Board gender diversity and corporate social performance: The moderating effect of family firms

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Abstract

Although previous research has separately investigated the impact of board gender diversity (BGD) and ownership structure on corporate social performance (CSP), there is a lack of research examining their joint effect on CSP. We discuss this joint effect in the French context featuring the dominance of family-controlled firms. Our sample comprises 2,674 firm-year observations of French listed firms from 2006 to 2019, and we use the 2011 gender quota regulatory change as an exogenous shock. Unlike most studies, we control for potential sources of endogeneity using the generalized method of moments estimator. Our results show that BGD significantly influences CSP and that family firms strengthen the relationship between female directors and CSP. In addition, we reveal that a critical mass of women significantly increases CSP, supporting the effective role of BGD in promoting CSP. Finally, the findings reveal that boardroom gender diversity regulations can be considered an exogenous shock to female representation and, consequently, to CSP. Our results contribute to the research on CSP and corporate governance and provide important practical implications for regulators, management, and scholars.

JEL classification: G32; G34; M41

Keywords: Board gender diversity; corporate social performance; stakeholder theory; France; family firms

1. Introduction

According to Carroll (1979, 1991), any organization, by interacting with its environment (social, political, or environmental), must assume a set of responsibilities beyond its purely legal or economic obligations. In this context, we examine the concepts of corporate social responsibility (CSR) and corporate social performance (CSP), which refer to aspects of a company's engagement in social and environmental issues. CSR refers to a company's voluntary commitment to operating ethically and contributing to the well-being of society. It encompasses various activities and initiatives beyond legal requirements, including philanthropy, environmental sustainability, ethical labor practices, and community engagement. Thus, CSR focuses more on a company's intentions and initiatives to contribute to social and environmental causes; it concerns the company's commitment to being a responsible corporate citizen.

On the other hand, CSP measures how well a company performs in terms of its social and environmental responsibilities. It assesses the real impact of a company's business operations on various social and environmental dimensions. In other words, CSP represents the social performance outcome of an organization in terms of CSR activities. In this context, Wood (1991) defines CSP as a "business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships" (p. 693). Additionally, beyond increased investor concerns regarding CSP, the investment community perceives CSP as significant financial "material" that influences investment portfolio (Richardson, 2009).

Environmental, social, and governance (ESG) scores are a good proxy for CSP (Galbreath, 2013). As the demand for socially responsible and sustainable business practices continues to grow, ESG scores have emerged as a key tool for investors, stakeholders, and the companies themselves to evaluate and communicate their commitment to CSR. By combining these three factors, ESG scores offer a comprehensive view and standardized framework for assessing a company's environmental impact, social practices, and governance structure and thus provide a valuable quantitative measure of a company's overall social performance.

As an essential component of a firm's CSR activities, the board of directors can weigh in on decisions directly or indirectly, which in turn affects CSP (Krüger, 2009). Indeed, under the CSR perspective, the board of directors, a major actor in firm decisions, is collectively responsible and accountable to many stakeholders (Rao & Tilt, 2015). The corporate governance literature has thus paid increasing attention to means of increasing CSR activities (Byron & Post, 2016). One way of doing so is to increase the number of women on corporate boards (WOCB). Indeed, by bringing different skills and values to the board (Hillman et al., 2007), female directors are likely to fulfill a different social role that will positively impact CSP (Terjesen et al., 2009). Consequently, the effect of WOCB on CSP is a topic of interest.

Numerous studies examine the different corporate governance mechanisms that may affect CSP (Jain & Jamali, 2016). At the board level, the proportion of independent directors (Johnson & Greening, 1999; Lin & Nguyen, 2022; Radu et al., 2022; Webb, 2004) and CEO–chairperson duality (Ahmad et al., 2017; Uyar et al., 2017; Zhang et al., 2013) are expected to have a significant influence on CSP. The literature on board gender diversity (BGD) is primarily interested in three dimensions of the phenomenon (Terjesen et al., 2009): the representation of WOCB over time, the factors explaining the underrepresentation of WOCB, and the effect of BGD on business performance. More recently, abundant literature has examined the role and impact of female directors on different business outcomes, such as corporate social disclosure and CSP (Beji et al., 2021; Boukattaya & Omri, 2021; Byron & Post, 2016; Khatri, 2022; Yarram & Adapa, 2021). However, very few studies have addressed this aspect of family firms. In this regard, previous researchers have investigated the impacts of ownership structure and BGD on CSP separately, not the potentially important impact of both.

The literature generally considers family firms to be substantially different from managerial firms in terms of agency conflicts, governance structure, and corporate orientation. However, previous literature (e.g., Martinez-Jimenez, 2009) argues that, for family firms, women in the boardroom can be invisible and instead play the role of family delegates (Abdullah, 2014), tending to act in accordance with the family's CSR orientation (Rodríguez-Ariza et al., 2016). The need for social practices in family firms may be lower, since these firms tend to be less accountable to stakeholders.

Our research offers additional insights into whether female directors in family firms represent a barrier or a contingent factor in improving CSP. This question is particularly salient in the context of a majority family shareholding whose motives and influence differ from those of the firm's minority shareholders. Nevertheless, appointing one or two WOCB might not be enough to trigger real change. According to critical mass theory, the interactions within a group essentially depend on size, and when a minority group reaches critical mass, group interactions undergo a qualitative change (Kanter, 1977). More specifically, when the minority forms a critical mass, the nature of group interactions significantly improves. It is, therefore, important to investigate the effect of BGD on CSP in the presence of a critical mass of female directors.

We focus on the French context, which is characterized by a strong stakeholder orientation that includes employees, investors, the government, and society as a whole. Along these lines, France has established a series of government policies and regulations obliging companies to comply with social and environmental standards. These include the promulgation of numerous laws, such as the Grenelle Environment Forum (2007, 2012), the French Energy Transition Law (2015), and the Duty of Vigilance Law (2017), aiming to improve firms' sustainability performance. This series of laws marks a new turning point and places France at the forefront of CSR regulations (Beji et al., 2020) and to be systematically considered as progressing in terms of sustainability. For instance, the 2022 Sustainable Development Report ranked France seventh among 193 United Nations

countries based on overall Sustainable Development Goal performance or the percentage of Sustainable Development Goals achieved (Sachs et al., 2022).

On the other hand, France has always been a pioneer in emphasizing gender diversity through laws. For instance, on January 13, 2011, France enacted legislation to improve gender balance for WOCB. This law mandated that, within three years, by 2014, 20% of companies' board members had to be women, increasing to 40% by 2017. Following these initiatives, France has become a leader in continental Europe, surpassed only by Scandinavian countries. According to the European Institute for Gender Equality, France was the only European country in 2022 to exceed its threshold of 40%, with 45.3% of boardroom seats occupied by women. In addition, the promulgation of the 2014 Law on Real Gender Equality aims for equality between women and men in all dimensions through professional equality and parity in politics and in social and professional environments.

The French government's significant efforts in terms of two sustainability concerns, namely, sustainability performance and gender equality, make this research context a compelling setting for examining their association. In addition, few studies have investigated the issue related to social performance in the French context. Kahloul et al. (2022), for example, have recently addressed the issue relating to CSR and financial performance, whereas we are interested in social performance.

We focus on French companies listed on the CAC All-Tradable Index from 2006 to 2019. During this period, many gender regulation laws were enacted, and a series of government policies and regulations on social and environmental matters were promulgated. Thus, the study period constitutes a natural experiment in which financial sustainability is subject to increased regulations through important French governmental initiatives to promote gender diversity and new corporate social practices have come into effect. This setting offers hence opportunities to evaluate the effectiveness of such initiatives in France.

We provide evidence of BGD's significant influence on CSP and the prominent role of family firms in this effect. In addition, our results reveal that a critical mass of women significantly increases CSP, supporting BGD's role in promoting CSP.

Our study makes several contributions to the debate on CSR and to the literature on corporate governance in France and worldwide. First, the study's findings add to the growing literature on BGD and evidence of female directors' tendency to exhibit more socially responsible behavior. The study highlights the relevance of having more than one female director in the boardroom to promote corporate social activities.

Second, this study adds to the relatively sparse literature on the effects of family ownership on the relationship between BGD and CSP, enriching our knowledge of this important issue. We provide further evidence of family ownership as a factor that positively moderates the relationship between BGD and CSP. Since family firms represent

a large proportion of listed companies in France and Europe (Ginglinger, 2018) and play an essential role in the global economy, it is important to contribute to the understanding of two major sustainability concerns, namely, sustainability performance and gender equality for family firms.

Third, we challenge arguments that women on boards in family firms are supposed to be invisible (Cole, 1997; Martinez-Jimenez, 2009; Salganicoff, 1990) and act instead more as family delegates (Abdullah, 2014), since family firms might have less need of social practices if they tend to be less accountable. Nonetheless, our evidence suggests that, for family firms, the more women in the boardroom, the greater their effect in improving firms' sustainable behavior.

In addition, we make a theoretical contribution to the advancement of critical mass theory in relation to BGD. We consider additional proxies of gender diversity that capture representation reaching a threshold, such that a critical mass of female directors in the boardroom causes women to no longer be viewed as tokens but, rather, as significant contributors in enhancing corporate social practices. We thus provide evidence of the relevance of critical mass theory in the context of gender diversity on boards.

Second, we make another theoretical contribution by examining BGD through the prism of stakeholder theory (Freeman, 1984). Indeed, WOCB are usually examined within two theoretical frameworks: , namely agency theory and resource dependence theory (Terjesen et al., 2009). According to Hillman and Dalziel (2003), these two theories are mainly used to the extent that they represent two key functions of the board of directors: the supervision of management and the supply of critical resources to the organization. We adopt another theoretical framework, in which Hill and Jones (1992) assign a third function to the board of directors: to increase the firm's sustainable behavior and accountability to stakeholders. We thus use stakeholder theory to examine whether and how female directors may affect CSP.

Third, this study's holistic approach is based on understanding the intersection of gender diversity and family ownership within the realm of CSP. By integrating theories, considering family firms as social actors, and advancing stakeholder theory, this research enhances our theoretical understanding of corporate governance dynamics and social responsibility practices, particularly in the context of family-owned businesses.

The paper is organized as follows. Section 2 presents the literature review and hypothesis development. Section 3 describes the methodology. Section 4 presents descriptive statistics and correlations. Section 5 describes the results of the multivariate analysis. Section 6 concludes the paper.

2. Literature review and hypothesis development

2.1. Literature review

According to Jensen and Meckling (1976), a corporation is a nexus of contracts between the firm and its constituents. Stakeholder theory (Freeman, 1984) depicts these

constituents as the stakeholders, which are defined as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (p.46). Accordingly, stakeholders generally encompass employees, consumers, communities, and governments, going far beyond the shareholders and investors (Clarkson, 1995). Within this framework, managers are responsible for protecting and maximizing shareholder wealth and ensuring that corporate strategic decisions benefit all stakeholders. Consequently, Jones (1995) asserts that the firm is "recast as a nexus of contracts between its top managers and its stakeholders" (p. 407).

According to stakeholder theory, one of the pillars of organizational survival depends on its stakeholders since they supply resources that are critical to the firm's success (Hill & Jones, 1992). For instance, shareholders provide capital, while employees contribute their expertise, skills, and effort to the organization. If stakeholders withdraw some or all of these resources, the organization will inevitably encounter difficulties in continuing its activities or face financial problems (Clarkson, 1995).

As primary decision makers in an organization, the board of directors is considered to be at the centre of the nexus of relationships among stakeholders. Furthermore, the board of directors ensures that the firm takes into account all stakeholders' interests, financial and nonfinancial (Windsor, 2006). Consequently, the board of directors' main function is to ensure that the firm meets its social responsibilities by committing to all stakeholders' interests (Freeman, 1984; Hill & Jones, 1992).

2.2. *Hypothesis development*

2.2.1. BGD and CSP

Since boards have to manage stakeholders' best interests regarding CSR and de facto CSP (Harjoto et al., 2015; Jain & Jamali, 2016), some directors may lack CSR expertise or information (Paine, 2014). However, according to Boulouta (2013), boards that count female directors are more likely to influence a firm's commitment to CSR. In this regard, stakeholder theory and social role theory provide several plausible explanations.

First, female directors possess a range of psychological characteristics that could lead to greater consideration of stakeholders' interests (Wood & Eagly, 2009). For instance, compared to men, women possess stronger communal traits, such as affection, kindness, and interpersonal sensitivity. Given these characteristics, female directors seem to consider a wider range of stakeholders, unlike their male counterparts, who tend to focus more on shareholder and economic concerns (Adams et al., 2011). Since female directors are more relationally oriented (Wood & Eagly, 2009), they are more prone to establishing relationships with a broader set of stakeholders or at least make the necessary effort to consider stakeholders' interests (Rosener, 1995).

Second, female directors often have a different profile and experience than male directors (Singh et al., 2008). Women are involved in a more diverse range of functions and types of organizations than men, including nonprofits, and men tend to specialize in narrow

functional areas within specific sectors (Singh et al., 2008). This experience may give women a different stakeholder orientation. Boeker and Goodstein (1991) assume that the backgrounds and experiences of directors are likely to shape the relationships with different stakeholders. Indeed, differences in background and experience tend to create differences in cognitive structures, inducing nonconventional thinking and perspectives, especially regarding CSR (Dutton & Duncan, 1987). The backgrounds and differentiated experiences of female directors should thus orient them to be more attentive to stakeholder interests than their male counterparts are, especially in terms of societal or environmental issues that may affect both CSR and CSP (Bear et al., 2010; Post et al., 2011).

Third, women's leadership styles may influence the decisions made by the board of directors (Eagly et al., 2003), because such leadership styles are said to be more participative, democratic, and communal (Eagly et al., 2003) than those of men, who are seen as more autocratic (Eagly & Johannesen-Schmidt, 2001). Consequently, a board with female directors may be more open and likely to assess the interests and needs of different stakeholders (Nielsen & Huse, 2010).

Fourth, the literature has highlighted differences in men's and women's beliefs and values. For instance, Elm et al. (2001) argue that women have higher levels of moral reasoning than men, where moral reasoning is a cognitive skill used to resolve moral dilemmas. Similarly, women seem less tolerant of unethical practices than men are. Carroll (1991) thus argues that this may partly explain why women are more sensitive to moral and ethical issues. The gender socialization perspective also suggests that women and men differ in their attitudes toward competitive and ethical decisions: men tend to prioritize competition over ethical behavior, whereas women place more emphasis on benevolence and harmonious relations with others at the expense of competitiveness (Yarram & Adapa, 2021). In this context, female directors would be more sensitive to CSR and possess values and convictions promoting CSR activities to benefit the various stakeholders.

In this context, women's psychological characteristics, backgrounds, and experiences, leadership styles and beliefs, and values make them more capable of acknowledging the legitimacy of various stakeholders' claims. In other words, female directors are more likely to promote CSR and de facto CSP. This line of reasoning is supported by Nielsen and Huse (2010) when they argue that female directors are particularly willing to exert their rights to change the direction of CSR decisions.

On the other hand, social role theory asserts that both men and women exhibit prosocial behaviors that benefit others and organizations (Eagly, 2009). However, in the case of social pressures arising from the expectations of others, women tend to play communal roles, whereas men tend to prefer "agentic" behavior (Eagly, 2009). Women are thus more caring than men about the various stakeholders and their interests and may contribute to female directors developing a strong commitment to improving CSR practices (Glass & Cook, 2018). In addition, the career paths of men and women differ. Women are often

limited by cultural and social factors, that is, stereotypes and discrimination (Yarram & Adapa, 2021), and their path to a leadership position is harder and longer compared to that of men (Eagly et al., 2003; Hillman et al., 2002).

In addition, women's physical characteristics and clothing are subject to more scrutiny, and, as they achieve senior positions traditionally dominated by men, they are likely to face greater discrimination (Konrad & Cannings, 1997; Mavin & Grandy, 2016). Thus, women in leadership positions may develop a desire for equal treatment for all stakeholders and a greater focus on stakeholders and their interests, leading to the promotion of CSR initiatives (Glass & Cook, 2018; Yarram & Adapa, 2021).

Recent empirical literature investigating the relationship between BGD and CSP finds mixed results. For instance, Dang et al. (2021) and Khatri (2022) find that BGD has a significant and positive effect on CSP in large samples of Nordic and US firms, respectively. However, when analyzing this relationship in a dynamic framework, Dang et al. (2021) show that the BGD–CSP relationship is weak, suggesting that BGD does not significantly influence CSP when accounting for sources of endogeneity. Similarly, Veltri et al. (2021) reveal that BGD has no effect on CSP in a sample of Italian-listed firms. Alternatively, Boukattaya and Omri (2021) provide evidence of BGD's positive impact on CSP, along with its negative association with corporate social irresponsibility. The findings indicate that women play a more significant role in reducing corporate social irresponsibility than in enhancing CSR. In the same vein, Nadeem et al. (2020) report that BGD contributes to increased social and environmental value creation for a sample of UK listed firms. Li and al (2017) and Lu and Herremans (2019) also find that gender diversity positively affects US firms' environmental performance, particularly in highly polluting and environmentally impactful industries. In addition, Atif et al. (2020) find that female directors in a sample of US firms are more environmentally friendly than their male counterparts. The authors reveal a positive relationship between BGD and sustainable investment, with independent female directors having a stronger impact on sustainable investment than other female directors. Focusing on Chinese firms, Elmagrhi et al. (2019) and Javeed et al. (2022) find that BGD contributes to improvements in CSR. We put forth the following hypothesis based on the above discussion:

Hypothesis 1. All things being equal, BGD is positively related to CSP.

2.2.2. Critical number of female directors and CSP

Appointing one or two WOCB seems insufficient to trigger real changes. Indeed, critical mass theory (Granovetter, 1978; Kanter, 1977) suggests that the interactions within a group depend fundamentally upon size. When a subgroup reaches a certain size threshold, or critical mass, its influence significantly increases. Put differently, critical mass theory assumes that a minority group's interactions qualitatively change when the group reaches a critical mass. Indeed, when minorities are largely underrepresented, they become a symbol or a token. Specifically, they are, on the one hand, stereotyped by the

majority group and, on the other hand, viewed as less competent, giving them lower status than that of the majority (Kanter, 1977). Conversely, when the minority group forms a critical mass, the nature of the entire group's interactions significantly improves. Thus, based on social influence theory (Asch, 1955), when the minority group expresses at least three opinions, the majority group tends to consider and review these contributions more seriously (Asch, 1955), especially when the minority opinions are consistent (Nemeth, 1986).

In this context, Konrad et al. (2008) suggest that three female directors on a board comprise a critical mass. The underlying assumption is that, with at least three female directors, women's voices on corporate boards are more likely to be considered, leading to a significant increase in board dynamics. Empirical studies seem to corroborate this claim. For instance, based on the interviews of 50 female directors, Konrad et al. (2008) find that board dynamics and processes are enhanced when there is a critical mass of female directors. Likewise, Torchia et al. (2011) find that reaching a critical point of WOCB has a positive and significant effect on firm investment policy. Joecks et al. (2013) find that only after a critical mass of female directors is achieved, the relationship between BGD and firm performance becomes positive and significant. However, below this threshold, the link is negative and significant. More recently, Buertey (2021) examined a sample of South African listed firms and found a positive relationship between BGD and the assurance of CSR, with a stronger relationship for firms with two or more women on the board. Similarly, in the Australian context, Yarram and Adapa (2021) show that when firms have more women on their boards, reaching a threshold of three female directors, CSR practices are significantly improved. In a sample of Nordic listed firms, Khatri (2022) finds that CSR performance starts improving with a critical mass of 30% of women on boards. Atif et al. (2020) report that US corporate boards with two or more female directors have a pronounced impact on sustainable investment. Naveed et al. (2021) show that BGD enhances the CSP of Chinese companies facing environmental and social risk, regardless of critical mass, and this effect extends to firms with governance risk when critical mass is incorporated.

However, Bruna et al. (2021, 2022) show that the relationship between board feminization and CSP is nonlinear for US firms, exhibiting a threshold effect that changes across performance quantiles. Once a threshold is achieved, the positive marginal impact of board feminization on CSP declines while BGD grows, implying diminishing marginal utility. In the same vein, Dang et al. (2023) find that the BGD–CSP relationship is more complex. They reveal that, below a BGD threshold o one female director, the effect of BGD on CSP is zero or even negative, consistent with token theory (Kanter, 1977). This suggests that lone or token women cannot significantly influence BGD decisions and, ultimately, CSP. However, above this threshold, the BGD–CSP relationship is positive and significant.

Beyond a BGD threshold of 30%, the positive effect of WOCB on CSP should be considered with caution because fewer than 4% of sample firms have more than three

female directors on their boards, making it challenging to generalize the results. Hence, based on social influence theory and previous literature, we state the following hypothesis:

Hypothesis 2. All things being equal, the effect of BGD on CSP is positive when a critical mass of three female directors is reached.

2.2.3. Moderating effect of family firms on the BGD–CSP relationship

According to Brickson (2005), the notion of identity orientation refers to the assumed relationships between an organization and its stakeholders that shape their interaction patterns. The author suggests that these relations may be either a) individualistic, b) relational, or c) collectivistic. An individualistic orientation is associated primarily with concern for a firm's welfare. Bingham et al. (2011) suggest that when stakeholder relationships lower transaction costs and increase financial gains, CSR activities are more likely (Russo & Fouts, 1997). However, when organizational legitimacy and image have already been improved, individualistic organizations consider additional corporate social activity a burden (Brickson, 2007). Consequently, firms with an individualistic identity orientation are mainly interested in organizational self-interest. These firms will be involved in CSR activities to increase financial performance and differentiate themselves from other entities (Bingham et al., 2011).

Following Bingham et al. (2011), we contend that nonfamily firms are more likely to adopt an individualistic identity orientation than family firms. The latter view their different stakeholders as transactional partners and are more prone to engage in CSR activities that enhance CSP.[1] Zellweger and Nason (2008) argue that family firms exhibit an innate incentive to comply with multiple stakeholder requirements because they care about their reputation. In a review of 35 articles addressing social issues in family firms, van Gils et al. (2014) find that family firms are more sensitive to social issues and, more generally, to stakeholders than nonfamily firms are. Bingham et al. (2011) assume that family firms are more likely to exhibit higher levels of CSP because they have a less individualistic view of stakeholder relationships than nonfamily firms.

These findings confirm the conceptual framework of socioemotional wealth (SEW) theory (Gomez-Mejía et al., 2007a, b), which states that family firms are concerned with the "non-financial aspects of the firm that meet the family's affective needs." At the core of the theory is the notion that decision making in a family firm is driven by the owners' desire to maintain and enhance SEW (Gomez-Mejía & Herrero, 2022). SEW is based on the behavioral agency model (Wiseman & Gomez- Mejía, 1998). In this approach, family firms aim to preserve the SEW of the owners, a noneconomic goal that emphasizes compassion, relationships, trust, and reputation (Joyce et al., 2023), and these owners prioritize this goal over economic ones (Gomez-Mejía et al., 2010). This creates a long-term orientation for family firms and concern for stakeholders, promoting the inclusion of community

[1] Obviously, family firms are also interested in profit; however, it is not their prime motivation (Sharma et al., 1997).

values. Hence, since the noneconomic purpose of family firms lies in their SEW, women would be more valued and have greater influence on family boards for at least two reasons.

First, when SEW becomes important, women's communal traits are more appreciated in preserving family reputation, caring for stakeholders and promoting social welfare (Wang et al., 2019). Second, female directors gain influence on family boards because of their capabilities in preserving and enhancing the SEW of family firms, with a diminishing emphasis on leaders' agentic attributes (Joyce et al., 2023). Since female directors have a stronger SEW orientation, they are more likely to steer family firm policy in a more socially responsible manner.

However, Rodríguez-Ariza et al. (2017) question this role in family firms. They argue that women's invisibility in family firms has led to a situation where they have little decision-making power. This assertion is confirmed by the qualitative research of Cole (1997), who finds that women's work in family firms is often underestimated. This may be because women are perceived as less competent or lacking knowledge about the family firm (Dumas, 1998). Accordingly, the role of female directors may be limited to decisions related to protecting family interests rather than firm interests (Abdullah, 2014).

Buertey (2021) finds that family ownership adversely affects the BGD–CSR nexus in a sample of South African listed firms. Similarly, Veltri et al. (2021) test the association between BGD and CSP in family and nonfamily firms and provide evidence that family firms' status is a contingent condition modifying the effect of board features on CSP. However, for a sample of UK listed firms, Nadeem et al. (2020) find that BGD increases environmental value creation in family firms compared to nonfamily firms, and family ownership is associated with female directors having a special focus on environmental stakeholders. Cordeiro et al. (2020) report that, in the United States, family-controlled firms and BGD jointly influence corporate environmental performance.

Based on the above discussion and the mitigated literature on the matter, we cannot predict the sign of the relationship, and we therefore assert the following:

Hypothesis 3. All things being equal, the effect of BGD on CSP is moderated by family ownership.

3. Methodology

3.1. Sample and data

The initial sample for this study consists of all the companies listed on the CAC All-Tradable Index from 2006 to 2019 (starting on December 31 of each year). The CAC All-Tradable is a stock market index representing all sectors of the French economy and consists of all companies listing on Euronext Paris that fulfill the minimum free float velocity and market of reference requirements. This index includes the top 250 largest companies listed on Euronext Paris, which replaced the SBF 250 in 2011 and contains all the component stocks of the SBF 120 Index, based on the 120 most actively traded stocks

listed in Paris. Following prior studies, we exclude firms in the financial sector and utility services, since they are highly regulated, and those missing data. The final sample consists of an unbalanced panel of 2,674 firm-year observations.

3.2. Variable measurement

3.2.1. CSP

CSP refers to the extent to which a company, through its business operations and activities, fulfills its social responsibilities and positively contributes to societal well-being. It encompasses the company's impact on various dimensions, including environmental sustainability, ethical labor practices, and community engagement. CSP involves assessing and measuring the tangible outcomes and effectiveness of a company's initiatives and practices related to social performance and environmental responsibility.

To measure a company's CSP, we use the ESG score provided by Refinitiv (formerly known as Asset4 in the Thomson Reuters database), which is an overall company score based on self-reported information in the ESG pillars. A company's ESG scores reflect its efforts to address sustainability challenges and social responsibility practices, as well as its governance and ethical standards, to position itself for long-term success. This holistic approach comprehensively assesses a company's performance in areas relevant to its impact on society, the environment, and responsible business practices. The ESG score is calculated according to Refinitiv's database, one of the world's largest for financial, governance, and CSR data. Refinitiv assesses firms' CSR performance based on the following three criteria:

i) The environment (E) in three categories: resource use, emissions, and innovation

ii) Social (S) commitments in four areas: the workplace, human rights, the community, and product responsibility

iii) Governance (G) in three dimensions: management, shareholders, and CSR strategy

The overall ESG scores vary from zero to 100% based on publicly reported information on the ESG pillars, and each dimension is scored between zero, for companies disclosing no information, and 100, for companies disclosing all the criteria established by Refinitiv. This score is being increasingly used by researchers as a gauge of firm CSP (e.g., Cheng et al., 2014; Dang et al., 2023; Fatemi et al., 2018; Kahloul et al., 2022, amomg others)

Refinitiv's credibility remains unchallenged in the academic literature and among practitioners (Cheng et al., 2014). This is attributed to the fact that Refinitiv ESG scores are less sensitive to selection bias and are relevant in terms of both variability and distribution (Dang et al., 2023). Consequently, Refinitiv ESG scores are as good or better than those of other providers—such as Bloomberg, Standard & Poor's, or Moody's—and we are therefore confident relying on Refinitiv ESG scores regarding the quality and reliability of our CSP measure.

3.2.2. BGD

Consistent with Adams and Ferreira (2009) and Ahern and Dittmar (2012), we employ the percentage of WOCB, calculated as the number of female directors divided by the total number of directors. To confirm our results, we used Blau's (1977) index of heterogeneity, measured as $(1-\sum p_i^2)$, where p_i is the percentage of board members in each category i (in this case, male and female directors) and n is the total number of board members. Blau's index can range from zero (when there is no female director on a corporate board) to 0.50 (which occurs when there are equal numbers of female and male directors). Consequently, we employ both the percentage and Blau's index heterogeneity as measures of BGD.

Following Liu et al. (2014), we use a set of three dummy variables Dum_Women1, Dum_Women2, and Dum_Women3, which equal one if there is at least one, two, or three (or more) women on the board, respectively, and zero otherwise.

3.2.3. Family firms

Our definition of a family firm is very close to that used by Villalonga and Amit (2006) and Sraer and Thesmar (2007), among others. We view a firm as a family firm when the founder (e.g., Pierre Bellon at Sodexo) or a member of the founder's family (e.g., the Michelin family) is a blockholder of the company, namely, holding 20% of the voting rights.

3.2.4. Control variables

Consistent with the literature, we include several control variables, as follows.

CSR committee. One would expect the presence of specific structures, such as CSR committees, to enhance the quality of CSR activities (Simnett et al., 2009). Therefore, firms with CSR committees arguably have higher levels of CSR performance than other firms This variable is a dummy that takes one if the company has a CSR committee, and zero otherwise.

Board independence. The literature on boards of directors finds that independent directors are potentially more responsive to the inherent diversity of societal interests than other directors (Haniffa & Cooke, 2005). This suggests that the more independent members on the board, the higher the company's level of CSR performance. This variable is measured as the ratio of number of non-executive independent directors to total number of board directors.

Board size. Generally, larger boards imply greater resource diversity and a wider range of professional experiences and attributes, which enhances the board's understanding of the firm environment. Board size is thus expected to positively influence CSP (Giannarakis, 2014). This variable is measured as the natural logarithm of the number of directors on the board.

CEO duality. Combining the roles of the CEO and chairperson is likely associated with less effectiveness in board monitoring. One would hence expect CEO duality to adversely affect CSP since it is more difficult for the board of directors to ensure or impose corporate involvement in CSR activities when the same person can influence both the decision-making and supervision of such activities (e.g., Giannarakis, 2014). This variable is a dummy that takes one if the CEO serves as board chair, and zero otherwise.

Control concentration. The extent to which corporate control is concentrated can influence CSP. Indeed, most large controlling shareholders are investors with long investment horizons who desire to preserve the firm's long-term survival, notably by maintaining a good reputation with stockholders, which may improve CSR activities and performance (Bingham et al., 2011). However, these large shareholders may pursue private benefits of control, making them arguably less concerned about the firm's reputation as socially responsible, which may hinder CSP. This variable is measured as the sum of voting rights of the five largest shareholders.

Firm size. Almost unanimously, prior studies find that larger firms act more responsibly since they ultimately attract more attention and have greater operational impact (e.g., Fombrun & Shanley, 1990; Waddock & Graves, 1997). Thus, firm size is expected to be positively associated with CSP. This variable is measured as the natural logarithm of total assets.

ROA. This variable is the return on assets ratio. This variable gauges the firm's profitability. Higher firm profitability is generally associated with a better reputation and, thereby, more favorable CSR ratings (e.g., Fombrun & Shanley, 1990). Accordingly, one would expect firms to exhibit higher levels of CSP when they are more profitable.

R&D. Research and development (R&D) expenditures are usually associated with a firm's enhanced efforts to increase and improve its CSR activities, including those related to product quality, job security, and social values (Al-Tuwaijri et al., 2004). We thus expect R&D expenses to be positively related to CSP. This variable is measured as the ratio of research and development to total sales.

Leverage. One would expect highly leveraged firms to be riskier and economically less stable and thus more reluctant to invest in CSR activities (Dam & Scholtens, 2013). An alternative view suggests that firms that are largely funded by debt may act in a way that improves their CSP as a positive signal to creditors (Bouten et al., 2012). This variable is the ratio of total financial debt to total assets.

Female employees. The presence of female employees is expected to have a significant effect on CSP. Indeed, given their educational and professional backgrounds, women tend to adopt more socially responsible behavior in the workplace, such that their firms engage in more effective CSR activities. This variable is measured as the ratio of female employees to total employees.

Firm age. One would expect firm age to influence the extent to which a firm emphasizes CSR policies. Compared to old firms, young firms are less likely to acquiesce to stakeholder pressure regarding CSR activities. This means that older firms are generally more concerned about CSR issues, implying a potential positive association between firm age and CSP (Jackson & Apostolakou, 2010; Perry-Smith & Blum, 2000). This variable is measured as the natural logarithm of number of years since incorporation.

2011_Quota. This variable is a dummy variable used to control the effect of the Copé–Zimmermann law, taking one if the year is 2011 or after, and zero otherwise.

3.3. Empirical model estimation

To test the first research hypotheses, we use the following regression model:

$$CSP = \beta_0 \text{ Lagged CSP} + \beta_1 \text{ Women measure} + \beta_2 \text{ CSR committee} + \beta_3 \text{ Board independence} + \beta_4 \text{ Board size} + \beta_5 \text{ CEO duality} + \beta_6 \text{ Control concentration} + \beta_7 \text{ Firm size} + \beta_8 \text{ ROA} + \beta_9 \text{ R\&D} + \beta_{10} \text{ Leverage} + \beta_{11} \text{ Female employees} + \beta_{12} \text{ Firm age} + \beta_{13} \text{ 2011\_Quota} + \text{Fixed\_Effects} + \varepsilon \quad (1)$$

All variables are described above. Financial variables are winsorized at 1% and 99% to eliminate the effects of outliers. The term Fixed_Effects is a set of year and industry-fixed effects based on Campbell's (1996) industry classification that are included in the regressions to control for unobserved factors that may affect CSP; ε is an error term.

To test the second research hypothesis, we use the following regression model:

$$CSP = \beta_0 \text{ Lagged CSP} + \beta_1 \text{ Women measure} + \beta_2 \text{ CSR committee} + \beta_3 \text{ Board independence} + \beta_4 \text{ Board size} + \beta_5 \text{ CEO duality} + \beta_6 \text{ Control concentration} + \beta_7 \text{ Firm size} + \beta_8 \text{ ROA} + \beta_9 \text{ R\&D} + \beta_{10} \text{ Leverage} + \beta_{11} \text{ Female employees} + \beta_{12} \text{ Firm age} + \beta_{13} \text{ 2011\_Quota} + \beta_{14} \text{ Family} + \beta_{15} \text{ Women measure*Family} + \text{Fixed\_Effects} + \varepsilon \quad (2)$$

Where the variable Family is a dummy that takes one if the firm is controlled by a family and zero otherwise.

As in most empirical corporate governance research, studying the effects of BGD on corporate outcomes may has serious issues with endogeneity that lead to biased and inconsistent parameter estimates (e.g., Boulouta, 2013; Sila et al., 2016). In our study, endogeneity can be driven by reverse causality, since not only can the presence of women on boards affect CSP, but also firm performance can determine board gender. For example, Adams and Ferreira (2009) point out that well-performing firms are generally more likely to select women on their boards. Endogeneity can also be caused by unobservable heterogeneity due to unobservable firm characteristics, such as corporate strategy, culture, or national context, that remain constant over time (Chi, 2005; Yarram & Adapa, 2021). Such firm-specific factors are likely to affect both board gender and CSP.

Another source of endogeneity can be simultaneity, which assumes the presence of a dynamic relation between the current measure of board gender and past CSP. Hermalin and Weisbach (1998) theoretically support the argument that board characteristics largely

depend on past performance, showing that these characteristics are partly the outcome of bargaining between the board and the CEO and that the CEO's bargaining power basically depends on past performance. Such performance also directly affects the determinants of an optimal board structure, such as firm size and growth opportunities (Wintoki et al., 2012).

Given potential endogeneity issues, traditional panel data estimations such as fixed effect estimators might not be appropriate.[2] Therefore, we use the panel generalized method of moments (GMM) estimator to help control for the potentially dynamic nature of CSP–board gender relationships, as well unobservable heterogeneity and other endogeneity sources.

The dynamic panel GMM estimator is argued to be superior to the fixed effect estimation, which, although efficient in reducing bias from unobservable heterogeneity, ignores the exogeneity assumption by assuming in our model that contemporaneous measurements of female directors are completely independent of past values of CSP. The GMM estimator accounts for this causal effect by using a set of historical values for CSP, female directors, and other variables included in the performance model as instruments. These instruments should be uncorrelated with the error term and presumably provide an exogenous variation source for the current values of female directors.

System GMM estimation uses equations at both levels and first differences. The first-differenced variables will be used as instruments in equations in levels, whereas the lagged variables in levels will be used as instruments in first-differenced equations (Arellano & Bond, 1991). All independent variables are assumed to be endogenous, except for year and industry dummies. We employ the third and fourth lags of the dependent variable and endogenous variables, together with all the lags of exogenous variables as instrumental variables in our CSP model.

4. Results

4.1. Descriptive statistics

Table 1 presents the descriptive statistics of all the variables. The mean (median) ESG score is 61.105 (61.251), with a standard deviation of 14.93. This shows the relatively high CSP of French firms compared to the international setting, for which Cheng et al. (2014) report a mean score of 52.00 (for a sample of firms from 49 countries from 2002 to 2009). **Table 1** also shows that the average (median) number of female directors in our sample is 2.919 (2.000), whereas the average (median) proportion of women on boards is 10.234% (8.298%). Singh et al. (2015) find this portion to be, on average, 0.98 and 1.60 in 2008 and 2010, respectively, for SBF 120 companies. In this same setting, Nekhili and Gatfaoui

[2] In this regard, Wintoki et al. (2012) argue that "any empirical estimation of the effect of board structure on past firm performance that ignores the dynamic relation between current board structure and past performance (as do traditional fixed effects estimators) will yield inconsistent estimates" (p. 582).

(2013) find that the average number of WOCB increases slightly, from 0.64 in 2000 to 0.69 in 2004.

[Place Table 1 here]

4.2. Correlations

Table 2 reports the results of correlations among the variables. As a rule of thumb, a correlation of 0.70 or higher in absolute value may indicate a multicollinearity issue (Liu et al., 2014). The results show that the highest correlation coefficient of 0.978 appears to be between the percentage of WOCB and the Blau index of heterogeneity. This is not an issue since our specifications use these two variables separately. Multicollinearity is also checked by calculating the variance inflation factors (VIFs).[3] No anomaly is detected, since the highest VIF value is well below the conventional cutoff of 10.00. Accordingly, multicollinearity has little impact on our further analysis, and our regressions can be conducted free from bias. In addition, we note a statistically significant (at the 1% level) and positive correlation between CSP and alternative BGD measures. This preliminary result supports the study hypothesis that BGD and CSP are positively associated. There is also a significant negative association between family ownership and ESG scores, indicating an individualistic orientation for family firms, which decreases CSP.

[Place Table 2 here]

4.3. Multivariate analysis

4.3.1 Effect of BGD on CSP

Table 3 reports the results of estimating the relationship between BGD and CSP. In model 1, we examine the effect of the proportion of WOCB and find that this variable is positively and significantly ($p < 0.001$) correlated with CSP. This result suggests that CSP is higher in firms with more female board directors. Everything else being equal, ESG performance will rise by 32.71% with a one-point increase in the proportion of women on boards. Our findings are consistent with most of the literature on the relationship between BGD and CSP (Buertey, 2021; Javeed et al., 2022; Khatri, 2022; Nadeem et al., 2020), particularly in the French context (Beji et al., 2020; Boukattaya & Omri, 2021; Kahloul et al., 2022), indicating that the representation of women on boards is crucial in promoting CSP. Our results are also consistent with stakeholder theory, suggesting that women's traits and characteristics (i.e., being sensitive to the problems of others, communicative, and cooperative) lead them to develop higher ethical standards including those related to CSP.

The results also suggest that our GMM model is well-specified. Thus, the AR(2) second-order serial correlation test yields a *p*-value of 0.116, such that we cannot reject the null hypothesis of no second-order serial correlation. The J-statistic of the Hansen test of

[3] Not reported in Table 2 but available upon request.

overidentification yields a *p*-value of 0.215, indicating that we cannot reject the hypothesis that our instruments are valid. The difference-in-Hansen test of exogeneity of the instrument subsets yields a *p*-value of 0.468 for the J-statistic; therefore, we cannot reject the null hypothesis that the additional subset of instruments used in the system is exogenous.

In model 2 of Table 3, we introduce the Blau index of heterogeneity as an alternative measure of BGD and find that the corresponding coefficient continues to be positive and highly statistically significant ($p < 0.001$). Taken together, our results support the prediction of **Hypothesis 1** of a positive association between BGD and CSP.

Turning to the effect of control variables, we find that the respective coefficients generally have the expected signs across the two models. Regarding the Copé–Zimmermann law, the results reveal that this variable has positive and significant coefficients for both models. This finding is evidence that CSP tends to increase after the implementation of boardroom gender diversity regulations.

4.3.2 Effect of board gender on CSP: Critical mass

Following Liu et al. (2014), we measure WOCB using, each time, the presence of at least one, two, or three female directors. Table 4 shows that the coefficients on the variables Dum_Women1, Dum_Women2, and Dum_Women3 are all positive and significant ($p < 0.1$, $p < 0.05$, and $p < 0.001$, respectively). It is also worth noting that, ceteris paribus, the mere presence of at least one female director translates into a 7.3% increase in the firm's CSP (model 1). This increase rises to 9.7% in the presence of more than one female director (model 2) and increases to 11.2% in the presence of more than two female directors (model 3). Our results thus support Hypothesis 2, predicting that a critical mass of at least three women on a board significantly affects CSP. Our result is consistent with critical mass theory, suggesting that a critical mass representation of female directors leads female directors to express their community feelings and show concern for all stakeholders. This may drive firms to engage more in CSR activities and enhance their CSP.

Our results align with those of Buertey (2021) and Khatri (2022), who, respectively, find for samples of South African and Nordic firms that the relationship between BGD and CSP is stronger for firms with two or more women on the board and for those with a boardroom made up of at least 30% women. Our findings are also consistent with those of Yarram and Adapa (2021), who show that the association between BGD and total CSR becomes positive and significant for Australian companies when boardrooms comprise a minimum of two female directors. This relationship is shown to be even more pronounced when boards include a threshold level of three female directors. Our results are consistent with those of Glass and Cook (2018), who, examining Fortune 500 firms, report an improvement in CSR activities when even one or two female directors are on the board. Additionally, a firm's commitment to CSR strengthens as more women join the board. However, our findings contrast with those of Boulouta (2013), who finds, for a sample of

UK firms, a critical mass of female directors to be significantly negatively associated with the concerns dimension of CSP.

We now briefly discuss the results of the control variables as reported in **Table 4**. The governance-related variables CSR committee and Board independence exhibit strongly positive coefficients, supporting our expectation that strong corporate governance structures increase the CSP quality. However, we find that board size and CEO duality do not significantly affect CSP (at the 10% level), meaning that such CSP is unrelated to the number of directors on the board or whether the CEO and chair positions are separate. The results similarly show that CSP is independent of the control of the largest controlling shareholders.

As expected, the variable Firm size has a positive and significant coefficient, corroborating the view that larger firms are more likely to be socially responsible. The variable R&D also exhibits a strongly positive coefficient, indicating that firms likely to engage in R&D activities have better opportunities to act in a highly socially responsible way. The variable Female employees is similarly positively associated with CSP, consistent with the notion that, compared to men, women adopt more socially responsible behavior in the workplace. The variable Leverage, however, has a negative effect on CSP, indicating that potentially great financial instability and risk may deter highly indebted firms from investing in CSR activities. The coefficients of the variables ROA and Firm age are statistically indistinguishable from zero, which suggests that CSP is unrelated to firm profitability and longevity. Lastly, the Copé–Zimmermann law variable is found to be positive and significant across all specifications. This finding confirms that boardroom gender diversity reform has pressured firms to increase their female representation in the boardroom. Noncompliance with regulation could harm a corporation's reputation and result in legal sanctions such as fines, dissolution, or a ban on the payment of directors' fees (Nekhili et al., 2020). France, in particular, is known to implement 'hard quotas' such that companies failing to maintain the required number or percentage of women on the board of directors are legally sanctioned. For example, in Norway, the mandatory quota target of 40% was reached mainly due to the penalties for noncompliance (Seierstad et al., 2020).

[Place Table 4 here]

4.3.3 Family control, women on boards, and CSP

To estimate the role that family control plays in the effect of BGD on CSP, we supplement our baseline specification by introducing an interaction term between a measure of BGD and the variable Family along with the standalone variable Family. The results are reported in **Table 5**.

In model 1 in Table 5, the results show that the coefficient on the interaction term exhibits a significantly positive coefficient ($p < 0.05$), meaning that the positive effect of BGD on

CSP is more pronounced in family firms than in other firms. Economically, this effect increases in family firms by about three times as much as in nonfamily firms. In model 2, we introduce the Blau index of heterogeneity, and we continue to find that the interaction term with the variable Family is positive and statistically significant (albeit at $p < 0.1$). These results indicate that firms controlled by families appear to be more concerned about the role of female directors in improving the quality of CSR activities, which is consistent with the prediction of **Hypothesis 3**. Our results are in line with SEW theory, suggesting that family firms prioritize noneconomic goals over economic ones. Female directors, who often exhibit a stronger SEW orientation, are more inclined to guide family firms toward policies that strengthen a socially responsible–oriented approach. Our findings also align with those of Nadem et al. (2019), Javeed et al. (2022), and Khatari (2022), indicating that family ownership is beneficial for female directors in promoting CSP. Conversely, our results are opposite to those of Buertey (2021) who shows that ownership concentration negatively affects the BGD–CSP nexus.

Turning to the dummy measures of board gender, the results from models 3 to 5 in Table 5 reveal a coefficient of the interaction term that is positive and statistically significant except for model 3 (with $p < 0.05$ for models 4 and 5). Overall, these results suggest that the presence of women on boards is beneficial for CSR activities, regardless of whether firms are controlled by a family or not when the board comprises at least one female member. However, the role of female directors in improving CSP appears to be significant for family firms, compared to other firms, when the board of directors includes two or more women. Overall, our findings indicate that family control contributes to the role of female directors in CSR activities when family firms have more than one woman on their boards. The results also confirm the validity and exogeneity of our instruments, suggesting that our GMM model is overall well specified across the models in **Table 5**.

[Place Table 5 here]

4.4. Additional analysis: Effect of the quota law as exogenous shock

In additional analysis, we consider the French regulation on gender quota of 2011, known as the Cope–Zimmermann law, an exogenous shock. This law aims to promote gender diversity on French corporate boards, requiring that 40% of board seats in publicly traded companies be held by women. The law was introduced in stages: in 2014, 20% of a firm's board members were required to be women, rising to 40% by the start of 2017. This law is part of broader efforts to promote gender equality in corporate governance.

In line with Kanter's (1977) tokenism theory, the introduction of French quota legislation raises the question of whether gender quota regulation enables female directors to effectively demonstrate their skills in social responsibility and to what extent the implementation of gender quota legislation impacts the relationship between BGD and CSP.

In this section, we examine the relationship between CSP and BGD for family firms following the enactment of the Cope–Zimmermann gender quota law. Under this regulation, companies had to comply with gender quotas, significantly increasing female board representation. Chandler (2016,2018) finds that mandatory gender quotas have been a way to impose increases in the number of women on French and UK corporate boards. Evidence from Norway shows that, following the introduction of mandatory quotas, the supply of female directors increased (Hwang et al., 2021) and the mandatory quota target of 40% was reached (Dale-Olsen et al., 2013). Denmark also supported an initiative aiming at 40% female directors on corporate boards, which increased the number of female board members (Chevrot-Bianco, 2021).

Gender quota laws promote diversity and reflect companies' increased social responsibility, recognizing that gender equality is important to sustainable development. Thus, greater gender diversity promotes a stronger emphasis on CSR initiatives since women are often more attuned to CSR issues. They advocate for more ethical and sustainable business practices, resulting in improved CSP.

On the other hand, family firms might be less likely to increase gender diversity voluntarily due to long-standing traditions and conservative cultures that prioritize stability over change. For instance, Poletti-Hughes and Dimungu-Hewage (2022) show that the impact of BGD reforms on increasing female directors is less effective in countries dominated by a familial culture. However, when family firms must comply with legal requirements to integrate more women into their boards, this shift could result in improved CSP since diverse boards are typically more proactive in CSR activities.

To determine the exogenous shock of the quota law, we use the following regression model:

$$CSP = \beta_0 \text{ Lagged CSP} + \beta_1 \text{ Women measure} + \beta_2 \text{ CSR committee} + \beta_3 \text{ Board independence} + \beta_4 \text{ Board size} + \beta_5 \text{ CEO duality} + \beta_6 \text{ Control concentration} + \beta_7 \text{ Firm size} + \beta_8 \text{ ROA} + \beta_9 \text{ R\&D} + \beta_{10} \text{ Leverage} + \beta_{11} \text{ Female employees} + \beta_{12} \text{ Firm age} + \beta_{13} \text{ 2011\_Quota} + \beta_{14} \text{ Family} + \beta_{15} \text{ Women measure*Family} + \beta_{16} \text{ 2011\_Quota* Family} + \beta_{17} \text{ 2011\_Quota* Women measure} + \beta_{18} \text{ 2011\_Quota* Women measure* Family} + \text{Fixed\_Effects} + \varepsilon \quad (3)$$

All variables are described above.

Results are reported in Table 6. They indicate that interaction coefficients between the Copé–Zimmermann law and BGD measures are positive and statistically significant across all specifications. This finding underscores the notion that regulations promoting gender diversity in boardrooms serve as an external catalyst influencing female representation and, consequently, CSP. The interaction term with the variable for the critical mass of women on the board is also positive and significant. This result further shows that boardroom gender diversity regulation can be considered an exogenous shock to female representation and CSP. Hence, this external pressure of mandating increased gender diversity forces companies to increase female representation in their

board structure, a change in board composition that leads to more socially responsible practices and sustainable initiatives within organizations.

Furthermore, the results indicate that, in the presence of family ownership, the economic effects of the interaction between BGD measures and the gender quota law are diminished, suggesting that family firms moderate the regulation's impact on CSP. This may indicate that, within family firms, the quota law will face challenges in generating substantial economic effects. Family firms might have unique internal dynamics or governance structures that temper the impact of this quota initiative on their social performance. They may exhibit greater resistance to change due to entrenched leadership and established practices. This resistance can moderate the impact of gender quota laws, resulting in less significant changes in BGD. Family firms might also prefer to appoint board members from within the family or close networks, which can limit the pool of potential female candidates and hinder the effectiveness of gender quota laws. Implementing gender diversity measures may also require allocating resources to recruitment, and family firms might be less willing to divert resources from other priorities to meet these regulatory requirements. Thus, internal family dynamics, traditional decision-making processes, and cultural and social norms are potential factors limiting the economic impact of gender quota initiatives within family firms. Lastly, and consistent with previous findings, the quota law continues to show positive and statistically significant coefficients across all specifications.

[Place Table 6 here]

5. Conclusion

We investigate the effect of BGD on CSP in France and use the enactment of the Copé–Zimmermann law on gender quota for boards as an exogenous shock. We suppose that BGD increases a board's CSR orientation since female directors are supposed to be more sensitive to society's needs and more concerned with the corporation's ethical aspects. Using a sample of 191 listed firms on the CAC All-Tradable from 2006 to 2019, we find that BGD significantly impacts CSP and that a critical mass of female directors is significantly and positively correlated with CSP. Our results also extend the finding, indicating that a critical mass of at least three women on boards has a significant effect on CSP. Finally, our findings reveal that regulation promoting gender diversity in boardrooms has a positive and significant impact on CSR, highlighting the prominent role of gender quota legal frameworks in driving gender diversity and consequently fostering socially responsible practices within corporations.

Our result is in line with most of the recent research on the BGD–CSP relationship (Buertey, 2021; Javeed et al., 2022; Khatari, 2022; Nadeem, 2020; Yarram & Adapa, 2021), as well as in the French context (Beji et al., 2020; Boukattaya & Omri, 2021; Kahloul et al., 2022).

Focusing on family-controlled firms, we find that family firms contribute to the role of female directors regarding CSR activities, especially when a critical mass of female directors is present on the board, that is, with more than three women. Our results corroborate those of Nadeem et al. (2019) and Cordeiro et al. (2020), who find that family ownership interacts with BGD to positively influence corporate environmental performance. This contradicts the results of Buertey (2021) and Veltri et al. (2021), who show that family ownership has an adverse effect on the BGD–CSR nexus. However, our findings also reveal that the economic effect of the interaction between BGD and gender quota law is diminished in the presence of family ownership. This may indicate that, within family firms, the quota law will face challenges in generating substantial economic effects.

Our results make significant contributions to the growing literature on CSP and corporate governance in the European context (Beji et al., 2020; Kahloul et al., 2022; Khatri, 2022; Veltri et al., 2021) by providing important insights into the ways female directors and family firms jointly influence firms' social and environmental concerns, an increasingly important performance indicator for investors. Further, our research helps to understand the aspects of corporate boards necessary to improve CSP, which can be determined by various contingent factors, including the status of family firms.

Our study has practical implications for policymakers, managers, and scholars by revealing the factors affecting a company's social performance and how to improve these dynamics for better CSP. First, the evidence supports the benefits of the BGD quota system in France in promoting CSP, revealing that the country's national efforts have paid off, and French policymakers should pursue reforms to further promote gender equality. In addition, in an institutional environment characterized by weak investor protection laws, strong internal corporate governance might substitute for investor protection. French policymakers might thus consider institutionalizing women in leadership positions owing to their significant contribution to CSP.

Second, our findings provide guidance to policymakers, who should consider family ownership a challenging factor when designing and implementing gender diversity and quota regulations. Recognizing the unique challenges faced by family-owned businesses, tailored policies and support mechanisms might be necessary to ensure that these companies can effectively harness the social benefits associated with BGD and gender quota laws.

Third, our results can guide managers' strategic direction since we reveal that family firms are particularly concerned about social issues because they care about their family reputation. We shed new insight on how managers of family firms should also be attentive to noneconomic motivations and more mindful of social commitment to avoid any behavior that could harm the family name or their stakeholders.

Lastly, our results are of great interest to scholars since we enrich and advance the debate on the role of women in CSR and family business by providing new light on how family ownership emphasizes female directors' positive orientation toward CSP.

This study, however, has limitations due to the use of the ESG score, which is an aggregated score covering several categories of ESG pillars. Future research could use more specific measures for sustainability performance, such as CO2 emission levels, renewable energy consumption, and philanthropic spending. Future research might also consider other mechanisms, such as corporate culture, national culture, and corporate risk, that may moderate or mediate the relationship between BGD and CSP.

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Appendix.
Variables' description

Main variables

CSP	ESG score. It is the overall score based on the reported information on the environmental, social and corporate governance pillars.
Women	Percentage of women on the board.
Dum_Women1	A dummy that takes one if the company has at least one female director, and zero otherwise.
Dum_Women2	A dummy that takes one if the company has at least two female directors, and zero otherwise.
Dum_Women3	A dummy that takes one if the company has at least three female directors, and zero otherwise.
Blau index	Blau index measured as: $1 - \sum_{i=1}^{n} Pi^2$, where Pi is the percentage of board members in each category and n is the total number of board members.
Family	A dummy that takes one if the firm is controlled by a family, and zero otherwise.
2011_Quota	A dummy that takes one if the year is 2011 or after, and zero otherwise.

Control variables

CSR committee	A dummy that takes one if the company has a CSR committee, and zero otherwise
Board independence	Ratio of number of non-executive independent directors to total number of board directors
CEO duality	A dummy that takes one if the CEO serves as board chair, and zero otherwise.
Control concentration	Sum of voting rights of the five largest shareholders.
Board size	Natural logarithm of the number of directors on the board.
Size	Natural logarithm of total assets.
ROA	Return on assets ratio.
R&D expenses	Ratio of research and development to total sales.
Leverage	Ratio of total financial debt to total assets.
Female employees	Ratio of female employees to total employees.
Firm age	Natural logarithm of the number of years since incorporation.

Table 1
Descriptive statistics

Variable	Mean	p25	Median	p75	S.D.	Min.	Max.
CSP	61.105	51.013	61.251	71.195	14.930	22.184	93.891
Nb. female directors	2.919	0.000	2.000	2.000	1.277	0.000	8.000
Women (%)	10.234	0.000	8.298	13.970	9.397	0.000	57.863
Blau index	0.187	0.000	0.154	0.319	0.134	0.000	0.511
Dum_Women1	71.836	0.000	1.000	1.000	52.275	0.000	1.000
Dum_Women2	31.840	0.000	0.000	1.000	48.185	0.000	1.000
Dum_Women3	12.960	0.000	0.000	0.000	33.148	0.000	1.000
CSR Committee	0.494	0.000	0.000	1.000	0.513	0.000	1.000
Board independence (%)	0.516	0.396	0.489	0.682	0.298	0.067	1.000
CEO duality	0.568	0.000	1.000	1.000	0.502	0.000	1.000
Board size	13.981	10.000	14.000	15.000	3.902	4.000	24.000
Control concentration (%)	30.343	9.871	24.080	44.159	23.257	0.891	85.789
Firm size	11.469	8.480	9.653	10.486	12.584	6.301	14.545
ROA	4.561	2.018	3.987	6.123	3.971	-11.870	21.717
R&D	0.024	0.000	0.000	0.019	0.051	0.000	0.384
Leverage	0.274	0.145	0.289	0.417	0.198	0.000	0.926
Female employees	29.104	0.000	24.170	48.472	23.147	0.000	74.583
Firm age	33.164	20.571	31.843	49.871	15.916	1.000	61.749
2011_Quota	0.384	0.000	0.000	1.000	0.487	0.000	1.000

This table presents the main descriptive statistics of the dependent, independent and control variables. Variables are described in the Appendix.

Table 2

Correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. CSP	1.000																
2. Women	0.2471	1.000															
	(0.001)																
3. Dum_Women1	0.2633	0.7100	1.000														
	(0.005)	(0.000)															
4. Dum_Women2	0.3291	0.6817	0.6822	1.000													
	(0.001)	(0.000)	(0.000)														
5. Dum_Women3	0.1138	0.8736	0.7157	0.6672	1.000												
	(0.005)	(0.000)	(0.000)	(0.000)													
6. Blau index	0.8967	**0.9783**	0.9913	0.8677	0.7966	1.000											
	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)												
7. CSR committee	0.4355	0.1152	0.2410	0.1862	0.0625	0.1278	1.000										
	(0.000)	(0.000)	(0.000)	(0.000)	(0.241)	(0.000)											
8. Board	0.7325	-0.1150	-0.0750	-0.1371	-0.145	-0.0866	-0.115	1.000									
independence	(0.000)	(0.127)	(0.065)	(0.001)	(0.001)	(0.155)	(0.236)										
9. CEO duality	-0.080	-0.1103	-0.0069	0.1112	-0.073	-0.0839	-0.040	-0.054	1.000								
	(0.005)	(0.132)	(0.379)	(0.015)	(0.469)	(0.3668	(0.218)	(0.343)									
10. Board size	0.1961	0.0340	0.3312	0.2675	0.2217	0.0523	0.1473	-0.221	0.1935	1.000							
	(0.000)	(0.496)	(0.000)	(0.000)	(0.000)	(0.125)	(0.000)	(0.000)	(0.000)								
11. Control	-0.187	-0.0647	-0.0458	-0.0966	0.0173	-0.0177	0.0511	-0.247	0.0010	-0.042	1.000						
concentration	(0.000)	(0.120)	(0.001)	(0.1573)	(0.240)	(0.191)	(0.637)	(0.000)	(0.893)	(0.473)							
12. Firm size	0.1710	0.0715	0.1932	0.0719	0.0830	0.0520	0.2071	0.0692	0.0031	0.5315	-0.1537	1.000					
	(0.000)	(0.242)	(0.000)	(0.123)	(0.049)	(0.226)	(0.000)	(0.038)	(0.892)	(0.000)	(0.000)						
13. ROA	-0.152	-0.0427	-0.1687	0.0527	-0.053	- 0.0439	-0.091	0.0004	-0.069	-0.169	0.0652	-0.437	1.000				
	(0.005)	(0.541)	(0.001)	(0.540)	(0.433)	(0.380)	(0.023)	(0.992)	(0.119)	(0.000)	(0.146)	(0.000)					
14. R&D	-0.119	-0.2199	-0.2290	-0.1742	-0.131	-0.2352	-0.056	0.0234	0.0529	-0.114	0.0871	-0.198	0.4168	1.000			
	(0.670)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.204)	(0.601)	(0.238)	(0.010)	(0.052)	(0.000)	(0.000)				
15. Leverage	-0.111	0.0918	0.0625	-0.0076	0.0342	0.0347	-0.004	-0.114	-0.058	-0.035	0.1100	-0.457	0.0485	-0.141	1.000		
	(0.000)	(0.297)	(0.695)	(0.920)	(0.571)	(0.329)	(0.436)	(0.001)	(0.234)	(0.234)	(0.013)	(0.000)	(0.192)	(0.001)			
16. Female employees	0.1213	0.0393	0.0901	0.081	0.1850	0.0680	0.0263	-0.112	-0.045	0.1706	0.2154	0.1674	-0.006	-0.086	-0.085	1.000	
	(0.003)	(0.037)	(0.044)	(0.478)	(0.000)	(0.077)	(0.695)	(0.021)	(0.109)	(0.000)	(0.000)	(0.000)	(0.757)	(0.046)	(0.040)		
17. Firm age	0.044	0.1165	0.1383	0.1084	0.0829	0.1681	0.0291	0.0089	-0.008	0.1315	0.2154	0.0898	-0.114	-0.188	-0.213	0.1288	1.000
	(0.181)	(0.000)	(0.000)	(0.015)	(0.004)	(0.000)	(0.157)	(0.433)	(0.442)	(0.000)	(0.003)	(0.056)	(0.000)	(0.000)	(0.000)	(0.000)	

This table presents the main descriptive statistics of the dependent, independent and control variables. Variables are described in the Appendix. In parenthesis, we denote the t-values

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Table 3

Effects of board gender diversity on corporate social performance

Variable	Model 1	Model 2
Lagged CSP	0.351***	0.312***
	[9.11]	[8.68]
Women (%)	0.352***	
	[4.62]	
Blau index		0.349***
		[6.29]
CSR committee	0.097***	0.085***
	[6.41]	[6.27]
Board independence	0.192***	0.187***
	[4.67]	[4.95]
CEO duality	-0.065	-0.041
	[-0.87]	[-0.79]
Board size	0.021	0.041
	[1.29]	[0.33]
Control concentration	-0.024	-0.013
	[-0.41]	[-0.56]
Firm size	0.009***	0.010***
	[4.91]	[4.81]
ROA	-0.085	-0.142
	[-1.36]	[-1.47]
R&D	0.147*	0.352***
	[1.69]	[4.54]
Leverage	-0.032	-0.019
	[-1.57]	[-1.28]
Female employees	0.017***	0.012**
	[3.01]	[2.34]
Firm age	0.001	-0.003
	[0.29]	[-0.32]
2011_Quota	0.417***	0.28**
Intercept	0.004	-0.1234
	[0.11]	[-1.31]
Number of instruments	68	67
F (*p*-value)	315.41***	339.81***
AR(1)	0.000	0.000
AR(2)	0.119	0.126
Hansen test	0.217	0.228
Difference-in-Hansen tests of exogeneity of instruments	0.468	0.474

This table presents the results of estimation of Equation (1) for the Effects of BGD on CSP. For models (1) and (2), the dependent variable is CSP. BGD is proxied using the percentage of women on the board (Model 1) and Blau Index (Model 2). Variables are described in the Appendix. *t*-test are in brackets. *, **, *** represent significance at 10%, 5% and 1% levels, respectively.

Table 4

Effects of critical mass of female directors on corporate social performance

Variable	Model 1	Model 2	Model 3
Lagged CSP	0.311***	0.314***	0.359***
	[4.31]	[5.49]	[5.65]
Dum_Women1	0.073		
	[1.42]		
Dum_Women2		0.097**	
		[2.37]	
Dum_Women3			0.112***
			[4.18]
CSR committee	0.033***	0.021***	0.023**
	[5.45]	[5.17}	[2.72]
Board independence	0.051***	0.055***	0.042***
	[4.79]	[4.91]	[3.84]
CEO duality	-0.011	-0.051	-0.000
	[-1.21]	[-1.64]	[-0.12]
Board size	0.003	-0.037	-0.010
	[0.216]	[-1.645]	[-0.613]
Control concentration	-0.029	0.027	-0.062
	[-0.54]	[0.267]	[-0.137]
Firm size	0.018***	0.013***	0.015**
	[6.29]	[6.91]	[2.91]
ROA	-0.219*	-0.263**	-0.202**
	[-1.67]	[-2.18]	[-2.09]
R&D	0.121	0.118	0.114
	[1.51]	[1.41]	[1.39]
Leverage	-0.042*	-0.043**	-0.014*
	[-2.10]	[-2.97]	[-1.69]
Female employees	0.051**	0.056**	0.054**
	[2.31]	[2.45]	[2.43]
Firm age	0.031	-0.042	-0.025
	[0.54]	[-0.58]	[-0.33]
2011_Quota	0.431***	0.488***	0.493***
	[6.27]	[6.18]	[7.11]
Intercept	-0.0643	-0.0814	-0.045
	[-1.48]	[-1.59]	[-0.33]
Number of instruments	68	68	52
F (*p*-value)	545.44***	129.41***	65.88***
AR(1)	0.000	0.000	0.000
AR(2)	0.112	0.118	0.188
Hansen test	0.100	0.146	0.342
Difference-in-Hansen tests of exogeneity of instruments	0.671	0.428	0.421

This table presents the results of estimation of Equation (1) for the Effects of critical mass of female directors on CSP. For models (1), (2) and (3), the dependent variable is CSP. BGD is proxied using alternatively a dummy that takes one if the company has at least one female director , and zero otherwise (Model 1), A dummy that takes one if the company has at least two female directors , and zero otherwise (Model 2), A dummy that takes one if the company has at least three female directors , and zero otherwise (Model 3). Variables are described in the Appendix. *t*-test are in brackets. *, **, *** represent significance at 10%, 5% and 1% levels, respectively.

Table 5
The moderating effect of Family control on the relationship between BGD and on CSP

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Lagged CSP	0.445***	0.431***	0.418***	0.458***	0.436***
	|8.49]	[9.48]	[9.24]	[9.57]	[9.87]
Women	0.162*				
	[1.97]				
Women*Family	0.664**				
	[2.30]				
Blau index		0.412***			
		[4.49]			
Blau index*Family		0.481*			
		[1.28]			
Dum_Women1			0.095**		
			[2.17]		
Dum_Women1*Family			0.061		
			[0.11]		
Dum_Women2				0.018	
				[1.37]	
Dum_Women2*Family				0.084**	
				[2.91]	
Dum_Women3					0.035**
					[2.67]
Dum_Women3*Family					0.093**
					[2.49]
Family	-0.082*	0.051	-0.043*	-0.042	-0.043
	[-1.59]	[0.28]	[-1.94]	[-1.32]	[-1.34]
CSR committee	0.024***	0.019***	0.023***	0.025***	0.023***
	[3.24]	[3.19]	[3.55]	[3.39]	[3.49]
Board independence	0.181**	0.109**	0.118*	0.306***	0.045***
	[2.93]	[2.84]	[2.15]	[3.91]	[4.21]
CEO duality	0.006	-0.001	-0.004	0.011	-0.013
	[0.01]	[-1.07]	[-0.31]	[0.31]	[-0.39]
Board size	0.004	0.005	-0.015	-0.014	-0.074
	[0.29]	[0.02]	[-1.00]	[-1.57]	[-0.48]
Control concentration	0.074	-0.015	0.011	0.013	0.012
	[0.28]	[-0.52]	[0.21]	[0.41]	[0.48]
Firm size	0.081*	0.087*	0.018**	0.015**	0.012**
	[2.11]	[2.14]	[2.41]	[2.37]	[2.91]
ROA	-0.132*	-0.1522	-0.022	0.114	-0.136
	[-1.96]	[-1.33]	[-0.4]	[1.81]	[-1.51]
R&D	0.132	0.153	0.214	0.132	0.345***
	[1.16]	[1.46]	[1.44]	[1.35]	[3.91]
Leverage	-0.013	-0.0153	-0.013	-0.012	-0.083
	[-0.91]	[-1.05]	[-1.28]	[-0.27]	[-1.92]
Female employees	0.112	0.010	0.118*	0.014	0.018**
	[1.44]	[1.52]	[2.11]	[1.34]	[2.81]
Firm age	0.044	0.0018	0.071	0.017*	0.028
	[0.39]	[0.01]	[1.09]	[1.82]	[0.34]
2011_Quota	0.341***	0.318***	0.431***	0.359***	0.409***
	[5.39]	[5.16]	[6.68]	[6.06]	[6.17]
Intercept	-0.424***	-0.231**	-0.398***	-0.326***	-0.420**

	[-5.01]	[-2.69]	[-4.44]	[-4.24]	[-2.67]
Number of instruments	68	68	68	58	67
F (p-value)	130.01***	128.00***	99.1***	188.75***	125.94***
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.065	0.147	0.146	0.172	0.129
Hansen test	0.154	0.191	0.187	0.189	0.481
Difference-in-Hansen tests of exogeneity of instruments	0.246	0.317	0.297	0.114	0.157

This table presents the results of estimation of Equation (2) for the moderating effect of family control on the relationship between BGD and CSP. For models (1), (2), (3), (4) and (5), the dependent variable is CSP. BGD is proxied using alternatively the percentage of women on the board (Model 1), the Blau Index (Model 2), a dummy that takes one if the company has at least one female director , and zero otherwise (Model 3), a dummy that takes one if the company has at least two female directors , and zero otherwise (Model 4), a dummy that takes one if the company has at least three female directors , and zero otherwise (Model 5). The moderating effect of family control is proxied using an interaction term between the alternative measures of board gender diversity and the variable "Family". The variable family is measured using a dummy that takes one if the firm is controlled by a family, , and zero otherwise. Variables are described in the Appendix. t-test are in brackets. *, **, *** represent significance at 10%, 5% and 1% levels, respectively.

Table 6
Additional analysis. Effect of the quota law as exogenous shock

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Lagged CSP	0.544***	0.341***	0.412***	0.454***	0.436***
	|9.74]	[9.45]	[9.89]	[9.75]	[9.56]
Women	0.2164				
	[1.62]				
Women*Family	0.648**				
	[2.95]				
Blau index		0.392**			
		[4.31]			
Blau index*Family		0.428			
		[1.19]			
Dum_Women1			0.094*		
			[2.29]		
Dum_Women1*Family			0.003		
			[0.11]		
Dum_Women2				0.018	
				[1.53]	
Dum_Women2*Family				0.081**	
				[2.6]	
Dum_Women3					0.035**
					[2.96]
Dum_Women3*Family					0.0913**
					[2.99]
Family	-0.0862	0.014	-0.034	-0.041	-0.043
	[-1.36]	[0.23]	[-1.14]	[-1.23]	[-1.23]
CSR committee	0.0241***	0.018***	0.020***	0.025*	0.023***
	[3.24]	[3.10]	[3.25]	[2.03]	[3.33]
Board independence	0.181**	0.107**	0.141**	0.030**	0.041***
	[2.13]	[2.07]	[2.05]	[3.14]	[4.32]
CEO duality	0.006	-0.001	-0.003	0.003	-0.001
	[0.08]	[-1.09]	[-0.43]	[0.36]	[-0.23]
Board size	0.004	0.0005	-0.011	-0.013	-0.007
	[0.22]	[0.02]	[-1.05]	[-1.09]	[-0.24]
Control concentration	0.071	-0.012	0.014	0.013	0.011
	[0.24]	[-0.41]	[0.32]	[0.34]	[0.41]
Firm size	0.098*	0.087*	0.010**	0.018*	0.012**
	[2.31]	[2.14]	[2.41]	[2.13]	[2.49]
ROA	-0.126	-0.152	-0.021	0.111	-0.131
	[-1.16]	[-1.33]	[-0.14]	[1.01]	[-1.25]
R&D	0.213	0.153	0.2014	0.132	0.344***
	[1.36]	[1.46]	[1.24]	[1.53]	[3.12]
Leverage	-0.0143	-0.015*	-0.012	-0.0121	-0.073
	[-1.03]	[-1.05]	[-1.28]	[-0.39]	[-1.02]
Female employees	0.0121	0.010	0.0180*	0.0145	0.0181*
	[1.34]	[1.52]	[2.11]	[1.23]	[2.02]
Firm age	0.0044	0.001	0.071	0.017	0.002
	[0.34]	[0.01]	[1.09]	[1.28]	[0.32]
2011_Quota	0.024***	0.019***	0.016***	0.022***	0.023***
	[22.31]	[7.18]	[5.14]	[15.46]	[18.46]

2011_Quota*WOMEN	0.054***	0.036***	0.039***	0.045***	0.051***
	[11.04]	[5.68]	[5.07]	[7.19]	[7.57]
2011_Quota*Family	0.091	0.058*	0.079*	0.065*	0.049*
	[1.07]	[0.794]	[0.919]	[0.498]	[0.327]
2011_Quota*Blau index*Family		0.009*			
		[1.41]			
2011_Quota*Dum_Women1*Family			0.087**		
			[2.56]		
2011_Quota*Dum_Women2*Family				0.011***	
				[7.64]	
2011_Quota*Dum_Women3*Family					0.014***
					[8.31]
Intercept	-0.428***	-0223**	-0.392***	-0.321*	-0.420*
	[-4.96]	[-2.72]	[-4.24]	[-2.14]	[-2.16]
Number of instruments	68	68	68	58	67
F (p-value)	128.48***	126.18***	98.3***	198.89***	1285.9***
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.065	0.158	0.164	0.168	0.132
Hansen test	0.151	0.187	0.176	0.198	0.298
Difference-in-Hansen tests of exogeneity of instruments	0.234	0.321	0.205	0.111	0.185

This table presents the results of estimation of Equation (2) for the moderating effect of family control on the relationship between BGD and CSP. For models (1), (2), (3), (4) and (5), the dependent variable is CSP. BGD is proxied using alternatively the percentage of women on the board (Model 1), the Blau Index (Model 2), a dummy that takes one if the company has at least one female director , and zero otherwise (Model 3), a dummy that takes one if the company has at least two female directors , and zero otherwise (Model 4), a dummy that takes one if the company has at least three female directors , and zero otherwise (Model 5). The moderating effect of family control is poxied using an interaction term between the alternative measures of board gender diversity and the variable "Family". The variable family is measured using a dummy that takes one if the firm is controlled by a family, , and zero otherwise. Variables are described in the Appendix. t-test are in brackets. *, **, *** represent significance at 10%, 5% and 1% levels, respectively.