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Abstract:

Using the natural experiment created by France's 2011 board gender-quota law, we find that the presence of women on boards increases firms' environmental and social (E&S) performance. Our results are robust to controlling for several directors' observable characteristics and proxies for values such as benevolence, universalism, and nonconformism. Since the passage of the law, firms are more likely to create an E&S committee. However, E&S committees are not the only channel through which the inclusion of women on boards drives E&S performance. After the quota law, women are increasingly serving as members and chairs of major committees. Our findings suggest that female directors have unique qualities, experiences, and preferences, which, in combination with their enhanced authority, enable them to steer firms toward more E&S oriented policies.

JEL Classification: G34, G38, J16, K38, M14
Keywords: board of directors, gender quotas, gender diversity, board committees, environmental, social, and governance (ESG), corporate social responsibility (CSR).

1. Introduction

Investors are becoming increasingly attentive to environmental and social (E&S) concerns when making investment selections.[1] At the end of 2020, 3,038 investors were signatories of the United Nations' Principles for Responsible Investment (UNPRI) network, representing $103.4 trillion in assets under management (compared to $21 trillion in assets under management and 203 signatories in 2010).[2] On the bondholder side, credit rating agencies have recently acquired several extra-financial rating agencies to include E&S risk in their assessment of the credit risk.[3] As E&S criteria become increasingly important for investors, they also become critical to the financing and investment decisions of corporations. Firms' E&S exposure shapes their ability to raise equity, cost of capital, reputational and operational risks, and value.[4] While many investors and CEOs emphasize the importance of E&S issues, the actual implementation of E&S actions varies substantially across firms, raising questions regarding the means for investors to ensure that the companies in their portfolios are acting in accordance with their E&S expectations. Several mechanisms are available for investors to reduce the companies' exposure to E&S risks. Investors

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[1] The literature often refers to Corporate Social Responsibility (CSR), which includes environmental and social issues (E&S), but not Corporate Governance. ESG is broader than CSR, as it combines CSR and corporate governance issues. In this paper, we focus on environmental and social issues.

[2] PRI signatories commit to incorporating ESG issues into investment analysis, decision-making processes, and ownership policies. The signatories "believe that an economically efficient, sustainable global financial system is a necessity for long-term value creation. Such a system will reward long-term, responsible investment and benefit the environment and society as a whole." (https://www.unpri.org/pri).

[3] For example, S&P acquired Trucost, a provider of carbon and environmental data and risk analysis (2016), and the ESG ratings arm of RobecoSAM (2019). Moody's acquired Four Twenty Seven, a provider of data related to physical climate risks (2019), and Vigeo-Eiris, a provider of ESG data (2019).

[4] A large literature focused on examining the impact of E&S on the firm performance exists. Most papers—but not all—note that the E&S ratings positively influence the firm value. For a review of these papers, see, for example, Orlitzky, Schmidt and Rynes (2003), Margolis, Elfenbein and Walsh (2009) and Gillan, Koch and Starks (2021). E&S policies may affect firm value through reduction in the firm risk (El Ghoul et al. 2012, Oikonomou, Brooks and Pavelin, 2012, Albuquerque, Koskinen and Zhang, 2019), an increase in the number of analysts following the firm (Durand, Paugam and Stolowy, 2019), higher post-acquisition returns (Deng, Kang and Low, 2013), better access to financing (Cheng, Ioannou and Serafeim, 2014), and higher resilience during crisis periods (Lins, Servaes et Tamayo, 2017, and Albuquerque et al, 2020).

can directly engage with the management of the firms in which they invest to encourage them to reduce risks stemming from E&S characteristics (Hoepner et al., 2018). They can propose shareholder resolutions on E&S issues at general meetings (He, Kahraman, and Lowry, 2019) or require the integration of E&S criteria into executive compensation (Flammer, Hong and Minor, 2019). Getting the E&S message across through the board of directors, elected by the general meeting of shareholders, is the most immediate and direct way to drive the orientations favored by shareholders. One of the most effective solutions to align boards with investors' E&S priorities is to appoint more E&S oriented directors.

In this paper, we examine how the presence of women on boards impacts the firms' E&S performance, considering the adoption of a board gender quota in France as a natural experiment. Women directors can contribute to the board performance through enhanced monitoring (Adams and Ferreira, 2009; Schwartz-Ziv, 2017), thereby reducing the potential for and amount of agency costs linked to E&S expenses. In addition, women directors can contribute through their advisory role by diversifying the board's expertise and skill types. Female directors are more likely to be benevolent, universally concerned, and less power-oriented than male directors (Adams and Funk, 2012) and to possess skills in human resources and sustainability that are often lacking in boards (Kim and Starks, 2016).[5] Women also appear to act more ethically than men (Franke, Crown, and Spake, 1997) and to be more transformational leaders, eliciting more trust and confidence from a firm's stakeholders (Eagly, Johannesen, and Van Engen, 2003). These traits may help enhance the firms' E&S performance. Furthermore, women tend to be less overconfident than men (Huang and Kisgen, 2013), and firms led by overconfident executives tend to engage less in socially responsible activities (Tang

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[5] According to the PWC 2020 Annual Corporate Directors Survey, 60% of female directors are likely to see the link between ESG and strategy, versus 46% for male directors.

et al, 2015), which makes it more likely for gender-diverse boards to achieve a higher E&S performance.

To overcome the endogeneity issue that could result from E&S friendly firms electing women directors and women self-selecting into more E&S oriented firms, we rely on the implementation of a board gender quota in France. The law was adopted in January 2011 and required that 20% (40%) of the boards be composed of women by 2014 (2017). We employ a difference-in-differences estimation approach to explore changes in the E&S performance after the quota, relative to firms not affected by the quota law. Firms in other European countries would have been the most intuitive choice as a control group. However, over the considered period, most European countries implemented board gender quotas (for example, 40%, 30%, and 33% in Spain, Netherlands, and Italy, respectively) or adopted soft laws (for example, goals of parity in the UK corporate governance code). Therefore, we consider two control groups that we believe are comparable and unaffected, over the considered period, by the board diversity policies. First, we use a sample of US firms matched by size, industry, and E&S score. Specifically, we match French and US firms before the implementation of the quota law. Over the considered period, the US is the largest developed country without a quota for female directors on boards. Furthermore, the French and US boards have similar characteristics (Ferreira et al, 2018). As the E&S scores of US firms are, on average, lower than those of French firms, matching the sample in terms of the E&S score is critical to our analysis. However, because French regulations related to E&S may specifically affect the E&S performance of firms operating in France, as an alternative control group, we consider firms listed in Paris that are headquartered abroad and not subject to the quota law. As the ESG ratings from different providers disagree substantially (Berg et al. 2020), we rely on two data providers to evaluate the E&S performance. We use data from Asset 4 (Refinitiv) and

that provided by Vigeo-Eiris, a global leader in ESG data, which Moody's acquired in 2019. We clean the social scores for all indicators related to gender diversity. Using two databases enables us to cross-validate our results.

We find that after the introduction of the board gender quota in France, the E&S performance of French firms is significantly enhanced compared to both the US matched sample and the sample of firms listed in Paris that are not subject to the quota law. We observe an increase in the global E&S score and each of its components: environmental scores and social scores. Our results are both statistically and economically significant.

Subsequently, we explore the channels through which women on boards positively influence E&S performance. First, we find that the probability that a firm has an E&S committee increases after the quota law. This law, by prompting firms to add women to boards, renders the establishment of an E&S committee more likely. Furthermore, the probability that women are a part of and chair E&S committees also increases post quota. However, E&S committees are not the only channel through which the inclusion of women influences E&S performance. Even when companies choose not to create such a committee, the E&S performance is enhanced after the introduction of the gender quota on boards. After the implementation of the board quota, the authority of the women on the board increases. Women are more often members of the main committees (audit, compensation, and nomination) and more frequently chair the audit committee and the nomination committee. These committees play a key role in terms of E&S. In particular, the audit committee monitors the E&S disclosure and control, and the nomination committee oversees the screening in terms of expertise and skills related to E&S. If female directors are more oriented toward E&S policies, their increased power in board committees enables them to promote these policies. Our findings suggest that after the implementation of the board quota law and the

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increase in the percentage of women on boards, boards are structured to become more E&S oriented, whether the decisions are instructed in an E&S committee or directly discussed at the board level or in the main committees.

Our next question relates to the characteristics that lead women directors to be more E&S friendly. In our main regressions, we control for independence, age, tenure, and network. Female directors more frequently have diverse careers and experiences in organizations that are not solely business oriented (Hillman, Cannella, and Harris, 2002). Furthermore, the influence of gender in the values of directors may help explain how the E&S performance changes after the gender law quota. Based on value measures developed by Schwartz (1992), Adams and Funk (2012) note that male directors are more concerned with achievement and power. In contrast, female directors attribute higher importance to self-transcendence values (universalism and benevolence) and are less security and tradition oriented compared to male directors. We use the observable characteristics of the directors to proxy for these dimensions. In particular, to proxy for universalism, we consider the directors' experience in the renewable sector, state-owned companies, charities, and universities. To proxy for benevolence, we consider the directors' experience in human resources and the health or education sector. To proxy for nonconformism, we consider directors hired from outside of traditional networks. We find that female directors are more benevolent and nonconformist. However, our main results remain similar when controlling for nonconformism, universalism, and benevolence. We rerun our main tests, including the interaction terms, to account for the fact that boards in which benevolence, universalism, and nonconformism characteristics were at a low level before the quota law should correspond to a higher influence of the quota law on the E&S performance. Our results suggest that the quota law influences the E&S performance regardless of the initial level of benevolence, universalism and

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nonconformism in the board. Therefore, the result that the presence of women on board can increase the E&S performance can plausibly be attributed to intrinsic differences between women and men and not to other characteristics correlated with gender diversity. Our findings suggest that female directors have unique qualities, experiences, and social preferences that enable them to steer firms toward more E&S oriented policies. Board gender quotas allow women to act with more authority, allowing them to assert their priorities.

Several tests confirm the robustness of our results and associated conclusions. First, to control for time-invariant unobserved firm characteristics, we include firm fixed effects in our regressions, thereby ensuring that the omitted factors do not drive the results. Our main findings are qualitatively unchanged. Second, when we control for each characteristic of the directors rather than our value proxies constructed from these characteristics, the results remain similar. Third, the results likely depend on the quality of the control groups considered in our natural experiment. As an alternative control group, we build a sample of culturally related firms, i.e., foreign firms with either a French CEO or at least 10% of French directors or directors having studied or worked in France for at least three years. Social and environmental concerns are deeply rooted in French culture. When run by French people, foreign companies not subjected to quota laws may be more likely to be aware of E&S issues. Our results remain qualitatively similar and confirm the positive impact of women directors on firms' E&S performance. Moreover, our results remain unchanged when all US firms are considered as a control group. Therefore, we are confident that our results are not merely due to a selection effect of the ESG rating agencies or the choice of a given control group. Fourth, as French companies can choose between a unitary board or a dual board (Belot, et al., 2014), and board quotas apply only to supervisory boards and not to management boards, we

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also ensure that no firm in the considered sample changes the board structure after the implementation of the quota law.

Our paper contributes to several lines of research. First, this research is related to the literature on the drivers of E&S performance. Benabou and Tirole (2010) discuss three views of E&S. In the first view, E&S is motivated by the willingness of the management or board members to engage in philanthropy even if doing so harms profits. In such cases, E&S expenses represent an agency cost. If Cheng, Hong, and Shue (2019) and Di Giuli and Kostovetsky (2014) confirm the existence of private benefits from E&S expenses, most empirical results fail to find evidence that E&S policies reflect agency problems (Ferrell, Liang, and Renneboog, 2016). According to the second view, several stakeholders want corporations to engage in socially responsible behavior, and a considerable number of firms cater to this demand, which is consistent with profit maximization. In this case, the channels through which E&S affects firm value are related to the awareness of the customers (Luo and Bhattacharya 2006, Servaes and Tamayo, 2013, Dai, Liang and Ng, 2020), employees (Delmas and Pekovic, 2013, Flammer and Luo, 2017, and Levine, Lin and Wang 2018) and suppliers (Schiller, 2017, Cao, Liang and Zhan, 2019). According to the third view (doing well by doing good), socially responsible investors position themselves as long-term investors who monitor the CEOs and correct short-termism, leading firms to adopt better E&S practices and orient themselves toward long-term value maximization. Several papers confirm this view. Dyck et al (2019) find that greater institutional ownership is associated with higher firm-level E&S scores. European investors and investors that are signatories to the UNPRI have a more substantial impact on the firms' E&S performance (Gibson et al, 2020). Legal origin also appears to be a key determinant of E&S policies. E&S ratings are higher for firms located in civil law countries than for those in common-law countries (Liang and Renneboog, 2017). Furthermore, it

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is interesting to note how investors induce firms to adopt E&S policies. Investors often engage privately and with the objective of reducing downside risks (Dimson, Karakas and Li, 2016, Lins, Servaes and Tamayo, 2017, Hoepner et al., 2017, Barko et al., 2018). In addition, shareholders engage publicly by submitting E&S shareholder proposals at general meetings. He, Kahraman, and Lowry (2019) find that in 2004–2016, more than 20% of all shareholder proposals relate to E&S issues. Even if these proposals rarely receive the 50% support rate required to pass, the average support rate increases from less than 5% in 2004 to 20% in 2016. Flammer, Toffel, and Viswanathan (2019) find that environmental shareholder activism increases the voluntary disclosure of climate change risks and is particularly effective if long-term and green institutional shareholders initiate such a requirement. Finally, Cavaco, Crifo, and Guidoux (2020) and Flammer, Hong, and Minor (2019) find that the integration of E&S criteria in executive compensation, a practice that has become more prevalent over time, leads to an increase in the E&S performance. In contrast with direct investor engagements or CEO compensation schemes, our setting enables us to examine the manner in which investors can influence the firms' E&S performance by changing the composition of the board of directors and rendering it more E&S oriented.

Second, our research contributes to the literature focused on examining the relationship between the board gender diversity and E&S performance. Atif et al (2019) find that renewable energy consumption is positively related to women's presence on the board. Liu (2018) shows that firms with greater board gender diversity are less frequently sued for environmental infringements. Dyck et al (2019) find that by introducing a female director on the board, the environmental performance increases by 14%. Francoeur et al (2019) note that the impact of gender-diverse boards on the E&S performance differs across E&S dimensions. The presence of women on boards leads to higher E&S performance in terms of the environment, suppliers, and the community but does not influence the employee and customer dimensions. Cronqvist and Yu (2017) even find that male executives

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partially internalize their daughters' experiences and values: the presence of a CEO who has a female child increases a firm's E&S rating by approximately 11.9% compared to that of a median firm, the effect being approximately one-third that of an executive being female. However, endogeneity issues affect the robustness of several of these results. Considering the introduction of board quotas in France in 2011 allows us to conduct a natural experiment and assert that the presence of women on boards causally determines the E&S performance.

Third, our paper extends existing work that explores board committees[6], especially the presence of an E&S committee[7], and its impact on the E&S performance. Only a few researchers have focused on E&S committees. Eccles, Ionnnou, and Serafeim (2014) report that the likelihood of forming a sustainability committee is greater for high-sustainability companies than that for low-sustainability companies. Boards with an environmental committee exhibit increased transparency related to environmental issues (Peters and Romi, 2014), enhanced environmental performance (Walls et al., 2012), and reduced industry fines (Davidson and Worrell, 2001). Burke, Hoitash, and Hoitash (2019) find that the presence of a sustainability committee enhances corporate social performance. However, Berrone and Gomez-Mejia (2009) indicate that environmental committees do not influence the link between the CEO pay and environmental performance. Nevertheless, the presence of an E&S committee may only be an outcome of a prior E&S oriented strategy, which could explain the mixed evidence in the literature. We find that the quota law, by prompting firms to add women to the board, also causes firms to create E&S committees without any direct enhancement in the E&S performance.

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[6] Chen and Wu (2016) analyze the structure of board committees, and Adams, Ragunathan and Tumarkin (2018) investigate the effects of committees on direction information, board decision-making and corporate performance. Kolev et al (2019) review the literature on outcomes associated with board committees.

[7] Each firm has its own name for this committee, for example "safety, health and environmental affairs," "sustainability" or "ethics, environmental and social". For simplicity, we refer to such committees as E&S committees. In all these cases, we refer to committees within the boards of directors.

Finally, our paper is related to a strand of research exploring the consequences of gender quotas in different institutional settings: Norway (Ahern and Dittmar, 2012, Matsa and Miller, 2013, Bertrand et al 2019, Eckbo, Nygaard and Thorburn, 2021), France (Ferreira et al, 2018, Reberioux and Roudaut, 2019), Europe (Kuzmina and Melentyeava, 2020), and more recently, California (von Meyerinck et al, 2019, Hwang, Simintzi, and Shivdasani, 2019). However, none of these papers examines the impact of board gender quotas on E&S performance.

The remaining paper is structured as follows. Section 2 describes the institutional context of board quotas. Section 3 presents the considered dataset and variables. Section 4 describes the analysis of the empirical results, and section 5 presents the concluding remarks.

2. Board gender quotas

2.1. Board gender quotas in France

In France, the Zimmermann–Copé law, adopted on January 27, 2011, requires a minimum of 20% of women on company boards from January 2014, with the proportion increased to 40% on January 1, 2017. The quota applies to all board members, insiders, and outsiders, except directors representing employees. The quota applies to all listed and nonlisted companies employing at least 500 employees or with revenues of at least EUR 50 million over the three previous years. The three legal forms for listed companies are subject to this law: Sociétés Anonymes (limited liability corporations), Commandites par actions (limited partnerships), and Societas Europaea (the European company statutes). Nonlisted companies can opt for other legal forms that are not subject to quotas. The law was submitted to the French National Assembly on December 3, 2009, and adopted in the first reading on January 20, 2010. The parliamentary debates

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continued throughout 2010 to January 2011, when the law was formally adopted. As many companies anticipated the adoption of the law in 2010, we exclude this year when comparing the prequota period with the postquota period. The quota law does not apply to companies that are not headquartered in France. Therefore, our first control group includes firms listed in Paris but headquartered out of France, involving French and foreign firms.

2.2. Board gender quotas in Europe

The issue of quotas on boards has been subject to extensive debates in Europe for several years. In 2003, Norway became the first country to adopt a law requiring that at least 40% of directors be of each gender, and this law was implemented in 2008. On November 14, 2012, the European Commission adopted a proposal for a directive setting a minimum objective that listed companies in Europe would have 40% of the underrepresented gender in non-executive board-member positions from 2020. This directive is still under debate. Furthermore, several European countries adopted regulations regarding women on boards (Italy, Spain, Netherlands, Belgium, Austria). Germany, initially reluctant to adopt quotas, finally adopted a law establishing a quota of 30% effective in 2016 (after the end of the considered period) for the 100 largest listed companies. As most German firms have a dual board, quotas apply to supervisory boards. Soft laws are also frequently adopted: corporate governance codes recommend a goal of representation of both genders on boards (Luxembourg, UK, and Sweden).

2.3. Board gender quotas in the US.

No quota for female directors existed in the US during our sample period, which ends in 2016. However, in September 2018, California became the first state in the US to mandate female

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directors on the boards of listed firms. The law mandates all companies headquartered in the state to have at least one female director by the end of 2019. Moreover, the law requires that by the end of 2021, all firms have at least one female director if the board has four members or fewer and two (three) female directors if the board has five (six or more) members. As US firms are not subject to quotas over our sample period, our second control group is composed of US firms, matched to French firms by size, E&S scores, and industry before the implementation of the quota law. Figure 1 shows the annual average percentage of female directors for French firms and our control groups composed of matched US firms and firms listed in Paris and headquartered abroad.

3. Data

3.1. E&S data

To evaluate the E&S performance, we consider two databases: Asset 4 (Refinitiv) and the Vigeo-Eiris (Moody's) database. To examine the impact of the introduction of quotas in France, we need the E&S scores of French companies before 2010. Unfortunately, several ESG data providers offer limited coverage for France before 2012. For example, the coverage of the RobecoSAM databases for companies in our sample does not start until 2010, depriving us of a prequota period. The ESG data from MSCI are characterized by major changes between 2011 and 2012 (from KLD to MSCI ESG). Consequently, these two databases are not usable in our study, and we select the Asset 4 and Vigeo-Eiris datasets, which offer a reasonably high coverage for French firms around the board gender quota law.

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Asset 4 database

In 2020, the Asset 4 database covers 70% of the global market cap, resulting in more than 9,000 companies included in the leading equity-indices such as S&P 500, DJ STOXX, FTSE 250, or CAC 40. Asset 4 ESG scores rely on the screening of each company by more than 150 research analysts across 450 ESG data points, using publicly available and verifiable data such as annual reports, CSR reports, company websites, or NGO websites. Among these 450 metrics, which can be categorical or continuous (e.g., for the workforce category, the metrics can be a dummy for the existence of a training policy or the average training hours), the 186 most relevant and comparable data points are compiled into ten categories. Before the compilation, the value of each ESG data point is converted into a percentile score depending on other companies within the industry. Thus, the most superior and inferior companies have a score of one and zero, respectively. Next, the scores of the ten subthemes are obtained by adding the pertinent percentile scores for the category. This sum is converted into a percentile score by using the same approach as that for the data points. The categories include resource use, emissions, innovation, workforce, human rights, community, product responsibility, management, shareholders, and CSR strategy. Finally, the category scores are organized into three pillars (environment, social, and governance) and aggregated by a weighted average using industry-dependent weights (e.g., if a category is more important for a given industry, it is assigned a higher weight). The final ESG score, ranging from 0 to 100, is the relative average of the category scores. Furthermore, Asset 4 provides ESG ratings based on ESG scores, with each grade being assigned according to a range of scores. In this study, we focus only on continuous scores. To construct our environmental, social, and E&S scores, we follow several steps. First, to avoid any mechanical correlation between the women directors and E&S scores, we generate E&S scores that are free of any gender or female-related measures (e.g., the gender pay

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gap percentage or number of women employees). Owing to the granularity of the data provided by Asset 4, we can locate all the gender-based measures and generate category scores without any of these measures, thereby obtaining a social and an E&S score unaffected by gender-based items. Second, as there is no academic reason to retain the weight provided by Asset 4, instead of aggregating the relevant category scores into the social or environmental pillar score by a weighted average, we assign the same weight to each category. Following Cheng, Ioannou, and Serafeim, 2014, our E&S score is the equally-weighted average of the social and environmental scores.

Vigeo-Eiris database

Vigeo-Eiris is the leading ESG rating agency in Europe.[8] In 2019, Vigeo-Eiris covered 3853 firms globally (1488 in Europe and 1226 in North America). The Vigeo-Eiris Corporate ESG dataset applies a positive screening approach to rate how a firm complies with the conventions, guidelines, and declarations of international organizations such as the United Nations (UN) and Organization for Economic Cooperation and Development (OECD). The Vigeo-Eiris ratings cover six broad dimensions: human rights, human resources, business behavior toward customers and suppliers, corporate governance, environment, and community involvement. These dimensions are further divided into 38 ESG criteria. For example, the environmental dimension is split into waste management, transportation, water, energy, and environmental strategy. For each criterion, Vigeo-Eiris uses a framework based on three pillars of questioning (leadership, implementation, and results) and nine angles of analysis (visibility, exhaustiveness, ownership, allocated resources, coverage, scope, indicators, stakeholder feedback, controversy management) to form the final score

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[8] The Vigeo-Eiris database has been used by Ferrell, Liang and Renneboog (2016) and Eccles and Stroehle (2018), among other researchers,.

based on a scale of 0 to 100. The 38 ESG scores are used to compute the corresponding ESG scores (environmental, social, and governance) through the mean of a weighted average. The weights correspond to the relevance of the ESG criteria among the sector of the company. Vigeo-Eiris provides continuous scores on a scale from 0 to 100 and a rating, defined as a Z-score, which measures how far the scores deviate from the average in the industry. Firms are rated relative to their industry peers from both domestic and international markets. Thus, the ratings do not depend on the cross-country differences in jurisdiction and regulation. In our paper, we rely on continuous scores.

Finally, as in the case of Asset 4, our question of the impact of female directors on the ESG performance may generate mechanical correlations if the E&S scores consider the criteria related to diversity. Vigeo-Eiris granted us access to the detailed proprietary dataset, which enabled us to compute an adjusted score for the social score and E&S score by excluding all items linked to diversity and gender. Furthermore, as implemented in the case of Asset 4 and to make the results more comparable across the two databases, we compute equally weighted social, environmental, and E&S scores.

The two ESG data providers differ in several aspects. Asset 4 was created and designed by a financial data provider: Thomson Reuters. The adopted best-in-class method, which is focused on institutional investors and asset managers, is pragmatic and quantitative. In contrast, Vigeo-Eiris was born from the merger of a foundation created by churches and charities (EIRIS) and the first French socially responsible investing (SRI) rating agency created by the former secretary-general of a French labor union. Vigeo-Eiris is more focused on stakeholders, and its approach is more qualitative. The use of these two databases allows us to test our result on the two main types

of ESG data providers: values-based (Vigeo-Eiris) and value-based (Asset 4) (Eccles and Stroehle, 2018).

3.2. Board and financial data

Separate matched samples for the US and headquartered abroad groups are built, depending on the availability of E&S ratings. In each sample, we provide summary statistics for France and the control subgroups. We obtain information regarding the boards and directors (gender, tenure, age, education, role, or employment) from the Management Diagnostic's BoardEx database and financial and accounting data from Compustat. We select non-financial companies (sic code from 6020 to 6799) for US and France, and firms listed in Paris in 2010 or 2011 and headquartered abroad. We obtain a total of 33,990 firm-year observations and 5,364 firms over the period 2007–2016. After the merger with Asset 4 (Vigeo-Eiris) and after removing all observations with missing values, we obtain a total of 8,093 (3,965) firm-year observations and 1,589 firms (700). We match each French firm to a US firm, year by year, in 2007, 2008, and 2009, through a propensity score matching based on three criteria: E&S score, size, and industry. The nearest neighbor method is adopted. For the years after 2009, we retain only the firms matched in 2009. We obtain 659 (687) and 654 (709) firm-years for the US and France, respectively. The French sample is composed of two parts: a sample matched with the US sample, which represents 654 (709) firm-years and is used as the treatment group with the US matched sample, and a total sample of 718 (828), which is used as the treatment group with the headquarter abroad sample.

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3.3. Descriptive statistics

Table 1 reports the summary statistics regarding firm-year observations for France, the matched US firms and the headquarter abroad sample over the period 2007–2016. Panels A and B report the statistics for the samples covered by Asset 4 and Vigeo-Eiris, respectively. Due to the requirement for coverage by Asset 4 or Vigeo-Eiris, our sample constitutes large companies. The financial characteristics (size, profitability, leverage) of the firms in the treated and control groups are similar, except that the market-to-book ratio is higher for US firms. French boards are, on average, less independent (48%) compared to US boards (81%) and headquarter abroad boards (68%). Over the whole period, the percentage of female directors is 21% in France, compared to 17% in the US and 16% in the headquarter abroad sample. However, the trend differs between France and the control groups, as shown in Figure 1. On average, the percentage of female directors in France is 10% and 28% before and after 2010, respectively (Asset 4 sample). Moreover, the director characteristics in the three countries under consideration are similar. Time on the board is longer for US directors, who are also older than French and headquarter abroad directors (63 compared to 59 and 61). Our matching procedure between French and US firms uses E&S scores in addition to the size and industry. The Asset 4 sample corresponds to similar grades for French firms and US firms, whereas the firms listed in Paris and headquartered abroad exhibit higher E&S scores. In contrast, as the average Vigeo E&S scores are significantly lower for US firms compared to French firms, even after the matching procedure, the E&S scores of US firms remain lower than those of French firms. On average, the Vigeo scores are similar for French firms and firms listed in Paris and headquartered abroad.

4. Empirical results

4.1. Gender quota effects on the E&S scores

Examining the relationship between the percentage of women on boards and E&S performance is challenging because of endogenous matching of firms and directors. On the demand side, firms choose directors corresponding to their values and goals; for example, firms with greater concern for E&S issues and larger and more profitable firms are more likely to hire female directors. On the supply side, directors choose companies whose policies fit with their beliefs. If women are more sensitive to E&S issues, they will prefer to sit on boards of firms with a developed E&S culture. In both cases, the correlation between women's representation and the E&S scores of the firm does not result from a real effect of the presence of women but from a match between E&S concerned directors and E&S concerned firms. To address these concerns, we consider the French Copé–Zimmerman law, which introduces a gender quota on French boards, as a natural experiment. As the law applies to all French listed companies, all companies must hire female directors, regardless of their E&S culture, allowing us to measure the real impact of female directors on the E&S scores.

We consider a difference-in-differences methodology and run the following regression:

$$\text{E\&S score }_{i,t+1} = \alpha + \beta_1 \text{ Treated}_{i,t} + \beta_2 \text{ Treated*Postquota}_{i,t} + \gamma Y_{i,t} + \Delta + e_{i,t} \qquad (1)$$

We use, as independent variables, the overall adjusted E&S score, and decomposition of this score in the environmental and social scores (without items linked to diversity, gender, and board of directors). To avoid the bias resulting from several companies anticipating the law, we exclude the year 2010. Our posttreatment period variable is a dummy that equals one for all years from 2011 to 2016. The treated dummy equals one for French firms and zero for firms in our control

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groups. The interaction between the posttreatment dummy and the treated dummy yields the effect of the quotas on the E&S performance. We add year fixed effects and industry fixed effects, and the standard errors are robust and clustered by firm. $Y_{i,t}$ represents a set of firm-level control variables in year t, and Δ denotes the year and industry fixed effects. For firm-level control variables, we consider the firm size, market-to-book, leverage, ROA, percentage of independent directors on the board, average time on board of directors, age of the directors, and average board network (average number of years on other boards of listed firms in which the directors sit). We add a lead by one year on the E&S scores. β_2 is equal to the change in the E&S ratings for French firms relative to firms belonging to the control groups (either US matched firms or firms listed in France but headquartered abroad) following the quota law. The captured effect indicates the impact of being a French firm after the quota law while controlling for the firms' characteristics and year and industry effects.

We graphically examine the E&S ratings for firms in the control groups and treatment group (France) in each test. We run the following regression:

$$\text{E\&S scores}_{i,t} = \alpha + \sum_{t=2007}^{2016} \beta_t \cdot \text{Treated}_{i,t} \times 1[\text{Year} = t] + \text{Treated}_{i,t} + \Delta + e_{i,t} \quad (2)$$

Δ represents the year and industry fixed effects. We obtain a treatment effect in each period in our sample to assess whether the parallel trend assumption is violated. All the treatment effects are relative to 2007. Figure 2a shows the results of this regression examining the impact of being a French firm compared to the US matched firms. The solid line curve indicates the coefficient estimates, and the dotted lines are the bands of a 95% confidence interval around these estimates. The treatment effect is not statistically significantly different from zero in the prequota period and becomes significantly positive after the quota law implementation. Figure 2b highlights similar

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results for the control group of firms listed in Paris and headquartered abroad. These figures provide reasonable evidence that the parallel trend hypothesis is satisfied.

Table 2 reports the results of the difference-in-differences regressions for the overall adjusted score (columns 1 to 4), environmental score (columns 5 to 8), and adjusted social score (columns 9 to 12). We use the Asset 4 and Vigeo scores alternately. The results in columns 1, 3, 5, 7, 9, 11 and columns 2, 4, 6, 8, 10, 12 correspond to the use of US firms and firms headquartered abroad as a control group, respectively. Larger firms exhibit higher E&S performance. After the quota law, the E&S performance evaluated using the overall adjusted score significantly increases, regardless of the US or headquartered abroad firms being used as a control group. The results are similar when considering environmental and social scores for both Asset 4 and Vigeo scores.[9]

4.2. Board quotas and E&S committees

We explore the channels through which female directors can enhance the E&S performance. The first channel is the probability of having an E&S committee. We use detailed data on committees available in the Boardex database. We classify all committees with denominations related to environmental and social issues, for example, "safety, health and environmental affairs" or "sustainability" or "ethics, environmental and social" as E&S committees. Figure 3 shows the average percentage of firms with E&S committees in France, the US matched group and headquartered abroad group over 2008–2016. After the quota law, the percentage of French firms with an E&S committee increased, whereas the control group firms did not exhibit notable changes in the E&S committees.

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[9] When we use Asset 4 data and the US firms as a control group, the impact of the quota on the environmental score is positive, but not significantly so.

To confirm this observation, we perform a regression analysis of the likelihood that each firm has an E&S committee in a given year. The independent variable is a dummy variable that equals one if the firm has an E&S committee. We add year fixed effects and industry fixed effects, and the standard errors are robust and clustered by firm. Alternately, we perform a probit regression. Firm-level control variables are the same as those in equation (1). Table 3 reports our results. Large firms are more likely to have an E&S committee. The probability of having an E&S committee significantly increases after the gender quota. Therefore, in addition to increasing the percentage of female directors, gender quotas also influence the board structure as they induce firms to create E&S committees.

Figure 4 shows that the percentage of female directors sitting on E&S committees in France significantly increases after 2010, more than the percentage of female directors sitting on other committees. Table 4 provides descriptive statistics on committee membership at the director-year level for France and compares the proportion of men and women before and after 2010 for both Asset 4 and Vigeo-Eiris samples. The results confirm that women sit more frequently on E&S committees after 2010. The increase in female directors on E&S committees stems from the increase in the number of E&S committees but also from the proportion of female directors in each committee. Before 2010, 5% of male and female directors are E&S committee members. After 2010, 8% of male directors and 14% of female directors are E&S committee members. The proportion of female directors who are members of audit committees increases from 27% to 34% (Asset 4) or from 25% to 32% (Vigeo). Furthermore, after 2010, female directors are more often the chairs of E&S committees than male directors. The regression results reported in Table 5 underline that the quota law increases the percentage of women on the main committees and the likelihood that a woman chairs the E&S committee, audit committee, and nomination committee.

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These results highlight that women are being assigned significant responsibilities on the boards after the quota law, which has enabled them to assert their priorities.

Our next question seeks to understand whether the effect of women on the E&S performance occurs exclusively through the E&S committee or whether it can also occur in the absence of such a committee. It is challenging to separate the committee effect from the women's effect, as the quota increases the likelihood of setting up an E&S committee. Therefore, we examine the impact of the quota law on firms without any E&S committee during the period 2007–2016. We rerun our regressions corresponding to specification (1) on the subsample of firms without an E&S committee. Table 6 reports the obtained results. The E&S performance significantly increases after the quota law, even for firms without an E&S committee in three of four of our specifications. The results are insignificantly positive when we consider the Vigeo dataset and headquartered abroad firms as the control group. These results suggest that the finding that the E&S performance is enhanced after the gender quota law is driven by the rise in the number of female directors and not only by the increased number of E&S committees after the implementation of the gender quota. If the mission of an E&S committee is to oversee the entire E&S strategy of the company, the other committees also have important roles. The audit committee monitors E&S disclosure and control, the compensation committee oversees the E&S criteria integration into executive compensation plans, and the nomination committee oversees the screening in terms of expertise and skills related to E&S. The fact that women are on these committees in greater numbers and chair them more frequently allows them to influence their priorities. If women are more oriented toward E&S policies, the quota law increases their power within the board, enabling them to promote these policies.

4.3. Board quotas and director characteristics

To explain the influence of female directors on the E&S policies, we examine the directors' characteristics, especially those that may be related to E&S. For example, if female directors are more likely to consider general interests, increasing the percentage of women on boards may lead firms to be more E&S oriented. We focus on three main variables: conformism, universalism, and benevolence. We consider the observable characteristics of directors to proxy for these dimensions. We define a universalist director as a director who has experience in the renewable sector, state-owned companies, charities, universities, and E&S committees or directors with a social science degree. We define a benevolent director as a director who has experience in human resources or the health and education sectors or has a degree in the health field. We define a nonconformist director as a director hired from outside traditional director networks (foreign, not belonging to the French elite schools "Grandes Ecoles" or "Ivy League" universities, not from the same family as another director, and not a part of the military sector). Table 7 reports descriptive statistics at the director-year level of French directors before (Panel A) and after 2010 (Panel B). As highlighted at the board level, female directors are more independent, younger, and have a smaller network than male directors. Female directors are significantly more nonconformist and benevolent than male directors, both before and after the quota law. However, female directors do not differ from male directors in terms of the universalism dimension.

We rerun our regressions corresponding to specification (1), adding these three variables alternatively, to verify whether the positive effect of the quota law on E&S scores disappears once we control for the characteristics that may be related to E&S priorities (Table 8). Our main findings remain unchanged: The E&S performance increases after the implementation of the quota law, and

thus, the effect of female directors on the E&S performance is not solely due to the fact that women are more universalist, benevolent, and nonconformist.

Subsequently, we rerun our main tests, including interaction terms, to account for the fact that boards in which benevolence, universalism, and nonconformism characteristics were at a low level before the quota law should have seen a greater effect of the quota law on the E&S performance. For each of the three value variables, we define a dummy equal to one if the board has a percentage of directors belonging to the first quintile before the quota law. The results presented in Table 9 suggest that the impact of the quota law on E&S performance is similar, and the effects of the quota law are not limited to boards in which benevolence, universalism, and nonconformism values were at a low level before the quota law. We acknowledge that our proxies for these values are imperfect and may not capture all the dimensions that the values encompass. However, overall, our findings suggest that female directors have unique qualities, experiences, and social preferences that make them more likely to support ES policies. The quotas assign female directors more power, which they can use to pursue their priorities.

4.4. Robustness checks

In our main tests, we use two control groups to conduct our difference-in-differences analysis. As a robustness check, we re-estimate our model specification (1) on the US firm sample (instead of a matched sample). The coefficient of our postquota treated variable remains significantly positive and similar to the coefficient pertaining to the matched US sample. As an alternative control group, we adopt a culturally related sample composed of foreign firms with at least 10% French directors, or directors having studied in France, or directors that worked for at least 3 years in France. Our findings confirm the positive impact of female directors on E&S

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performance. Furthermore, we rerun our regressions to control for time-invariant unobserved firm characteristics, including the firm fixed effects, and our main findings remain similar. We further control for each characteristic of directors rather than our value proxies constructed from these characteristics, and our results remain unchanged. French companies can choose between unitary boards and dual boards. As gender quotas apply to supervisory boards but not to management boards, several companies could opt for a supervisory board to maintain an all-male management board. We verify that no firm switched its board structure to a dual board in our sample after implementing the gender quota law. Finally, we conduct a placebo analysis by running the same regressions over the period 2007–2009, assuming that the exogenous change (quota law) occurred in 2008 (pseudo-event year). The coefficient on the variable "postquota*treated" is never significantly different from zero in this placebo analysis.

5. Conclusion

We analyze the impact of female directors on the firms' E&S performance. As a natural experiment, we use the 2011 French law introducing a mandatory board gender quota for all French firms. We find that after the introduction of the quota, the E&S performance of French firms is enhanced. We investigate several channels to explain our results. After the quota, firms are more likely to have an E&S committee, and female directors are more likely to sit on this committee and chair it. However, the E&S committee is not the only channel to increase E&S, as E&S scores increase after the quota law even for firms without a E&S committee over the whole period. After the quota law, women are increasingly serving as members and chairs of major committees. The quota law empowers female directors and allows them to promote their priorities, including E&S policies. Furthermore, we examine the impact of the directors' values that are more prevalent

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among female directors (benevolence, universalism, and nonconformism) on the E&S performance. However, our main results remain unchanged, even after controlling for variables measuring these values in our regressions. We interpret these findings as female directors having specific qualities, experiences, and social preferences, which, with the increased power that quotas have provided women, enable them to steer firms toward more E&S oriented policies.

Variable names	Definition
Firm characteristics	*Source: Compustat*
Size	Logarithm of total asset in millions of Euros
Market.to.Book	Market value of the equity divided by book value of the equity
Leverage	Long-term debt divided by the total asset
ROA	Net income divided by total asset of the previous year
Board characteristics	*Source: Boardex*
Women	Percentage of women on board
Boardsize	Number of directors on board
Independent	Percentage of independent directors on board
Tenure	Average time on board of directors
Network	Average time that directors sit on the board of other listed companies
Age	Average age of directors sitting on the board
E&S committee	Dummy equal to one if the firm has an E&S committee
Nonconformism1Quintile	Dummy equal to one if the board has a percentage of nonconformist directors belonging to the first quintile. All quintiles are computed by country over the period 2007–2009
Universalism1Quintile	Dummy equal to one if the board has a percentage of universalist directors belonging to the first quintile. All quintiles are computed by country over the period 2007–2009
Benevolence1Quintile	Dummy equal to one if the board has a percentage of benevolent directors belonging to the first quintile. All quintiles are computed by country over the period 2007–2009
Board committees	*Source: Boardex*
Committee chairwoman	Dummy equal to one if the chairperson of the committee is a woman
Percentage of women members	Percentage of women sitting on the committee
E&S members	Dummy equal to one if the director is a member of an E&S committee
Audit members	Dummy equal to one if the director is a member of an audit committee
Compensation members	Dummy equal to one if the director is a member of a compensation committee
Nomination members	Dummy equal to one if the director is a member of a nomination committee
E&S chairperson	Dummy equal to one if the director is the chairperson of an E&S committee
Audit chairperson	Dummy equal to one if the director is the chairperson of an audit committee
Compensation chairperson	Dummy equal to one if the director is the chairperson of a compensation committee
Nomination chairperson	Dummy equal to one if the director is the chairperson of a nomination committee
Director characteristics	*Source: Boardex*
Nonconformism	Dummy equal to one if the director is not from the same family as another director, has no diploma from a Grande Ecole or Ivy League, did not work in the military sector, is more than five years away from retirement, or is foreign.
Universalism	Dummy equal to one if the director has worked in the renewable sector, government sector or type of company, charities, or universities, has sat in an E&S committee, or has a diploma in social sciences
Benevolence	Dummy equal to one if the director has worked in the health sector or a medical company or in the education sector, has experience in human resources, or has a diploma in health
ESG variables	*Source: Vigeo-Eiris / Asset 4*
E&S.Score	Equiweighted average of the environmental and social scores
Social.Score	Equiweighted social score free from any diversity measure
Env.Score	Equiweighted environmental score

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Figure 1: Average percentage of female directors in France.

The figure shows the annual average percentage of female directors in French firms and our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. The sample includes all firms covered by BoardEx and Asset4 over the period 2008-2016.
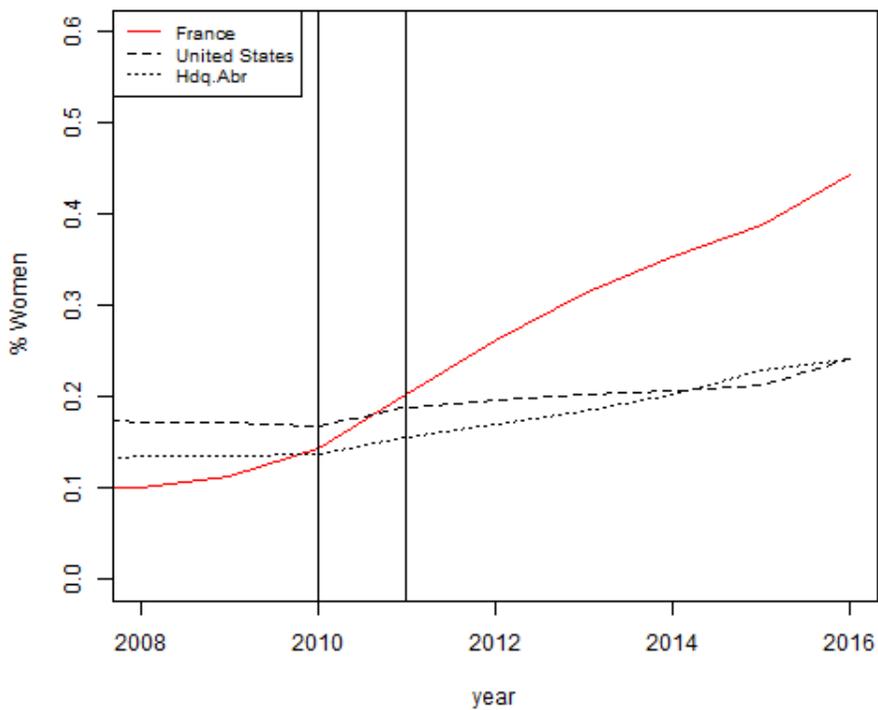
Figure 2: Parallel trends.

Figure A shows the regression coefficients from $E\&Sratings_{i,t} = \alpha + \sum_{t=2007}^{2016} \times \beta_t \cdot Treated_{i,t} 1[Year = t] + Treated_{i,t} + \Delta + e_{i,t}$ with Δ year and firm fixed effects. The control group is the matched US sample, and we plot all the interaction terms. Figure B represents coefficients from the same regression; however, the control group is the headquartered abroad sample. The sample includes all firms covered by BoardEx and Asset4.

A. France vs US matched sample

B. France vs headquarter abroad sample
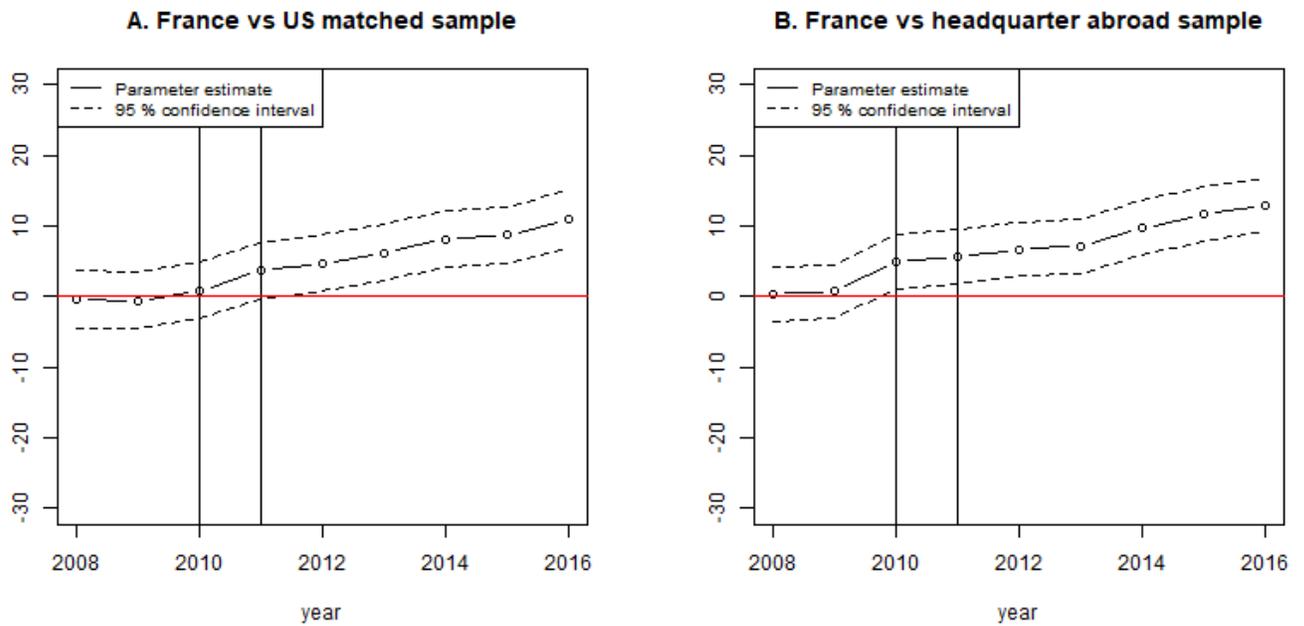
Figure 3: Average percentage of firms with E&S committees.

This figure shows the annual average percentage of firms with E&S committees for French firms and our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. The sample includes all firms covered by BoardEx and Asset4 over the period 2008-2016.
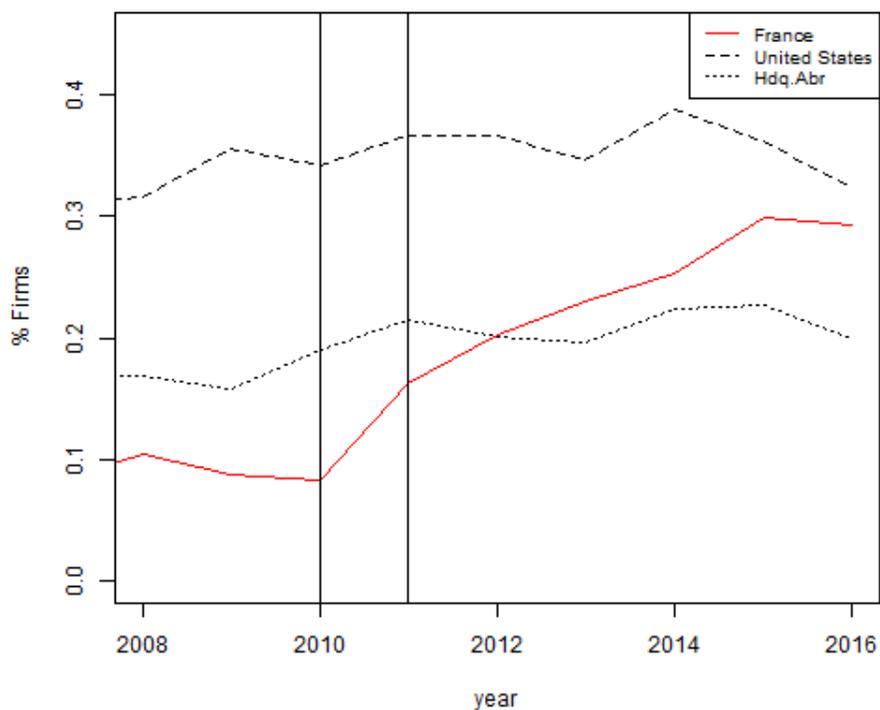
Figure 4: Average percentage of female directors sitting on board committees in France.

This figure shows the annual average percentage of female directors sitting on a given board committee in France for firms that have such a committee. The sample includes all firms covered by BoardEx and Asset4 over the period 2008-2016.
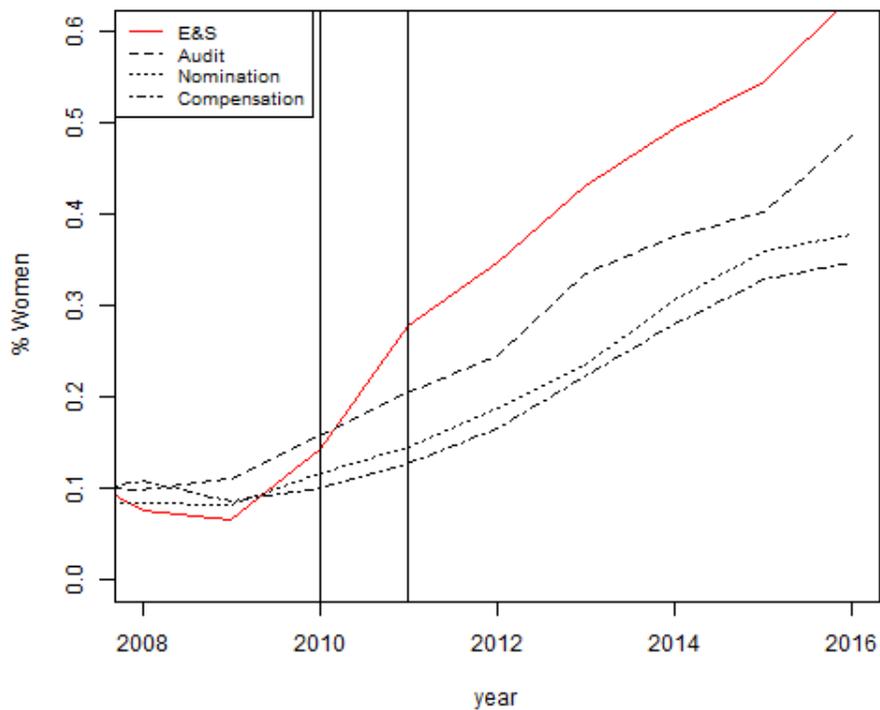
Table 1: Summary statistics.

This table summarizes firm-year characteristics for France and our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. Panels A and B report the summary statistics for 1,788 and 1,844 firm-year observations over the period 2007–2016, respectively. Observations with missing information are excluded. The appendix provides the definitions of the variables.

Panel A: Asset 4	France			United States			Headq.abroad		
Firm characteristics	N	Mean	SD	N	Mean	SD	N	Mean	SD
Size	718	23.11	1.30	657	23.07	1.27	470	24.33	1.30
Market.to.Book	718	2.11	1.68	657	4.78	7.25	470	3.21	7.99
Leverage	718	0.20	0.15	657	0.21	0.14	470	0.22	0.14
ROA	718	0.04	0.05	657	0.06	0.07	470	0.06	0.06
Board characteristics									
Women	718	0.21	0.13	657	0.17	0.09	470	0.16	0.10
Boardsize	718	13.39	3.38	657	11.08	2.16	470	13.75	5.38
Independent	718	0.48	0.18	657	0.81	0.14	470	0.68	0.27
Tenure	718	6.58	3.25	657	8.01	3.04	470	6.51	2.47
Network	718	3.90	1.91	657	5.02	1.54	470	4.45	1.78
Age	718	59.03	4.44	657	63.00	3.12	470	60.86	3.56
ES characteristics									
E&S.Score	718	59.83	20.51	657	55.96	21.29	470	69.62	21.25
Social.Score	718	59.76	21.58	657	59.95	20.01	470	73.29	20.36
Env.Score	718	59.91	23.24	657	51.96	25.68	470	65.95	24.45
Panel B: Vigeo	France			United States			Headq.abroad		
Firm characteristics	N	Mean	SD	N	Mean	SD	N	Mean	SD
Size	828	22.86	1.43	678	23.58	1.04	418	24.56	1.02
Market.to.Book	828	2.03	1.69	678	4.81	8.45	418	3.26	8.05
Leverage	828	0.19	0.14	678	0.24	0.14	418	0.22	0.13
ROA	828	0.03	0.06	678	0.07	0.07	418	0.06	0.06
Board characteristics									
Women	828	0.24	0.16	678	0.21	0.10	418	0.19	0.11
Boardsize	828	12.97	3.46	678	11.58	2.10	418	14.26	5.37
Independent	828	0.55	0.21	678	0.97	0.07	418	0.76	0.30
Tenure	828	6.80	3.25	678	8.55	2.67	418	6.55	2.49
Network	828	3.81	2.00	678	5.36	1.70	418	4.45	1.80
Age	828	59.16	4.49	678	63.14	3.00	418	60.65	3.46
ES characteristics									
E&S.Score	828	40.55	12.37	678	29.43	9.58	418	41.82	10.70
Social.Score	828	41.19	13.12	678	27.97	8.85	418	40.90	11.40
Env.Score	828	39.90	12.83	678	30.90	12.10	418	42.75	11.64

Table 2: Effect of the quota law on the E&S scores.

This table reports the OLS estimates of the treatment effects of the quota (post_quota_treated) on the E&S score, environmental score, and social score. The sample includes French firms, and alternately, one of our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. The results are reported for both Asset 4 sample and Vigeo sample over the period 2007−2016. We delete observations with missing information, and the financial variables are trimmed at 1%. The postquota period starts in 2011, and the year 2010 is excluded. All models include year and industry fixed effects. The appendix provides the definitions of the variables. Standard errors clustered by firm are reported in parentheses. Stars indicate significance levels *** 1%, ** 5%, and *10%.

	$E\&S.Score_{t+1}$				$Env.Score_{t+1}$				$Social.Score_{t+1}$			
Post_quota_treated	7.66***	7.41***	3.79***	3.55***	4.24	5.91**	3.23**	4.08***	11.09***	8.90***	4.36***	3.03**
	(2.26)	(1.97)	(0.96)	(1.26)	(2.69)	(2.31)	(1.26)	(1.50)	(2.46)	(2.34)	(0.98)	(1.33)
Treated	1.40	−3.23	13.49***	3.78*	7.02*	1.13	10.74***	1.23	−4.21	−7.58*	16.24***	6.32***
	(3.83)	(3.69)	(1.96)	(2.06)	(4.20)	(4.06)	(2.11)	(2.34)	(4.15)	(4.05)	(2.12)	(2.23)
Size	9.30***	9.86***	5.47***	5.13***	10.72***	10.26***	5.64***	4.89***	7.88***	9.47***	5.29***	5.37***
	(0.99)	(1.13)	(0.47)	(0.51)	(1.10)	(1.28)	(0.53)	(0.59)	(1.12)	(1.17)	(0.53)	(0.55)
Market.to.Book	0.02	−0.08	−0.02	−0.08*	0.002	−0.15*	0.02	−0.05	0.04	0.003	−0.07*	−0.11*
	(0.10)	(0.07)	(0.03)	(0.05)	(0.11)	(0.09)	(0.04)	(0.05)	(0.11)	(0.07)	(0.04)	(0.06)
Leverage	−19.81**	−13.13	−3.99	−7.35	−21.48**	−12.60	−0.66	−4.13	−18.13**	−13.65	−7.32**	−10.57**
	(7.78)	(8.39)	(3.49)	(4.91)	(9.07)	(9.30)	(4.01)	(5.44)	(7.94)	(8.62)	(3.50)	(4.87)
ROA	7.99	−10.16	8.89*	−5.83	6.23	−13.17	7.35	−5.36	9.75	−7.15	10.43*	−6.30
	(10.71)	(19.74)	(4.78)	(8.27)	(10.78)	(18.56)	(5.58)	(9.09)	(13.07)	(23.74)	(5.40)	(8.74)
Independent	−2.53	1.14	0.46	−1.77	0.19	0.65	−0.17	−0.60	−5.25	1.63	1.10	−2.95
	(6.85)	(4.36)	(3.78)	(2.69)	(7.06)	(4.62)	(4.10)	(3.00)	(8.27)	(5.19)	(3.85)	(2.72)
Tenure	−0.16	0.55	0.17	0.02	0.09	0.43	0.12	−0.17	−0.41	0.68	0.22	0.20
	(0.41)	(0.49)	(0.18)	(0.23)	(0.46)	(0.51)	(0.20)	(0.24)	(0.45)	(0.56)	(0.19)	(0.25)
Network	0.94	0.82	0.47	0.64	1.25*	1.19	0.68*	0.77*	0.64	0.44	0.26	0.50
	(0.68)	(0.75)	(0.35)	(0.41)	(0.74)	(0.81)	(0.39)	(0.43)	(0.74)	(0.80)	(0.35)	(0.43)
Age	0.34	0.09	−0.37**	−0.16	0.09	−0.20	−0.42**	−0.09	0.59*	0.39	−0.31*	−0.23
	(0.31)	(0.31)	(0.17)	(0.17)	(0.35)	(0.36)	(0.19)	(0.19)	(0.34)	(0.31)	(0.17)	(0.17)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr
E&S scores	A4	A4	Vigeo	Vigeo	A4	A4	Vigeo	Vigeo	A4	A4	Vigeo	Vigeo
Observations	1,180	1,069	1,236	1,121	1,180	1,069	1,236	1,121	1,180	1,069	1,236	1,121
Adjusted R^2	0.53	0.59	0.72	0.57	0.52	0.57	0.63	0.51	0.42	0.50	0.73	0.57

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Table 3: Effect of the quota law on the E&S committee presence.

This table reports the OLS estimates of the treatment effects of the quota (post_quota_treated) on the probability of having an E&S committee. The sample includes French firms, and alternately, one of our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. The results are reported for both the Asset 4 sample and Vigeo sample over the period 2007−2016. We delete observations with missing information, and the financial variables are trimmed at 1%. The postquota period starts in 2011, and the year 2010 is excluded. All models include year and industry fixed effects. The appendix provides the definitions of the variables. Standard errors clustered by firm are reported in parentheses. Stars indicate significance levels *** 1%, ** 5%, and *10%.

| | E&S committee$_{t+1}$ |
	probit	*OLS*	*probit*	*OLS*	*probit*	*OLS*	*probit*	*OLS*
Post_quota_treated	1.06***	0.24***	0.69**	0.17***	1.01***	0.24***	0.63**	0.13**
	(0.23)	(0.06)	(0.29)	(0.06)	(0.22)	(0.06)	(0.31)	(0.06)
Treated	−1.21***	−0.29***	−0.86**	−0.21**	−0.57*	−0.14	−0.24	−0.05
	(0.39)	(0.10)	(0.39)	(0.10)	(0.31)	(0.09)	(0.33)	(0.09)
Size	0.38***	0.11***	0.44***	0.13***	0.34***	0.07***	0.27***	0.07***
	(0.09)	(0.02)	(0.10)	(0.02)	(0.10)	(0.03)	(0.10)	(0.02)
Market.to.Book	0.01	0.003	0.0005	0.0001	0.03*	0.01***	0.05**	0.01***
	(0.01)	(0.003)	(0.01)	(0.003)	(0.02)	(0.003)	(0.02)	(0.003)
Leverage	0.83	0.23	−0.28	−0.17	0.12	0.12	0.21	0.08
	(0.68)	(0.17)	(0.66)	(0.17)	(0.80)	(0.23)	(0.89)	(0.22)
ROA	−0.53	−0.11	−1.04	−0.11	−0.32	−0.08	0.34	0.27
	(1.05)	(0.30)	(0.89)	(0.24)	(1.85)	(0.53)	(1.26)	(0.33)
Independent	−0.22	−0.07	−0.004	−0.02	0.87**	0.26**	0.48	0.14
	(0.62)	(0.16)	(0.60)	(0.14)	(0.43)	(0.12)	(0.48)	(0.11)
Tenure	−0.01	−0.01	0.01	0.01	−0.005	0.002	0.01	0.001
	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.04)	(0.01)
Network	0.04	0.01	0.03	0.005	0.02	0.001	−0.01	0.001
	(0.05)	(0.01)	(0.05)	(0.01)	(0.05)	(0.01)	(0.06)	(0.01)
Age	0.02	0.01	0.01	−0.003	0.002	0.003	0.02	0.001
	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	No	Yes	No	Yes	No	Yes
Control Group	US	US	US	US	Hq.Abr	Hq.Abr	Hq.Abr	Hq.Abr
E&S scores	A4	A4	Vigeo	Vigeo	A4	A4	Vigeo	Vigeo
Observations	1,180	1,180	1,236	1,236	1,069	1,069	1,121	1,121
Adjusted R^2		0.23		0.23		0.20		0.17
Log Likelihood	−590.66		−619.31		−537.28		−493.63	
Akaike Inf. Crit.	1,219.32		1,276.62		1,112.56		1,101.27	

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Table 4: Female directors and board committees.

This table summarizes director-year characteristics regarding board committees for France over the period 2007–2016. Panel A reports summary statistics for 9,587 director-year observations present in the Asset 4 sample and Panel B reports summary statistics for 10,703 director-year observations present in the Vigeo sample. The appendix provides the definitions of the variables.

Panel A: Asset 4

Before 2010	N	Mean	SD	Men	Women	Diff	t.stat
E&S members	3,573	0.05	0.22	0.05	0.05	-0.003	-0.27
Audit members	3,573	0.26	0.44	0.26	0.27	-0.003	-0.13
Compensation members	3,573	0.24	0.43	0.25	0.23	0.01	0.61
Nomination members	3,573	0.22	0.42	0.23	0.20	0.03	1.14
E&S chairman	3,573	0.01	0.11	0.01	0.003	0.01	2.91
Audit chairman	3,573	0.07	0.25	0.07	0.04	0.03	3.09
Compensation chairman	3,573	0.06	0.25	0.07	0.06	0.01	0.73
Nomination chairman	3,573	0.06	0.23	0.06	0.07	-0.01	-0.92

After 2010	N	Mean	SD	Men	Women	Diff	t.stat
E&S members	6,014	0.10	0.30	0.08	0.14	-0.06	-6.29
Audit members	6,014	0.30	0.46	0.28	0.34	-0.06	-4.43
Compensation members	6,014	0.27	0.44	0.27	0.26	0.01	1.05
Nomination members	6,014	0.25	0.43	0.26	0.23	0.03	2.86
E&S chairman	6,014	0.02	0.16	0.02	0.03	-0.01	-2.14
Audit chairman	6,014	0.07	0.26	0.08	0.06	0.02	2.66
Compensation chairman	6,014	0.07	0.25	0.07	0.05	0.02	3.51
Nomination chairman	6,014	0.06	0.24	0.06	0.05	0.01	1.96

Panel B: Vigeo

Before 2010	N	Mean	SD	Men	Women	Diff	t.stat
E&S members	3,858	0.05	0.22	0.05	0.06	-0.01	-0.64
Audit members	3,858	0.28	0.45	0.28	0.25	0.03	1.12
Compensation members	3,858	0.26	0.44	0.26	0.22	0.04	1.65
Nomination members	3,858	0.23	0.42	0.24	0.20	0.03	1.53
E&S chairman	3,858	0.01	0.11	0.01	0.003	0.01	3.30
Audit chairman	3,858	0.07	0.26	0.08	0.03	0.05	4.74
Compensation chairman	3,858	0.07	0.25	0.07	0.05	0.02	1.67
Nomination chairman	3,858	0.06	0.24	0.06	0.06	0.0001	0.004

After 2010	N	Mean	SD	Men	Women	Diff	t.stat
E&S members	6,845	0.09	0.29	0.08	0.13	-0.05	-6.20
Audit members	6,845	0.30	0.46	0.29	0.33	-0.04	-3.02
Compensation members	6,845	0.27	0.44	0.27	0.26	0.01	0.70
Nomination members	6,845	0.25	0.43	0.25	0.23	0.03	2.26
E&S chairman	6,845	0.02	0.15	0.02	0.03	-0.01	-2.50
Audit chairman	6,845	0.07	0.26	0.08	0.06	0.03	3.90
Compensation chairman	6,845	0.07	0.25	0.07	0.05	0.02	2.75
Nomination chairman	6,845	0.06	0.24	0.06	0.05	0.01	1.23

Table 5: Effect of the quota law on the presence of women on board committees.

This table reports the estimates of the treatment effects of the quota (post_quota_treated) on the probability of having a woman chair the committee and percentage of women members in the committee. The dependent variable in columns 1 to 8 is a dummy equal to one if the chairperson of the committee is a woman. In columns 9 to 12, the dependent variable is the percentage of women in the committee. The sample includes French firms, and alternately, one of our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. The results are reported both for the Asset 4 sample and Vigeo sample over the period 2007−2016. We delete observations with missing information, and the financial variables are trimmed at 1%. The postquota period begins in 2011, and the year 2010 is excluded. All models include year and industry fixed effects and our usual controls: Size, Market.to.Book, Leverage, ROA, Independent, Tenure, Network, Age. The appendix provides the definitions of the variables. Standard errors clustered by firm are reported in parentheses. Stars indicate significance levels *** 1%, ** 5%, and *10%.

	Committee chairwoman								Percentage of women members			
	probit	OLS	probit	OLS	probit	OLS	probit	OLS	OLS	OLS	OLS	OLS
Panel A: E&S committee												
Post_quota_treated	6.66***	0.49**	11.28***	0.60***	5.46***	0.50**	8.75***	0.42**	0.29***	0.33***	0.32***	0.28***
	(0.76)	(0.22)	(0.91)	(0.18)	(0.61)	(0.22)	(1.40)	(0.18)	(0.06)	(0.07)	(0.06)	(0.06)
Treated	−7.56***	−0.82***	−11.70***	−0.64***	−4.93***	−0.24	−6.82***	−0.07	−0.26**	−0.23**	0.01	0.04
	(1.06)	(0.27)	(1.26)	(0.19)	(0.54)	(0.23)	(1.23)	(0.21)	(0.11)	(0.10)	(0.07)	(0.08)
Observations	357	357	386	386	286	286	278	278	357	386	286	278
Adjusted R^2		0.24		0.20		0.47		0.52	0.41	0.39	0.49	0.52
Log Likelihood	−190.49		−223.50		−140.27		−49.31					
Akaike Inf. Crit.	418.99		485.01		318.53		184.62					
Panel B: Audit committee												
Post_quota_treated	0.69*	0.07	0.73*	0.07	0.88**	0.14**	1.06**	0.12*	0.15***	0.18***	0.16***	0.16***
	(0.38)	(0.06)	(0.39)	(0.05)	(0.42)	(0.06)	(0.50)	(0.06)	(0.04)	(0.03)	(0.04)	(0.04)
Treated	−1.09**	−0.15*	−0.81*	−0.03	−0.73*	−0.0001	−0.41	0.02	−0.07	−0.05	−0.02	−0.01
	(0.43)	(0.08)	(0.44)	(0.07)	(0.41)	(0.07)	(0.45)	(0.08)	(0.05)	(0.05)	(0.04)	(0.05)
Observations	990	990	1,030	1,030	810	810	838	838	990	1,030	810	838
Adjusted R^2		0.16		0.11		0.23		0.20	0.25	0.25	0.31	0.29
Log Likelihood	−406.51		−389.99		−343.15		−269.28					
Akaike Inf. Crit.	851.01		817.99		724.30		650.55					
Panel C: Compensation committee												
Post_quota_treated	0.57	0.12*	0.53	0.10	0.57	0.08	1.02	0.13**	0.10***	0.15***	0.10***	0.09**
	(0.36)	(0.06)	(0.41)	(0.06)	(0.42)	(0.07)	(0.64)	(0.07)	(0.03)	(0.03)	(0.04)	(0.04)
Treated	−0.18	−0.02	−0.53	−0.11	−0.15	−0.05	−0.42	−0.02	−0.05	−0.08*	0.001	0.02
	(0.44)	(0.08)	(0.51)	(0.08)	(0.52)	(0.07)	(0.61)	(0.07)	(0.04)	(0.04)	(0.04)	(0.04)
Observations	974	974	1,010	1,010	766	766	784	784	974	1,010	766	784
Adjusted R^2		0.13		0.12		0.28		0.23	0.22	0.23	0.31	0.28
Log Likelihood	−389.54		−420.64		−268.29		−191.48					
Akaike Inf. Crit.	817.08		879.27		574.58		494.96					
Panel D: Nomination committee												
Post_quota_treated	0.62**	0.15**	0.53	0.12	0.72**	0.17**	1.42***	0.25***	0.15***	0.10***	0.09*	0.09*
	(0.30)	(0.07)	(0.36)	(0.08)	(0.33)	(0.08)	(0.44)	(0.09)	(0.04)	(0.03)	(0.04)	(0.05)
Treated	−0.16	−0.13	−0.51	−0.14*	−0.23	−0.09	−0.43	−0.07	−0.11***	−0.07*	−0.002	−0.01
	(0.38)	(0.10)	(0.46)	(0.08)	(0.38)	(0.09)	(0.48)	(0.09)	(0.04)	(0.04)	(0.04)	(0.05)
Observations	827	827	845	845	672	672	680	680	827	845	672	680
Adjusted R^2		0.16		0.13		0.22		0.20	0.19	0.24	0.27	0.27
Log Likelihood	−378.42		−387.45		−293.25		−213.46					
Akaike Inf. Crit.	794.83		812.90		624.51		538.92					
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Control Group	US	US	US	US	Hq.Abr	Hq.Abr	Hq.Abr	Hq.Abr	US	US	Hq.Abr	Hq.Abr
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
E&S scores	A4	A4	Vigeo	Vigeo	A4	A4	Vigeo	Vigeo	A4	Vigeo	A4	Vigeo

Table 6: Effect of the quota law on the E&S scores: sample of firms without E&S committee over 2007−2016.

This table reports the OLS estimates of the treatment effects of the quota (post_quota_treated) on the E&S score, environmental score, and social score. The sample includes French firms, and alternately, one of our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. Only firms with no E&S committee during all the period of interest are included. The results are reported for both the Asset 4 sample and Vigeo sample over the period 2007−2016. We delete observations with missing information, and the financial variables are trimmed at 1%. The postquota period begins in 2011, and the year 2010 is excluded. All models include year and industry fixed effects. The appendix provides the definitions of the variables. Standard errors clustered by firm are reported in parentheses. Stars indicate significance levels *** 1%, ** 5%, and *10%.

	E&S.Scoret+1				Env.Scoret+1				Social.Scoret+1			
Post_quota_treated	9.24***	4.04***	9.31***	3.01	8.76**	3.49*	10.77***	3.56	9.72***	4.58***	7.85**	2.46
	(3.21)	(1.44)	(2.98)	(1.90)	(3.61)	(1.89)	(3.42)	(2.40)	(3.64)	(1.45)	(3.40)	(1.84)
Treated	−0.39	14.69***	−3.44	0.82	3.47	11.44***	−2.94	−1.18	−4.25	17.93***	−3.93	2.83
	(4.88)	(2.76)	(5.09)	(3.35)	(6.06)	(3.20)	(5.77)	(4.09)	(4.60)	(2.95)	(5.25)	(3.39)
Size	8.70***	5.03***	10.26***	4.52***	9.92***	5.34***	10.11***	4.30***	7.48***	4.72***	10.40***	4.75***
	(1.32)	(0.78)	(1.36)	(0.73)	(1.51)	(0.88)	(1.60)	(0.84)	(1.54)	(0.86)	(1.39)	(0.81)
Market.to.Book	0.01	−0.03	−0.08	−0.24**	0.13	0.06	−0.11	−0.16	−0.11	−0.11	−0.05	−0.33**
	(0.17)	(0.08)	(0.13)	(0.11)	(0.21)	(0.10)	(0.16)	(0.12)	(0.16)	(0.07)	(0.12)	(0.15)
Leverage	−32.10***	−8.32**	−17.51*	−12.16**	−31.31***	−6.53	−19.29*	−7.73	−32.89***	−10.11**	−15.72*	−16.59***
	(9.07)	(4.05)	(9.09)	(5.53)	(11.15)	(4.40)	(10.06)	(5.97)	(8.88)	(4.67)	(9.41)	(5.87)
ROA	11.66	14.78**	7.55	0.73	10.02	11.19*	6.36	1.00	13.30	18.36**	8.74	0.46
	(11.19)	(6.53)	(28.06)	(12.64)	(12.62)	(6.67)	(31.58)	(14.69)	(13.16)	(7.92)	(27.39)	(11.97)
Independent	−10.48	2.30	−6.52	−1.75	−2.90	1.76	−2.89	−0.97	−18.05**	2.84	−10.16	−2.53
	(7.33)	(5.41)	(7.74)	(4.11)	(9.62)	(5.70)	(8.52)	(4.34)	(7.43)	(5.62)	(7.75)	(4.26)
Tenure	−0.84*	0.14	−0.28	−0.37	−0.28	0.01	−0.16	−0.54	−1.40***	0.28	−0.40	−0.20
	(0.46)	(0.23)	(0.60)	(0.31)	(0.54)	(0.25)	(0.66)	(0.36)	(0.48)	(0.28)	(0.65)	(0.33)
Network	0.82	0.25	0.68	0.69	1.13	0.31	1.31	0.68	0.51	0.20	0.05	0.71
	(0.75)	(0.47)	(0.95)	(0.51)	(0.88)	(0.50)	(1.13)	(0.53)	(0.76)	(0.49)	(0.90)	(0.55)
Age	0.49	−0.23	0.10	−0.11	−0.09	−0.26	−0.49	0.01	1.07***	−0.19	0.70**	−0.22
	(0.35)	(0.22)	(0.37)	(0.23)	(0.43)	(0.24)	(0.45)	(0.27)	(0.35)	(0.23)	(0.33)	(0.24)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	US	US	Hq.Abr	Hq.Abr	US	US	Hq.Abr	Hq.Abr	US	US	Hq.Abr	Hq.Abr
E&S scores	A4	Vigeo	A4	Vigeo	A4	Vigeo	A4	Vigeo	A4	Vigeo	A4	Vigeo
Observations	678	667	600	655	678	667	600	655	678	667	600	655
Adjusted R^2	0.58	0.71	0.65	0.57	0.55	0.64	0.62	0.51	0.51	0.72	0.61	0.57

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Table 7: Director characteristics.

This table summarizes the director-year characteristics for France over the period 2007–2016. Panels A and B report summary statistics for 9,587 (Asset 4 sample) and 10,703 director-year observations (Vigeo sample), respectively. The appendix provides the definitions of the variables.

Panel A: Asset 4

Before 2010	N	Mean	SD	Men	Women	Diff	t.stat
Independent	3,573	0.43	0.50	0.42	0.48	-0.06	-2.04
Tenure	3,565	6.54	6.41	6.59	6.12	0.48	1.29
Network	3,495	3.60	4.01	3.82	1.67	2.16	9.68
Age	3,533	58.70	10.17	59.20	54.11	5.09	8.44
Nonconformism	3,568	0.38	0.48	0.36	0.50	-0.13	-4.81
Universalism	3,116	0.51	0.50	0.51	0.54	-0.03	-0.94
Benevolence	3,068	0.10	0.30	0.10	0.15	-0.06	-2.59

After 2010	N	Mean	SD	Men	Women	Diff	t.stat
Independent	6,014	0.50	0.50	0.43	0.67	-0.24	-17.39
Tenure	6,003	7.03	6.74	8.18	4.14	4.04	24.98
Network	5,927	3.92	4.38	4.61	2.22	2.39	22.10
Age	5,965	58.64	10.02	60.21	54.68	5.53	19.94
Nonconformism	6,006	0.38	0.49	0.34	0.48	-0.14	-9.94
Universalism	5,400	0.49	0.50	0.50	0.48	0.02	1.10
Benevolence	5,321	0.10	0.31	0.09	0.13	-0.04	-3.70

Panel B: Vigeo

Before 2010	N	Mean	SD	Men	Women	Diff	t.stat
Independent	3,858	0.43	0.49	0.42	0.46	-0.03	-1.23
Tenure	3,849	6.93	6.79	6.92	7.02	-0.10	-0.25
Network	3,766	3.58	4.01	3.79	1.69	2.10	9.80
Age	3,793	59.04	9.96	59.48	54.93	4.55	7.71
Nonconformism	3,847	0.38	0.48	0.37	0.47	-0.10	-3.68
Universalism	3,319	0.50	0.50	0.50	0.53	-0.03	-0.90
Benevolence	3,273	0.09	0.29	0.09	0.16	-0.07	-3.06

After 2010	N	Mean	SD	Men	Women	Diff	t.stat
Independent	6,845	0.47	0.50	0.41	0.64	-0.23	-17.15
Tenure	6,830	7.16	7.11	8.29	4.16	4.13	25.54
Network	6,751	3.79	4.39	4.41	2.15	2.26	22.11
Age	6,766	58.59	10.17	60.10	54.59	5.51	20.54
Nonconformism	6,816	0.39	0.49	0.35	0.49	-0.14	-10.48
Universalism	6,057	0.47	0.50	0.47	0.47	-0.001	-0.10
Benevolence	5,972	0.12	0.32	0.11	0.14	-0.03	-3.38

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Table 8: Effect of the quota law on E&S scores − director characteristics.

This table reports the OLS estimates of the treatment effects of the quota (post_quota_treated) on the E&S score, environmental score, and social score. The sample includes French firms, and alternately, one of our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. In addition to our usual controls, we add three variables: nonconformism, universalism, and benevolence. The results are reported for both the Asset 4 sample and Vigeo sample over the period 2007−2016. We delete observations with missing information, and the financial variables are trimmed at 1%. The postquota period starts in 2011, and the year 2010 is excluded. All models include year and industry fixed effects. The appendix provides the definitions of the variables. Standard errors clustered by firm are reported in parentheses. Stars indicate significance levels *** 1%, ** 5%, and *10%.

	$E\&S.Score_{t+1}$				$Env.Score_{t+1}$				$Social.Score_{t+1}$			
Post_quota_treated	7.14***	7.70***	3.74***	3.63***	3.79	6.22***	3.12**	4.16***	10.49***	9.18***	4.36***	3.09**
	(2.26)	(1.91)	(0.95)	(1.24)	(2.67)	(2.24)	(1.25)	(1.50)	(2.48)	(2.30)	(0.99)	(1.30)
Treated	1.28	−0.75	13.58***	5.40**	6.36	3.74	10.83***	2.35	−3.79	−5.25	16.34***	8.44***
	(3.74)	(3.72)	(1.99)	(2.10)	(4.12)	(4.01)	(2.13)	(2.39)	(4.03)	(4.17)	(2.18)	(2.23)
Nonconformism	7.75	14.32***	0.39	7.50***	9.80*	17.44***	0.46	6.21**	5.70	11.20**	0.32	8.79***
	(5.06)	(5.48)	(2.76)	(2.70)	(5.89)	(6.32)	(3.05)	(2.92)	(5.70)	(5.61)	(3.07)	(2.89)
Universalism	6.87	−2.88	0.67	−1.11	8.37	0.52	2.23	2.47	5.37	−6.28	−0.90	−4.69
	(4.84)	(4.60)	(2.36)	(2.86)	(6.16)	(5.18)	(2.75)	(2.98)	(4.64)	(5.65)	(2.44)	(3.02)
Benevolence	6.67	−2.83	1.53	−2.75	2.05	−7.16	1.21	−4.69	11.28	1.51	1.85	−0.82
	(6.20)	(7.17)	(2.89)	(3.16)	(6.57)	(8.17)	(3.57)	(3.67)	(7.08)	(7.12)	(2.65)	(3.22)
Size	8.62***	9.64***	5.43***	5.14***	9.92***	9.64***	5.50***	4.74***	7.33***	9.64***	5.36***	5.54***
	(1.08)	(1.04)	(0.51)	(0.53)	(1.24)	(1.17)	(0.53)	(0.58)	(1.16)	(1.10)	(0.59)	(0.57)
Market.to.Book	0.02	−0.02	−0.02	−0.06	0.01	−0.09	0.02	−0.03	0.04	0.04	−0.07*	−0.09
	(0.10)	(0.08)	(0.04)	(0.05)	(0.12)	(0.10)	(0.04)	(0.05)	(0.12)	(0.07)	(0.04)	(0.06)
Leverage	−19.11**	−10.10	−4.03	−6.22	−20.81**	−10.04	−0.69	−3.31	−17.40**	−10.16	−7.37**	−9.13*
	(7.55)	(8.51)	(3.50)	(4.94)	(8.83)	(9.38)	(4.07)	(5.46)	(7.72)	(8.84)	(3.50)	(4.88)
ROA	2.96	−8.57	8.17*	−3.42	1.73	−11.08	6.36	−3.70	4.19	−6.07	9.98*	−3.15
	(11.07)	(19.04)	(4.89)	(8.12)	(11.54)	(17.63)	(5.67)	(8.74)	(13.12)	(23.36)	(5.42)	(8.60)
Independent	−3.06	3.14	0.32	−0.73	−0.02	2.97	−0.21	0.30	−6.09	3.32	0.85	−1.76
	(6.60)	(4.28)	(3.83)	(2.67)	(7.03)	(4.46)	(4.10)	(2.95)	(7.77)	(5.28)	(3.91)	(2.73)
Tenure	−0.12	0.52	0.18	0.04	0.15	0.40	0.15	−0.12	−0.38	0.64	0.22	0.21
	(0.40)	(0.47)	(0.18)	(0.21)	(0.45)	(0.47)	(0.20)	(0.23)	(0.43)	(0.55)	(0.19)	(0.24)
Network	1.08	1.20	0.48	0.79*	1.38*	1.64**	0.70*	0.89**	0.78	0.77	0.27	0.69
	(0.66)	(0.76)	(0.35)	(0.41)	(0.72)	(0.81)	(0.39)	(0.43)	(0.71)	(0.82)	(0.35)	(0.43)
Age	0.33	0.29	−0.38**	−0.08	0.11	0.02	−0.45**	−0.05	0.56*	0.55*	−0.31*	−0.11
	(0.30)	(0.29)	(0.17)	(0.16)	(0.34)	(0.33)	(0.19)	(0.18)	(0.32)	(0.31)	(0.17)	(0.16)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr
E&S scores	A4	A4	Vigeo	Vigeo	A4	A4	Vigeo	Vigeo	A4	A4	Vigeo	Vigeo
Observations	1,180	1,069	1,236	1,121	1,180	1,069	1,236	1,121	1,180	1,069	1,236	1,121
Adjusted R^2	0.54	0.60	0.72	0.59	0.53	0.59	0.63	0.52	0.43	0.51	0.73	0.59

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Table 9: Effect of the quota law on E&S scores of boards with low levels of board nonconformism, universalism and benevolence before the quota law.

This table reports the OLS estimates of the treatment effects of the quota (post_quota_treated) interacted with a dummy on the E&S score. The dummy is equal to one if the board has a percentage of directors with one of the three characteristics (nonconformism, universalism, and benevolence) within the first quintile before the quota law. The sample includes French firms, and alternately, one of our control groups composed of matched US firms and firms listed in Paris and headquartered abroad. The results are reported for both the Asset 4 sample and Vigeo sample over the period 2007−2016. We delete observations with missing information, and the financial variables are trimmed at 1%. The postquota period starts in 2011, and the year 2010 is excluded. All models include year and industry fixed effects. Standard errors clustered by firm are reported in parentheses. The appendix provides the definitions of the variables. Stars indicate significance levels *** 1%, ** 5%, and *10%.

	E&S.Score$_{t+1}$											
Post_quota_treated_Nonconformism1Quintile	2.76	−5.00	−0.48	−5.35*								
	(6.27)	(5.46)	(2.54)	(3.03)								
Post_quota_treated_Universalism1Quintile					−0.42	9.89*	−2.29	−3.62				
					(5.30)	(5.98)	(2.57)	(2.92)				
Post_quota_treated_Benevolence1Quintile									3.71	5.24	0.29	1.82
									(5.32)	(4.41)	(2.49)	(3.33)
Post_quota_treated	7.45***	8.90***	3.94***	5.16***	7.12***	5.34***	4.12***	4.49***	5.97**	4.98**	3.04**	2.19
	(2.56)	(2.46)	(1.18)	(1.64)	(2.48)	(2.18)	(1.09)	(1.52)	(2.63)	(2.54)	(1.34)	(1.82)
Post_quota_Nonconformism1Quintile	−1.33	3.01	0.20	4.17*								
	(4.96)	(4.15)	(1.69)	(2.48)								
Treated_Nonconformism1Quintile	1.73	4.94	0.91	2.51								
	(4.81)	(4.57)	(2.62)	(3.17)								
Post_quota_Universalism1Quintile					7.37**	−1.30	2.38	2.12				
					(3.22)	(3.60)	(1.90)	(2.28)				
Treated_Universalism1Quintile					1.81	−10.27*	0.49	−0.88				
					(5.66)	(5.92)	(2.54)	(2.73)				
Post_quota_Benevolence1Quintile									−0.50	−0.99	1.62	0.29
									(4.19)	(3.30)	(1.80)	(2.70)
Treated_Benevolence1Quintile									−0.83	−5.84	−1.75	−6.50**
									(5.44)	(4.60)	(2.41)	(2.82)
Treated	1.21	−4.91	13.34***	2.65	0.93	−0.80	13.52***	4.05*	2.18	−0.58	14.44***	6.65***
	(4.05)	(3.77)	(2.06)	(2.05)	(3.98)	(3.57)	(2.08)	(2.22)	(4.09)	(4.05)	(2.12)	(2.32)
Nonconformism1Quintile	−2.59	−4.87	−1.64	−3.57								
	(3.43)	(3.25)	(1.48)	(2.30)								
Universalism1Quintile					−12.24***	2.98	−2.20	0.39				
					(3.75)	(3.76)	(1.71)	(2.02)				
Benevolence1Quintile									−1.47	3.06	−1.53	3.38
									(4.12)	(3.30)	(1.73)	(2.17)
Size	9.29***	9.80***	5.42***	5.04***	8.54***	9.84***	5.37***	5.11***	9.26***	9.90***	5.34***	4.99***
	(0.99)	(1.14)	(0.47)	(0.50)	(1.01)	(1.14)	(0.48)	(0.54)	(0.99)	(1.15)	(0.46)	(0.51)
Market.to.Book	0.05	−0.07	−0.02	−0.08*	0.02	−0.08	−0.03	−0.07	0.01	−0.07	−0.02	−0.08*
	(0.11)	(0.07)	(0.03)	(0.05)	(0.10)	(0.07)	(0.03)	(0.05)	(0.10)	(0.08)	(0.03)	(0.05)
Leverage	−19.08**	−12.48	−3.98	−7.56	−20.41***	−14.38*	−4.21	−8.03	−19.70**	−14.22*	−4.10	−8.60*
	(7.64)	(8.35)	(3.48)	(4.84)	(7.50)	(8.38)	(3.48)	(4.95)	(7.80)	(8.39)	(3.48)	(4.90)
ROA	8.68	−10.82	9.16*	−6.31	3.33	−8.94	8.83*	−6.20	7.53	−8.70	7.63	−4.79
	(10.75)	(19.49)	(4.78)	(8.38)	(10.32)	(19.20)	(4.65)	(8.08)	(10.69)	(19.75)	(4.74)	(7.98)
Independent	−2.52	0.80	0.31	−1.83	−2.07	0.93	0.86	−1.93	−2.83	1.50	−0.13	−1.44
	(6.78)	(4.31)	(3.75)	(2.66)	(6.83)	(4.39)	(3.74)	(2.67)	(6.88)	(4.40)	(3.70)	(2.68)
Tenure	−0.17	0.56	0.16	0.04	−0.02	0.57	0.19	0.02	−0.15	0.51	0.17	−0.02
	(0.42)	(0.50)	(0.18)	(0.23)	(0.39)	(0.47)	(0.17)	(0.22)	(0.41)	(0.49)	(0.17)	(0.21)
Network	0.99	0.83	0.51	0.63	0.83	0.84	0.45	0.61	0.95	0.80	0.47	0.62
	(0.68)	(0.75)	(0.35)	(0.41)	(0.66)	(0.74)	(0.35)	(0.41)	(0.68)	(0.75)	(0.35)	(0.40)
Age	0.37	0.12	−0.34**	−0.14	0.28	0.08	−0.39**	−0.17	0.33	0.10	−0.38**	−0.15
	(0.31)	(0.30)	(0.17)	(0.16)	(0.29)	(0.31)	(0.17)	(0.16)	(0.31)	(0.31)	(0.17)	(0.16)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Group	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr	US	Hq.Abr
E&S scores	A4	A4	Vigeo	Vigeo	A4	A4	Vigeo	Vigeo	A4	A4	Vigeo	Vigeo
Observations	1,180	1,069	1,236	1,121	1,180	1,069	1,236	1,121	1,180	1,069	1,236	1,121
Adjusted R^2	0.53	0.59	0.72	0.58	0.55	0.59	0.72	0.57	0.53	0.59	0.72	0.58

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