of

blockholders, their potential positive or negative opinions about gender diversity or possible actions or lack thereof to appoint women to boards may cancel each other out. Thus, multiple shareholders as a group may not promote gender diversity. Indeed, we find that the *presence of multiple* large shareholders negatively moderates the influence of regulations intended to increase board gender diversity (*presence of multiple*×*code and soft quota*) (Table 6, Model 4). These results contradict Hypothesis 1b, which proposed contestability of multiple shareholders towards the largest shareholder based on an aim to control board monitoring by reducing female representation on boards. As already stated, models 1 to 3 do not support a Type II agency problem in regard to the largest shareholder, and consequently, neither the contestability of practices that may reduce the monitoring role of female directors (Baixauli-Soler et al., 2016) holds nor does possible collusive behaviour. What the results of Model 4 reflect is in fact the opposite of Model 2's results: when the controlling shareholder is not alone, multiple other shareholders exist and therefore, the controlling owner's need to signal its commitment to board gender diversity regulations diminishes. Moreover, multiple shareholders may wish to occupy seats on the board of directors or appoint some of their executives as directors. As with executive posts, men predominate; consequently, fewer women will be appointed to boards, reducing the impact of board gender diversity regulations.

-Insert Table 6-

Regarding Hypotheses 2a and 2b, the models in Table 7 reveal a positive and direct influence of family ownership and control (*family ultimate shareholder*, *family voting rights*, *family directors* and *all families*) on board gender diversity, consistent with Martín-Ugedo and Mínguez-Vera (2014). Although the existence of a *family ultimate shareholder* and *family voting rights* does not moderate the impact of gender diversity regulations on female director representation on boards (Models 1 and 2), the percentage

of *family directors* (Model 3) and the family identities of all significant shareholders (Model 4) reduce the positive influence of codes and soft quotas (*family directors* × *code and soft quota* and *all families*×*code and soft quota*) on board gender diversity, partially supporting Hypotheses 2a and 2b. Overall, the results seem to reveal that when families have more representation on the board of directors and the firm has only large family shareholders, families with greater control of the firm tend to appoint fewer female directors following enactment of gender diversity regulations. This evidence supports both agency theory and the SEW reasoning of families who appoint mainly female family directors rather than female independent directors, restricting the pool of potential female directors and possibly hampering the impact of gender diversity regulations.

-Insert Table 7-

Regarding the control variables, our results show that board gender diversity is positively affected by *board size* and to some extent by company size (*assets*). Additionally, although firm *age*, *market to book ratio*, *beta*, and the percentage of *independent and proprietary directors* do not influence board gender diversity, the higher the firm *leverage* and *return on assets* ratios, the lower the percentage of *female directors*.

Additional results

Overall, the results of the regression analysis reported in Tables 6 and 7 suggest the importance of controlling for the identity of other large shareholders, as we find promising differences in the influences of ownership and control structure when we consider families as the largest shareholders (Table 7) compared to when we do not differentiate the largest shareholder's typology (Table 6). Thus, to analyse in depth the possible different behaviours of shareholders in family firms, we estimate the Heckman two-stage models related to the existence, ownership, and control of other large multiple

shareholders in a subsample of family firms. In other words, we repeat models 3 to 6 reported in Table 6 for a subsample of family firms (those companies with an ultimate owner, that is, a family or an individual who holds more than 10% of the firm's voting rights, namely, those firms that satisfy *family ultimate shareholder*=1).

To analyse family firms, we have to consider that family firm status is not randomly assigned to sample firms (i.e. the non-random subsample of family firms we have is based on the result of another process: a family's decision to be the ultimate shareholder of a firm by holding at least 10% of the firm's voting rights). Thus, we apply the Heckman two-stage method to control for the endogeneity bias of self-selection. In the first stage of the Heckman analysis, the selection equation is estimated as a maximum-likelihood probit model to analyse the propensity to be a family firm, while the second stage uses ordinary least squares (OLS) to predict the ultimate dependent variable. The two-stage Heckman method requires identifying at least one variable that may be significant in the selection equation but not in the regression equation and that most of the regression equation variables also be included in the selection equation. The variable incorporated in the selection equation or first stage is *CEO-Chairman/Chairwoman duality*. This variable is significant in the selection equation (i.e. it significantly influences the likelihood of being a family firm; *family ultimate shareholder*) but not in the regression equation (i.e. it does not significantly influence *female directors*). To account for the potential biases, the two-stage process creates a selection parameter, the Inverse Mills Ratio (IMR), which is incorporated as an additional repressor in the regression equation. The IMR approximates the likelihood that a company will have an ultimate largest shareholder that holds more than 10% of its voting rights and is a family. All independent and control variables that are potentially endogenous are estimated at year t-

1 to control for reverse causality endogeneity problems, and time and industry dummy variables are incorporated into all regression models.

The results presented in Table 8, similar to the results for the whole sample (Table 6, Model 5), show no influence of multiple shareholders' voting rights on board gender diversity (*multiple voting rights*) or on gender diversity regulations (*multiple voting rights*×*code and soft quota*) increasing the representation of female directors on boards (Table 8, Model 3). However, Models 1, 2, and 4 in Table 8 reveal differences in other large shareholders' behaviours in family firms. Indeed, Model 4 reveals that the increase in the percentage of *female directors* due to *code and soft quota* regulations is enhanced when other multiple blockholders have more voting power than the largest shareholder (*other multiple controls*×*code and soft quota*). On the contrary, families as the largest shareholders with more voting power than other large multiple shareholders (Model 1) decrease the effectiveness of *code and soft quota* regulations (*first largest controls*×*code and soft quota*). Because of these two opposite behaviours, we find that the existence of other large shareholders in family firms has no negative moderating effect on the impact of gender diversity regulations (*presence of multiple*×*code and soft quota*) on the women's board representation (Model 2) found for the whole sample (Table 6, Model 4). Overall, the results support Hypothesis 1b for family firms but only when other large shareholders have more voting power than the largest family shareholder. In fact, when this does not occur, other large shareholders seem to negatively influence board gender diversity. In other words, in family firms, when families as the largest shareholders control the firm in the presence of multiple other shareholders, the positive influence of regulations on women's representation on boards decreases, consistent with Hypotheses 1a and 2a

-Insert Table 8-

As already pointed out, a possible explanation for these results could be linked to Type II agency problems within family firms and SEW logic. If families who control a firm lack a sufficient pool of family-affiliated women to achieve the targets set by the soft board gender regulations, they may prevent the nomination of new female board members because they will not be family members. To empirically test this potential explanation, we analyse how family ownership and control structure moderate the relationship between regulations and the representation of female family directors and female non-family directors (i.e. we repeat the estimations presented in Table 7 using as dependent variables the percentage of *female family directors* and *female non-family directors* instead of *female directors*). The results reported in Table 9 (Models 1 to 4) reveal that soft gender diversity regulations do not increase the percentage of *female family directors* whereas family ownership and control variables retain their positive and direct impact on the share of *female family directors*. On the contrary, when we consider the percentage of *female non-family directors*, we observe that regulations increase the percentage of *female non-family directors* (Models 5 to 8), family ownership and control do not directly impact non-family gender diversity (Models 5 and 6), and as happened for the whole pool of female directors, the percentage of *family directors* (Model 7) and families as all major shareholders (Model 8) reduce the positive impact of regulations. These results support the explanation that the negative moderating role of families on board gender diversity regulations is linked to their reluctance to appoint non-family female independent directors.

-Insert Table 9-

Robustness checks

We repeat our estimations considering additional measures and models. First, considering

possible biases associated with endogeneity (i.e. shareholders may decide their shareholding and control over the firm depending on firm's attitude regarding gender diversity on boards), we use propensity score matching (PSM). We run Probit models to explain different ownership and control structures[6] with the same control variables used in the regressions in Tables 6 and 7[7]. We use the nearest neighbour approach with replacement adjusting caliper distance to 0.01 to ensure that firms in the treatment and control groups are sufficiently identical. At least 250 of the 929 firm-year observations were matched[8]. We rerun panel data Tobit models based on the matched sample and the results of Tables 6 and 7 do not vary. Second, we estimate all models in Tables 6 to 8 using an alternative measure of firm size: instead of *assets*, we use the value of total *sales*. The results are similar. Third, instead of the percentage of *female directors*, we estimate the models using two gender diversity indexes as the dependent variable: the *Blau index* (Blau, 1977) and the *Shannon index* (Shannon, 1948).[9] The results are similar. Fourth, we remove firms delisted during the study period (24 firms and 161 observations) from the models in Tables 6 and 7, finding similar results. Fifth, we estimate the models in Tables 6 and 7 considering alternative variables related to shareholder ownership and control.

[6] *F10* (dummy variable that takes a value of one if the firm has a first largest shareholder holding more than 10% of voting rights and zero otherwise), *Controlling shareholder alone*, *First largest controls*, *Other multiple controls*, and *Family ultimate shareholder*.

[7] Most of the independent variables are highly significant and the pseudo-R^2 for the Probit regressions are high: *F10* (0.256), *Controlling shareholder alone* (0.249), *First largest controls* (0.176), *Other multiple controls* (0.186), and *Family ultimate shareholder* (0.209). The pseudo-R^2 for the Probit regressions estimated on the matched sample are close to zero and all of the independent variables are non-significant but for few exceptions. The matching for the models that show a significant impact of firm ownership and control structure on gender diversity on boards (Models 1, 2 and 4 in Table 6 and Models 1, 2, 3 and 4 in Table 7) is reliable. However, it is worth nothing that *leverage* is significant (at the 5% level; z = 1.98) in the Probit regression estimated on the matched sample for variable *Controlling shareholder alone*.

[8] *F10* (250 firm-year observations matched), *Controlling shareholder alone* (902 firm-year observations matched), *First largest controls* (887 firm-year observations matched), *Other multiple controls* (875 firm-year observations matched), and *Family ultimate shareholder* (831firm-year observations matched).

[9] The *Blau index* is defined as: $1 - \sum_{i=1}^{n} {p_i}^2$ where p_i is the percentage of directors in each category (women and men), and n is the number of categories. Range: 0 (no gender diversity) – 0.5 (same number of women and men). The *Shannon index* is defined as: $-\sum_{i=1}^{n} p_i \, ln(p_i)$ where p_i and n are equivalent to the Blau index definition. Range: 0 (no gender diversity) – 0.69 (same number of women and men).

Specifically, we consider the gap between the voting and cash flow rights of the first largest ultimate shareholder (*first largest wedge*), the total number of multiple shareholders (*number of multiple*), and a continuous variable that relates to contestability: *voting2341* (sum of the voting rights of the second, third, and fourth largest shareholders divided by the voting rights of the first largest shareholder). The results are the same since these variables do not seem to moderate the relationship between regulations and board gender diversity. Sixth, we estimate the models in Table 7 considering family firms as those firms where a family or an individual holds more than 20%, rather than 10% of the firm's voting rights (La Porta et al., 1999). The results are again similar. Seventh, we consider alternative measures of family control: the gap between the voting and cash flow rights of the largest family ultimate shareholder (*family wedge*) and a dummy variable that equals one when the CEO is one of the largest family shareholders and zero otherwise (*Family CEO*). The results are the same. Finally, we repeat the estimations presented in Table 8 applying panel data Tobit models for the subsample of family firms (i.e. *family ultimate shareholder*=1). The results are the same.

Discussion

Our study analyses how firm ownership and control structure moderate the relationship between board gender diversity regulations and women's representation on boards in an institutional context with soft gender diversity regulations (i.e. gender diversity recommendations in codes of good governance and quotas without sanctions in case of non-compliance). Specifically, we consider the moderating role of the largest shareholders (i.e. the voting rights and control of the largest shareholder), families as the largest shareholders, and the existence of multiple large shareholders and families as other large shareholders within family firms. Our results highlight the importance of

considering not only ownership structure, but also the identity of the largest and other multiple large shareholders and the distribution of control rights among them.

First, contradicting agency theory predictions, when there is a single large shareholder in a firm, that is, a pure large owner who coexists with several minority shareholders, the positive effect of gender diversity regulations is reinforced. This result does not support the prevalence of Type II agency problems and suggests that the possible private benefits of control exerted by the largest single blockholder over minority shareholders may be overcome by the blockholder's willingness to signal commitment to good governance practices and the impact of regulations. In the same vein, when other multiple blockholders are present, firms do not seem to need to signal their commitment to board gender diversity regulations and may prefer appointing proprietary directors without considering it a priority to appoint female directors to comply with board gender diversity regulations.

Second, the identity of large shareholders matters, in particular, whether they are families. When the first largest shareholder is a family that has enough power to appoint a large number of family-affiliated directors, the firm tends to have a higher proportion of women represented on its board; however, this is due to female family representation, not to a family commitment to gender diversity regulations. Indeed, family control exemplified by the proportion of family-affiliated directors reduces the positive impact of board gender diversity regulations. Families may not have a sufficient pool of family-affiliated females to achieve the targets set by the soft board gender diversity regulations. When families control the board and the firm, they will be able to prevent the nomination of new female board members that are not family members, who could otherwise monitor and prevent the family from obtaining private benefits from control and fulfilling their SEW. In the same vein, when all large shareholders of a firm are families, a similar

negative moderating role emerges. We empirically prove our potential explanation and observe that gender diversity regulations do not increase the share of female family directors. Moreover, the negative moderating role of the percentage of family directors when all large shareholders are families is only significant when the dependent variable is the percentage of non-family female directors. Additionally, some examples of firms with families as large owners support this argument. For example, in FCC, the four female members of the Esther Koplowitz family (mother and three daughters) were already directors prior to the enactment of legislation, and another female director representing another family was also appointed before legislation was initiated. The same holds for Ferrovial (just one female of the Del Pino family) or Prosegur (the widow of the founder and the daughter and widow of the second co-founder). In Solaria Energía y Medioambiente, SA, there are no female family directors as the founder has no daughters. Nevertheless, in other firms, other situations occur: that is, not all female family members are board members (for example, Inditex), or one female family member joins the board to replace another female family member (Adolfo Dominguez). In these cases, the regulations do not increase the proportion of women on boards.

We also analyse the potential differential behaviour of multiple large shareholders when the largest shareholder is a family. These results highlight the importance of controlling for the identity of the largest shareholder but overall for the distribution of control among larger shareholders when analysing the behaviours of the largest owner and other blockholders. Indeed, supporting agency theory predictions, the negative moderating role of the presence of other large shareholders only exists in family firms when the family controls the firm. Nevertheless, when other large shareholders together have more voting rights than family members, they reduce the family's power to prevent appointment of non-family members, enhancing the impact of gender diversity

regulations. When other large shareholders have enough power to contest the family, they tend to join forces to challenge the family's power and strategies.

Conclusion, contribution, and future lines of research

Our study contributes to the analysis of how soft board gender regulations (i.e. codes and sanction-free quotas) impact the representation of female directors on boards. The academic literature has focused on how hard quotas affect different outcomes, leaving the institutional context of soft regulations only partially explored (Martínez-García et al., 2021). Since previous research regarding soft board gender diversity regulations has mainly analysed the limited effectiveness of sanction-free regulations in increasing board gender diversity (Mateos de Cabo et al., 2019, Martínez-García et al., 2020), our study contributes to this strand of the literature by analysing the role of firm ownership and control structure in the relationship between soft regulations and women's board representation. Therefore, this research also contributes to the analysis of the firm-level determinants of board gender diversity. Overall, our results highlight the importance of considering not only the largest shareholders but also the identity and control of large shareholders when explaining women's board representation and the impact of gender diversity regulations. As our study shows, corporate governance issues (firm ownership and control) influence women's board representation and the degree of compliance with soft gender diversity regulations. Corporate governance aspects that influence women's access to boards should be considered when formulating policies related to this issue.

We acknowledge several shortcomings of our study, which should be addressed in future research. The database we employed was from a single country, and results may differ across national institutional contexts. Future research could investigate whether the role of firm ownership and control structure may differ depending on the regulations

enacted (i.e. code, soft quota, or hard quota) and other country-level institutional factors (i.e. government quality, culture, labour market characteristics, welfare state provisions). Additionally, our institutional setting is characterised by relatively weak representation of women on boards and a large number of firms without gender-diverse boards of directors. Finally, we focus on the impact of regulations, ownership, and control structure on the proportion of female directors. However, it is important to analyse not only the proportion of directors, but also their attributes. Future research could explore the impact of soft and hard regulations beyond the mere representation of women on boards by, for example, analysing the professional backgrounds of female directors and the influence of newly appointed women on firm outcomes, considering firm ownership and control characteristics. Future research could also consider the typology of female directors (i.e. executive, independent, or proprietary female directors) and directors' family affiliations (i.e. distinguishing between female family-affiliated and non-family-affiliated directors) and try to identify differences in what determines how regulations impact different types of female directors and how ownership and control structures and other firm-level characteristics may impact women's representation on boards of directors and board committees.

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References

Adams, R.B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics, 94*(2), 291-309. https://doi.org/10.1016/j.jfineco.2008.10.007

Adams, R.B., Hermalin, B.E., & Weisbach, M.S. (2010). The role of boards of directors in corporate governance: A conceptual framework and survey. *Journal of Economic Literature, 48*(1), 58-107. https://www.aeaweb.org/articles?id=10.1257/jel.48.1.58

Baixauli-Soler, J.S., Lucas-Pérez, M.E., Martín-Ugedo, J.F., Minguez-Vera, A., & Sanchez-Marin, G. (2016). Executive directors' compensation and monitoring: The influence of gender diversity on Spanish boards. *Journal of Business Economics and Management*, *17*(6), 1133-1154. https://doi.org/10.3846/16111699.2014.969767

Bennedsen, M., & Wolfenzon, D. (2000). The balance of power in closely held corporations. *Journal of Financial Economics*, *58*(1-2), 113-139. https://doi.org/10.1016/S0304-405X(00)00068-4

Berrone, P., Cruz, C., & Gómez-Mejía, L. R. (2012). Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research. *Family Business Review*, 25(3), 258–279. https://doi.org/10.1177/0894486511435355

Bianco, M., Ciavarella, A., & Signoretti R. (2015). Women on corporate boards in Italy: The role of family connections. *Corporate Governance: An International Review*, *23*(2), 129-144. https://doi.org/10.1111/corg.12097

Blau, P.M. (1977). *Inequality and heterogeneity: A primate theory of social structure*. Free Press.

Bloch, F., & Hege, U. (2003). Multiple shareholders and control contests. *MPRA Paper* No. 42286. https://mpra.ub.uni-muenchen.de/42286/1/MPRA_paper_42286.pdf.

Boateng, A., & Huang, W. (2017). Multiple large shareholders, excess leverage and tunneling: Evidence from an emerging market. *Corporate Governance: An International Review*, *25*(1), 58-74. https://doi.org/10.1111/corg.12184

Bøhren, Ø., & Staubo, S. (2015). Mandatory gender balance and board independence. *European Financial Management*, *22*(1), 3-30. https://doi.org/10.1111/eufm.12060

Cao, F., Peng, S., & Ye, K. (2019). Multiple large shareholders and corporate social responsibility reporting. *Emerging Markets Review*, *38*(1), 287-309. https://doi.org/10.1016/j.ememar.2019.02.004

Casey, C., Skibnes, R., & Pringle, J.K. (2011). Gender equality and corporate governance: Policy strategies in Norway and New Zealand. *Gender, Work, and Organization*, *18*(6), 613-630. https://doi.org/10.1111/j.1468-0432.2010.00514.x

Chapple, L., & Humphrey, J.E. (2014). Does board gender diversity have a financial impact? Evidence using stock portfolio performance, *Journal of Business Ethics*, *122*(4), 709-723. https://doi.org/10.1007/s10551-013-1785-0

CNMV (2021). *The presence of women in the board of directors and key executive positions in listed entities.* https://www.cnmv.es/portal/Publicaciones/Consejeras_Directivas.aspx?lang=en

Collin, S-O., & Ahlberg, J. (2012). Blood in the boardroom: Family relationships influencing the functions of the board. *Journal of Family Business Strategy*, *3*(4), 207-219. https://doi.org/10.1016/j.jfbs.2012.11.001

Desender, K.A., Aguilera, R.V., Crespi, R., & García-Cestona, M. (2013). When does ownership matter? Board characteristics and behavior. *Strategic Management Journal*, *34*(7), 823-842. https://doi.org/10.1002/smj.2046

Edmans, A. (2014). Blockholders and corporate governance. *Annual Review of Financial Economics*, *6*, 23-50. https://doi.org/10.1146/annurev-financial-110613-034455

European Corporate Governance Institute (2021). *Governance codes*. Available https://ecgi.global/content/codes

European Parliament. (2021). *Legislative train schedule, area of justice and fundamental rights, gender balance on boards*. http://www.europarl.europa.eu/legislative-train/theme-area-of-justice-and-fundamental-rights/file-gender-balance-on-boards

European Women on Boards (2019). *European Women on Boards Gender Diversity Index.* https://europeanwomenonboards.eu/wp-content/uploads/2020/01/Gender-Equality-Index-Final-report-vDEF-ter.pdf

Fang, Y., Hu, M., & Yang, Q. (2018). Do executives benefit from shareholder disputes? Evidence from multiple large shareholders in Chinese listed firms, *Journal of Corporate Finance*, *51*(1), 275-315. https://doi.org/10.1016/j.jcorpfin.2018.06.008

Ferrari, G., Ferraro, V., Profeta, P., & Pronzato, C. (2018). Do board gender quotas matter? Selection, performance and stock market effects. *IZA Discussion Paper*, Article 11462. https://ftp.iza.org/dp11462.pdf

García-Ramos, R., Díaz-Díaz, B., & García-Olalla, M. (2017). Independent directors, large shareholders and firm performance: The generational stage of family businesses and the socioemotional wealth approach. *Review of Managerial Science*, *11*(1), 119-156. https://doi.org/10.1007/s11846-015-0182-8

González-Menéndez, M.C., & Martínez-González, L. (2012). Spain on the Norwegian - pathway: Towards a gender-balanced presence of women on corporate boards. In C. Fagan, M.C. González-Menéndez, & S. Gómez-Ansón (Eds), *Women on corporate boards and in elite management: European trends and policy* (pp 169-197). Palgrave McMillan.

Grosvold, J., Rayton, B., & Brammer, S. (2016) Women on corporate boards: A comparative institutional analysis. *Business & Society*, *55*(8), 1157-1196. https://doi.org/10.1177/0007650315613980

Jara-Bertín, M., López-Iturriaga, F.J., & López-de-Foronda, O. (2008). The contest to the control in European family firms: How other shareholders affect firm value. *Corporate Governance: An International Review*, *16*(3), 146-159. https://doi.org/10.1111/j.1467-8683.2008.00677.x

Jensen, M.C., & Meckling, W.H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X

Kang, J.K., Luo J., & Seung, H. (2018). Are institutional investors with multiple blockholdings effective monitors? *Journal of Financial Economics*, *128*(3), 576-602. https://doi.org/10.1016/j.jfineco.2018.03.005

Kirsch, A. (2018). The gender composition of corporate boards: A review and research agenda. *Leadership Quarterly*, *29*(2), 346-364. https://doi.org/10.1016/j.leaqua.2017.06.001

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (1999). Corporate ownership around the world. *Journal of Finance*, *54*(2), 471-517. https://doi.org/10.1111/0022-1082.00115

Lending, C.C., & Vähämaa, E. (2017). European board structure and director expertise: The impact of quotas. *Research in International Business and Finance*, *39*(A), 486-501. https://doi.org/10.1016/j.ribaf.2016.09.004

Lombardo, E., & Verge, T. (2017). Cuotas de género en política y economía. Regulación y configuración institucional en España [Gender Quotas in Politics and Corporate Boards: Regulation and Institutional Configuration in Spain]. *Política y Gobierno*, *24*(2), 301-331.

Martínez-García, I., & Gómez-Ansón, S. (2021). Regulación de género en los consejos de administración: El papel moderador del entorno institucional [Gender regulation in boards of directors: The moderating role of the institutional framework]. (January 19, 2021). *CNMV Working Paper* No. 72. http://dx.doi.org/10.2139/ssrn.3769238

Martínez-García, I., Sacristán-Navarro, M., & Gómez-Ansón, S. (2020). Diversidad de género en los consejos de administración: El efecto de la normativa en la presencia de mujeres en las empresas españolas cotizadas [Gender Diversity on Boards of Directors:The Influence of Regulation on Women Presence in Corporate Governance of Spanish Listed Firms]. *Revista Internacional de Investigación en Comunicación aDResearch ESIC*, *22*(22), 60-81. https://doi.org/10.7263/adresic-022-03

Martínez-García, I., Terjesen, S. & Gómez-Ansón, S. (2021) Board gender diversity codes, quotas, and threats of supranational legislation: Impact on director characteristics and corporate outcomes. *British Journal of Management* https://doi.org/10.1111/1467-8551.12517

Martín-Ugedo, J.F., & Mínguez-Vera, A. (2014). Firm performance and women on the board: Evidence from Spanish small and medium-sized enterprises. *Feminist Economics*, *20*(3), 136-162. https://doi.org/10.1080/13545701.2014.895404

Mateos de Cabo, R., Terjesen, S., Escot, L., & Gimeno, R. (2019). Do 'soft law' board gender quotas work? Evidence from a natural experiment. *European Management Review*, *37*(5), 611-624. https://doi.org/10.1016/j.emj.2019.01.004

Mateu de Ros, R., & Vidal, C. (2019, June) Corporate governance in Spain, *Lexology*. https://www.lexology.com/gtdt/tool/workareas/report/corporate-governance/chapter/spain

OECD (2021). *Employment: Female share of seats on boards of the largest publicly listed companies* [Data set]. https://stats.oecd.org/index.aspx?queryid=54753

Palá-Laguna, R., & Esteban-Salvador, L. (2016). Gender quota for boards of corporations in Spain. *European Business Organization Law Review*, *17*(3), 379-404.

Pfeffer, J. (1992). *Managing with power: Politics and influence in organizations*. Harvard Business School Press.

Pindado, J., Requejo, I., & de la Torre, C. (2011). Family control and investment–cash flow sensitivity: Empirical evidence from the Euro zone. *Journal of Corporate Finance*, *17*(1), 1389–1409. https://doi.org/10.1007/s40804-016-0047-x

Poletti-Hughes, J. & Birano-Turrent, B. (2020). Leverage in family firms: The moderating role of female directors and board quality. *International Journal of Finance & Economics*, https://doi.org/10.1002/ijfe.2147

Prowse, S. (1997). Corporate control in commercial banks. *Journal of Financial Research*, *20*(4), 509-527. https://doi.org/10.1111/j.1475-6803.1997.tb00263.x

Rebérioux, A. & Roudaut, G. (2016). Gender quota and inequalities inside the boardroom. *CEPREMAP*, Article 1603. http://www.cepremap.fr/depot/docweb/docweb1603.pdf

Reguera-Alvarado, N., de Fuentes, P. & Laffarga, J (2017). Does board gender diversity influence financial performance? Evidence from Spain, *Journal of Business Ethics*, *141*, 337–350 https://doi.org/10.1007/s10551-015-2735-9

Rodríguez-Ariza, L., Cuadrado-Ballesteros, B., Martínez-Ferrero, J., & García-Sánchez, I. (2017). The role of female directors in promoting CSR practices: An international comparison between family and non-family business. *Business Ethics: A European Review*, *26*(2), 167-174. https://doi.org/10.1111/beer.12140

Rossi, F., Barth, J.R., & Cebula R.J. (2018). Do shareholder coalitions affect agency costs? Evidence from Italian-listed companies. *Research in International Business and Finance*, *46*(1), 181-200. https://doi.org/10.1016/j.ribaf.2018.02.002

Sacristán-Navarro, M., Gómez-Ansón, S., & Cabeza-García, L. (2013). Other large shareholders in family firms: Do they monitor? In P. Poutzirouris, K. Smyrnios,

& S. Goel (Eds.), *Handbook of research on family business* (2nd ed., pp.161-183). Edward Elgar Publishers.

Sacristán-Navarro, M. Cabeza-García, L., & Gómez-Ansón, S. (2015). The company you keep: The effect of other large shareholders in family firms. *Corporate Governance: An International Review*, *23*(3), 216-233. https://doi.org/10.1111/corg.12107

Sanchez-Marin, G., Baixauli-Soler, J.S., & Lucas-Pérez, M.E. (2010). When much is not better? Top management compensation, board structure, and performance in Spanish firms. *The International Journal of Human Resource Management*, *21*(15), 2778-2797. https://doi.org/10.1080/09585192.2010.528660

Shannon, C.E. (1948). A mathematical theory of communication. *Bell System Technical Journal*, *27*(4), 623-656. https://doi.org/10.1002/j.1538-7305.1948.tb00917.x

Shleifer, A., & Vishny, R. (1997). A survey of corporate governance. *The Journal of Finance*, *54*(2), 737–783. https://doi.org/10.1111/j.1540-6261.1997.tb04820.x

Sojo, V.E., Wood, R.E., Wood, S.A., & Wheeler, M.A. (2016). Reporting requirements, targets, and quotas for women in leadership. *The Leadership Quarterly*, *27*(3), 519-536. https://doi.org/10.1016/j.leaqua.2015.12.003

Solimene, S., Coluccia, D., & Fontana, S. (2017). Gender diversity on corporate boards: An empirical investigation of Italian listed companies. *Palgrave Communications*, *3*(1), Article 16109. https://doi.org/10.1057/palcomms.2016.109

Villalonga, B., & Amit, R. (2006). How do family ownership, control and management affect firm value? *Journal of Financial Economics*, *80*(2), 385-417. https://doi.org/10.1016/j.jfineco.2004.12.005

Villalonga, B., & Amit, R. (2008). How are U.S. family firms controlled? *The Review of Financial Studies*, *22*(8), 3047-3091. https://doi.org/10.1093/rfs/hhn080

Wang, M., & Kelan, E. (2013). The gender quota and female leadership: Effects of the Norwegian gender quota on board chairs and CEOs. *Journal of Business Ethics*, *117*(3), 449-466. https://doi.org/10.1007/s10551-012-1546-5

Willey, K. (2017). 'Bringing Canadian women on boards': A behavioural economics perspective on whether public reporting of gender diversity will alter the male-dominated composition of Canadian public company boards and senior

management. *Canadian Journal of Women and the Law*, *29*(1), 182-210. https://doi.org/10.1146/10.3138/cjwl.29.1.182

World Economic Forum (2020). *The global gender gap reports*. https://www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality

Zwiebel, J. (1995). Corporate conservatism and relative compensation. *Journal of Political Economy*, *103*(1), 1-25. https://doi.org/10.1086/2

Table 1: Sample

	Sample		Female directors = 0	
	N	%	N	%
2003	85	7.97	57	67.06
2004	88	8.26	60	68.18
2005	92	8.63	61	66.30
2006	99	9.29	52	52.53
2007	110	10.32	56	50.91
2008	108	10.13	47	43.52
2009	103	9.66	39	37.86
2010	101	9.47	34	33.66
2011	96	9.01	29	30.21
2012	95	8.91	35	36.84
2013	89	8.35	29	32.58
Total	1,066	100	499	46.81

Note(s): Column *Sample* reports the number of firm-year observations (N) and the firm-year observations as a proportion of the total observations (%). Column *Female directors = 0* reports the number of firm-year observations with no female directors on boards (N) and the firm-year observations with no female directors on boards as a proportion of the total firm-year observations (%).

Table 2: Variables

Variables	Description
Gender diversity	
Female directors	Percentage of female directors.
Code and soft quota	Dummy variable that takes a value of one from 2007 onward and zero otherwise.
Ownership and control	
First largest voting rights	Voting rights of the first largest ultimate shareholder who holds more than 10% of company's voting rights
Controlling shareholder alone	Dummy variable that takes a value of one if the firm has only one large shareholder and zero otherwise.
First largest controls	Dummy variable that adopts the value of one if the firm has multiple large shareholders and the largest shareholder has more voting power than the rest of the owners (second + third + fourth) and zero otherwise.
Presence of multiple	Dummy variable that takes a value of one if the firm has multiple large blockholders (defined as those shareholders owning more than 3% of the firm's shares) and zero otherwise.
Multiple voting rights	Voting rights of multiple large blockholders.
Other multiple controls	Dummy variable that adopts the value of one if the firm has multiple large shareholders and the largest shareholder has less voting power than the rest of the owners (second + third + fourth) and zero otherwise.
Family ownership and control	
Family ultimate shareholder	Dummy variable that takes a value of one when families and individuals control the firm as largest ultimate shareholders and have over 10% of the voting rights and zero otherwise.
Family voting rights	Voting rights of the largest family ultimate shareholder.
Family directors	Percentage of family member directors nominated by the largest family shareholder. Family members are identified by their surnames (first or second surnames) and members related by blood and marriage are also taken into account.
All families	Dummy variable that takes a value of one if all significant shareholders (defined as those shareholders owning than 3% of a firm's shares) are families and individuals and zero otherwise.
Control variables	
Board size	Number of board directors.
Independent directors	Percentage of independent directors. Independent directors are non-executive directors who do not have any kind of relationship with the company or significant shareholders.
Proprietary directors	Percentage of proprietary directors. Proprietary directors are non-executive directors who represent significant shareholders.
Market to book ratio	Firm market value or capitalization plus book value of debt divided by book value of total assets.
Return on assets	Firm operating income over the book value of total assets.
Beta	Covariance of the stock return and market value return over the variance of the market value return.
Age	Number of years since firm founding.
Assets (ln)	Natural logarithm of the book value of total assets in thousands of euros.
Leverage	Book value of total debt/book value of total assets.

Table 3: Descriptive statistics

PANEL A											
Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Female directors	4.19	4.05	4.39	6.32	6.87	7.84	9.05	10.04	10.68	10.63	11.96

PANEL B						
Variables	Mean/Freq.(d)	SD	Min	Median	Max	N
Female directors	7.87	9.46	0	6.07	44.44	1,066
First largest voting rights	30.73	20.45	0	20.45	96.41	1,066
Controlling shareholder alone(d)	12.10	0.33	0	0	1	1,066
First largest controls(d)	43.06	0.50	0	0	1	1,066
Presence of multiple(d)	87.90	0.33	0	1	1	1,066
Multiple voting rights	21.19	14.89	0	20.14	72.43	1,066
Other multiple controls (d)	44.75	0.50	0	0	1	1,066
Family ultimate shareholder(d)	68.29	0.47	0	1	1	1,066
Family voting rights	24.79	23.13	0	22.13	96.41	1,066
Family directors	15.47	18.47	0	11.11	100	1,066
All families(d)	28.42	0.45	0	0	1	1,066
Board size	10.96	3.56	3	10	22	1,066
Independent directors	33.37	17.71	0	33.33	100	1,066
Proprietary directors	39.71	21.89	0	40	100	1,066
Market to book ratio	1.51	1.14	-0.95	1.20	12.50	1,066
Return on assets	0.04	0.13	-1.93	0.05	0.84	1,066
Beta	0.60	0.39	-0.27	0.59	2.19	1,042
Age	44.96	27.84	1	39	142	1,066
Assets(ln)	13.92	1.88	9.38	13.69	18.68	1,066
Leverage	0.67	0.22	0.07	0.65	3.43	1,066

Note(s): Panel A reports *female directors* annual mean value. Panel B reports descriptive statistics for study variables. Mean/Freq. refers to the mean value of continuous variables or frequency of defined dummy variables (d) over the study period. SD, Min. Median, and Max refer, respectively to the standard deviation, minimum, median, and maximum values of variables over the study period. Freq. is the frequency of the defined dummy variables (d). N denotes the number of observations.

Table 4: Bivariate correlations

Variables	VIF	1	2	3	4	5	6	7	8	9
1. Female directors		1								
2. First largest voting rights	1.14	0.167*** (0.000)	1							
3. Controlling shareholder alone	1.21	0.054* (0.079)	0.123*** (0.000)	1						
4. First largest controls	1.06	0.076** (0.013)	0.437*** (0.000)	-0.323*** (0.000)	1					
5. Presence of multiple	1.21	-0.054* (0.079)	-0.123** (0.000)	-1.000 (-1.000)	0.323*** (0.000)	1				
6. Multiple voting rights	1.28	-0.074** (0.016)	-0.062*** (0.042)	-0.522*** (0.000)	-0.217*** (0.000)	0.522*** (0.000)	1			
7. Other multiple controls	1.12	-0.110*** (0.000)	-0.513*** (0.000)	-0.334*** (0.000)	-0.783*** (0.000)	0.334*** (0.000)	0.561*** (0.000)	1		
8. Family ultimate shareholder	1.14	0.172*** (0.000)	0.400*** (0.000)	-0.032 (0.304)	0.177*** (0.000)	0.032 (0.304)	0.004 (0.894)	-0.153*** (0.000)	1	
9. Family voting rights	1.11	0.215*** (0.000)	0.819*** (0.000)	0.169*** (0.000)	0.338*** (0.000)	-0.169*** (0.000)	-0.177*** (0.000)	-0.445*** (0.000)	0.731*** (0.000)	1
10. Family directors	1.06	0.176*** (0.000)	0.456*** (0.000)	0.011 (0.713)	0.343*** (0.000)	-0.011 (0.713)	-0.185*** (0.000)	-0.347*** (0.000)	0.552*** (0.000)	0.616*** (0.000)
11. All families	1.07	0.107*** (0.001)	0.252*** (0.000)	0.321*** (0.000)	-0.019 (0.541)	-0.321*** (0.000)	-0.122*** (0.000)	-0.191*** (0.000)	0.398*** (0.000)	0.384*** (0.000)
12. Board size	1.93	-0.044 (-0.149)	-0.103*** (0.000)	-0.240*** (0.000)	-0.082*** (0.008)	0.240*** (0.000)	0.306*** (0.000)	0.241*** (0.000)	-0.147*** (0.000)	-0.191*** (0.000)
13. Independent directors	1.92	0.062** (0.044)	-0.211*** (0.000)	0.229*** (0.000)	-0.120*** (0.000)	-0.229*** (0.000)	-0.309*** (0.000)	-0.036 (0.245)	-0.192*** (0.000)	-0.105*** (0.001)
14. Proprietary directors	1.93	0.016 (0.604)	0.142*** (0.000)	-0.307*** (0.000)	0.051* (0.094)	0.307*** (0.000)	0.374*** (0.000)	0.153*** (0.000)	0.128*** (0.000)	0.011 (0.744)
15. Market to book ratio	1.25	-0.028 (0.369)	0.063** (0.040)	-0.018 (0.059)	0.144*** (0.000)	0.018 (0.569)	-0.077** (0.012)	-0.131*** (0.000)	-0.054* (0.081)	-0.037 (0.233)
16. Return on assets	1.54	-0.090*** (0.004)	0.045 (0.146)	-0.130*** (0.000)	0.078** (0.011)	0.130*** (0.000)	0.072** (0.019)	0.007 (0.810)	-0.131*** (0.000)	-0.054* (0.078)
17. Beta	1.22	-0.011 (0.735)	-0.034 (0.267)	0.134*** (0.000)	-0.100*** (0.001)	-0.134*** (0.000)	-0.041 (0.183)	0.016 (0.608)	-0.039 (0.209)	-0.002 (0.939)
18. Age	1.13	-0.094*** (0.002)	0.009 (0.770)	0.037 (0.233)	0.039 (0.201)	-0.037 (0.233)	-0.014 (0.653)	-0.063** (0.041)	-0.169*** (0.000)	-0.118*** (0.000)
19. Assets(ln)	2.24	-0.007 (0.818)	0.057* (0.063)	-0.040 (0.197)	-0.048 (0.116)	0.040 (0.197)	0.079*** (0.010)	0.075** (0.014)	-0.175*** (0.000)	-0.052* (0.091)
20. Leverage	1.44	0.042 (0.171)	0.126*** (0.000)	0.135*** (0.000)	-0.025 (0.414)	-0.135*** (0.000)	-0.079*** (0.010)	-0.062** (0.043)	0.073** (0.018)	0.128*** (0.000)

Note(s): VIF refers to the Variance Inflation Factors. *p<0.10; **p<0.05; ***p<0.01.

Table 4 (continued): Bivariate correlations

Variables	10	11	12	13	14	15	16	17	18	19	20
10. Family directors	1										
11. All families	0.242*** (0.000)	1									
12. Board size	-0.027 (0.377)	-0.141*** (0.000)	1								
13. Independent directors	-0.178*** (0.000)	-0.024 (0.434)	-0.120*** (0.000)	1							
14. Proprietary directors	0.155*** (0.000)	0.001 (0.969)	0.287*** (0.000)	-0.655*** (0.000)	1						
15. Market to book ratio	-0.065** (0.034)	0.050 (0.102)	-0.068** (0.026)	-0.015 (0.623)	-0.003 (0.926)	1					
16. Return on assets	-0.001 (0.998)	-0.073** (0.018)	0.138*** (0.000)	-0.052* (0.087)	0.044 (0.153)	0.351*** (0.000)	1				
17. Beta	-0.081*** (0.009)	0.051 (0.103)	0.218*** (0.000)	0.144*** (0.000)	-0.089*** (0.004)	0.090*** (0.004)	0.005 (0.861)	1			
18. Age	0.053* (0.083)	-0.009 (0.781)	0.222*** (0.000)	-0.211*** (0.000)	0.098*** (0.001)	-0.017 (0.591)	0.043 (0.163)	0.059** (0.056)	1		
19. Assets(ln)	-0.031 (0.308)	-0.143*** (0.000)	0.203*** (0.000)	0.072** (0.018)	0.050 (0.104)	-0.125*** (0.000)	0.147*** (0.000)	0.366*** (0.000)	-0.074** (0.016)	1	
20. Leverage	0.097*** (0.002)	0.130*** (0.000)	0.108*** (0.000)	-0.061** (0.046)	0.030 (0.326)	-0.077** (0.012)	-0.368*** (0.000)	0.188*** (0.000)	0.127*** (0.000)	0.279*** (0.000)	1

Note(s): VIF refers to the Variance Inflation Factors. *p<0.10; **p<0.05; ***p<0.01.

Table 5: Female directors, regulations concerning board gender diversity, and firm ownership and control structure: Bivariate analysis.

PANEL A: Ownership and control				
Variables		Pre-regulation (N = 364)	Post-regulation (N = 702)	Total (N = 1,066)
First largest voting rights	Above mean (N = 418)	6.91	11.35	9.84
	Below mean (N = 648)	3.42	8.25	6.60
	Mann–Whitney U test	3.650***	4.101***	5.214***
Controlling shareholder alone	Yes (N = 129)	5.25	11.77	9.24
	No (N = 937)	4.71	9.18	7.68
	Mann–Whitney U test	0.879	1.311	1.069
First largest controls	Yes (N = 459)	6.37	9.97	8.70
	No (N = 607)	3.52	9.10	7.24
	Mann–Whitney U test	3.019***	0.985	2.199***
Presence of multiple	Yes (N = 973)	4.71	9.18	7.68
	No (N = 129)	5.25	11.76	9.24
	Mann–Whitney U test	0.879	1.311	1.069
Multiple voting rights	Above mean (N = 973)	4.71	9.97	7.68
	Below mean (N = 129)	5.25	9.10	9.24
	Mann–Whitney U test	0.879	0.985	1.069
Other multiple controls	Yes (N = 477)	2.96	8.46	6.72
	No (N = 589)	6.08	10.35	8.80
	Mann–Whitney U test	3.580***	1.806*	2.831***
PANEL B: Family ownership and control				
Variables		Pre-regulation (N = 364)	Post-regulation (N = 702)	Total (N = 1,066)
Family ultimate shareholder	Yes (N = 728)	6.09	10.29	8.98
	No (N = 338)	2.62	7.43	5.48
	Mann–Whitney U test	3.431***	3.252***	5.269***
Family voting rights	Above mean (N = 458)	7.74	11.69	10.52
	Below mean (N = 608)	3.02	7.59	5.87
	Mann–Whitney U test	4.703***	5.534***	7.665***
Family directors	Above mean (N = 423)	8.39	11.82	10.79
	Below mean (N = 643)	2.86	7.76	5.95
	Mann–Whitney U test	6.117***	5.361***	8.134***
All families	Yes (N = 303)	7.49	10.42	9.48
	No (N = 763)	3.80	9.08	7.23
	Mann–Whitney U test	3.858***	1.445	3.478***

Note(s): *Female directors* is a continuous variable, the statistic we use to measure the statistical differences is the Mann-Whitney U test given that the Kolmogorov-Smirnov, Shapiro-Wilk and Skewness and kurtosis tests for normality reveal the non-normality of the continuous variables. The descriptive statistic is female directors mean. *Pre-regulation*: firm-year observations from 2003 to 2006 (N=364); *Post-regulation* firm-year observations from 2007 to 2013; *Total:* firm-year observations from 2003-2013. *p<0.10; **p<0.05; ***p<0.01.

Table 6: Influence of firm ownership and control structure on the impact of board gender diversity regulations

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Code and soft quota	9.792***	8.111***	9.474***	12.832***	9.647***	8.979***
	(5.42)	(5.60)	(5.71)	(4.95)	(5.69)	(5.80)
First largest voting rights	0.126***					
	(2.69)					
First largest voting rights×Code and soft quota	-0.036					
	(-1.02)					
Controlling shareholder alone		-2.456				
		(-1.11)				
Controlling shareholder alone×Code and soft quota		4.721**				
		(1.97)				
First largest controls			1.885			
			(1.37)			
First largest controls ×Code and soft quota			-1.532			
			(-1.02)			
Presence of multiple				2.456		
				(1.11)		
Presence of multiple×Code and soft quota				-4.721**		
				(-1.97)		
Multiple voting rights					-0.062	
					(-1.21)	
Multiple voting rights×Code and soft quota					-0.048	
					(-1.04)	
Other multiple controls						-1.028
						(-0.70)
Other multiple controls×Code and soft quota						-0.433
						(-0.28)
Board size	0.450**	0.347*	0.367*	0.347*	0.380**	0.376*
	(2.31)	(1.80)	(1.90)	(1.80)	(1.97)	(1.95)
Independent directors	0.053	0.044	0.050	0.044	0.043	0.051
	(1.47)	(1.23)	(1.40)	(1.23)	(1.21)	(1.42)
Proprietary directors	-0.016	-0.007	-0.007	-0.007	0.008	0.003
	(-0.46)	(-0.19)	(-0.19)	(-0.19)	(0.23)	(0.10)
Market to book ratio	0.421	0.468	0.475	0.468	0.320	0.408
	(0.94)	(1.05)	(1.05)	(1.05)	(0.71)	(0.90)
Return on assets	-5.795	-6.006	-5.389	-6.006	-5.154	-5.085
	(-1.35)	(-1.40)	(-1.25)	(-1.40)	(-1.20)	(-1.18)
Beta	0.436	0.033	0.215	0.033	-0.013	0.160
	(0.37)	(0.03)	(0.18)	(0.03)	(-0.01)	(0.14)
Age	0.016	0.017	0.017	0.017	0.020	0.012
	(0.46)	(0.48)	(0.48)	(0.48)	(0.56)	(0.35)
Assets(ln)	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**
	(2.27)	(2.20)	(2.39)	(2.20)	(2.37)	(2.45)
Leverage	-11.902***	-11.144***	-10.874***	-11.144***	-11.349***	-10.886***
	(-3.98)	(-3.76)	(-3.65)	(-3.76)	(-3.83)	(-3.67)
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Annual effects	Yes	Yes	Yes	Yes	Yes	Yes
Wald's χ^2	192.40***	192.79***	188.40***	192.79***	195.18***	189.46***
N truncated observations	413	413	413	413	413	413
N observations	929	929	929	929	929	929
N firms	113	113	113	113	113	113

Note(s): Models are estimated using panel-data Tobit method. The dependent variable is *female directors*. Independent variables (except *Code and soft quota*) are estimated at year t-1 to control for reverse causality endogeinity problems. Values are unstandardised coefficients, with z values in parentheses. Wald's χ^2 is a Wald test of the joint significance of the reported coefficients of the explanatory variables, asymptotically distributed as χ^2 under the null hypothesis of no relationship for all explanatory variables. Models are estimated with a constant, year-dummy variables, and industry dummy variables; however, they are not reported in the table. To have complete data in our estimate and have the same size in all models, the final sample for the Tobit analysis comprises 113 firms and 929 observations (413 truncated observations and 516 non-truncated observations). *p<0.10; **p<0.05; ***p<0.01.

Table 7: Influence of family ownership and control on the impact of board gender diversity regulations

Variables	Model 1	Model 2	Model 3	Model 4
Code and soft quota	9.881***	9.194***	10.014***	9.815***
	(5.58)	(5.71)	(6.36)	(6.49)
Family ultimate shareholder	5.061***			
	(3.11)			
Family ultimate shareholder×Code and soft quota	-1.727			
	(-1.11)			
Family voting rights		0.131***		
		(3.00)		
Family voting rights×Code and soft quota		-0.023		
		(-0.75)		
Family directors			0.215***	
			(3.95)	
Family directors×Code and soft quota			-0.096**	
			(-2.43)	
All families				2.994*
				(1.92)
All families×Code and soft quota				-4.669***
				(-2.77)
Board size	0.379**	0.429**	0.509***	0.397**
	(1.96)	(2.22)	(2.59)	(2.06)
Independent directors	0.048	0.052	0.043	0.053
	(1.33)	(1.44)	(1.22)	(1.48)
Proprietary directors	-0.001	0.005	-0.009	-0.003
	(-0.03)	(0.13)	(-0.26)	(-0.09)
Market to book ratio	0.478	0.491	0.506	0.575
	(1.07)	(1.10)	(1.14)	(1.29)
Return on assets	-4.327	-4.762	-4.927	-5.944
	(-1.01)	(-1.11)	(-1.16)	(-1.40)
Beta	0.326	0.429	0.102	0.312
	(0.28)	(0.37)	(0.09)	(0.27)
Age	0.031	0.025	0.028	0.022
	(0.87)	(0.72)	(0.80)	(0.63)
Assets(ln)	0.001**	0.001**	0.001**	0.001**
	(2.04)	(2.20)	(2.29)	(2.34)
Leverage	-11.014***	-11.663***	-11.442***	-11.305***
	(-3.72)	(-3.92)	(-3.86)	(-3.81)
Industry effects	Yes	Yes	Yes	Yes
Annual effects	Yes	Yes	Yes	Yes
Wald's χ^2	196.99***	194.71***	200.41***	194.73***
N truncated observations	413	413	413	413
N observations	929	929	929	929
N firms	113	113	113	113

Note(s): Models are estimated using panel-data Tobit method. The dependent variable is *female directors.* Independent variables (except *Code and soft quota*) are estimated at year t-1 to control for reverse causality endogeinity problems. Values are unstandardised coefficients, with z values in parentheses. Wald's χ^2 is a Wald test of the joint significance of the reported coefficients of the explanatory variables, asymptotically distributed as χ^2 under the null hypothesis of no relationship for all explanatory variables. Models are estimated with a constant, year-dummy variables, and industry dummy variables; however, they are not reported in the table. To have complete data in our estimate and have the same size in all models, the final sample for the Tobit analysis comprises 113 firms and 929 observations (413 truncated observations and 516 non-truncated observations). *p<0.10; **p<0.05; ***p<0.01.

Table 8: Influence of other large shareholders on the impact of board gender diversity regulations in family firms

Variables	Model 1	Model 2	Model 3	Model 4
Code and soft quota	6.559***	7.415**	4.157**	3.659*
	(3.28)	(2.37)	(1.83)	(1.92)
First largest controls	4.529**			
	(2.33)			
First largest controls×Code and soft quota	-4.129**			
	(-2.32)			
Presence of multiple		-0.953		
		(-0.37)		
Presence of multiple×Code and soft quota		-2.886		
		(-1.05)		
Multiple voting rights			-0.082	
			(-1.57)	
Multiple voting rights×Code and soft quota			0.029	
			(0.52)	
Other multiple controls				-6.056***
				(-3.11)
Other multiple controls×Code and soft quota				3.539**
				(1.99)
Board size	-0.245*	-0.189	-0.182	-0.145
	(-1.81)	(-1.26)	(-1.19)	(-0.98)
Independent directors	0.026	0.015	0.013	0.024
	(0.77)	(0.44)	(0.40)	(0.74)
Proprietary directors	0.008	0.002	0.007	0.020
	(0.31)	(0.08)	(0.26)	(0.79)
Market to book ratio	0.173	0.311	0.205	0.153
	(0.39)	(0.66)	(0.43)	(0.35)
Return on assets	-6.343***	-12.344**	-11.789*	-7.308
	(-1.16)	(-1.97)	(-1.86)	(-1.31)
Beta	0.235	0.883	1.190	0.499
	(0.20)	(0.63)	(0.86)	(0.40)
Age	0.030	-0.018	-0.023	0.011
	(0.98)	(-0.52)	(-0.62)	(0.33)
Assets(ln)	0.001**	0.001	0.001	0.001**
	(2.57)	(1.38)	(1.45)	(2.26)
Leverage	-4.026	-2.007	-1.805	-4.675*
	(-1.54)	(-0.61)	(-0.54)	(-1.76)
Industry effects	Yes	Yes	Yes	Yes
Annual effects	Yes	Yes	Yes	Yes
Inverse Mills Ratio λ	-0.817	9.451	9.688	1.411
	(-0.16)	(1.54)	(1.55)	(0.25)
Wald's χ^2	74.78***	66.87***	62.21***	82.41***
N uncensored observations	630	630	630	630
N observations	929	929	929	929
N firms	113	113	113	113

Note(s): Models are estimated using Heckman two-stage method. The dependent variable is *female directors.* Independent variables (except *Code and soft quota*) are estimated at year t-1 to control for reverse causality endogeinity problems. Values are unstandardised coefficients, with z values in parentheses. Inverse Mills Ratio λ is a variable that controls for sample selection bias. Wald's χ^2 is a Wald test of the joint significance of the reported coefficients of the explanatory variables, asymptotically distributed as χ^2 under the null hypothesis of no relationship for all explanatory variables. Models are estimated with a constant, year-dummy variables, and industry dummy variables; however, they are not reported in the table. To have complete data in our estimate and have the same size in all models, the final sample for the Heckman analysis comprises 113 firms and 929 observations (630 observations for family firms and 299 for nonfamily) *p<0.10; **p<0.05; ***p<0.01.

Table 9: Influence of family ownership and control on the impact of board gender diversity regulations: female family directors versus non-family directors

	DV: Female family directors				DV: Female non-family directors			
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**
Code and soft quota	1.181 (0.46)	0.834 (0.43)	0.537 (0.28)	3.641** (2.05)	0.124*** (5.60)	0.124*** (5.97)	0.133*** (6.69)	0.129*** (6.65)
Family ultimate shareholder	3.564 (1.45)				0.036* (1.79)			
Family ultimate shareholder×Code and soft quota	1.396 (0.59)				-0.011 (-0.56)			
Family voting rights		0.115** (2.40)				0.001 (1.29)		
Family voting rights×Code and soft quota		0.053 (1.63)				-0.001 (-0.90)		
Family directors			0.296*** (4.89)				-0.001 (-0.46)	
Family directors×Code and soft quota			0.049 (1.12)				-0.001** (-2.37)	
All families				3.424** (2.07)				0.022 (1.02)
All families×Code and soft quota				-2.073 (-1.15)				-0.061*** (-2.62)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Annual effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald's χ^2	38.70**	43.00***	76.19***	40.69**	172.35***	169.74***	179.83***	177.66***
N truncated observations	675	675	675	675	592	592	592	592
N observations	929	929	929	929	929	929	929	929
N firms	113	113	113	113	113	113	113	113

Note(s): Models are estimated using panel-data Tobit method. The dependent variables are *female family directors* (Models 1 to 4) and *female non-family directors* (Models 5 to 8). Independent variables (except *Code and soft quota*) are estimated at year t-1 to control for reverse causality endogeinity problems. Values are unstandardised coefficients, with z values in parentheses. Wald's χ^2 is a Wald test of the joint significance of the reported coefficients of the explanatory variables, asymptotically distributed as χ^2 under the null hypothesis of no relationship for all explanatory variables. Models are estimated with a constant, year-dummy variables, industry dummy variables, and control variables; however, they are not reported in the table. To have complete data in our estimate and have the same size in all models, the final sample for the Tobit analysis comprises 113 firms and 929 observations (Models 1 to 4: 675 truncated observations and 254 non-truncated observations; Models 5 to 8: 592 truncated observations and 337 non-truncated observations). *p<0.10; **p<0.05; ***p<0.01.

Figure 1

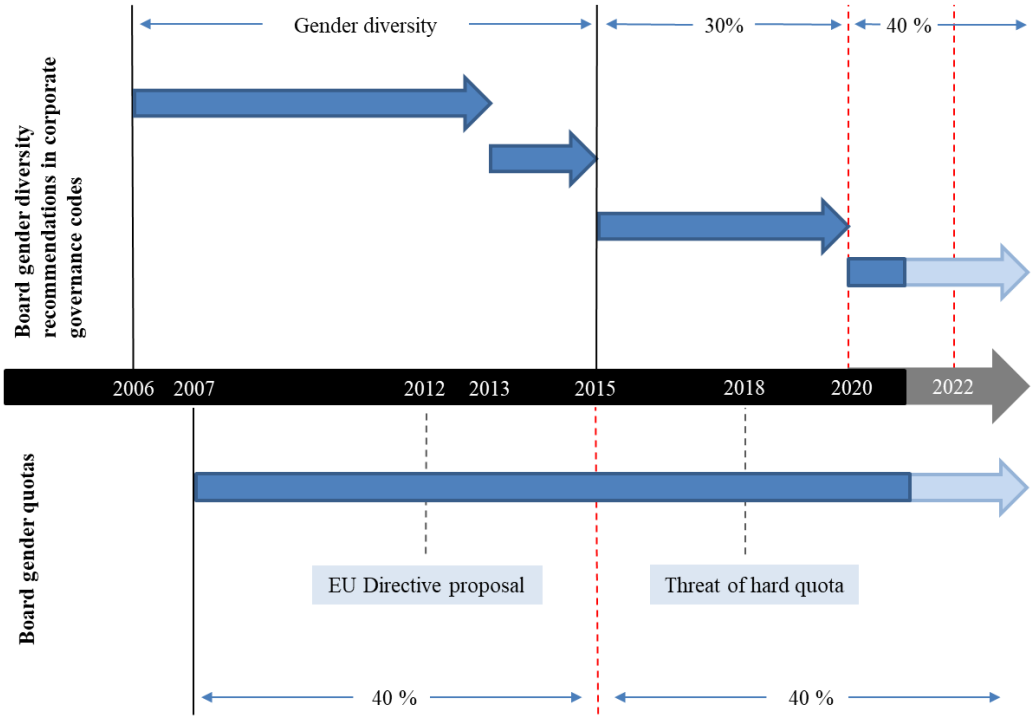
Gender diversity
30%
40 %
Board gender diversity recommendations in corporate governance codes
2006
2007
2012
2013
2015
2018
2020
2022
Board gender quotas
EU Directive proposal
Threat of hard quota
40 %
40 %

Figure captions

Figure 1. Regulations regarding board gender diversity in Spain.