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Keywords: company boards, gender inequalities, leadership positions, quota, soft law, board committees

JEL Codes: J16, J78, K22, G34, G38

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Over the past 15 years, OECD countries have opted for two alternative affirmative action policies to address the persistent imbalance in company boards' gender mix (Seierstad et al., 2017). Norway, France, Belgium, Germany, Italy or California have all enacted binding quotas, forcing companies to reach a quantitative target of women in boardrooms. Britain, Sweden, Denmark, Australia or the Netherlands have opted, on the other hand, for a soft law approach, where companies are offered flexibility, in a 'comply or explain' framework. If there seems little doubt about the value of a mandatory quota to promptly fix gender imbalance, conventional wisdom also points to its cost: it would induce companies to deviate from their optimal (board) structure, with a number of unintended consequences on board composition or functioning. Beyond this conventional wisdom, we lack proper empirical evidence directly informing on the effects of these two distinct policies (i) on board composition and (ii) on the gender division of leadership roles within boards. Our article intends to fill this gap, by comparing British and French companies.

In January-February 2011, Britain and France, facing a comparable imbalance in large companies' boards (with less than 10% of women) introduced new policies to increase gender diversity in boards. The two policies required a very similar adjustment (in terms of timing and target) on firms in both countries. However, they differed in nature. France opted for a mandatory quota, while Britain chose a soft law approach. We use a difference-in-differences type of approach, comparing the evolution of French and British boards before and after the reforms. More precisely, we track board-level adjustments for the 120 largest listed companies in Britain and in France, from 2007 onwards. We end our comparison in 2015, the deadline year for compliance with the British regulation.

We study board adjustments at two different levels. First, we examine board composition – beyond the gender mix. The literature usually expects quotas to have more disruptive side effects as compared to soft law. Indeed, firms may face a supply shortage of female directors

with similar characteristics to male directors. If companies are forced to meet quantitative targets, this supply constraint should translate into significant distortions to board composition. By contrast, the flexibility of soft law may allow companies to delay the adjustment period, so as to ensure a smooth transition to a more gender-diverse board (with few distortions to other board dimensions). Our empirical results do not support this hypothesis. This suggests that in the French context, supply-side constraints were not really binding or that French companies adapted their selection and hiring practices for female directors (Ferreira et al., 2020), in order to appoint women with the sought-after individual characteristics. Second, we investigate the extent to which the increase in female representation in boardrooms actually translates into women's greater empowerment. Gender inequalities are also likely to be at play *within* boards (and not just in terms of board seats): male and female directors may not play similar roles with, for instance, women being confined to advisory roles or less powerful positions. To explore this issue, we study the within-board allocation of committee memberships and chairs by gender. Our empirical analysis shows that the quota is associated to a negative discount against women in the access to monitoring committees (but not to board chairs), as compared to soft law. As these committees are the most influential, this evidence suggests that the quota comes at a cost when considering women's influence within-board.

The article builds on and ties to three lines of research.

First, there is a long-standing debate over the benefits and costs of soft law *versus* mandatory quota-based regulation (Aguilera and Cuervo-Cazurra, 2009; Keay, 2014). Several authors have shown that publicly traded companies tend to respond to code recommendations with a high rate of conformity (Canyon and Mallin, 1997; Aguilera and Cuervo-Cazurra, 2009; Hooghiemstra and Van Ees, 2011). It suggests that companies only have a limited use of the flexibility allowed by soft law. Arcot et al. (2010) also report a tendency for companies to

achieve formal compliance through a simple 'tick the box' strategy, while Shrives and Brennan (2017) document the overuse of rhetorical strategies in non-compliance explanations. Finally, McNeil and Li (2006) show that market investors are tolerant to non-compliance as long as companies are performing financially, thereby replacing the comply-or-explain principle by a comply-or-perform logic. Overall, these studies are somehow sceptical about the ability of soft law to achieve socially desirable outcomes, while respecting firms' idiosyncratic needs. The adoption of board reforms over the past 15 years provides a fruitful opportunity to contribute to this debate, from an empirical point of view. In the European Union, the vast majority of member States have engaged in affirmative action regarding female board representation, either in the form of a quota or through soft law. The debate over the comparative advantages of the two regulatory approaches is unsettled, and there are few studies to inform this (public policy) choice. Indeed, so far, most empirical studies on board reforms have compared the evolution of firms affected by a quota to firms not affected by any regulation regarding board gender mix (because they were unlisted or in quota-free jurisdictions). On the other hand, few studies have directly compared countries with binding regulation and countries with non-binding regulation (Fauver et al., 2019; Lu, 2019; Martinez-Garcia and Gomez-Anson, 2020; Bennouri et al., 2020; Ding et al., 2022). However, these studies consider countries that also differ in the ambition (gender mix to be achieved) and timing of reforms. By contrast, the similarities in the objectives and timing of the British and French reforms are striking: we rely on these similarities to build a fine-grained quasi-natural experiment, allowing us to directly measure and compare the impact of these two types of policies.

Second, the literature on gender inequalities in leadership positions has grown extensively over the last decade (see e.g. Rodríguez-Domínguez et al., 2012, Adams, 2016 or Homroy and Mukherjee, 2021) – and the literature on women in boards in particular following the

implementation of the Norwegian quota in the mid-2000s. Most studies so far have examined the impact of quotas on firm performance (for non-financial firms, see e.g. Ahern and Dittmar, 2012, Labelle et al., 2015; Eckbo et al., 2018; Yang et al., 2019; see also Liao et al. (2022) for a study of the impact of gender quotas on bank risk). The evidence is inconclusive. Part of the difficulty lies in the fact that performance is the consequence of choices or discrete tasks carried out by boards, rather than the immediate result of the reform.[5] Against this background, the contribution of our study is to focus directly on the functioning of boards – as a prerequisite to understanding the consequences of boards' choices. More precisely, we focus on the allocation of board committees across gender.

Third, we contribute to the literature on (sub)committee-based organizational or governance designs. In recent years, research in political science has analyzed the impact of legislators' assignment to parliamentary committees. Some committees are associated with higher power, influence and prestige. The composition of legislative committees is therefore not neutral. It has been shown to impact not only on policy outcomes, but also on the empowerment of certain groups or individuals. In particular, a substantial literature has focused on gender and highlights how the allocation of women to 'minor' committees results in a lower capacity to influence legislative decision making (see e.g. Strøm, 1998; Bolzendahl, 2018; Murray and Sénac, 2018). Although there is a growing interest for these arrangements in the corporate governance literature (see e.g. Stiles, 2013) , committees have been so far rather ignored by scholars. As noted by Adams et al. (2021): "*Board committees have been relatively understudied*" (p.1143). These committees are specifically important when focusing on board diversity (broadly defined as effort to promote boards open to a wider range of profiles than male shareholder representatives graduated from the same schools). Indeed, transforming the

[5] For instance, considering the French quota, Nekhili et al. (2020) report that the reform is associated with a reduction in audit fees, while Nekhili et al. (2022) document a decrease in related-party transactions – as women are often directly involved in the board monitoring function.

governance of a firm is not just a question of board seat allocation but also of who does what *within* boards. A few studies have considered gender (in)equality in committee access (Wearing and Wearing, 2004; Green and Homroy, 2018; Rebérioux and Roudaut, 2019; Field et al., 2020; Gormley et al., 2023), with contrasting results. We are aware of only one study comparing the effect of mandatory *versus* non-mandatory regulation on gender equality in committees (Martinez-Garcia and Gomez-Anson, 2020). But once again, the sampled countries differ in terms of targets and timing. Our overall diagnosis is that the quota delivers better results in terms of the gender balance in seats, without further distortions in boards' ability to fulfill their duties, but that this comes at the cost of reduced female empowerment within boards.

The rest of the article is structured as follows. Section 1 discusses the institutional background. Section 2 reviews the literature and derives the hypotheses. Sections 3 and 4 present the identification strategy and the data. Sections 5 and 6 report the empirical results. Section 7 discusses our main results and Section 8 concludes.

1. Institutional setting

1.1. Corporate governance in Britain and France

While comparative studies in the 1990s tended to oppose the Anglo-Saxon and continental European systems of ownership and governance, these differences have become less marked since the early 2000s. Globalisation has resulted in a process of convergence in ownership structures (Afsharipour and Gelter, 2021), with the strong growth of non-resident and/or institutional investors in Britain and in France: the share of foreign investors (both European and non-European) in the equity capital of listed companies was, at the turn of the 2010s, roughly similar in both countries (around 40%, against less than 30% in Germany; see OEE and INSEAD OEE Data Services, 2013). In terms of (internal) corporate governance, the

similarities between British and French companies are also significant. In both countries, companies are characterized by a one-tier system of governance (with a unitary board of directors), although French law allows *Sociétés Anonymes* (the functional equivalent of Public Limited Companies) to choose a German-style two-tier system, with a supervisory board (which they rarely do: see Gelter and Siems, 2021). Also, in both countries, board duties are of two types. The first duty is to monitor corporate executive officers, and more specifically the CEO. Independence (*vis-à-vis* the company and its CEO) is considered as the main criterion supporting this monitoring function. To this end, both national corporate governance codes (the UK corporate governance code on the one hand, the French AFEP-MEDEF code on the other) require that at least 50% of directors be independent (and both codes rely on similar definitions of independence). The second duty is to determine and advise on major strategic decisions. In this case, directors with firm- or industry-specific expertise are commonly sought after. In addition, there is no compulsory, German-style, board-level employee participation (the French law on this matter only came into force in the very last year of our observation period). Furthermore, the percentage of women in boardrooms was very similar (less than 10%) in 2010 (just before the reform) in both Britain and France.

To support the board fulfill its duties, British and French listed companies have adopted a within-board functional division of tasks through specific committees. The audit, the compensation and the nomination committees are assigned the board's monitoring function. The audit committee oversees financial reporting and disclosure. In both countries, an audit committee is required by company law, and further details on its functioning are provided in the codes: in particular, the British code (resp. French code) states that all (resp. two thirds of) audit committee members should be independent. The remuneration (or compensation) committee is in charge of setting the compensation design for top management: the British code (resp. French code) states that all (resp. half of) remuneration committee members

should be independent. The nomination committee is responsible for selecting (and terminating) the CEO. Other committees are charged with providing strategic advice on firm-specific issues – such as technology management, corporate social responsibility, etc. and support the board's advisory function. In both Britain and France, firms pay extra fees in addition to basic fees to compensate for committee membership and chair. Fee levels depend on the type of committee: in Britain as in France, the audit committee is associated with the highest fees and is also considered to be the most prestigious and influential committee. Furthermore, in both countries, extra-fees associated with advisory committees are usually lower than those attached to monitoring committees (see e.g. Korn Ferry, 2019).

In the data section, we provide further, hard evidence that, at least in the case of our sampled groups of firms, the internal structure of boards is strikingly similar in France and Britain: the average probability for a directorship to be member of at least one monitoring committee is 59.2% in Britain and 56% in France, while it is respectively 33.1% and 31.5% for the audit committee. This indicates that large British and French listed companies, because they operate in a global environment and are highly open to international (institutional) investors, have adopted common patterns of internal corporate governance.

However, differences in governance between the two countries can be identified. For instance, British boards are slightly smaller (10.4 members on average in our sample of British companies, against 12.3 in French firms), the separation between CEO and chairman of the board is almost universal in Britain (whereas it only concerns about half of the large companies in France) and the presence of joint remuneration and nomination committees is more frequent in France (while the two committees are almost always separated in large British companies). However, our empirical strategy, by including firm-by-year fixed effects, allows to control for all types of time-variant firm-level heterogeneity.

1.2.Reforming the board gender mix

The vast majority of EU member States have, over the past decade, engaged in affirmative action regarding female board representation. However, the best way to achieve the desired outcome remains a controversial issue. In 2012, the Commission proposed a Directive providing for the introduction of targets for women on boards (with sanctions), to be met by 2020. This Directive was adopted by a large majority of the European Parliament in September 2013, but it has so far been rejected by the Council, as a number of member States (Denmark, the Netherlands, Poland, Sweden or the United Kingdom before Brexit) oppose the binding nature of this regulation. In January 2021, the Parliament adopted a resolution calling on the Commission to continue its effort to convince member States to adopt the Directive.

Considering in more detail Britain, an explicit mention to the gender balance within boardrooms was introduced for the first time in the revised UK Corporate Governance Code of July 2010, providing that "[*T]he search for board candidates should be conducted, and appointments made, on merit, against objective criteria and with due regard for the benefits of diversity on the board, including gender* (p.13)". The focus on gender balance grew in the following versions. The September 2012 version adds three new mentions of gender mix to the previously quoted sentence, yet without specifying any quantitative target. Finally, the September 2014 draft refers explicitly to gender diversity in its foreword (p.2). The British regulatory framework was rounded out with the publication, in February 2011, of the "Lord Davies Review - Women on Boards 2011", a report drafted by a commission chaired by Lord Davies of Abersoch – an investment banker and then Minister for Industry and Commerce until 2010. This influential report explicitly rejected the use of a mandatory quota, but recommended that the largest listed companies reserve at least 25% of board seats for women by 2015. It acknowledged that the heterogeneity of company profiles requires some flexibility; however, non-complying firms are invited to justify or explain their choices, in line with a voluntary, soft law approach. To sum up, as of February 2011, Britain has

established a consistent regulatory framework regarding the gender mix in company boards, with two pillars: a general recommendation in the code, and an explicit (albeit non-binding) target in a public report explicitly addressed to listed firms.

In France, the principle of a mandatory gender quota for listed companies was adopted by the National Assembly on January 20, 2010. Parliamentary debates lasted 12 months and on January 27, 2011, the French National Assembly finally adopted the 'Zimmermann-Copé Act', enacting a gender quota. The law requires each gender to represent at least 20% of board members by 2014 and 40% by 2017. It applies to all companies with at least 500 employees and revenues or total assets over 50 million euros for 3 consecutive years. Failure to comply results in voided appointments and suspended remuneration for directors.

To summarise, while gender diversity boards is commonly considered to be the outcome of various complementary (national) institutions (Iannotta et al., 2016), France and Britain were in 2010 surprisingly similar in terms of gender imbalance (less than 10% women in large company boards). The two countries thus opted for two distinct policies (in line with their national tradition and institutions) to reach the same ultimate goal: rebalancing the gender mix within boardrooms. Their timeframe and objectives were very similar: 2010 was the pivotal year in both countries – marked by the introduction of a gender diversity objective in the British code and a parliamentary debate in France. Firms started to adjust throughout 2011, resulting in a rise in the fraction of female directors in 2011 in both countries. Moreover, the targets were quantitatively very close. The Lord Davies report set a target of 25% by 2015. Targets of 20% by 2014 and 40% by 2017 were set for the largest French firms. Assuming a progressive, linear adjustment by firms over this 2011-2017 period, we get an (implicit) threshold of 27% by 2015 in France (then 33% by 2016, to reach 40% by 2017). This threshold of 27% was really similar to the British target of 25%.[6]

[6] Actually, the data clearly support this assumption of a linear adjustment in the French case: the average share of women reached 30% in 2015, 34% in 2016 and 39% in 2017. There is no evidence of French firms front-

2. Literature review and hypotheses

A classical distinction can be made between binding ('hard law') and non-binding ('soft law') regulations. On the one hand, hard law is characterised by the implementation of sanctions for failures to meet the target: these sanctions include, in the case of gender quotas, financial penalties, empty chairs or the suspension of director fees. On the other hand, soft law is non-mandatory, does not have any legally binding force (there is no formal sanction in case of non-compliance) and relies on voluntary adoption.[7] In the field of corporate governance, it directly relates to the 'comply-or-explain' principle (Aguilera and Cuervo-Cazurra, 2009; Arcot et al., 2010). Compliance mainly depends on market mechanisms through which investors decide whether the explanation provided by a non-complying company is convincing or not, and make their investment choices accordingly. Overall, soft law normally allows for flexibility in implementation and avoids the costs of a one-size-fits-all statutory approach (Seidl et al., 2013).

What about the effectiveness of quotas and soft law codes when applied to board gender diversity? If firms to some extent take advantage of the flexibility allowed by codes, then quotas should be associated with higher rates of compliance, i.e. with a higher share of female directors within boardrooms. This assumption is supported by a number of empirical studies, offering multiple countries comparisons (Lending and Vähämaa, 2017; Ferrari et al., 2018; Lu, 2019; Fauver et al., 2019). In particular, using a sample of British, French and Italian listed companies, Bennouri et al. (2020) report a more rapid adjustment of the gender mix in France and Italy (under a binding quota) than in Britain.

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loading or slowing down their adjustment. We are therefore confident that our empirical analysis does not capture differences in the pattern / timing of the required adjustments and that observed differences between British and French companies can be imputed to the regulatory approaches (quota *versus* soft law) adopted in the two countries.

[7] As such, we consider in this study non-binding quotas (i.e. without legal sanction) as adopted by Spain and Iceland to be soft law (Mateos de Cabo et al., 2019). For a general overview of the different board gender quotas enacted in Europe, see Mensi-Klarbach and Seierstad (2020).

This is also what we observe in our data. Just before the reforms (in 2010), the situation regarding board gender mix was highly similar in both countries. 32% of companies had no women on their boards in each country, and the average share of female directors was 10% in Britain and 8.7% in France. Figure 1 plots the trends in the average fraction of women for British and French companies, over our sampled period. In the pre-reform period, this fraction was rather stable in the two countries. In 2011, the share of women became larger in France, and the gap increased in the following years. In 2015, the deadline fixed by the Lord Davies report, the average share of female directors was 30% in France, against 22% in Britain: the quota has been therefore associated with a (raw) premium of 8 percentage points in female representation, as compared to the soft law.

[INSERT FIGURE 1 HERE]

The effects on board composition

Beyond their impact on the fraction of female directors, gender diversity reforms are likely to have side effects on board composition. If the women who are appointed following a gender diversity reform have different characteristics than incumbent male directors, then we can expect significant changes in boardroom composition.

How to account for these possible differences in individual characteristics across gender? (Labour) supply side effects play an important role here (Gabaldon et al., 2016). The literature on gender inequality provides massive evidence of barriers to female labor force participation in high-profile occupations, due to persistent stereotypes but also to the costs of managing work and family. Whatever the reasons behind these barriers, their mere existence may generate a shortage of female candidates to board positions with the required experience (Adams and Kirchmaier, 2015). For instance, female candidates are less likely than their male

counterparts to have business relations with the company or to be involved in interlocking directorates and corporate networks. As a result, appointing a woman most often means appointing an independent director (see Nekhili et al., 2020, on the French case). In Norway, the average share of independent directors in listed companies rose from 46% to 67% after the gender quota was implemented (Borhen and Staubo, 2016).

It suggests that the price to be paid by firms under quota is a deviation from their optimal board structure. By contrast, soft law codes relying on the 'comply-or-explain' principle could provide firms with a longer adjustment period so as to ensure a smooth transition toward more gender-diverse boards (the price to be paid being, for society as a whole, a delayed adjustment in the gender mix). Put differently, this means that a quota, by forcing companies to appoint women, is likely to have stronger side effects on board composition, relative to a non-binding code:

H1: the quota has induced larger disruptive effects on board composition (independence, expertise, etc.), as compared to soft law

However, the magnitude of these side effects on boards, driven by labour supply factors, may be small, if companies face a large pool of potential candidates. This is likely to be the case in a (rather) large economy, such as France, where the total market capitalization of domestic listed companies is approximately 10 times larger than in Norway (see the World Federation of Exchanges database). In addition, demand-side factors may also play a role in the post-quota period. Indeed, in their study of the French quota, Ferreira et al. (2020) show that companies have adapted their director selection and hiring practices (or 'search technologies'). In the pre-quota period, *Grandes Ecoles* networks (bringing together former graduates of the most prestigious schools like the ENA, Polytechnique or Sciences Po) were largely used to appoint directors. Importantly, women were, and still are, under-represented in these networks. In the post-quota period, faced with the challenge of recruiting women at a

steady pace, French firms appear to have changed their search technologies, by relying less on their traditional *Grandes Ecoles* networks. In other words, the pool of potential candidates is not fixed, and can be expanded following the adoption of a mandatory quota (see also Rosenblum and Roithmayr, 2015).

The effects on women within-board positions

Regarding board committees, it is important to note that firms have, to a large extent, a substantial discretion in the allocation of memberships across the various board members (in particular, this allocation is not regulated by hard law). As a consequence, the distribution of committees across directors is heterogenous. Executive directors are usually kept out committees. But even when focusing on non-executive directors, heterogeneity remains important: for instance, in our sample, 22% of non-executive directors have no committee at all, 36% seats in 1 committee and 42% are member of at least 2 committees. Focusing on (non-executive) directors with a minimum of two years of tenure does not change the picture: a significant number of non-executive directors remain on the doorstep of committees, while others cumulate. Overall, a member's influence grows as she/he holds more committee positions.

While boardroom gender diversity reforms only aim to fix women's under-representation in seats, an important, unanswered question remains: what is their impact on the within-board allocation of key positions across gender? Increasing the share of female directors to comply with a code or a quota but placing new female directors in non-strategic positions will do little for progress toward true gender equality. A few studies have directly tackled this issue (Huse, 2013; Rebérioux and Roudaut, 2019; Fauver et al., 2019; Gormley et al., 2023). The evidence so far is inconclusive and none of these studies has attempted to examine the relative effects of a mandatory quota as compared to soft law on the position of women within boards.

A priori, the lack of flexibility of a quota could be detrimental to women's access to key positions, as compared to soft law. Like with board composition (see the previous discussion), supply side effects could be at stake, if companies encounter difficulties in appointing new female directors possessing the desired characteristics for committee memberships. Due to the lack of flexibility, these supply effects could be larger with a quota than in the case of a comply-or-explain based approach. Demand-side effects may also come into play with respect to females' within-board participation in the context of a quota. Indeed, the literature in management (Leibbrandt et al., 2018) and political science (Krook, 2015; Brulé and Toth, 2022) has highlighted the possibility of a backlash against women following affirmative action policies. Faced with the need to integrate or favour minorities, majority or incumbent members may react negatively, leading to a growing distaste for women in leadership positions and increased inter-group conflicts. Firms, forced to integrate new female members, may respond by adopting a strategy aimed at containing the influence of these newcomers. This could result in a decline in female committee access. In the case of soft law, we anticipate that any such backlashes, if they exist, would be of a lower magnitude. We can therefore state the following hypothesis:

> *H2: the quota has negatively affected women's within-board positions (in terms of committee memberships and chairs), as compared to soft law.*

It should be noted, however, that *H2* may not be supported due to potential demand-side effects working in the opposite direction: a quota – and the obligation to integrate women at a high pace – may trigger a shift in beliefs, tastes or preferences within the boardroom, undermining the various stereotypes around gender inequality in leadership positions. This is consistent with Beaman et al. (2009), who have observed the evolution of stereotypes about women leaders following the introduction of gender quotas for leadership positions on Indian village councils. They show that these quotas, by increasing exposure to women leaders, led

to a decrease in the intensity of negative stereotypes about females in leadership positions. In light of this study, we cannot rule out the possibility for the French quota to be associated with a larger access to key positions for female directors, relative to the British code-based approach.

1. Empirical strategy

To test *H1*, about the comparative impact of the reforms on board composition, we aggregate our data at the firm-level. More precisely, we estimate the changes in board composition (fraction of independent directors, fraction of industry-experts, etc.) following the reforms in Britain and in France. Our baseline (difference-in-differences) model is then the following, with $y_{j,t}$ the fraction of independent directors (or industry-expert, etc.) in firm j in year t:

$$y_{j,t} = a.Post_t + b.FR_j + c.Post_t\,FR_j. + X'_{j,t}.d + \mu_j + \gamma_t + \varepsilon_{j,t} \qquad [1]$$

Post is a binary variable equal to 0 for the years from 2007 to 2010 and 1 afterwards (2011-2015). We therefore consider that 2011, i.e. the year the policies were introduced in both countries, is part of the post-reform period (as anticipations were likely). *FR* is a dummy that equals 1 for French firms (and 0 otherwise). In this model, French companies are therefore considered as the treated group, and British companies as the control group. Finally, the third binary variable is the interaction of the two previous variables: *c* measures an effect limited to French firms in the post-reform period. It therefore identifies the effect of the mandatory quota as compared to soft law, under the parallel trend assumption. To ensure that this assumption holds, we introduce a vector $X'_{j,t}$ of relevant time-variant board and firm variables. We also include firm fixed effects (μ_j) to account for time-invariant observable and unobservable heterogeneity across companies. γ_t are year fixed effects and $\varepsilon_{j,t}$ is the error term.

H2 addresses director access to within-board positions. A first way to examine this issue would have been to stay at the firm-level – and more precisely to consider the evolution in the (average) share of women in committees in the two countries. Given the substantial increase in both the total number and the share of women in the two countries following the reforms, we would naturally expect the total number and share of female directors in committees to have followed a similar trajectory. In the French case, this outcome has been effectively observed by Ginglinger and Raskopf (2023), comparing the evolution in the fraction of women in committees in a group of large French companies (treated firms) and in a control group consisting of US companies. Figure 2 depicts a similar trend (i.e. a growth in the share of female directors in committees) for both our large sampled British and French firms. Clearly, in both countries, board reforms aimed at increasing female representation in board seats have also led to an increased representation of women in board committees. Comparing the two countries, however, is not straightforward. On the one hand, Figure 2 highlights a catch-up process by French firms: while the share of women in committees was lower in France before the reforms, by the end of the period (2015), exactly 27.8% of committee memberships are held by female directors in both countries. On the other hand, considering Figures 1 and 2 together, we also observe that in 2015, in France, the share of women in committees lagged behind the share of women in boards (30% compared to 27.8%). This is in contrast with Britain, where female directors accounted for 27.8% of committee positions for 'only' 22% of board seats. This difference is consistent with the following observation: in both countries, while board size has remained stable throughout the period[8], firms significantly increased the total number of committee positions offered to directors. However, the effort was more pronounced in British companies (from an average of 14 to 16.1

[8] Soare et al. (2022) also report a stability in board size following the implementation of a gender quota in Belgium.

committee memberships per board, representing an increase of +15%) compared to French companies (from an average of 12.4 to 13.4 positions per board, i.e. an increase of +8%).

[INSERT FIGURE 2 HERE]

More importantly, examining firm-level, aggregated data does not allow to draw definitive conclusions about gender equality in terms of committee access. The reason is that directors come as bundles of individual characteristics (in terms of statute, experience, tenure, age, nationality, etc.), and that all these characteristics are differently associated with committee access. For instance, as indicated earlier, insiders (top executive directors) typically do not serve on committee boards (in the two countries, around 70% of insiders have no committees at all). In addition, female directors are very rarely insiders, but much of the time independent. As such, women should theoretically have greater access to committees. This example illustrates that studying committee access requires taking into account that female and male directors have distinct individual attributes, aside from gender. The only possibility is then to use director-level data, and to model individual access conditional on individual attributes – similar to what is commonly done in labour economics when studying wage discrimination or segregation (see e.g. Klasen and Minasyan, 2021, evaluating the impact of affirmative action on black and women's access to top positions in the South African labour market). In the case of corporate boards, this empirical approach can also be found in Rebérioux and Roudaut (2019), Ferreira et al. (2020) and Gormley et al. (2023).

To test *H2*, we therefore disaggregate our data at the individual (director) level. While in model [1], each observation corresponded to a firm-year (j, t) pair, each observation is now a directorship, i.e. an individual-firm-year (i, j, t) triplet. As a result, the number of observations is increased by a factor of 10, roughly corresponding to the average number of individuals per

board. More precisely, our baseline regressions go from 2,034 observations (in Table 2) to 23,177 (in Table 4). We use linear probability models to estimate the changes in the likelihood to access within-board positions for women following the reforms, in France as compared to Britain. We therefore need to estimate a difference-in-difference-in-differences model. However, before doing so, in order to enhance interpretation, we begin by considering each country in isolation. The objective is to observe the impact of the reform on female committee access separately in France and Britain. More precisely, we start testing the following difference-in-differences model, where $Monitoring_{i,j,t}$ indicates the likelihood for individual i to be member of at least one committee dedicated to monitoring in firm j at time t (and then replace $Monitoring_{i,j,t}$ with alternative outcomes):

$$Monitoring_{i,j,t} = a.Post_t + b.w_i + c.w_i.Post_t + X'_{i,j,t}.h + \mu_{j,t} + \varepsilon_{i,j,t} \qquad [2]$$

w_i is a dummy variable equal to 1 if i is a woman (0 otherwise). The coefficient c associated to the interaction term $w_i.Post_t$ measures the change in the probability of access to a monitoring committee for a woman in the post-reform period. Under the parallel trend assumption, c therefore identifies the effect of the reform on woman access to monitoring committees. Fitted $c < 0$ would mean that the reform has reduced the ability for women to access monitoring committees.

The number of committees (and the number of individuals per committee) is not similar across years and firms. If firms with more positions to offer are unevenly distributed across the periods and across the treatment and the control groups, our estimate will be biased. To account for this bias, and more broadly to account for any kind of unobservable heterogeneity across companies, we introduce firm-year fixed effects ($\mu_{j,t}$). Our estimates then indicate the average effect of various variables on committee access for individuals, as compared to other individuals *in the same board*. In this set-up, firm time-variant characteristics cannot be

estimated (they are absorbed in the fixed effects). However, we control now for a vector $X_{i,j,t}$ of relevant individual characteristics.

We also estimate a difference-in-difference-in-differences model, directly comparing the two countries/reforms:

$$Monitoring_{i,j,t} = a.Post_t + b.w_i + c.w_i.Post_t + d.FR_j + e.Post_t .FR_j + f.w_i.FR_j + g.w_i.Post_t.FR_j + X'_{i,j,t}.h + \mu_{j,t} + \varepsilon_{i,j,t} \qquad [3]$$

Like in model [1], French companies are therefore considered as the treated group, and British companies as the control group. The coefficient g associated to the triple interaction term $w_i.Post_t.FR_j$ measures the change in the probability of access to a monitoring committee for a woman in a French company in the post-reform period. Under the parallel trend assumption, g therefore identifies the effect of the quota (relative to soft law) on woman access to monitoring committees. Fitted $g < 0$ would mean that the quota has reduced the ability for women to access monitoring committees (relative to soft law).

4. The data

For each country, we start with a sample including the 120 largest companies in terms of market capitalization in December 2011 (i.e. the SBF120 in Euronext-Paris, and its equivalent at the London Stock Exchange, LSE). We drop companies that do not appear, over the period, 8 or 9 consecutive years. We end up with a slightly unbalanced data including 114 distinct firms in each country.

For companies listed in the LSE, we use the BoardEx database to obtain comprehensive information on directors. Importantly, all the information on directors we use is collected by BoardEx from annual reports: as our sampled firms are listed, the annual reports systematically indicate the independence of the directors, their gender, nationality, education, age, date of entry in the board, their committee memberships, etc. For companies listed in

Euronext Paris, we also use companies' annual reports to obtain comprehensive individual data on directors and collect exactly the same information as for companies listed in the LSE. Our final sample (including all board members of our 228 sampled firms) then comprises 3,966 distinct persons and 23,177 individual-firm-year observations.

At the firm level, we use the Orbis database to obtain the following four variables: the total number of employees (as a measure of firm size), the Tobin's Q (as a measure of performance in terms of market value), the financial leverage (defined as total debt over total equity) and the Return On Asset (ROA) before tax (as a measure of accounting performance). Regarding corporate governance, we control for board size and for two dummies: one indicating whether there is a separation between the functions of CEO and Chairman, the other indicating, in the French case, whether the company has a supervisory board rather than a board of directors. Regarding directors' characteristics, we use the following information: gender, age, date of entry in the board (to compute board tenure), nationality, past professional experience, education, independence, board membership and chair. Appendix Table A1 provides a precise definition of all the variables.

We proxy the monitoring function with independence and the advising function with industry-expertise (present or past professional experience in the industry of the firm where the director sits). We also consider whether or not the individual is a foreigner, using the information on nationality. The fraction of foreigners is indeed an important attribute of a board, especially for large, multi-national companies. In the two countries, we observe an increase in the share of foreign directors since the early 2000s.

We also have comprehensive information on the participation (or not) of each director in each board committee. Where a committee has the term 'audit' in its name, we consider it to be an audit committee. The terms 'compensation' or 'remuneration' are used to identify compensation committees. Finally, the terms 'nomination' or 'governance' refer to the

nomination committee. If a committee is tagged with both the terms 'compensation / remuneration' and 'nomination / governance', we consider it to be a joint compensation-nomination committee. We consider that any committee that is not dedicated to monitoring (audit, compensation and nomination) supports the advisory function. We then construct a set of dummy variables indicating whether an individual is member of (i) at least one monitoring committee, (ii) the audit committee, (iii) a compensation and/or nomination committee, (iv) at least one advising committee and (v) whether an individual chairs at least one committee. Details are provided in Table A1.

Table 1 reports the descriptive statistics, at the firm and at the individual levels, for Britain and France separately. Considering committees, as already stressed in Section 2, we observe that the mean values of the dummy variables are rather similar in the two countries – except the likelihood to be member of a compensation and/or nomination committee, significantly higher in Britain (52.4% against 34.1%). The reason behind this is that British companies almost always have two distinct committees (one for compensation and one for nomination), while a significant number of French companies (18.6%) have a joint compensation/nomination committee.

[INSERT TABLE 1 HERE]

5. The effect of the quota on board composition

Figure 3 plots the evolutions in our three board composition variables: the shares of independent board members, industry experts and foreign directors. We observe that while the shares (in level) were not similar in the pre-reform period, the trends appear to be parallel. We also see that the reforms do not seem to be associated with a break or a change in these trends, in contrast with what is observable for the fraction of women.

[INSERT FIGURE 3 HERE]

To test the null hypothesis that there is no difference in pre-reform trends between the treated (French) and the control group (British) companies, we first consider a dynamic version of model [1] (see Borusyak et al., 2022). More precisely, we regress board composition indicators on year dummies (γ_t) and on interaction terms between year dummies and the treatment dummy ($\gamma_t .FR_j$), taking year 2007 as a reference:

$$y_{j,t} = \gamma_t + b.FR_j + c_t.\ \gamma_t .FR_j. + X'_{j,t}.d + \mu_j + \varepsilon_{j,t} \qquad [4]$$

With firm effects, the coefficient on FR_j cannot be estimated. The coefficients c_t measure the yearly effects of being a French firm on the various outcomes. Figure 4 plots the c_t coefficient estimates, with 95% confidence intervals, from t=2008 to t=2015 – for each of our four outcome variables. We observe that in the pre-reform period, the impact of being a French firm relative to a British firm is not different from 0 whatever the year, for the fractions of women, independent directors, industry-experts and foreign directors. For the share of female directors, the treatment effects become significantly positive in the post-reform period. For the other outcomes, the treatment effects remain not statistically different from 0. The null hypothesis that there is no difference between French and British firms in pre-reform trends is equivalent to the null hypothesis that all the pre-reform c_t coefficient estimates are equal to each other[9]. We perform this test: the p-values we obtain are equal to 0.301 for the share of women, 0.241 for the share of independent directors, 0.232 for the share of industry-experts and 0.493 for the fraction of foreigners. Accordingly, we cannot rule out the null hypothesis. It supports the parallel trends assumption and reinforces the confidence in the results of our difference-in-differences estimations at the firm-level.

[9] For a similar approach, see e.g. Guceri and Li (2019).

[INSERT FIGURE 4 HERE]

Visual inspections of Figures 1, 3 and 4, together with the evidence that the parallel trend hypothesis cannot be rejected, strongly suggest that the quota increases the speed of adjustment regarding the fraction of women, as firms have no other choice but to meet the required target. In contrast, the soft law approach gives firms more flexibility, by allowing them not to comply in certain (motivated) circumstances. In addition, it seems that this more pronounced adjustment did not come at the cost of a distortion of board composition. Our multivariate, difference-in-differences static approach supports this conclusion.

[INSERT TABLE 2 HERE]

Column 1 in Table 2 reports the result of estimating model [1] (with the share of female directors used as a dependent variable). We observe that the coefficient on *Post*FR* is significantly positive, equal to 0.069: relative to soft law, the mandatory quota has increased the fraction of female directors by 7 percentage points. It is consistent with Figure 1 and meaningful from a socio-economic and governance perspective (given that the sample mean for the share of women is 13.6%).

Table 2, columns 2 to 4, reports the estimation results of equation [1] for the other three outcomes we are interested in. We see that our coefficient of interest (*Post*FR*) is never significantly different from zero. In line with the previous comment, we therefore report evidence that the quota has not caused any significant distortion of board composition (other than the gender mix), relative to soft law – at least on the three dimensions we observe (share of independent, of industry-expert and of foreigner).

6. The effect of the quota on women's access to strategic positions

Table 3 indicates the evolution of committee distribution across gender, between the pre- and the post-reform periods, in the two countries. More precisely, we report the difference between the mean values of the dummy committees for women and men. This difference measures the gender gap in committee access. When positive, it indicates that on average, women have a higher probability of being members of a committee than men. A negative gender gap indicates a lower probability for women.

[INSERT TABLE 3 HERE]

In the British case, Table 3 highlights stability: both before and after the reform, women have greater access to committees compared to men. This suggests that British firms have successfully increased the representation of female directors, while maintaining their access to influential positions. Notably, there is even a slight increase in the gender gap for monitoring committees, indicating an improvement in the situation for women compared to men. The situation in France differs from that of Britain. Prior to the reform, we do not observe any gender gap, positive or negative, in terms of committee access. However, after the reform, a discount in access against women emerges specifically in compensation/nomination committees. More precisely, the probability of a French male director accessing a compensation/nomination committee increases by +4 percentage points, while the probability decreases for women by -2 percentage points. Note finally, that like in Britain, there is a stable discount against women regarding monitoring committees' chairs, but also regarding advising committees. Of course, these are preliminary, raw observations, that need to be further considered in a multi-variate setting.

As a preliminary step in this multivariate setting, we consider the two countries separately, using difference-in-differences models of type [2]. More specifically, we consider a dynamic specification of model [2], that interacts year dummies (γ_t, taking 2007 as a reference) with the *w* dummy (equal to 1 if individual *i* is a woman):

$$Monitoring_{i,j,t} = \gamma_t + b.w_i + c_t.\ \gamma_t\ .w_i + X'_{i,j,t}.h + \mu_{j,t} + \varepsilon_{i,j,t} \qquad [5]$$

The coefficients c_t measure the yearly effects on monitoring committee access of being a woman. This dynamic model allows testing for the common trend assumption. Figure 5 plots the c_t coefficient estimates, with 95% confidence intervals, from *t*=2008 to *t*=2015 – for each committee dummy, for Britain in Panel A and for France in Panel B. In Britain, we do not observe any particular trend regarding women's access to committees (as compared to men): the estimated coefficients c_t are never significantly different from 0. In other words, for the audit committee for example, the gender gap in 2015 (end of the period) is not significantly different from the gender gap in 2007 (beginning of the period). This is consistent with what we observed in Table 3, namely a form of stability, indicating that the adoption of soft law has not had any repercussions on women's ability to access influential positions. In France, on the other hand, the multivariate dynamic analysis allows us to draw the following two conclusions. Firstly, no particular trend in women's access to committees is detectable before the reform (supporting the common trend assumption). However, starting from 2011, we observe a deterioration in this access, specifically for monitoring committees in general, and compensation-nomination committees in particular, which can be causally attributed to the adoption of the quota.[10] Note finally that the absence of any significant effect of board reforms on women's access to committee chairs, in both countries, is consistent with the findings of Bennouri et al. (2020).

[10] The results – available upon request – of the static difference-in-differences models [2] yield similar, consistent conclusions.

[INSERT FIGURE 5 HERE]

We now consider triple-difference models, comparing across the two countries the evolution before and after the reforms of female situation (against males). For equation [3] to identify the effect of the quota on women's access to committees, we need to rule out the possibility that trends were different in the two countries before the reforms. Once again, we estimate a dynamic specification of model [3], that interacts year dummies (γ_t, taking 2007 as a reference) with the *FR* dummy and the *w* dummy (equal to 1 if individual *i* is a woman):

$$Monitoring_{i,j,t} = \gamma_t + b.w_i + b.FR_j + c_t.\ \gamma_t\ .FR_j + d.w_i + e.w_i\ .FR_j + f_t.\gamma_t\ .w_i + \ g_t.\ \gamma_t\ w_i.FR_j\ .w_i + X'_{i,j,t}.h + \mu_{j,t} + \varepsilon_{i,j,t} \qquad [6]$$

As we control for firm-year fixed effects ($\mu_{j,t}$), coefficients on variables for which there are no variation across observations at the firm-year level (γ_t, FR_j and $\gamma_t.FR_j$) cannot be estimated. The coefficients g_t (on the triple interaction terms) measure the yearly effects on monitoring committee access of being a woman in a French firm.

Figure 6 plots the g_t coefficient estimates, with 95% confidence intervals, from t=2008 to t=2015 – for each committee dummy. We observe that in the pre-reform period, the impact of being a French firm relative to a British firm is never statistically different from 0, whatever the year. In post-reform years, the treatment effects become significantly negative for both the monitoring and the compensation-nomination dummies, while they remain at 0 for the audit and the advise dummies. The null hypothesis that there is no difference between French and British firms in pre-reform trends is equivalent to the null hypothesis that all pre-reform g_t coefficients are equal to each other. We perform this test, for each of the outcomes: the *p*-values we obtain are equal to 0.814 for monitoring committee, 0.862 for audit committee, 0.677 for compensation-nomination committee and 0.564 for advising committee. Accordingly, the parallel trend assumption holds.

[INSERT FIGURE 6 HERE]

Table 4 reports the results of the regressions of the [3] type, for the 5 binary committee membership/chair variables. In column 1, the coefficient on *Woman*Post*France* is negative (-0.0884) and significant at the 5% level (standard error of 0.0364). It therefore indicates that the quota has had a negative impact (relative to soft law) on the likelihood for a woman to access monitoring committees (in a given board). The discount is equal to 9 percentage points: the effect is economically meaningful, as the mean value of the variable is 59% and 56% in Britain and France respectively. Columns 2 and 3 – examining audit and compensation-nomination committees separately – allow for a finer diagnosis. In the case of audit committees, being a woman in a French firm significantly and negatively affects membership (-0.0744 with a standard error of 0.0334, in column 2). However, we do not observe a significant increase in this discount in the post-reform period (the coefficient on the triple interaction term is non-significant at conventional levels). While the quota has not been associated with any significant impact on women's access to the audit committee, it has negatively affected their ability to serve on the compensation-nomination committee: the effect (see column 3) is statistically significant (at the 1% level) and strong, equal to 13.8 percentage points (for an average value of 52% and 34% in Britain and France respectively). These results are fully consistent with the findings of the two double-difference models, for Britain on one side (indicating stability) and France on the other side (indicating a deterioration in women access for monitoring committees). Importantly, the heterogeneity across companies, especially across British and French companies regarding the number of positions to fill, cannot account for this result, as it is controlled for by the use of firm-year effects in regressions.

[INSERT TABLE 4 HERE]

In contrast with monitoring committees, the gender quota did not impact on the ability for women to access advising committees (see column 4, Table 4): the coefficient on the triple interaction term is not significantly different from 0. Similarly, we do not observe any significant impact of the quota, as compared to the soft law approach, on the ability for women to chair committees (see Table 4, col. 5). Altogether, these results partially support *H2*: the quota has been associated to a reduced access for women to the most influential committees (namely monitoring committees), but not to board chairs, relative to the soft law. Note that we check the robustness of our results by dropping year 2011 from the estimation. Results (available upon request) are fully consistent with all our previous findings.

Table 4 also allows to report on the conditional effects of a various individual attributes on committee access. As expected, we observe that tenure is always positively associated with committee membership or chair. This is also the case with independence – except for advisory committees, where affiliated directors (e.g. labour representatives) are often welcomed. Being a foreigner is negatively related with audit committee membership as well as with committee chair – these highly influential positions being rather reserved for nationals. Finally, we see that being a woman significantly reduces the likelihood of obtaining a committee chair – this being likely to reflect negative stereotypes against women in leadership positions in the two countries.

Finally, to have a more synthetic view, we consider a count variable, indicating the total number of committee memberships held by an individual in a given firm-year. As indicated in Table 1, it goes from 0 to 5 in France and from 0 to 6 in Britain. Allegedly, the overall influence of a director in a given board increases with this number. Our triple-difference

model, estimated with a Poisson regression (adapted to count data), yields the following observation: the coefficient on the triple interaction term (being a woman, post-regulation, in a French company) is negative (equal to -0.136 with a standard error of 0.061, significant at the 5% level).[11] It therefore indicates that the quota has significantly decreased the total number of committee memberships (in a given firm) held by women (relative to men), in comparison to the soft law. This result supports our conclusion, namely the negative effect of the quota, as compared to the soft law, on the conditional access of female directors to within-board positions.

7. Discussion

Our identification rests on the assumption – supported by our data – that the trends in our different outcomes were similar in Britain and France in the pre-reform period. The identification is also free from time-constant unobservable firm characteristics and from any time-varying observable or unobservable firm characteristics (as we control for firm-by-year fixed effects). However, our identification would be threatened if some unobservable global trends, occurring in the post-reform period, caused shifts in our outcomes. More precisely, Hypothesis *H2* states that the quota has negatively impacted women's access to the most influential committees, as compared to the soft law approach (because a quota obliges companies to appoint women in boards at a higher pace). Our identification would be biased if there had been a post-reform decrease in gender stereotypes (against women) in Britain or a shift towards greater women empowerment in Britain (or, identically, an increase in negative stereotypes and gender gap in France). If this had happened, the negative fitted coefficients that we report for the French quota (on monitoring committee access) could in fact be related to these social changes.

[11] Full results are available upon request.

Actually, looking at international rankings like the one published by the World Economic Forum in the annual Global Gender Gap Report, we do observe some degree of evolution. However, this would rather tend to drive our estimated coefficients toward 0, therefore 'playing against us'. Indeed, France, unlike Britain, clearly improved its ranking during the period 2011-2015, for both the global index and the two following sub-indexes: "Economic participation and opportunity" (France's rank improved from 61 to 56 whereas Britain moved from 33rd to 43th place in the ranking) and "Political empowerment" (France went from 46th to 33rd place in the ranking, while Britain did not move). These data, suggesting an increase in women's empowerment in France during the treatment period, mean that our estimates, in absolute terms, are rather a minimum effect of the treatment: we find that women's access to monitoring committees has decreased following the quota (as compared to soft law) – despite the fact that women's empowerment, as measured by a global index, has slightly improved.

Furthermore, if our reported results were driven by a global, social (unobservable) trend occurring in one of the two countries, we would expect our effects to be homogeneous across companies (i.e. the negative – resp. positive – effect on women within-board positions observable post-reform to be at stake in all French – resp. British – companies). By contrast, if these effects were really caused by the distinct regulatory nature of the two board reforms (hard law and soft law), we expect them to be of a larger magnitude in firms that have made the greatest adjustments in terms of board gender mix (most of which had no women on their board prior to the regulation). Indeed, these firms should have faced more difficulties in opening strategic positions to newly appointed female directors (or should have been more reluctant to do so), as compared to firms engaged in smaller adjustments.

To check whether the magnitude of the adjustments (in gender mix) may have affected the position of women, we compute, for each company, the difference in the fraction of women in 2015 (end of our period) and in 2010 (just before the reforms). We consider the distribution of

this difference for each country separately: the median is +11.6 percentage points in Britain, and +22.2 percentage points in France. We then construct a dummy variable (Adj_j) equal to 1 if the firm *j* belongs to the top half of the distribution in its country, i.e. if the difference is greater than +11.6% in Britain and +22.2% in France. This dummy identifies firms that have made significant efforts to increase the fraction of female directors so as to comply with the regulation (let us call them "high-adjustment firms"). We then estimate model [3] for monitoring committees and for compensation-nomination committees by splitting the sample into "high-adjustment firms" on one side and "low-adjustment firms" on the other side. We expect *g* to be larger (in absolute value) for the sample of high-adjustment firms, indicating that the negative effect of the quota on women's empowerment was mainly driven by companies that were far from the target.

Results of linear probability models are reported in Table 5. For Panel A (low-adjustment firms), we do not observe any significant coefficient associated to the quota. By contrast, when running the regressions on Panel B (high-adjustment firms), the coefficients on the triple interaction term *Woman*Post*FR* are significant and negative, for monitoring committees in column (3) and for compensation-nomination committees in column (4). These results indicate that the negative effect of the quota on women's empowerment was more pronounced when firms had to make large adjustments. As the number of women to appoint increased, companies found it more difficult to offer them strategic positions. The fact that the reported effects are heterogeneous across companies – more pronounced in high-adjustment firms – supports our confidence in identifying the effects of the regulatory nature of board reforms, rather than a global, social trend.

[INSERT TABLE 5 HERE]

Finally, to capture within board women empowerment, we have focused on committees (memberships and chairs). By doing this, we might overlook an important dimension related to intra-board empowerment: the role of executive directors (or "insiders"). These directors, who are often excluded from committees, nevertheless play a crucial role in boardrooms, primarily due to the expertise they bring regarding the firm's business model. The difficulties faced by women in accessing committees, in the case of hard law as compared to soft law, could thus be offset by an increase in the share of female executive directors – companies meeting the quota through the appointment in boards of (female) top executives (internal promotion). However, our data does not indicate that such a process has been at work. In Britain, 215 new women were appointed following the reform (from 2011 to 2015). Among this rookie female directors, only 21 (9.7%) were corporate executives. In France, 326 rookie female directors joined corporate boards following the implementation of the quota (until 2015), among which only 3 (0.9%) were executives. Accordingly, compliance with the law in both countries has primarily relied on the appointment of outsiders, and only minimally on the internal promotion of women. This is particularly notable in France.

Overall, our observations indicate that the quota (compared to soft law) has led to a decline in the (relative) influence of women, as measured by the likelihood of joining monitoring committees and the total number of committee memberships. Furthermore, this decline has not been compensated by a significant increase in internal promotions for women as executive directors.

8. Conclusion

This article has examined the impact on board functioning of the two types of reforms (quotas *versus* soft law) aiming at improving board gender mix in listed companies. We have taken advantage of the similarities, in terms of objectives and timing, of the French binding

legislation and of the British non-binding approach, to mitigate the effects of confounding factors in a difference-in-differences type of approach.

More precisely, we have intended to answer the two following questions. Does a mandatory quota and the rigidities that come with it negatively affect the ability of company boards to fulfill their duties, as compared to a non-binding regulation? And beyond its potential disruptive effects, is a quota associated with lower (board-level) female empowerment, as compared to a non-binding code? The answer to the first question is negative. We have reported that the (French) quota allowed for a faster rebalancing of company boards than the non-binding British regulation. Our results also show that the French adjustment was made without any visible de-structuring in board composition regarding other dimensions, as compared to the British code. A possible explanation for this is that the magnitude of the French labour market for directors ultimately allowed companies to select female directors with sought-after characteristics (in terms of independence, expertise and nationality). This explanation complements the observation made by Ferreira et al. (2020), who have reported a change in hiring practices of French companies following the implementation of the quota.

Regarding the second question – related to board committees – we find that the quota has been associated with a significant discount in the relative position of women within boards, at least when it comes to their access to monitoring committees. Overall, it appears that the efforts made by French companies to comply with the quota without de-structuring their overall board composition had a price: they have somehow failed to fully incorporate newly appointed women into the board machinery, once again as compared to British firms. The latter appointed less women, but were more successful at integrating them.

We ended our analysis in December 2015, the deadline year fixed by British regulation. The reason is that our study aims to identify the causal effect of the difference in regulatory nature between hard law and soft law, during the adjustment period (5 years here, from 2011 to

2015). In the long term, it becomes more difficult, if not impossible, to attribute the observed transformations of the boards to these regulatory practices. The comparative evolution in corporate power structures after 2016, and up to the present day, is a top-tier subject – but goes beyond the debate on the comparative benefits of hard law and soft law.

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Appendices

Table A1: Variables

Variables	*Definition*
Firm characteristics	
Employees	Number of employees
Tobin's Q	Market capitalisation / total assets
Financial leverage	Total debt / total equity
ROA before tax	EBITDA (earnings before interest, taxes, depreciation and amortization) / total assets
Board characteristics	
Board size	Number of directors
Chairman/CEO separation	Dummy equal to 1 if there is a separation between the Chairman and the CEO positions
Supervisory board	Dummy equal to 1 if the board is a two-tier board
Individual characteristics	
Woman	Dummy equal to 1 if the director is a woman
Independent	Dummy equal to 1 if the director complies with the Code definition of independence
Industry- expert	Dummy equal to 1 if the director has a professional experience in the same industry as the firm where the director seats
Foreigner	Dummy equal to 1 if the directors is not British in a British company or French in a French company
Elite	Dummy equal to 1 if the director is graduated from one of the Top10 British universities or from the following French *Grandes Ecoles*: *Polytechnique*, *Ecole des Mines* (engineer schools) and ENA (political science school).
Number of (other) boards	Number of seats (minus 1) in the sample of domestic firms over a year for a given director
CEO-expert	Dummy equal to 1 if the director acts or as acted as a CEO in a company

Chairperson	Dummy equal to 1 if the director is the chairman of the board
Age	Director age (years)
Tenure	Number of years in the boardroom
Committees (dummies)	
Monitoring	Dummy equal to 1 if the director is member of at least 1 monitoring committee (audit, compensation, nomination, joint compensation-nomination)
Audit	Dummy equal to 1 if the director is member of the audit committee
Compensation-Nomination	Dummy equal to 1 if the director is member of at least 1 committee dedicated to compensation and/or nomination
Advise	Dummy equal to 1 if the director is member of at least 1 advising committee
Committee chair	Dummy equal to 1 if the director chairs at least 1 committee

Figure 1: Board gender mix, 2007-2015

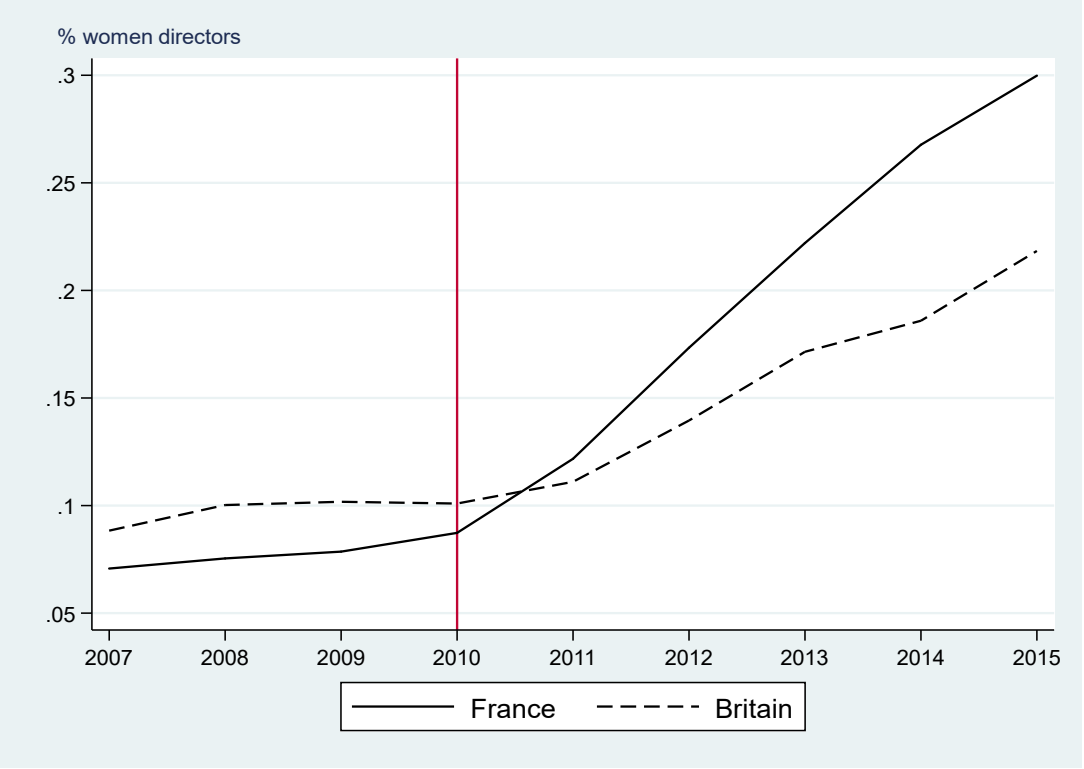


Figure 2: Share of committee memberships held by women, 2007-2015

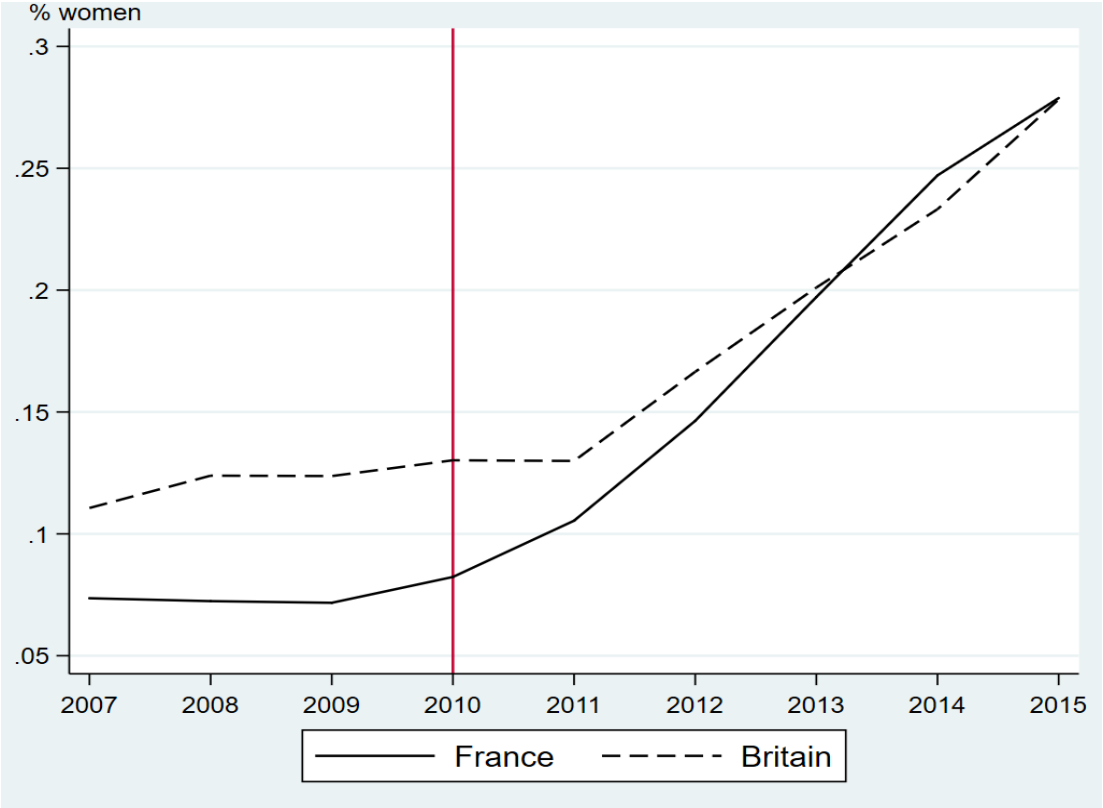


Figure 3: Board composition, 2007-2015

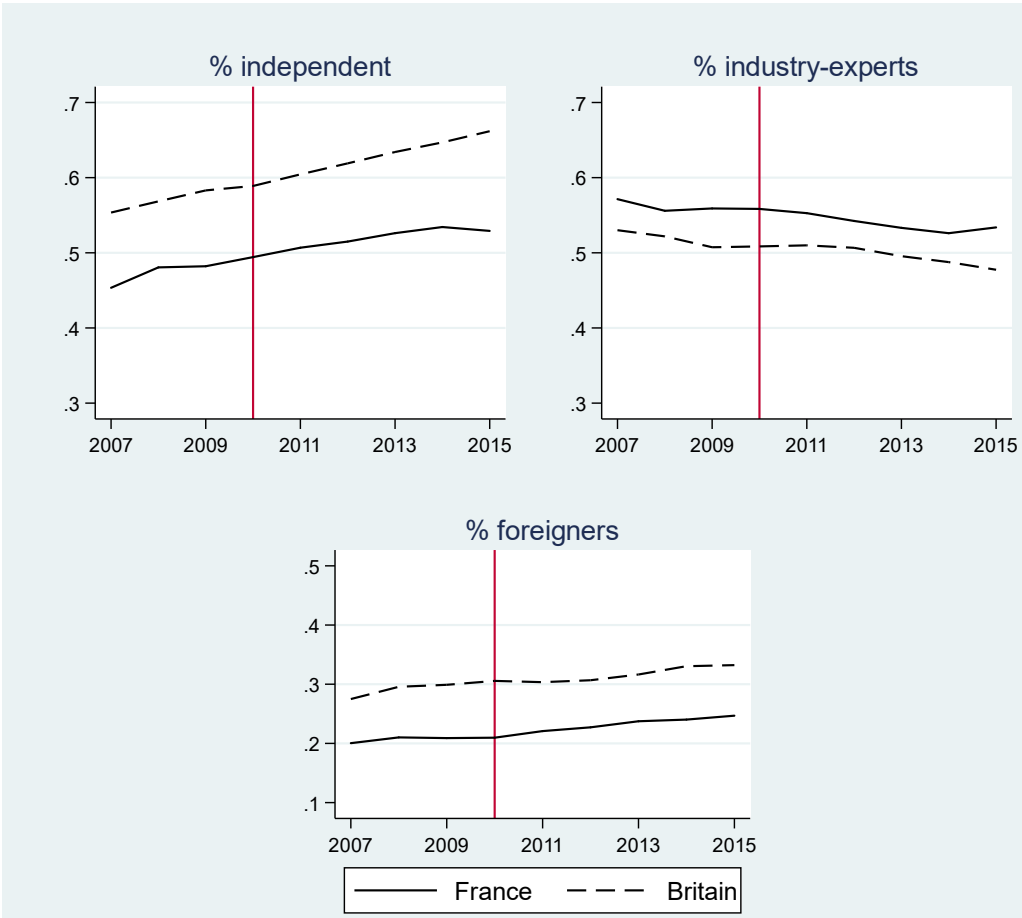
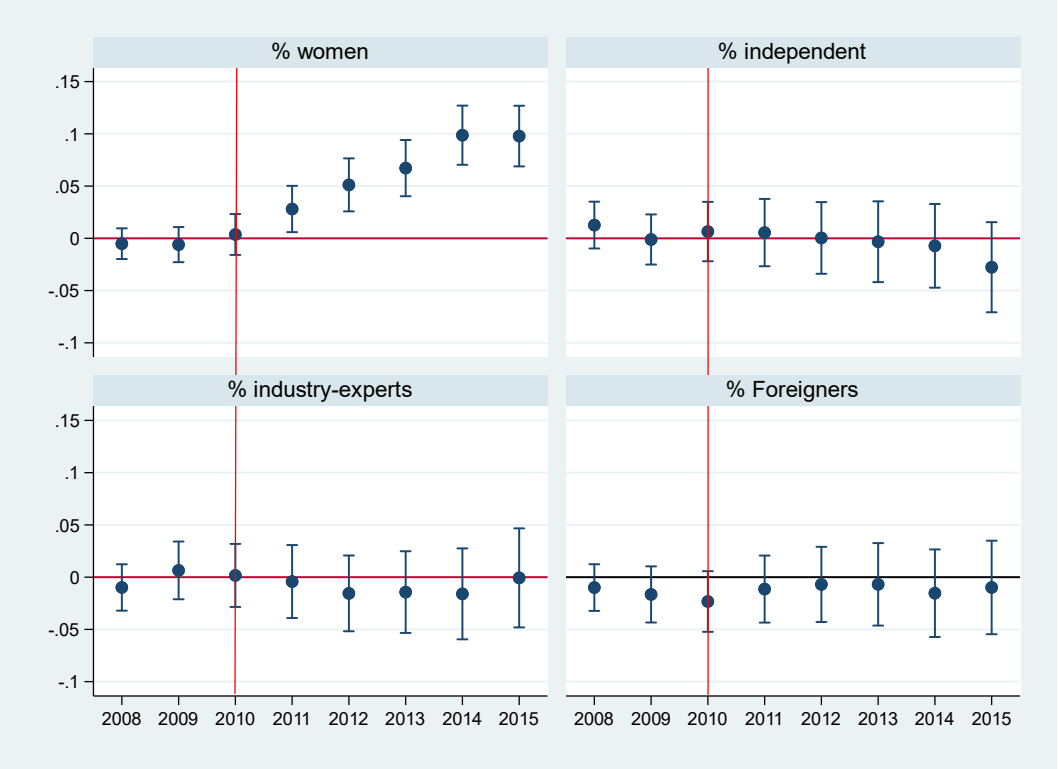

% independent
.7
.6
.5
.4
.3
2007
2009
2011
2013
2015
% industry-experts
.7
.6
.5
.4
.3
2007
2009
2011
2013
2015
% foreigners
.5
.4
.3
.2
.1
2007
2009
2011
2013
2015
France
Britain

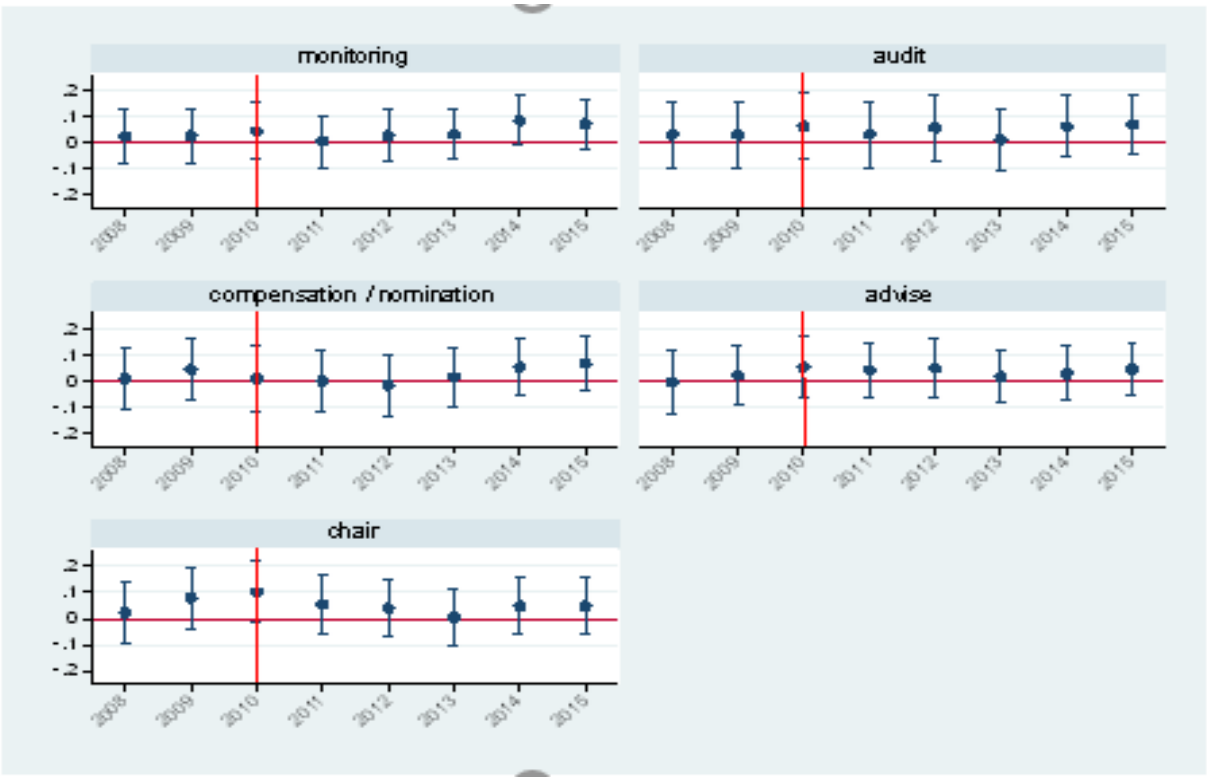
Figure 4: Board composition – Parallel trends



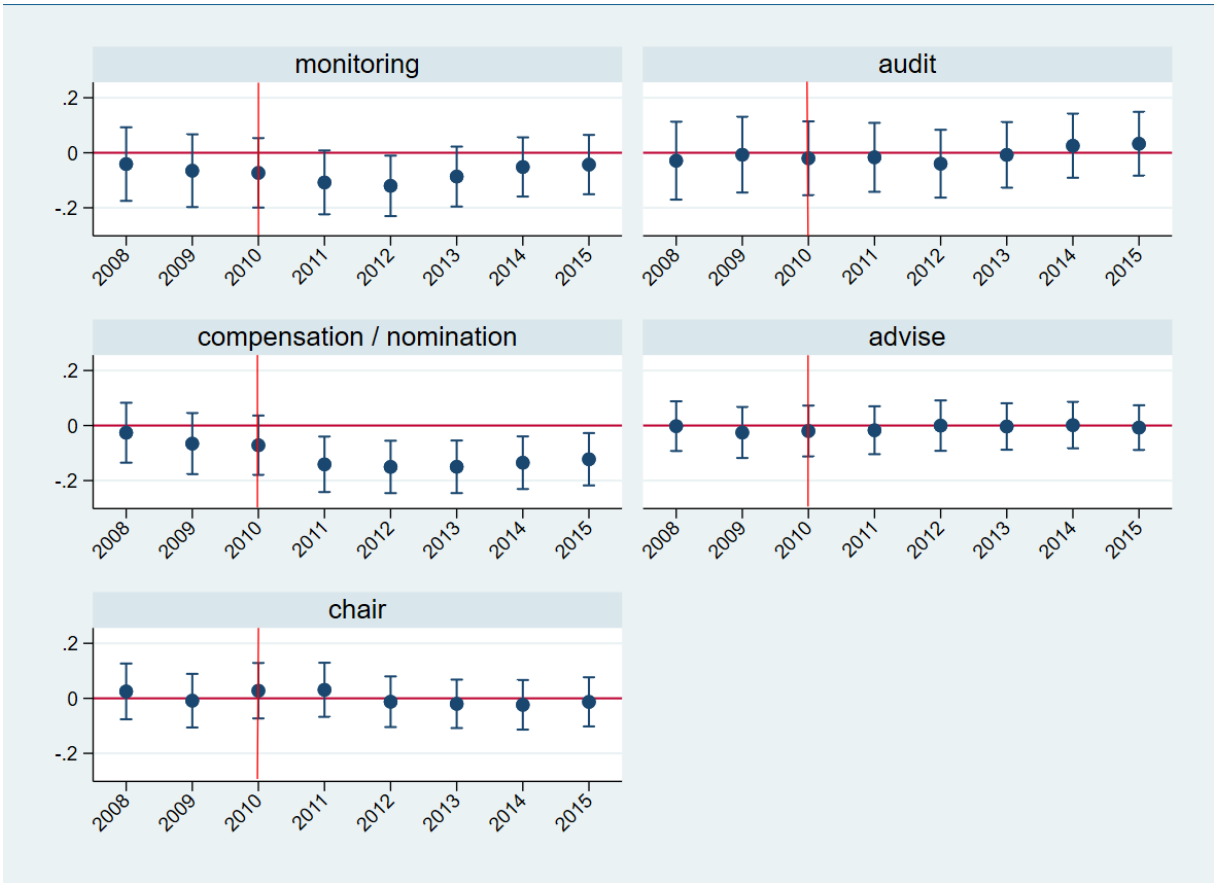
Notes: This figure reports estimated coefficients c_t on the interaction terms between year effects and the *FR* (treatment) dummy, with *t*=2007 used as a reference, obtained by estimating equation [4] with a linear model. The dependent variable is the share of women (top left panel), the share of independent directors (top right panel), the share of industry experts (bottom left panel) and the share of foreign directors (bottom right panel). Regressions also include year dummies, firm fixed effects and time-variant firm characteristics (number of employees in log, financial leverage, Tobin's Q, ROA, board size and two dummies for chairman/CEO separation and two-tier structure). Standard errors are clustered at the company level. Error bars correspond to 95% confidence intervals.

Figure 5: Committee memberships, DiD models – Parallel trends

Panel A: Britain



Panel B : France



Notes: This figure reports estimated coefficients c_t on the interaction terms between year effects and the *w* dummy (equal to 1 if *i* is a woman), with *t*=2007 used as a reference, obtained by estimating equation [5] with a linear model, on the sample of British companies (Panel A) and on the sample of French companies (Panel B). The dependent variable is a dummy equal to 1 if the director is member of at least one monitoring committee, a dummy equal to 1 if the director is member of the audit committee, a dummy equal to 1 if the director is member of at least one committee dedicated to compensation and/or nomination, a dummy equal to 1 if the director is member of at least one advising committee or a dummy equal to 1 if the director chairs at least one committee. Regressions also include the *w* dummy, as well as firm-year fixed effects and individual controls (age, age squared, tenure, foreigner, elite, education, number of other boards, industry-expertise, CEO-expertise and being the chairman of the board). Standard errors are clustered at the firm-year level. Error bars correspond to 95% confidence intervals.

Figure 6: Committee memberships, DiDiD models – Parallel trends

Notes: This figure reports estimated coefficients g_t on the interaction terms between year effects, the *FR* dummy and the *w* dummy (equal to 1 if *i* is a woman), with *t*=2007 used as a reference, obtained by estimating equation [4] with a linear model. The dependent variable is a dummy equal to 1 if the director is member of at least one monitoring committee, a dummy equal to 1 if the director is member of the audit committee, a dummy equal to 1 if the director is member of at least one committee dedicated to compensation and/or nomination, a dummy equal to 1 if the director is member of at least one advising committee or a dummy equal to 1 if the director chairs at least one committee. Regressions also include the *w* dummy, an interaction term between *w* and *FR*, interaction terms between year effects and *w*, as well as firm-year fixed effects and individual controls (age, age squared, tenure, foreigner, elite, education, number of other boards, industry-expertise, CEO-expertise and being the chairman of the board). Standard errors are clustered at the firm-year level. Error bars correspond to 95% confidence intervals.

Table 1: descriptive statistics

	Britain					*France*					*Difference in means* = (2) − (7)
	(1) obs	(2) mean	(3) std dev	(4) min	(5) max	(6) obs	(7) mean	(8) std dev	(9) min	(10) max	
Firm / board characteristics											
Number of employees	963	46,486.4	90,406.7	56	648,254	965	56,691.4	78,315.6	36	490,042	-10,204.98
Tobin's Q	983	1.28	1.41	0.01	11.18	934	0.74	0.78	0.00	7.49	0.53***
Leverage	867	1.26	1.40	0.00	9.24	923	1.32	1.27	0.02	8.28	-0.06
ROA before tax	993	0.093	0.115	-0.840	0.652	965	0.050	0.075	-0.653	0.497	0.042***
Board size	1,020	10.4	2.4	5.0	21.0	1,023	12.3	3.5	4.0	23.0	-1.9***
Chairman/CEO separation	1,020	0.973	0.163	0	1	1,023	0.501	0.500	0	1	0.471***
Supervisory board	1,020	0	0	0	0	1,023	0.243	0.429	0	1	-0.243***
% women	1,020	0.136	0.099	0	0.500	1,023	0.155	0.118	0.000	0.500	-0.020**
% independent	1,020	0.607	0.119	0.222	0.923	1,023	0.503	0.207	0	1	0.105***
% industry experts	1,020	0.505	0.172	0	0.917	1,023	0.548	0.216	0	1	-0.043*
% foreigners	1,020	0.307	0.253	0	1	1,023	0.222	0.199	0.000	0.917	0.085***
Mean (board) age (years)	1,020	57.54	2.94	47.33	67.70	1,023	58.50	4.25	41.91	69.11	-0.96**
Mean (board) tenure (years)	1,020	4.45	1.48	1	12.56	1,023	6.85	3.61	1	21.63	-2.402***
Individual characteristics											
Woman	10,604	0.139	0.346	0	1	12,573	0.160	0.367	0	1	-0.021
Independent	10,604	0.609	0.488	0	1	12,573	0.496	0.500	0	1	0.113***
Industry expert	10,604	0.507	0.500	0	1	12,573	0.551	0.497	0	1	-0.043***
Foreigner	10,604	0.321	0.467	0	1	12,573	0.226	0.418	0	1	0.096***
Elite	10,604	0.249	0.433	0	1	12,573	0.253	0.435	0	1	-0.004
Number of other boards	10,604	0.380	0.644	0	4	12,573	0.674	1.097	0	7	-0.293***
CEO expert	10,604	0.584	0.493	0	1	12,573	0.537	0.499	0	1	0.047**
Chairman of the board	10,604	0.094	0.293	0	1	12,573	0.040	0.196	0	1	0.054***
Age	10,604	57.69	7.638	30	84	12,573	58.65	9.894	22	95	-0.958***

Tenure	10,604	4.453	3.584	1	47	12,573	6.909	6.553	1	64	-2.457***
Committees											
Monitoring	10,604	0.592	0.491	0	1	12,573	0.560	0.496	0	1	0.032**
Audit	10,604	0.331	0.470	0	1	12,573	0.315	0.465	0	1	0.016
Compensation-nomination	10,604	0.524	0.499	0	1	12,573	0.341	0.474	0	1	0.183***
Advise	10,604	0.254	0.435	0	1	12,573	0.290	0.454	0	1	-0.037***
Committee chair	10,604	0.289	.454	0	1	12,573	0.219	0.414	0	1	0.070***
Number of committees in a given firm year	10,604	1.433	1.247	0	6	12,573	1.026	0.890	0	5	0.407***

Table 2: the effect of the quota (as compared to soft law) on board composition, DID estimates

	1	*2*	*3*	*4*
	% women	**% indep**	**% experts**	**% foreign**
Post	0.142***	0.0920***	-0.0355***	0.0436***
	(0.00932)	(0.0108)	(0.0123)	(0.0127)
FR	0	0	0	0
	(.)	(.)	(.)	(.)
Post*FR	0.0699***	-0.0108	-0.00981	0.00262
	(0.00942)	(0.0128)	(0.0149)	(0.0128)
Board size	0.0007	-0.0023	0.0012	0.0052*
	(0.0019)	(0.0030)	(0.0029)	(0.0027)
Separation	-0.0126	0.0015	0.0033	0.0221
	(0.0107)	(0.0150)	(0.0176)	(0.0142)
Supervisory board	0.0182	0.0463	-0.0979**	-0.0152
	(0.0236)	(0.0530)	(0.0492)	(0.0415)
Employees	-0.0024	0.0088	0.0082	-0.0004
	(0.0069)	(0.0111)	(0.0120)	(0.0077)
Tobin's Q	0.0006	0.0014	0.0050	-0.0033
	(0.0037)	(0.0046)	(0.0062)	(0.0052)
Leverage	0.0000	-0.0018	-0.0012	-0.0004
	(0.0027)	(0.0039)	(0.0042)	(0.0045)
ROA	-0.0334	-0.112***	0.135***	0.0040
	(0.0301)	(0.0342)	(0.0464)	(0.0487)
Constant	0.108	0.452***	0.454***	0.183**
	(0.0742)	(0.110)	(0.127)	(0.0816)
Adj. R^2	0.726	0.834	0.838	0.907
Obs	2,043	2,043	2,043	2,043
Firm controls	Yes	Yes	Yes	Yes
Firm FE, Year FE	Yes	Yes	Yes	Yes

Notes: Linear models, where the dependent variable is the share of women in boards (in column 1), the share of independent directors (col. 2), the share of industry-expert directors (col. 3) or the share of foreign directors (col. 4). *Post* is a dummy variable equal to 0 for the years from 2007 to 2010 and 1 afterwards (2011-2015). *FR* is a dummy equal to 1 for French firms (and 0 for British firms). Firm control variables include number of employees (in log), financial leverage, Tobin's Q, ROA, board size and two dummies for chairman/CEO separation and two-tier structure. All regressions control for firm fixed effects and year fixed effects. Robust Standard errors clustered at the company level in parentheses. *** p<0.01, ** p<0.05, * p<0

Table 3: Committee access per gender – Panel A: pre-reform period

	Britain (A)			France (B)		
	(1) Men	(2) Women	(3) = (2) – (1) Gender gap	(4) Men	(5) Women	(6) = (5) – (4) Gender gap
Monitoring	0.567	0.715	0.148*** (0.037)	0.541	0.507	-0.034 (0.027)
Audit	0.308	0.455	0.146*** (0.031)	0.304	0.274	-0.030 (0.048)
Comp. / nom.	0.509	0.596	0.088** (0.041)	0.325	0.326	0.001 (0.048)
Advise	0.207	0.283	0.076** (0.038)	0.250	0.199	-0.051 (0.036)
Monitoring chair	0.252	0.152	-0.100*** (0.030)	0.169	0.113	-0.056* (0.029)
Advise chair	0.047	0.076	0.029 (0.023)	0.052	0.025	-0.027* (0.014)

Panel B: post-reform period

	Britain (A)			France (B)		
	(1) Men	(2) Women	(3) = (2) – (1) Gender gap	(4) Men	(5) Women	(6) = (5) – (4) Gender gap
Monitoring	0.570	0.755	0.186*** (0.026)	0.582	0.558	-0.024 (0.027)
Audit	0.306	0.492	0.186*** (0.031)	0.323	0.335	0.012 (0.028)
Comp. / nom.	0.512	0.613	0.102*** (0.030)	0.368	0.304	-0.064** (0.025)
Advise	0.271	0.351	0.080*** (0.027)	0.329	0.309	-0.020 (0.024)
Monitoring chair	0.263	0.146	-0.114*** (0.024)	0.188	0.120	-0.069*** (0.021)
Advise chair	0.065	0.083	0.018 (0.017)	0.073	0.046	-0.027** (0.011)

Note: Panel A: mean value of committee dummies pre-reform in Britain, for directorships held by men (in col. (1)) and by women (in col. (2)). Col. (3) reports the difference, called the gender gap, between women and men, as well as the *t*-statistics for tests of difference (in parentheses). Panel B reports similar statistics and tests, for the pre-reform period in France. Results are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1. *Reading*: pre-reform, in Britain, 30.8% (resp. 45.5%) of directorships held by men (resp. women) have an access to the audit committee. The difference, called the gender gap, is significantly positive, at the 1% level (meaning that women have, on average, a greater access to the audit committee). The gender gap in France regarding the audit committee is negative, albeit not statistically different from 0 at conventional levels.

Table 4: Committee access, DiDiD estimates

	1	2	3	4	5
	Monitoring	**Audit**	**Comp-nom.**	**Advise**	**Chair**
Woman	0.0422**	0.0277	0.0167	0.0698***	-0.0773***
	(0.0196)	(0.0225)	(0.0221)	(0.0214)	(0.0215)
Woman*Post	0.0296	0.0277	0.0150	0.0163	-0.0123
	(0.0236)	(0.0276)	(0.0270)	(0.0256)	(0.0258)
Woman*FR	-0.0616**	-0.0744**	0.0245	-0.0909***	0.0276
	(0.0309)	(0.0334)	(0.0304)	(0.0271)	(0.0279)
Woman*Post*FR	-0.0884**	-0.0394	-0.138***	-0.0115	-0.0142
	(0.0364)	(0.0398)	(0.0368)	(0.0333)	(0.0333)
Age	-0.00113	-0.00454	0.000703	0.000979	0.00501*
	(0.00369)	(0.00328)	(0.00319)	(0.00250)	(0.00278)
Tenure	0.00611***	0.00305***	0.00565***	0.00283***	0.00539***
	(0.000791)	(0.000657)	(0.000750)	(0.000674)	(0.000621)
Foreigner	-0.0270***	-0.0800***	0.00725	-0.00767	-0.0715***
	(0.00817)	(0.00806)	(0.00828)	(0.00700)	(0.00773)
Elite	0.0141*	-0.0112	0.0233***	0.0136**	0.00776
	(0.00761)	(0.00805)	(0.00787)	(0.00678)	(0.00744)
Number other boards	0.0168***	-0.00109	0.0343***	0.0000717	0.0398***
	(0.00377)	(0.00415)	(0.00403)	(0.00336)	(0.00415)
Independent	0.451***	0.348***	0.328***	0.0103	0.246***
	(0.00809)	(0.00744)	(0.00846)	(0.00777)	(0.00747)
Industry expert	-0.125***	-0.0908***	-0.104***	0.0351***	-0.0238***
	(0.00749)	(0.00751)	(0.00764)	(0.00625)	(0.00700)
CEO expert	0.0353***	0.0153**	0.0185***	-0.00412	0.0153***
	(0.00609)	(0.00651)	(0.00617)	(0.00528)	(0.00560)
Chairman	0.215***	-0.235***	0.278***	0.0353***	0.454***
	(0.0131)	(0.0100)	(0.0123)	(0.0103)	(0.0136)
Constant	0.272***	0.348***	0.0405	0.209***	-0.195**
	(0.105)	(0.0935)	(0.0920)	(0.0728)	(0.0776)

Adj. R^2	0.306	0.167	0.256	0.313	0.173
Obs	23,177	23,177	23,177	23,177	23,177
Firm-year FE	Yes	Yes	Yes	Yes	Yes

Notes: Linear models, where the dependent variable is a dummy equal to 1 if the director is member of at least 1 monitoring committee (in col. 1), a dummy equal to 1 if the director is member of the audit committee (in col. 2), a dummy equal to 1 if the director is member of at least 1 committee dedicated to compensation and/or nomination (in col. 3), a dummy equal to 1 if the director is member of at least 1 advising committee (in col. 4), or a dummy equal to 1 if the director chairs at least one committee (col. 5). *Post* is a dummy variable equal to 0 for the years from 2007 to 2010 and 1 afterwards (2011-2015). *Woman* is a dummy equal to 1 if the director is a woman. *FR* is a dummy equal to 1 for French firms (and 0 for British firms). Individual controls include age, age squared, tenure, foreigner, elite, education, number of other boards, industry-expertise, CEO-expertise and being the chairman of the board. All regressions control for firm-year fixed effects. Robust Standard errors clustered at the firm-year level in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: women access to monitoring committees, low-adjustment versus high-adjustment firms

	Panel A : Low-adjustement firms		Panel B : High-adjustement firms	
	1	2	3	4
	monitoring	**comp/nom**	**monitoring**	**comp/nom**
Woman	0.0558**	0.0274	0.0150	-0.00951
	(0.0248)	(0.0281)	(0.0316)	(0.0350)
Woman*Post	0.000696	-0.0227	0.0692*	0.0628
	(0.0319)	(0.0363)	(0.0358)	(0.0407)
Woman*FR	-0.0764*	0.0195	-0.0265	0.0495
	(0.0391)	(0.0393)	(0.0514)	(0.0477)
Woman*Post*FR	-0.0608	-0.0715	-0.136**	-0.222***
	(0.0478)	(0.0495)	(0.0581)	(0.0557)
Constant	0.0873	-0.0594	0.511***	0.150
	(0.135)	(0.125)	(0.170)	(0.134)
Adj. R^2	0.316	0.265	0.298	0.249
Obs	11,571	11,571	11,606	11,606
Individual controls	Yes	Yes	Yes	Yes
Firm-year FE	Yes	Yes	Yes	Yes

Notes: Linear models, where the dependent variable is a dummy equal to 1 if the director is member of at least 1 monitoring committee (in col. 1 and 3), or dummy equal to 1 if the director is member of at least 1 committee dedicated to compensation and/or nomination (in col. 2 and 4). *Post* is a dummy variable equal to 0 for the years from 2007 to 2010 and 1 afterwards (2011-2015). *Woman* is a dummy equal to 1 if the director is a woman. *FR* is a dummy equal to 1 for French firms (and 0 for British firms). Individual controls include age, age squared, tenure, foreigner, elite, education, number of other boards, industry-expertise, CEO-expertise and being the chairman of the board. All regressions control for firm-year fixed effects. Panel A Robust Standard errors clustered at the firm-year level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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