Balanced Boards, Balanced Wages:
When Female Directors Shrink the Gender Wage Gaps*

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First Version: August 2022
This Version: November 2023
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Gender board quotas have emerged as a policy of choice in many countries to tackle gender inequalities in the workplace. Introduced in 2010, France's 40% quota targets both listed and large unlisted companies. We examine its effectiveness by assessing its impact on the representation of women at the top of the firm hierarchy and on gender wage gaps. We first construct and analyze a dataset on the board composition of all French firms from 2008 to 2021. The average female board share rose from 11% in 2009 to 42% in 2021 for targeted listed firms, but only from 14% to 30% for targeted unlisted firms. Given the non-compliance of targeted non-listed firms, we use difference-in-differences and IV strategies comparing listed and non-targeted firms. We show that a higher female board share results in a higher probability of having a female CEO, and more women among top executives and top earners. It also helps women in the lower echelons by substantially reducing gender wage gaps across the wage distribution. Evidence suggests that the positive effect on women's representation at the top is primarily driven by external hires rather than internal promotions, while the reduction in gender wage gaps benefits both newly hired and incumbent employees at every echelon.

Introduction

Gender imbalances remain prevalent in the labor market of developed economies. Notably, the gender pay gap among full-time workers still stands at 12% in OECD countries, primarily driven by within-firm differences (OECD, 2022, 2021). To address this issue, gender board quotas have become a popular policy across Europe and the US. Sparked by Norway's pioneering law in 2003, this trend[1] recently culminated in the adoption of a 40% quota for all listed firms in the EU in June 2022. The argument invoked by the European Commission to defend this measure is quintessential:

> Enhancing female presence in the boardrooms of listed companies in the Union not only affects the women appointed to boards but also contributes to attracting female talent to the company and ensuring a greater presence of women at all levels of management and in the workforce. Therefore, a higher share of women on company boards has a positive impact on closing both the gender employment gap and the gender pay gap.[2]

France was one of the first countries to adopt a board quota. As early as 2010, the French Parliament passed the *Loi Copé-Zimmermann* mandating that, by January 1, 2017, both genders must account for at least 40% of board members in both listed (i.e., publicly traded) and large unlisted firms. The French government initiated this reform with the same rationale, expecting female board members to champion women-friendly policies and serve as role models. The ultimate goal was to spur changes beyond the boardroom, and, chiefly, to reduce gender the gender pay gap.[3]

In this paper, we investigate whether the quota achieved its objective. We examine how increasing the female board share affects the representation of women in executive and high-earning positions and gender pay gaps throughout the wage distribution.

The French context offers several advantages relative to other countries where board quotas have been studied, such as Denmark, Germany, Italy, and Norway. First, France still experiences substantial gender disparities across the entire wage distribution: its 15% gender wage gap in 2021 exceeds the OECD average (OECD, 2023),[4] and so do the first and ninth decile wage gaps.[5] Second, in 2021, 91% of French firms targeted by the quota operate under a one-tier board system whereby

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[1] Iceland passed a law in 2010 (40%), Italy in 2011 (33%), Belgium in 2012 (33%), Denmark in 2012 (40%), Germany in 2015 (30%), California (40%) in 2018 and Washington (25%) in 2020.

[2] Directive 2022/2381 on *Improving the Gender Balance Among Non-Executive Directors of Companies Listed on Stock Exchanges*.

[3] Explanatory Memorandum, *Loi Copé-Zimmermann*.

[4] It hovers around 5% in Denmark and Norway and 9% in Italy.

[5] In the first decile, the gender wage gap was 12.2% in France, 8.1% in Norway, 5.6% in Denmark and 2.8% in Italy (mostly due to low female labor share participation). In the ninth decile, the gender wage gap was 24% in France, 20% in Italy, 17% in Norway and 11% in Denmark.

board members are legally tasked with shaping the firm's strategy and overseeing its execution. In such a context, boards are likely to advise and direct managers.[6] Therefore, it is conceivable that a decidedly pro-women board plays a role in the tackling of gender gaps within a company. Third, the French quota also targets unlisted firms, while the quotas in other countries generally remain limited to listed firms.[7] We can then explore how firms under less scrutiny implement the quota and assess its generalizability to a broader set of firms. Lastly, we can take advantage of a matched employer-employee dataset with exhaustive coverage (*Déclaration annuelle des données sociales*, DADS), allowing us to investigate the channels through which female workers could be impacted, such as promotions or hiring. The combination of these four features makes France a valuable setting to analyze the impact of a board quota on labor market outcomes and gender gaps.

This paper makes two main contributions. First, we construct a comprehensive database covering the board composition of all French firms whose legal structure requires or permits the establishment of a board. Leveraging this new source of information, we shed light on how quotas are implemented in firms that are under less scrutiny than listed firms and can take advantage of our observations on non-targeted firms in our empirical approach. Second, we find evidence that increasing the female board share causes gender pay gaps to decline throughout the entire wage distribution. Albeit smaller in absolute terms for low-earners, the changes are more pronounced in relative terms compared to the levels of 2009. Therefore, our findings highlight the critical role that board quotas can play in promoting overall gender equality in the workplace.

We begin by assessing the significance and implementation of this reform. Among firms with a board, the initial quota law targeted (i) all listed firms irrespective of their size and (ii) all unlisted firms with more than 500 employees and more than €50 million in turnover or net assets. The employee threshold was reduced to 250 in 2014. However, non-compliance did not entail any sanctions, and no public records were kept about board compositions.

Since most businesses in France are small and lack a board, the law's reach might have been limited. We find that, in 2009 (the pre-reform year), the 592 firms meeting the initial requirements for quota application nonetheless represented a substantial 17% of France's workforce. The quota led to a significant increase in the average female board share in all targeted firms: it quadrupled in listed firms (from 11% in 2008 to 42% in 2021) and doubled in targeted unlisted firms (from 14% to 30%) while modestly changing in non-targeted firms (from 20% to 25%). But this conceals a huge difference in compliance between listed and targeted unlisted firms: In 2021, four years

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[6]See for instance Matsa and Miller (2013) on Norwegian boards that have powers equivalent to French boards. By contrast, German boards only serve a supervisory function (Jäger, Schoefer and Heining, 2021).

[7]The only other exception is Denmark.

after the legal 2017 deadline, close to 80% of listed firms met the quota while, among targeted unlisted firms, only one-third complied and almost one fifth had no female board members. We provide evidence that the discrepancy observed among targeted firms may partially stem from a "spotlight effect", whereby the fear of negative publicity from noncompliance might be a key driver of adoption.

We then examine how firms comply with the quota and how it affects board members' characteristics by availing ourselves of our new dataset. In 2009, the three groups had on average one female board member but significantly different average board sizes (7, 8, and 9 in non-targeted, targeted unlisted, and targeted listed firms, respectively). To comply with the quota, listed firms mostly replaced incumbent male board members with female board members as early as 2011, ending up with an average of 4.4 women on their boards. In contrast, unlisted firms slowly increased the number of women up to 2.6 in 2021 while keeping the number of men constant until 2017 after which it began to decrease. This trend mirrors the one observed among unlisted non-targeted firms that have an average of 1.9 female board members in 2021.

We also find that the listed firms tapped into a much broader pool of board members for both genders. The fraction of foreign board members among new appointees increases from 11% before reform to 16% after reform for men and from 7% to 15% for women, thus erasing the gender gap in this dimension. In listed companies, the fraction of family-related board members also decreases: it is divided by three for women (from 32% to 11%) and two for men (from 17% to 9%), without significant post-reform differences between the two. This is consistent with a change in the hiring technology, triggered by the implementation of the gender quota, but eventually affecting both genders. A similar evolution is observed regarding family-related board members for targeted unlisted firms (the proportion for both genders is halved between pre- and post-reform), but the fraction of foreign board members is not affected.

The substantial changes in the composition of boards, coupled with the significant role that boards can play under French law, warrant our investigation into the impact of the quota throughout the entire firm. To that end, we rely on two complementary empirical approaches: Difference-in-Differences (DiD) and an Instrumental Variable (IV) strategy. For both methods, we rely on pre-reform characteristics to mitigate endogeneity concerns. Since only listed firms complied with the quota, we use the status of being listed in 2009 as the treatment in the DiD and as the instrument in the IV. In this setting, the DiD estimates correspond to the reduced form of our IV estimation. The DiD approach enables us to document the dynamic impact of the quota, while the IV provides policy-relevant estimates that quantify how an increase in female board share translates into changes in firm-level outcomes.

In the difference-in-differences approach, our main results compare firms that were listed in 2009 with firms that did not meet the requirements for quota application in 2009. Although the outcomes are comparable in levels across both groups in the pre-reform years, by construction, the control group is made of firms that have smaller revenues and workforce size. To check the robustness of our results, we use another control group comprised of firms meeting the requirements but not listed in 2009. These firms were also targeted by the quota reform, but did not comply with it. Their average size is comparable to that of listed firms, which allows us to shut down potential confounding channels.

Our difference-in-differences analysis reveals a significant reduction in gender gap outcomes in listed firms. They experienced a significant increase in the probability of having a female CEO (+5pp in 2021, a 57% increase relative to the level of 2009). The C-suite is also affected: the number of women among the top ten earners increases significantly (+0.25 in 2021 - a 25% increase relative to 2009) and so does the fraction of women among executives (+4pp - a 52% increase relative to 2009). The mean and median wage gaps are also significantly reduced (by 4.6pp and 2.4pp in 2021 respectively, i.e., a 15% and 11% decrease relative to 2009). This is the result of a decrease in wage gaps at both ends of the wage distribution: the 75th percentile wage gap declines by 6.2 pp (-17.7% relative to 2009) and the 10th percentile wage gap by 2.1pp (-19% relative to 2009). When comparing listed firms to targeted unlisted firms, we find similar results, suggesting that the significantly more limited increase in their female board share did not bring about changes.

In our IV approach, we instrument the female board share in year t using a dummy indicating whether the firm is listed in 2009. The overwhelming compliance with the quota among listed firms ensures that the instrument is relevant. Furthermore, the criteria for the application of the quota were inherently unrelated to the degree of gender equality of these firms: they were set exogenously by the government, which sought to maximize impact by targeting large firms. In this regard, our balance checks suggest that listed firms were not more pro-women than the other firms prior to the reform. We provide supporting evidence that threats to the exclusion restriction are unlikely to play a key role in our setting.[8]

The IV strategy complements our DiD approach by specifically focusing on the impact of a

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[8]We see two major threats to the exclusion restriction: First, being just a target could have encouraged firms to address internal gender imbalances, beyond board diversity. We allay this concern by running our IV specification on a sample restricted to the firms that were targeted in 2009 and showing that our results are similar. Second, due to the spotlight effect, listed firms might have faced a greater incentive to appear as more pro-women and act on gender imbalances. We provide evidence that these threats are unlikely to play a key role in our setting by leveraging another law passed in 2019 that requires firms to publicly release a "gender equality index". We show that listed firms are not more likely than non-targeted firms to comply with this law and that those that comply do not exhibit a significantly different index score.

change in the female board share on firm outcomes. We estimate that a 30pp increase in the female board share (i.e., the average increase in the female board share among listed firms) results in a 4pp increase in the probability that the CEO is a woman (+166% relative to 2009) and causes the number of women among the top ten earners to increase by 0.2 (+10% relative to 2009) and the fraction of women in the top layer by 4pp (+50% relative to 2009). Among top earners, it causes a spike in the proportion of women by 1pp for the top 25% and by 1.7pp for the top 10% (respectively, + 4% and + 9% relative to 2009), and an important reduction in the wage gap. Specifically, it results in a 6pp decrease in the 75th percentile wage gap, equivalent to a 17% decline relative to 2009.

Importantly, our findings demonstrate that a higher representation of female board members has a positive impact on wage distribution. A 30pp increase in female board share leads to a 2.3pp decrease in the 10th percentile wage gap (-20.5% relative to 2009) and a 3pp decrease in the median wage gap (-20% relative to 2009). Finally, the mean wage gap is significantly reduced by 5pp, a 25% decline relative to 2009.

We conclude by exploring the channels through which our results play out. We find suggestive evidence that the increase in the representation of women at the top was driven by external hires rather than internal promotions. Furthermore, our results also tend to show that the reduction in pay gaps occurs both for incumbent employees and newly hired.

Related literature. Our paper contributes to the literature on corporate governance by showing that boards have considerable influence in shaping firm labor policies, especially wage setting. This is not immediately obvious, and it has been argued that boards play a fairly limited role (Demb and Neubauer, 1992; Hermalin, 2005; Schwartz-Ziv and Weisbach, 2013; Jenter and Kanaan, 2015; Edmans, Gabaix and Jenter, 2017). In France and countries that are comparable in terms of board powers, evidence on gender quotas show that boards can have a significant impact on firm economic and financial performance (Ahern and Dittmar, 2012; Matsa and Miller, 2013; Green and Homroy, 2018; Comi et al., 2020; Eckbo, Nygaard and Thorburn, 2022; Maghin, 2022). Regarding within-firm wage policies specifically, Jäger, Schoefer and Heining (2021) find no evidence of a board's impact in Germany, but this could be due to German boards primarily serving a supervisory function. However, in France, research suggests that supervisory boards are more inclined to influence top management (Belot et al., 2014).

Our paper also speaks to the literature on gender and organizations. Existing barriers facing women on the job have long been documented, in terms of discrimination (Goldin and Rouse, 2000; Biasi and Sarsons, 2022), lack of mentors (Athey, Avery and Zemsky, 2000), "child penalties" (Kleven, Landais and Søgaard, 2019), or lack of temporal flexibility (Goldin, 2014). Against this backdrop, women in leadership positions can contribute to combating gender inequality, acting

as effective role models (Beaman et al., 2009; Porter and Serra, 2020), displaying a greater focus on the needs of other women (Pande, 2003; Chattopadhyay and Duflo, 2004; Langan, 2019), and promoting other women to senior positions (Matsa and Miller, 2011; Kunze and Miller, 2017).[9] Our results confirm these three elements by highlighting that promoting women to top positions benefits other women, at all levels of the organization, from CEO to low-earning positions.

Within the literature on gender board quota, our paper is also the first to demonstrate that quotas can be effective in reducing gender gaps at all levels in the workplace. Most studies investigating this question restrict their analysis to women in senior positions in listed firms and find no effect (Bertrand et al., 2019; Maida and Weber, 2022). Dalvit, Patel and Tan (2021) examines this question in the French context and find small positive effects for women in the upper echelons of companies ("professionals"). Our work complements these papers in two main ways. First, we look at different outcomes than most of them. Second, our empirical strategy harnesses non-targeted (i.e., non-treated) firms, which allows us to avoid utilizing a shift-share instrument whose exogeneity has been questioned (see, e.g., Eckbo, Nygaard and Thorburn, 2022).[10]

Finally, our article relates to the literature on board composition (Adams and Ferreira, 2009; Kramarz and Thesmar, 2013; Kim and Starks, 2016). Previous studies examining how it was affected by gender quotas focused on listed firms. Our new data allows us to explore an overlooked aspect, i.e., the reaction of unlisted firms. In France, where listed firms accounted for only a fraction of targeted firms, focusing solely on the former might bias conclusions. For example, Ferreira et al. (2021) show that women appointed post-quota are equally or more qualified than before the reform, and more likely to be foreign. Our results confirm this observation for listed firms, but highlight a lack of access to the pool of foreign candidates for unlisted firms. We are also able to investigate the question of family connections among board members. Chevrot-Bianco (2023) shows that Denmark's board quota led to an increase in nepotism, which could be partially explained by the fact that unlisted firms were also targeted. By contrast, we find that this concern is not substantiated in France.

Paper organization. The remainder of this paper is structured as follows. Section 1 describes the institutional context and law; Section 2 presents our data, the characteristics of the study sample,

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[9] Although increasing female representation might sometimes lead to negative reactions from male leaders (Bagues, Sylos-Labini and Zinovyeva, 2017).

[10] In addition to the change in empirical strategy, the difference between our results and those of Dalvit, Patel and Tan (2021) is due to several other factors: first, our data goes to 2021, and most of the effects we measure start to be significant after 2016, the year their analysis stops. Second, we study all relevant firms while they confine their analysis to some listed firms. Third, we take into account pyramidal ownership, which they do not, thereby failing to encompass the relevant firm scope. Finally, we mostly look at different outcomes.

as well as details on the computation of key variables; Section 3 focuses on how board composition was affected; Section 4 lays out our difference-in-differences strategy and its main results; Section 5 describes our instrumental variable strategy and its main results; Section 6 explores the potential channels; and Section 7 concludes.

1 Institutional context and the 2010 reform

1.1 Corporate governance in France

Types of firms: According to French law, a board can be established in only three types of corporate forms: *Sociétés par actions simplifiées* (SAS), in which having a board is optional, and *Sociétés Anonymes* (SA) and *Sociétés en Commandite par Actions* (SCA), which are required to have a board. Publicly listed firms are barred from operating under the SAS status. SCA firms have a two-tier board system in which the management and the supervision are entrusted in two distinct boards: a management board (*Directoire*) and a supervisory board (*Conseil de surveillance*). SAS firms choosing to have a board and SA firms can opt for the same two-tier board system or a one-tier board system in which the management is vested in a CEO and the supervision in a board of directors (*Conseil d'administration*). Throughout the paper, "board" will refer indistinctly to a board of directors or a supervisory board.

Firms with a board are a minority in France: in 2020, 25% of the firms had a corporate form compatible with establishing a board and only 1.1% had to establish a board (Table A1).

Role of the board: The responsibilities of a board are defined by law.[11] In the one-tier board system, the board is responsible for defining the overall strategy of the firm and overseeing its implementation. In the two-tier board system, the board's role is mainly supervisory. However, in both systems, boards have two fundamental prerogatives. First, they appoint the CEO and/or the members of the management board, and they can dismiss them *ad nutum* (at any moment). Second, they set the compensation for the CEO and the management board members. Therefore, even a supervisory could push for pro-women policies within the firm by selecting like-minded chief executives.

Interestingly, in the French context, Belot et al. (2014) show that CEO turnover is more sensitive to performance in firms with a supervisory board, indicating better monitoring. It is therefore unclear which of the one- or two-tier board structure more effectively empowers board members to exert their influence.

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[11]Articles L225-35, L225-37, L225-51, L225-59, L225-63, and L225-68 of the *Code of Commerce (CC)*.

Appointment and compensation of board members: New appointments are proposed by incumbent board members and must be ratified by shareholders at the yearly General Meeting. By law, the board size must range between three and eighteen members.[12] In a one-tier board system, the CEO and deputy CEOs can also sit on the board, which is not the case in a two-tier system. Similarly, board members' yearly compensation (*jetons de présence*) must be approved by shareholders.

A board member can be deemed "independent" upon satisfying certain criteria recommended by the MEDEF, the largest employer federation in France,[13] Independence is ultimately assessed in a discretionary fashion by the board itself. Independent board members are expected to be more impartial due to the absence of conflicts of interest and are thus perceived as favoring better governance (Masulis and Mobbs, 2011; Guo and Masulis, 2015), although they may also suffer from an informational deficit weakening their weight on the board (Cavaco et al., 2017).

1.2   The gender quota reform

Adoption of the law: Formally known as the *Loi 2011-103 du 27 janvier 2011*, the gender quota was proposed by the government in December 2009, with an initial focus on listed firms. The French government believed that female board members would be more likely to advocate for gender equality and that increasing the female board share would thus contribute to tackle gender gaps within firms.[14] The National Assembly voted a first version in January 2010, extending the law to non-listed firms and mandating that both genders should represent 40% of the board members by January 1, 2017. After minor revisions by the Senate, the law was officially passed in January 2011. In addition to the quota requirement, the law also requires board members to discuss gender equality issues during at least one board meeting per year.

Targeted firms: Conditional on having a board, two sets of firms were originally targeted: (i) every listed firm; (ii) any firm with (a) more than 500 employees and (b) more than €50 million in assets or turnover for three consecutive years. The law imposes that both men and women account for at least 20% of board members by January 1, 2014, and at least 40% by January 1, 2017. In 2014, the employee threshold was reduced to 250, and firms with more than 250 but fewer than 500 employees had until 2020 to meet the quota.

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[12]This upper bound can be raised to 24 for at most three years under certain conditions.

[13]Including not having a family link with one of the firm's executives, not being or representing a large shareholder, not being employed by the firm, etc.

[14]Explanatory Memorandum, *Loi 2011-103 du 27 janvier 2011*.

Enforcement: Non-compliant firms face board member payment suspension, refundable upon meeting the quota. However, the absence of a designated auditing agency and a centralized board composition database has made any monitoring attempt challenging.

Implementation of the quota: To assess the implementation of the quota, we present a snapshot of the representation of women on boards in 2020, three years after the 2017 deadline. 859,708 firms had a corporate form allowing for the establishment of a board, but only 54,994 (6.4%) had one, of which 93.2% had fewer than 50 employees.[15] Of the 3,745 remaining firms with more than 50 employees, 290 listed firms and 1,012 non-listed firms had to apply the quota.

One important institutional feature is that all listed firms are legally bound to issue Annual Reports that include the composition of their board[16]. These reports are publicly accessible which may create additional incentives for this group to comply with the quota law. Non-listed firms have no such requirements and typically do not report on their activity publicly. Therefore, it makes sense to distinguish between two groups among the targeted firms: listed firms and targeted non-listed firms.

Table A2 reports the female board share across these different groups of firms. In 2020, four years after the 2017 deadline, 77.3% of listed firms complied. For this group, we see a significant increase from 10% in 2009 to 41% in 2020. On the other hand, less than 30% of targeted non-listed firms complied and their average female board share is comparable to that of non-targeted firms: both groups have comparable female board shares of around 25%.[17]

2 Data and sample construction

2.1 Construction of the analysis sample

Two principles guided our sample selection. First, we select firms with more than 50 full-time equivalent employees from 2010 onward. The main reason is that 50 employees is a threshold used by two other French laws after 2010 and we want to make sure that the whole sample is subject to them. A 2010 law imposed yearly negotiations about gender equality.[18] A 2020 law requires these

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[15]We do not include them in our analysis, as discussed in Section 2.

[16]Article L451-1-2 of the Monetary and Financial Code and directives of the *Autorité des Marchés Financiers*, the French equivalent of the SEC.

[17]Interestingly, this is not explained by the fact that smaller firms that had to start applying the quota in 2020 were slower to react. Among firms that had been targeted since 2017, the average female board share of listed firms reached 43.4% in 2020 and that of targeted non-listed 27.5%.

[18]Coly (2022) analyzes the short-term implementation of this law, finding that most of the firms subject to it had complied by 2013, with no difference by firm size.

firms to publicly disclose a yearly measure of gender equality called "Index of Gender Equality."
Ranging from 0 (worst) to 100 (best), this index is a weighted average of different gender gap
measures.[19] A public database is updated every year. Our restriction thus allays concerns that some
effects might be driven by these laws rather than the quota.

Second, we restrict the main analysis to firms that (i) are observed every year and (ii) always
had a board from 2008 to 2021. This results in a balanced sample of 2,619 firms, i.e. 70% of
the unbalanced sample in 2020, and Table A3 shows that there are no significant differences in the
female board share between the two panels.[20]

2.2 Defining categories of firms

Firms could adopt strategic behavior to avoid being subject to the quota, such as de-listing or
remaining under the legal threshold to avoid meeting the quota requirements. Defining categories
of firms based on post-reform characteristics might thus lead to endogeneity issues.

Consequently, we base our selection on pre-reform (2009) characteristics. Indeed, the gov-
ernment chose the thresholds exogenously and with no intention to target firms that would inherently
be less women-friendly.[21] This choice is also supported by the fact that being targeted in 2009 is
highly correlated to being targeted in 2021: Table A4 shows that 94.3% of firms listed in 2009 and
95.1% of firms targeted but not listed in 2009 still meet the criteria for quota application in 2021.

Finally, this defines three categories of firms: (i) firms listed in 2009, (ii) firms non-listed
in 2009 but above the initial thresholds (500 employees and €50 in turnover/net assets), and (iii)
firms that would have been considered as non-targeted in 2009. Table 1 shows that our main sample
represents a substantial share of the French economy, both in terms of value-added, number of
employees, or gross revenues.

2.3 Data and main outcomes

Board composition: We rely on two main data sources to recover the board compositions for all
firms on our sample and over our period of interest: (i) the firms' Annual Reports when available
and (ii) the *Bulletin Officiel des Annonces Civiles et Commerciales* (BODACC).

Annual Reports contain detailed information about board members: start and end dates
for their appointment, gender, age, and educational background. It also contains information on

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[19]Mean wage gap, wage raise gap, promotion gap, fraction of women among top ten earners and number of pay rise upon
return from maternal leave.

[20]Our results are not altered by these restrictions.

[21]Nothing suggested a deliberate effort to target firms identified as less pro-women. Instead, focusing on the largest firms
made sense to maximize the impact of the law.

board members' payments as well as the committees' composition for our period of interest. This information is only available for listed firms but helps shed light on how this subset of firms implemented the quota.

Furthermore, we harnessed the legal requirement that compels both listed and non-listed firms to report board or top management (CEO and deputy-CEOs) changes to the local Commercial Court. At a minimum, they must document the first and last names of incoming or departing individuals, along with the event date. Data dating back to January 1, 2008 was made available by the government in 2020 and has been continuously updated since. However, information is scattered and no prior effort had been made to compile it. By tracking changes since January 1, 2008, and supplementing this with a database detailing the board compositions of all French firms in May 2017, we created the first comprehensive database spanning board and top management compositions of all French firms from 2008 to 2022. We infer gender using board members' names.

Employees level outcomes: To examine employees' outcomes, we use a full nationwide firm census: the *Déclarations Annuelles des Données Sociales* (DADS). It includes information on all employees' gender, salary, position title, number of hours worked, type of work contract, etc. This dataset is built out of the annual compulsory workforce declarations that all French firms must comply with and has thus an exhaustive coverage of private-sector firms. Each yearly dataset contains information about the previous year so that we know if a given employee in year n was employed in $n-1$ or left the firm between years $n-1$ and n. We take advantage of this feature to look at promotion rates.[22]

Furthermore, we have information on the type of jobs, which allows us to classify employees into different hierarchical layers.[23] Layer 1 is comprised of top managers, Layer 2 of professionals, Layers 3 and 4 include clerical workers while Layer 5 corresponds to production workers.

The datasets cover the years 1993 to 2021 from which we put together a firm-level panel using the unique firm identifier over our period of interest, namely 2006-2021.[24]

To assess how bringing more women to the board affected gender imbalances within the firm, we compute several gender gap indicators. For a given outcome Y, the gender gap g_{jt} in firm j and

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[22]We define promotion as a change in the job title which, using the INSEE definition, implies a move up along the hierarchical ladder.

[23]We use the first digit of the PCS classification.

[24]A caveat when using this administrative data is the numerous flaws the 2016 dataset suffers from. The main reason is that major changes in the data collection process were initiated that year. Instead of being applied to every firm at the same time, this change was phased-in. This leads to breaks in our time series and we therefore decided to exclude 2016 from our analysis.

year t, is estimated through the following equation:

$$Y_{ijt} = g_{0jt} + g_{jt} Male_{ijt} + \varepsilon_{ijt} \tag{1}$$

where Y_{ijt} is the outcome of interest for individual i working in firm j at year t; $Male_{ijt}$ is a dummy equals to one if the individual is a man. Therefore, an increase in g_{jt} is to be interpreted as a widening of the raw gender gap. To investigate effects across the wage distribution, we look at different measures of gender wage gaps: mean and median wage gaps and percentile wage gaps (10th, 25th, 75th and 90th).

Finally, we look at other indicators of gender inequality. First, those directly under the board remit: the gender of the CEO and the board chair, as well as the number of women among the top 10 earners and in Layer 1, which we use as two proxies for the C-suite. Second, outcomes that the board might well influence, i.e., the fraction of women among top 25% and 10% earners.

Defining the relevant unit of analysis: French firms are identified by a number called "SIREN," which defines a "legal unit," but this is not always the relevant level at which the analysis should be conducted. Pyramidal ownership is prevalent in France and large firms are often comprised of several "legal units". Failing to account for it can be misleading[25] and the French Bureau of Statistics (Insee) has thus been systematically keeping track of the ownership structure of French firms since 2017, identifying parent companies and their subsidiaries.

However, as we are interested in the effect of board composition, we consider any firm with a board as constituting a relevant unit of analysis, whether a subsidiary or not. Every remaining subsidiary without a board are then attributed to the parent company. The rationale is that subsidiaries with a board are fully-fledged firms whose capital is mostly owned by a parent company: the latter influences the outcomes of the former through the designation of some of the members of the former's board. Subsidiaries without a board are entities that would not be able to operate on their own (e.g., a factory) and whose outcomes are directly decided at the parent company level.

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[25]For instance, as reported in its Annual Report, the largest French insurance company, AXA, employed around 20,000 people in France in 2021 but the SIREN number of the parent company is that of a legal unit with less than 10 employees. Béguin and Hecque (2015) show that, in 2011, failing to account for pyramidal ownership led to a 50% underestimation of the number of firms with more than 5,000 employees.

3 How Were Boards Affected by the Reform?

We first observe that the implementation of the quota triggered a substantial change in the board composition of targeted firms, although listed and targeted non-listed firms reacted differently (Figure 1). While the average female board share of firms listed in 2009 almost quadrupled between 2009 and 2021 (from 11.6% to 42.6%), it only doubled in targeted non-listed firms (from 14.6% to 30.0% in 2021). Firms in the non-targeted group had the highest female board share in 2009 (19.5%) and modestly increased over the period to reach 24.8% in 2021. We also notice substantial differences in compliance across groups: while 80% of the firms listed in 2009 complied with the quota in 2021, only 40% of the targeted non-listed did, slightly below the share of non-targeted.

How did firms go about increasing their female board share? First, together with Table 2, Figure 2 shows that the differences in female board shares in 2009 were due to a difference in board size and not in the number of women on boards: listed firms had an average board size of 9.2 members while targeted non-listed and non-targeted firms had smaller boards, with an average size of 7.9 and 7.1 respectively. Figure 2 also shows that boards of listed firms reacted differently from the other two groups: They start substituting men by women in 2011, i.e., the year following the reform. By contrast, the number of men remains roughly constant in the other two groups until 2017, when it begins to decrease slightly. We also observe that, in 2021, the average number of women on the boards of targeted non-listed firms barely exceeds that of non-targeted firms.

Was this sudden influx of women the result of firms' tapping into a more diverse pool of candidates? The two characteristics we can observe in every firm are family links among board members and nationality.[26] Table 3 shows a contrasted picture. In listed firms, the significant gaps that exist in both characteristics prior to the reform vanish in the post-reform period. In targeted non-listed firms, we observe a significant decrease in the fraction of family-related female and male board members among post-reform appointees. The remaining post-reform gap, albeit significant, has halved compared to pre-reform. However, the share of foreign board members barely changes, whether among female or male board members. This pattern is close to what we observe for non-targeted firms. The latter still remain much more likely to hire family-related board members of both genders, and the gap along this dimension did not change.

These results suggest that listed firms managed to comply with the quota by largely expanding the pool of female candidates. The comparable evolution that we observe for men can be attributed to a change in the hiring technology, triggered by the quota but affecting both genders (Besley

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[26]In Appendix, we show additional data for Listed firms, for which we have additional information from Annual reports such as past professional experience, education or age. We also observe a closing of the gender gap along these additional characteristics.

et al., 2017; Ferreira et al., 2021). The evolution for targeted non-listed firm tends to indicate that it affected family-related hiring by reducing nepotism, in contrast with Denmark (Chevrot-Bianco, 2023). However, they might have been hindered in attracting foreign board members, thereby losing access to a crucial channel to increase their female board share.

What consequences can this have on our outcomes of interest? First, foreign and non-family-related board members are more likely to be independent and thus make their voices heard (Knyazeva, Knyazeva and Masulis, 2013; Guo and Masulis, 2015). Second, if foreign board members come from countries where awareness about gender issues is greater, they may be more likely to advocate for a reduction of gender gaps within the firm. Therefore, one may expect to detect some effects among listed firms.

4 Difference-in-Differences

4.1 Rationale

To evaluate the impact of bringing more women to the board, we first conduct a Difference-in-Differences analysis. The wide differences in implementation and compliance between listed firms on the one hand and targeted non-listed firms on the other justifies the choice of restricting our treated group to firms that were listed in 2009.

The most natural control group is comprised of non-targeted firms, i.e., those that did not meet the criteria for quota application in 2009. As they did not have to comply with the quota and their female board share underwent small changes over the period. However, one might be concerned by the fact that they are one average much smaller, both in terms of workforce size and revenues. To check the robustness of our results, we use the targeted non-listed firms as an additional control group.

The other firms are divided into two groups: The first one includes non-listed firms that nonetheless met the requirements for quota application as defined by the 2010 law, i.e. with fewer than 500 employees and/or less than €50M in turnover/net assets. The second one includes firms that did not meet these criteria in 2009. We comment on the results comparing the treated group to the other two groups combined, but we add the results of separate comparisons too.

4.2 Balance Checks

Table A5 compares firms in each group in the pre-reform year (2009). Treated firms are of comparable size, as measured by the average number of employees but the distribution appears more skewed among listed firms. The latter have average sales twice as large as the targeted non-

listed although median sales are lower. As expected, non-targeted firms are much smaller with a mean number of employees of 172 and slightly above €50M in sales on average.

Firms non-targeted in 2009 are significantly more likely to have a female chair or CEO than targeted firms (Table A6). Significant differences in levels are also observed for our outcomes of interest. Notably, hourly wage gaps among top earners are much smaller in targeted non-listed firms than in listed or non-targeted firms. Mean and median hourly wage gaps are also the smallest in targeted non-listed firms and the highest in listed firms.

Once we include our controls (see Equation 2), these differences subside: notably, there is no longer any significant difference between listed firms and non-targeted firms.

Interestingly, these facts have never been mentioned in the debates leading to the vote of the quota in 2010. The members of Parliament extended the quota to non-listed firms in 2010, and then to firms with more than 250 employees in 2014, in an attempt to maximize its impact.

4.3 Specification

We estimate the following DiD specification:

$$Y_{j,t} = \alpha + \gamma_j + \lambda_t + \sum_{\tau \neq 2009} \delta_\tau L_{j\tau} + X_{j,t} + \epsilon_{j,t} \quad t \geq 2006 \tag{2}$$

where γ_j and λ_t are firm and year fixed effects; $L_{j\tau,k}$ are dummy variables with $L_{j\tau} = 1_{\{\tau=t\}} \times 1_{\{j \text{ is listed in 2009}\}}$; $X_{j,t}$ is a set of firm-specific, time-varying controls to ensure that our results are not driven by composition effects. To account for human capital composition, we control for the fraction of employees in each layer (see Section 2). Notice that we do not include gendered controls purposely (e.g., the fraction of women in each layer), as they are also outcomes that we look at to understand the dynamics triggered by the quota.

The parameters of interest are δ_τ. They capture the differential change in outcomes for firms in each of the treatment groups compared to the untreated firms. The underlying assumption for identifying a causal effect is the classical parallel trend assumption, i.e., treated and untreated firms were not on different time trends prior to the reform. We provide supportive evidence of this assumption's validity by examining δ_τ for $\tau \in \{2006, 2007, 2008\}$ for all our outcomes of interest.

Our main results compare firms listed in 2009 with firms that were not-targeted in 2009. We also report Specification 2 with a control group comprised of firms targeted but not listed in 2009.

4.4 Results

For a start, we observe that there is no pre-trends in our outcomes.

Among firms listed in 2009, we first find that women at the top benefit from the quota. We observe a significant increase in the probability that the CEO is a woman (Figure 3), although not in the probability to have a female board chair (Figure 4), and a significant increase in in the fraction of women in Layer 1 (Fig. 5). A similar evolution is observed in the proportion of women among the top 25% and 10% earners, which respectively increase by 1.3pp (p-value = 0.007) and 1.5pp (p-value = 0.018) in 2021 (Fig. 6 and 7). The number of women among the ten highest earners increases by 0.25 (p-value = 0.017).

We also detect a significant decrease in the 75th percentile gender wage gap, which drops by 6.2pp (p-value = 0.003) in 2021. We also observe an imprecisely estimated decrease in the 90th percentile wage gap by 4.5pp (p-value = 0.24) in 2021.

We find evidence that women at the left tail of the wage distribution also benefit from the quota. First, we observe a significant decrease in the mean and median wage gap over time (Fig. 13 and 14): they respectively decline by 4.6pp (p-value = 0.00) and 2.4pp (p-value = 0.060). Besides, although more imprecisely estimated, the evolution of 10th and 25th percentile wage gaps suggest that they diminished over time. The former significantly drops by 3pp (p-value = 0.009) in 2021.

Results obtained when comparing listed firms and targeted non-listed firms are similar. How can we make sense of the differences between the two targeted groups? First, it might be due to a threshold effect: Figure 1 shows that the average female board share of targeted non-listed firms only became significantly larger than that of the non-targeted firms in 2019. Furthermore, changes for listed firms become significant after their female board share exceeded 30%, a threshold that the targeted non-listed barely reached in 2021. We talk in Section 3 about the large gap in terms of the *number* of women on boards: on average, listed firms have almost twice as many female board members than targeted non-listed firms in 2021. The number of female board members in the latter is much closer to that of non-targeted firms.

It might also be due to the fact targeted non-listed firms started to react very late: The number of female board members started to take off around 2016 only. As effects take time to materialize, we might also lack sufficient perspective to pin them down within this group.

5   IV Strategy

The analysis carried out in Section 4 shows that significant changes occurred in firms that experienced the largest increase in their female board share. To obtain more policy-relevant estimates, we employ an IV strategy, of which the DiD in Section 4 is the reduced form.

5.1 Main IV Specification

We estimate the following:

$$Y_{j,t} = \alpha + \beta_1 FBS_{j,t} + \gamma_j + \lambda_t + X_{j,t} + \varepsilon_{j,t}, \quad t \geq 2009 \tag{3}$$

where $Y_{j,t}$ denotes our outcome of interest for firm j in year t; $FBS_{j,t}$ the share of women sitting on firm j's board in year t; γ_j denotes the firm fixed effect that controls for any observed or unobserved firm characteristics that are constant over time that may affect a firm's outcome; λ_t is a time fixed effect for the year t that controls for any aggregate fluctuations. $X_{j,t}$ is the same set of controls used for DiD (see Equation 2).

We instrument $FBS_{j,t}$ with Listed$_{j,2009} \times 1_{\{\tau=t\}}$, i.e. dummy equal to one if a firm was listed in 2009 interacted with year dummies. The rationale is that firms listed in 2009 are more likely to have to apply the quota in the future, and thus to increase their female board share. Furthermore, as the criteria were exogenously set by the government for reasons that had nothing to do with being pro-women or not, the exclusion restriction is likely to be satisfied in our context. Finally, our DiD results showed that firms in either groups were not on significantly different trends with respect to the outcomes of interest.

In addition to our main results on the whole sample, we present robustness checks in Appendix Tables A10 and A11, where we run the same specification on two different subsamples. First, we restrict our analysis to firms that were targeted in 2009. This should control for the fact that the targeted firms might have felt additional pressure than the others to tackle their gender imbalances beyond adjusting their board compositions. In addition, the firms listed in 2009 and the firms targeted in 2009 but not listed are comparable in terms of size and revenues. Second, we exclude firms that were targeted in 2009 but were not listed. Balance checks show that, once our controls are included, there is no significant difference in most of our outcomes of interest between nontargeted firms and firms listed in 2009. However, the former are smaller than the latter in terms of revenues or workforce size.

Table A9 shows that our instrument is relevant, whether on the whole sample (Column 1) or on the restricted samples (Columns 2 and 3).

5.2 Results

We first check whether a change in the female board share led to a change in the way boards exercise their exclusive prerogatives, i.e., the selection of the CEOs and top executives. If this is the case, this will warrant our investigation into whether boards will also influence broader firm policies.

Table 6 shows that an increase by 30pp of the female board share (i.e., the average increase in listed firms) leads to a significant increase by 4pp in the probability that the CEO is a woman and 0.18 in the number of women among the top 10 earners (our proxy for the C-suite), which is an increase by 10% relative to 2009.[27] This is evidence that promoting gender diversity on boards leads to a change in their decision-making.

We now evaluate how the women at the top benefited from the quota (Table 7). Our results indicate that an increase by 30pp in the female board share leads to a significant increase of the fraction of women among the top 25% and top 10% earners by 1pp and 1.7pp respectively. In addition, the 75th percentile wage gap is reduced by 6pp (-17% relative to the 2009 level). Although imprecisely estimated, the 90th percentile wage gap is also diminished by 5.3pp (-11% relative to 2009).

Regarding the effect of the quota on the rest of the firm, Table 8 reveals that a 30pp increase in the FBS shrinks the mean and median hourly wage gap by 5pp and 3pp respectively. Compared to their 2009 levels, this is equivalent to a decrease of 25% and 20% respectively. Finally, the wage gaps in the 10th and 25th percentiles are reduced by 2.3pp and 1.8pp, corresponding to a decline of 20.5% and 12.3% relative to 2009.

5.3 Threat to the exclusion restriction

Due to the spotlight effect or shareholder activism, listed firms may have faced greater incentives to reduce gender gaps, irrespective of their female board shares. This would be a concern only if these incentives became stronger after 2010.[28] To provide suggestive evidence that listed firms were not specifically more concerned about appearing as woman-friendly, we look at the "Index of Gender Equality". Since March 2020, this index must be reported every year by any firm with more than 50 employees. It is computed as a weighted average of the following indicators: pay gap within the firm, pay gap within the top 10 earners, pay rise gap, promotion gap, and number of female employees experiencing a pay rise upon returning from maternity leave. Results are then compiled and made publicly available on a government website.

Therefore, every firm has theoretically the same incentive to comply and strive to get an index as high as possible. If listed firms were on average more concerned by negative publicity about

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[27]The coefficients in Tables 6, 7 and 8 should be interpreted as the effect of increasing the female board share by 1pp. We multiply these coefficients by 30 to discuss how the quota affected the average firm (which increased its female board share by 30pp on average, see Section 3).

[28]For instance, Gormley et al. (2023) underscore the instrumental role of the three major US asset managers in raising female board share of American firms after 2016. However, this occurred after they launched a campaign to promote gender diversity on boards. No such thing happened in France during our period of interest.

gender imbalances than the unlisted ones, we should find that they complied more on average and their average index should be higher.

Columns 1 and 2 of Table 9 show heterogeneity in the disclosure of the index. Half of the firms did not report their index, with no difference between the listed firms and the others (Column 1). Interestingly, the probability of complying with the index is also not correlated with the female board share. This suggests that the fact that they were subject to the quota and under public scrutiny did not prompt listed firms to appear as more women-friendly or more committed towards women-friendly policies. Columns 3 and 4 show that being listed or not has little influence on the value of the index. However, a higher female board share is associated with a significantly higher index, which is expected.

Restricting the analysis to listed firms, we observe that the probability of disclosing the Index is not predicted by quota compliance in 2021 (Column 1 of Table 10). Surprisingly, the female board share in 2021 is negatively correlated with the probability of disclosure (Column 2). Among listed firms that comply with the index law, coefficients suggest that a higher female board share leads to a higher index value but it is not precisely estimated, due to a lack of power.

Taken together, these results suggest that the board quota was not, in and of itself, a trigger for listed firms to appear or implement more women-friendly policies. Importantly, however, among firms complying with the disclosure of the index, the female board share is positively associated with the index value, thereby bolstering the claim that changes occur through the change in the board gender composition. This discrepancy may be explained by the fact that the female board share is a metric that can be much more easily communicated upon than an Index which is hard to interpret. It also suggests that listed firms were not under particularly more acute pressure to appear as more pro-women in the public eye.[29]

6   Channels

To make sense of our results, we explore the channels through which this reduction in gender gaps might have occurred.

Incumbent vs. newly hired workers.   We first seek to understand whether the increase of the fraction of women in the C-suite is the result of internal promotions or external hiring. As explained in Section 2, we construct layers using the first digit of Insee's PCS code. For example, Layer 1 is

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[29]Gormley et al. (2023) lend support to the notion that if major shareholders want changes to happen, it is much easier to do it by influencing the composition of the board.

comprised of all employees with a PCS starting by 2, which identifies the top managers. We run Equation 3 on two sets of outcomes: (i) the fraction of women among the employees promoted to Layer 1 (top managers) and Layer 2 (professionals), and (ii) the fraction of women among newly hired in these same layers. The estimates are presented in Tables 11 and 12. Coefficients are imprecisely estimated for the most part: This is due to the fact that not all firms promote people every year to every layer and so the estimation is done on a reduced number of observations. However, they point to interesting patterns: They suggest that the increase in the female share in the C-suite comes from an increase in the share of women among newly hired in the C-suite (column 1 of Table 12) while the fraction of women among employees promoted to the C-suite is slightly negative (column 1 of Table 11). By contrast, nothing seems to change for employees in Layer 2: effects on the proportion of women among promoted or newly hired are very close to zero.

Table 15 supports the conclusion that changes in the representation of women occur along the hiring margin. This table reports the fraction of women among newly hired who fall into a certain percentile of earnings. Coefficients are imprecisely estimated but indicate that a higher female board share results in fewer women being hired among low earners (in the 10th, 25th and 50th percentiles), while more are hired among high earners (in the 75th and 90th percentiles).

We then explore whether changes in hourly wage gaps were driven by newly hired or incumbent workers. Tables 13 and 14 both new and incumbent employees benefit from an increase in the female board share. Although imprecisely estimated, the coefficients in Table 13 suggest a sizable reduction in the hourly wage gap among newly hired workers in the wage distribution. However, its magnitude is lower than the reduction observed among incumbent employees. The latter is consistent with our main results, although the decrease in the median wage gap is now imprecisely estimated while the decrease in the 90th percentile wage gap becomes significant at the 10% level.

Taken together, these results suggest that the reduction in gender wage gaps occurred both on the extensive and intensive margins. However, the increase in the representation of women in the C-suite is driven by firms' higher propensity to seek external candidates rather than internally promoting women.

Governance structure. We now look at whether the governance structure (one-tier vs. two-tier board system) might play a role. Figure A16 shows that 25% of the firms listed in 2009 had a two-tier structure in 2009 vs. 20% of the targeted non-listed and 18% of the non-targeted. However, the share of firms with a supervisory board started declining as early as 2008 and the trend is not subsequently altered.

Whether we should expect to detect any difference between the two structures is a priori

unclear. Although there is a distinction between the two regarding the involvement of the board in the strategy of the firm, the board has the same powers with respect to top executives in both structures. As board members do not partake in the firm's day-to-day management, the most intuitive channel through which they could induce changes in firm policies is by selecting new, like-minded executives or pressuring incumbent ones. In this respect, research has found contradictory findings: Jäger, Schoefer and Heining (2021) suggest that supervisory boards might exert limited clout on firm policies while Belot et al. (2014) show that, in France, supervisory boards are more inclined to hold CEOs accountable and to fire them in case of under-performance.

To explore potential heterogeneous impacts based on board governance structure, we estimate the following:

$$Y_{j,t} = \alpha + \beta_1 FBS_{j,t} + \beta_2 FBS_{j,t} \times \text{Supervisory} + \gamma_j + \lambda_t + X_{j,t} + \varepsilon_{j,t}, \quad t \geq 2009 \tag{4}$$

where notations are the same as in Equation 3 and Supervisory is a dummy equal to one if a firm has always operated under a two-tier (i.e., supervisory) board structure. We instrument FBS by being listed in 2009 and $FBS \times$ Supervisory by being listed in 2009 interacted with always operating under a supervisory board structure.

Results are presented in Tables A12 and A13, where we do not detect any significant difference between the two board structures.

7 Concluding Remarks

In this paper, we provide the first evidence that a gender board quota can be effective in reducing gender inequalities within firms. We show that an increase in the female board share reduces the gender wage gap across the wage distribution, which seems to be driven by a reduction in the hourly wage gaps for both newly hired and incumbent workers. Furthermore, the probability of having a female CEO and more women in the C-suite and among top earners rises. We find evidence that the larger representation of women among top executives and top earners is driven by external hires rather than internal promotions.

This paper also documents an important fact in terms of policy implementation. The quota targeted listed and large unlisted firms, but only the former complied. This is due to the absence of sanctions in case of non-compliance and challenges in tracking the exact composition of boards for unlisted firms while listed firms have to disclose it publicly. A comparison with Norway is instructive: after observing that listed firms did not react to the quota, the Norwegian government threatened non-compliant firms with a forced de-listing. Although arguably a harsh sanction, one-

third of the Norwegian listed companies did not comply with the quota in 2009 (Bertrand et al., 2019), which is more than in France, where there are no sanctions. A promising avenue for future research would be to investigate how the mere fact of having to disclose information can prompt compliance.

This partial compliance among unlisted firms also implies a limitation in the generalizability of our results. Since only listed firms complied, our conclusions are drawn from this subset of firms only. However, the positive effects documented in this paper suggest that, if well enforced, gender quotas help reduce gender gaps within firms.

Finally, albeit sizable, the changes that we measure cannot suffice to close the gender gaps, whether in terms of representation or gender wage differences. Gender board quotas appear undeniably useful but cannot constitute the be-all and end-all of gender policy.

References

Adams, Renee, and Daniel Ferreira. 2009. "Women in the boardroom and their impact on governance and performance." *Journal of Financial Economics*, 94(2): 291–309.

Ahern, Kenneth, and Amy K. Dittmar. 2012. "The Changing of the Boards: The Impact on Firm Valuation of Mandated Female Board Representation." *The Quarterly Journal of Economics*, 127(1): 137–197.

Athey, Susan, Christopher Avery, and Peter Zemsky. 2000. "Mentoring and diversity." *American Economic Review*, 90(4): 765–786.

Bagues, Manuel, Mauro Sylos-Labini, and Natalia Zinovyeva. 2017. "Does the gender composition of scientific committees matter?" *American Economic Review*, 107(4): 1207–38.

Beaman, Lori, Raghabendra Chattopadhyay, Esther Duflo, Rohini Pande, and Petia Topalova. 2009. "Powerful women: does exposure reduce bias?" *The Quarterly journal of economics*, 124(4): 1497–1540.

Belot, François, Edith Ginglinger, Myron B Slovin, and Marie E Sushka. 2014. "Freedom of choice between unitary and two-tier boards: An empirical analysis." *Journal of Financial Economics*, 112(3): 364–385.

Bertrand, Marianne, Sandra E Black, Sissel Jensen, and Adriana Lleras-Muney. 2019. "Breaking the glass ceiling? The effect of board quotas on female labour market outcomes in Norway." *The Review of Economic Studies*, 86(1): 191–239.

Besley, Timothy, Olle Folke, Torsten Persson, and Johanna Rickne. 2017. "Gender quotas and the crisis of the mediocre man: Theory and evidence from Sweden." *American economic review*, 107(8): 2204–2242.

Biasi, Barbara, and Heather Sarsons. 2022. "Flexible wages, bargaining, and the gender gap." *The Quarterly Journal of Economics*, 137(1): 215–266.

Béguin, Jean-Marc, and Vincent Hecque. 2015. "Avec la définition économique des entreprises, une meilleure vision du tissu productif." *INSEE Références*, 27–38.

Cavaco, Sandra, Patricia Crifo, Antoine Rebérioux, and Gwenael Roudaut. 2017. "Independent directors: Less informed but better selected than affiliated board members?" *Journal of Corporate Finance*, 43: 106–121.

Chattopadhyay, Raghabendra, and Esther Duflo. 2004. "Women as policy makers: Evidence from a randomized policy experiment in India." *Econometrica*, 72(5): 1409–1443.

Chevrot-Bianco, Esther. 2023. "It only takes a strong tie: Board gender quotas and network-based hiring."

Coly, Caroline. 2022. "Reducing the gender pay gap: can we let firms take action?"

Comi, Simona, Mara Grasseni, Federica Origo, and Laura Pagani. 2020. "Where women make a difference: gender quotas and firms' performance in three European countries." *ILR Review*, 73(3): 768–793.

Dalvit, Nicolò, Aseem Patel, and Joanne Tan. 2021. "Intra-firm hierarchies and gender gaps." *Labour Economics*, 102029.

Demb, Ada, and F. Neubauer. 1992. *The Corporate Board: Confronting the Paradoxes.* Vol. 26.

Eckbo, B Espen, Knut Nygaard, and Karin S Thorburn. 2022. "Valuation effects of Norway's board gender-quota law revisited." *Management Science*, 68(6): 4112–4134.

Edmans, A, X. Gabaix, and D Jenter. 2017. "Executive Compensation: A Survey of Theory and Evidence." *Handbook of the Economics of Corporate Governance, Chapter 9*, 383–539.

Ferreira, Daniel, Edith Ginglinger, Marie-Aude Laguna, and Yasmine Skalli. 2021. "Closing the Gap: Board Gender Quotas and Hiring Practices." *ECGI-Finance Working Paper*, , (520).

Goldin, Claudia. 2014. "A grand gender convergence: Its last chapter." *American economic review*, 104(4): 1091–1119.

Goldin, Claudia, and Cecilia Rouse. 2000. "Orchestrating impartiality: The impact of "blind" auditions on female musicians." *American economic review*, 90(4): 715–741.

Gormley, Todd A, Vishal K Gupta, David A Matsa, Sandra C Mortal, and Lukai Yang. 2023. "The big three and board gender diversity: The effectiveness of shareholder voice." *Journal of Financial Economics*, 149(2): 323–348.

Green, Colin P, and Swarnodeep Homroy. 2018. "Female directors, board committees and firm performance." *European Economic Review*, 102: 19–38.

Guo, Lixiong, and Ronald W. Masulis. 2015. "Board Structure and Monitoring: New Evidence from CEO Turnovers." *Review of Financial Studies*, 28(10): 2770–2811.

Hermalin, Benjamin. 2005. "Trends in Corporate Governance." *Journal of Finance*, 60(5): 2351–2384.

Jenter, Dirk, and Fadi Kanaan. 2015. "CEO Turnover and Relative Performance Evaluation." *Journal of Finance*, 70(5): 2155–2184.

Jäger, Simon, Benjamin Schoefer, and Jörg Heining. 2021. "Labor in the Boardroom." *The Quarterly Journal of Economics*, 136(2): 669–725.

Kim, Daehyun, and Laura T Starks. 2016. "Gender diversity on corporate boards: Do women contribute unique skills?" *American Economic Review*, 106(5): 267–271.

Kleven, Henrik, Camille Landais, and Jakob Egholt Søgaard. 2019. "Children and gender inequality: Evidence from Denmark." *American Economic Journal: Applied Economics*, 11(4): 181–209.

Knyazeva, Anzhela, Diana Knyazeva, and Ronald W. Masulis. 2013. "The Supply of Corporate Directors and Board Independence." *Review of Financial Studies*, 26(6): 1561–1605.

Kramarz, Francis, and David Thesmar. 2013. "Social networks in the boardroom." *Journal of the European Economic Association*, 11(4): 780–807.

Kunze, Astrid, and Amalia R Miller. 2017. "Women helping women? Evidence from private sector data on workplace hierarchies." *Review of Economics and Statistics*, 99(5): 769–775.

Langan, Andrew. 2019. "Female managers and gender disparities: The case of academic department chairs." *Job Market Paper*.

Maghin, Helene. 2022. "Cracks in the Boards: The Opportunity Cost of Governance Homogeneity." CESifo CESifo Working Paper Series 9816.

Maida, Agata, and Andrea Weber. 2022. "Female leadership and gender gap within firms: Evidence from an Italian board reform." *Ilr Review*, 75(2): 488–515.

Masulis, Ronald W, and Shawn Mobbs. 2011. "Are all inside directors the same? Evidence from the external directorship market." *the Journal of Finance*, 66(3): 823–872.

Matsa, David A, and Amalia R Miller. 2011. "Chipping away at the glass ceiling: Gender spillovers in corporate leadership." *American Economic Review*, 101(3): 635–639.

Matsa, David A, and Amalia R Miller. 2013. "A female style in corporate leadership? Evidence from quotas." *American Economic Journal: Applied Economics*, 5(3): 136–169.

OECD. 2021. *The Role of Firms in Wage Inequality.*

OECD. 2022. "Same Skills, Different Pay." 2.

OECD. 2023. *Joining Forces for Gender Equality.*

Pande, Rohini. 2003. "Can mandated political representation increase policy influence for disadvantaged minorities? Theory and evidence from India." *American economic review*, 93(4): 1132–1151.

Porter, Catherine, and Danila Serra. 2020. "Gender differences in the choice of major: The importance of female role models." *American Economic Journal: Applied Economics*, 12(3): 226–254.

Schwartz-Ziv, Miriam, and Michael Weisbach. 2013. "What do boards really do? Evidence from minutes of board meetings." *Journal of Financial Economics*, 108(2): 349–366.

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8.1 Data and sample construction

Table 1: Sample in the French Economy in 2009 & 2020

	2009			2020		
	Targeted in 2009		Non-Targeted in 2009	Targeted in 2009		Non-Targeted in 2009
	Listed in 2009	Non-Listed in 2009		Listed in 2009	Non-Listed in 2009	
Employees	925,192	1,114,997	348,024	1,073,342	1,001,887	420,392
% of France's	*7.5%*	*9.0%*	*2.8%*	*7.9%*	*7.4%*	*3.1%*
Sales (€M)	344,115	253,593	110,620	490,295	289,878	166,305
% of France's	*10.1%*	*7.4%*	*3.2%*	*11.8%*	*6.9%*	*4%*
Value Added (€M)	190,950	144,252	55,054	277,573	164,820	78,461
% of France's	*10.6%*	*8%*	*3.1%*	*12.5%*	*7.4%*	*3.5%*
# Firms	248	344	2,027	248	344	2,027

Table 2: Evolution of Board Size Between 2009 and 2021

	2009 Mean	2021 Mean	Difference	Obs.
Listed (L)	9.15	10.14	0.991***	248
			(0.359)	
Targeted non-listed (TNL)	7.91	8.31	0.400	344
			(0.424)	
Non-targeted (NT)	7.13	7.34	0.208	2,027
			(0.176)	
	Diff.	Diff.		
L vs. TNL	1.237***	1.828***		592
	(0.401)	(0.426)		
L vs. NT	2.022***	2.805***		2,275
	(0.356)	(0.379)		
TNL vs. NT	0.784**	0.976***		2,371
	(0.315)	(0.339)		

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Comparison of Board Members Characteristics Pre vs. Post Reform

	Appointed before 31/12/2009			Appointed after 01/01/2011		
	Women	Men	Diff.	Women	Men	Diff.
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Family link to another board member						
Listed	0.32	0.17	0.155***	0.11	0.09	0.025
	[0.44]	[0.24]	(0.0369)	[0.21]	[0.18]	(0.0177)
Targeted Non-Listed	0.29	0.17	0.113***	0.13	0.08	0.052**
	[0.44]	[0.31]	(0.0352)	[0.31]	[0.23]	(0.0225)
Non-Targeted	0.38	0.32	0.066***	0.28	0.22	0.064***
	[0.44]	[0.37]	(0.0147)	[0.38]	[0.32]	(0.0129)
Panel B: Foreign Board Members						
Listed	0.07	0.11	-0.039**	0.15	0.16	-0.01
	[0.22]	[0.16]	(0.0205)	[0.22]	[0.23]	(0.0177)
Targeted Non-Listed	0.06	0.07	-0.007	0.08	0.09	-0.016
	[0.22]	[0.17]	(0.0181)	[0.19]	[0.19]	(0.0158)
Non-Targeted	0.06	0.06	-0.009	0.07	0.09	-0.0153*
	[0.21]	[0.37]	(0.0070)	[22]	[0.21]	(0.0078)

Note: Observations are at the board × gender level. Columns 1 and 2 show the average values of characteristics for board members appointed before or on December 31, 2009 included. Columns 4–5 show the same for those appointed after January 1, 2011 included. Standard deviations are in brackets. Robust standard errors are in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

8.2 Difference-in-Differences

Table 4: Exposure to Actual Treatment

	Probability of Being Targeted in ...	
	2017	2020
	(1)	(2)
Targeted$_{2009}$	0.89***	0.77***
	(0.011)	(0.012)
Constant	0.04***	0.18***
	(0.004)	(0.009)
N	2,619	2,619

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. This Table reports the estimates of the following linear regression: $\mathbf{1}[j$ targeted in $y] = \alpha + \beta \mathbf{1}[j$ targeted in 2009$] + \varepsilon_j$ for $y \in \{2017, 2020\}$ and firm j.

Table 5: Are Higher FBS Indicative of Pro-Women Firms?

	Female CEO	Female Chair	N Women Among Top 10 Earners	% Women in Layer 1	% Women Among Top .. Earners		Hourly Wage Gap		Percentile Wage Gaps	
					25%	10%	Mean	Median	75th	90th
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
FBS$_{2009}$										
Listed in 2009	0.109	0.267**	1.16**	0.211***	0.127**	0.172***	-0.307***	-0.171*	-0.318**	-0.681***
	(0.079)	(0.135)	(0.567)	(0.095)	(0.064)	(0.058)	(0.100)	(0.094)	(0.155)	(0.228)
Targeted non-listed in 2009	0.308***	0.469***	1.29**	0.229***	0.129*	0.122*	0.020	0.-0.007	0.113	0.118
	(0.010)	(0.104)	(0.513)	(0.083)	(0.074)	(0.070)	(0.058)	(0.060)	(0.089)	(0.102)
Non-targeted in 2009	0.223***	0.470***	0.901***	0.192***	0.060***	0.073***	-0.194***	-0.075***	-0.205***	-0.426***
	(0.032)	(0.038)	(0.235)	(0.026)	(0.025)	(0.024)	(0.040)	(0.028)	(0.051)	(0.099)

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. This Table reports the estimates of the following linear regression: $Y_{j,2009} = \alpha + \beta FBS_{2009} + \lambda_t + \varepsilon_j$ for firm j. In Columns 1 and 2, the female board share is computed without the CEO or the Chair to avoid spurious correlations.

8.3 IV Strategy

Table 6: IV Estimates - Board Exclusive Prerogatives

	Female CEO	Female Chair	Women among top 10 Earners	% Women in Layer 1
	(1)	(2)	(3)	(4)
FBS	0.133*	-0.001	0.617*	0.127**
	(0.0696)	(0.0712)	(0.362)	(0.0591)
Mean Listed 2009	0.0320	0.600	1.034	0.0810
Mean Non-Listed 2009	0.0890	0.101	1.830	0.0800
Observations	34,047	34,047	31,428	31,428

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.. The FBS in Colums 1 and 2 is computed excluding the CEO or the Chair to avoid spurious correlations. 2016 is not excluded from the analysis for Columns 1 and 2.

Table 7: IV Estimates - Outcomes at the Top

	% Women Among Top .. Earners		Percentile Wage Gaps	
	25%	10%	75th	90th
	(1)	(2)	(3)	(4)
FBS	0.0394**	0.0593***	-0.209***	-0.171
	(0.0180)	(0.0226)	(0.0792)	(0.121)
Mean Listed 2009	0.248	0.194	0.348	0.502
Mean Non-Listed 2009	0.266	0.217	0.233	0.381
Observations	31,428	31,428	31,428	31,428

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

Table 8: IV Estimates - Outcomes at the Bottom

	Mean Wage Gap	Percentile Wage Gaps		
		10th	25th	50th
	(1)	(2)	(3)	(4)
FBS	-0.167***	-0.0826**	-0.0569	-0.103**
	(0.0485)	(0.0354)	(0.0349)	(0.0461)
Mean Listed 2009	0.299	0.112	0.143	0.228
Mean Non-Listed 2009	0.197	0.0700	0.0880	0.138
Observations	31,428	31,428	31,428	31,428

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

Table 9: Compliance with Gender Equality Index Law in 2021

	Index Disclosure		Index Value	
	(1)	(2)	(3)	(4)
Listed in 2009	-0.003	-0.012	-0.513	-1.40
	(0.033)	(0.034)	(0.868)	(0.898)
FBS_{2021}		0.055		5.91***
		(0.0.49)		(1.57)
Constant	0.523***	0.509***	86.27***	84.73***
	(0.010)	(0.016)	(0.280)	(0.506)
N	2,619	2,619	1,369	1,369

Note: Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 10: Gender Equality Index Law in 2021 - Listed Firms Only

	Index Disclosure		Index Value	
	(1)	(2)	(3)	(4)
Quota Compliance	-0.071		1.28	
	(0.070)		(1.65)	
FBS_{2021}		-0.749***		10.94
		(0.278)		(8.07)
Constant	0.571***	0.839***	84.88***	81.25***
	(0.059)	(0.120)	(1.27)	(3.56)
N	248	248	129	129

Note: Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Quota Compliance is a dummy equal to one if a firm complied with the gender board quota in 2021. FBS_{2021} is the female board share in 2021.

8.4 Mechanisms

Table 11: IV Estimates - Promotions

	To Layer 1	To Layer 2
FBS	-0.0557	0.00649
	(0.123)	(0.0596)
Mean Listed 2009	0.174	0.397
Mean Non-Listed 2009	0.186	0.377
Observations	4,646	21,089

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

Table 12: IV Estimates - Hires

	% of Women Hired in Layer	
	1	2
	(1)	(2)
FBS	0.153	-0.00100
	(0.128)	(0.0412)
Mean Listed 2009	0.117	0.341
Mean Non-Listed 2009	0.134	0.326
Observations	3,909	24,543

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

Table 13: Hourly Wage Gaps Among Newly Hired

	Mean Hourly Wage Gap	Percentile Wage Gap				
		10th	25th	50th	75th	90th
	(1)	(2)	(3)	(4)	(5)	(6)
FBS	-0.0836	-0.0619	-0.0532	-0.0928	-0.0401	-0.196
	(0.0767)	(0.0645)	(0.0656)	(0.0725)	(0.116)	(0.177)
Mean Listed 2009	0.274	0.0880	0.137	0.214	0.289	0.539
Mean Non-Listed 2009	0.185	0.0580	0.0900	0.137	0.238	0.398
Observations	29,418	29,418	29,418	29,418	29,418	29,418

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

Table 14: IV Estimates - Hourly Wage Gaps Among Incumbent

	Mean Hourly Wage Gap	Percentile Wage Gap				
		10th	25th	50th	75th	90th
	(1)	(2)	(3)	(4)	(5)	(6)
FBS	-0.204***	-0.0849**	-0.0582	-0.0909	-0.267***	-0.281*
	(0.0566)	(0.0349)	(0.0391)	(0.0556)	(0.0959)	(0.146)
Mean Listed 2009	0.323	0.115	0.156	0.237	0.381	0.546
Mean Non-Listed 2009	0.215	0.0720	0.0960	0.153	0.261	0.412
Observations	31,392	31,392	31,392	31,392	31,392	31,392

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

Table 15: IV Estimates - Fraction of Women Among Newly Hired by Earnings Percentile

| | % of Women Among Newly Hired Falling into the... Percentile | | | | |
	10th	25th	50th	75th	90th
FBS	-0.0503	-0.0306	-0.0193	0.0199	0.119
	(0.0353)	(0.0297)	(0.0275)	(0.0548)	(0.0736)
Mean Listed 2009	0.480	0.462	0.452	0.246	0.198
Mean Non-Listed 2009	0.430	0.425	0.418	0.276	0.238
Observations	31,185	31,263	31,300	20,084	13,700

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.
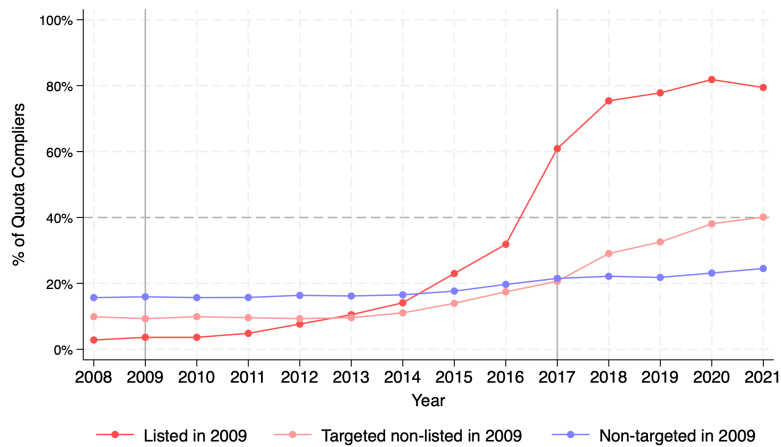
9 Figures

9.1 How Were Boards Affected by the Reform?

Figure 1: Quota Implementation by Group of Firms

(a) Female Board Share Evolution
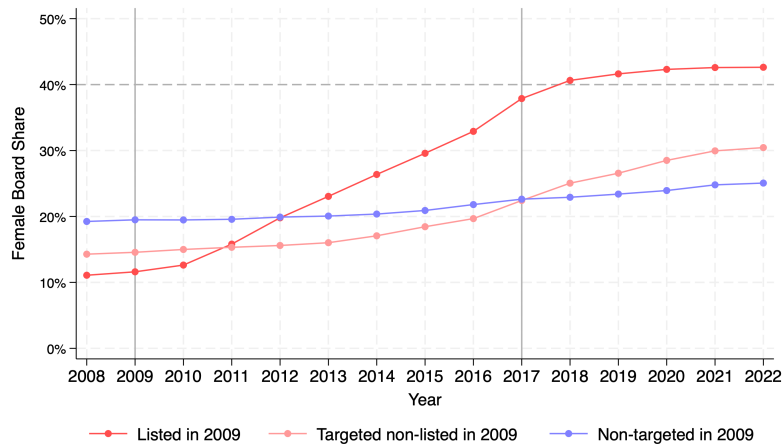
(b) Fraction of Firms Complying with the Quota

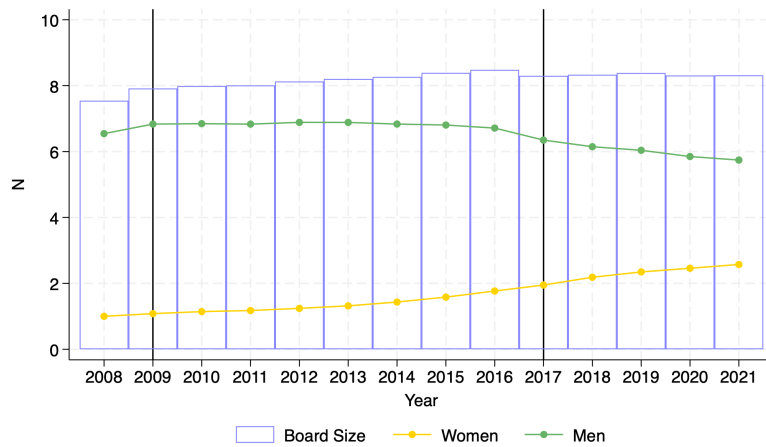**Note**: This Figure plots the evolution of the female board share and the fraction of quota-compliant firms for three groups: (i) Firms listed 2009, (ii) Firms not listed in 2009 but targeted in 2009, (iii) Firms not targeted in 2009.

Figure 2: **Evolution of Board Size 2008-2021**

(a) Listed in 2009
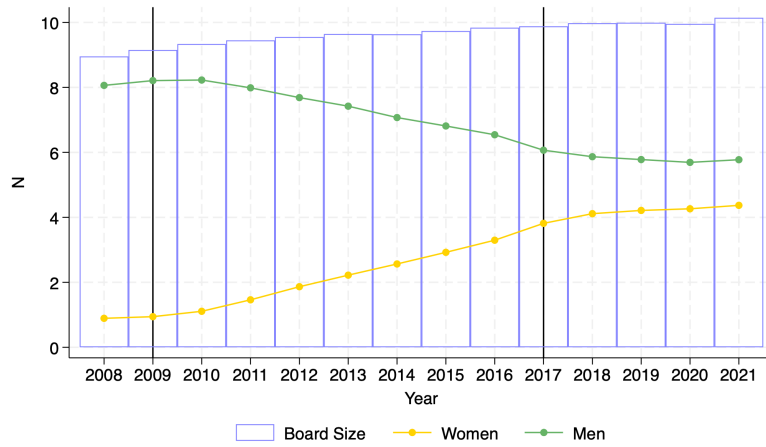
(b) Targeted non-listed in 2009

(c) Non-targeted in 2009
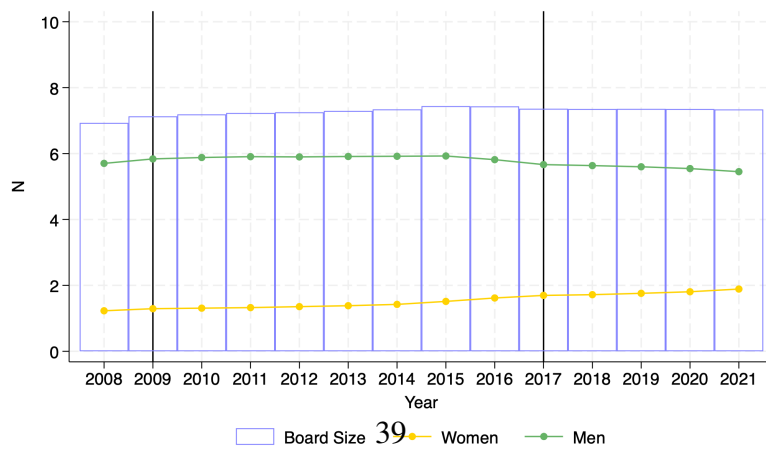
9.2 Difference-in-Differences

Figure 3: **Probability CEO is a Woman**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed

- Coeff — 95% CI

- Coeff — 95% CI
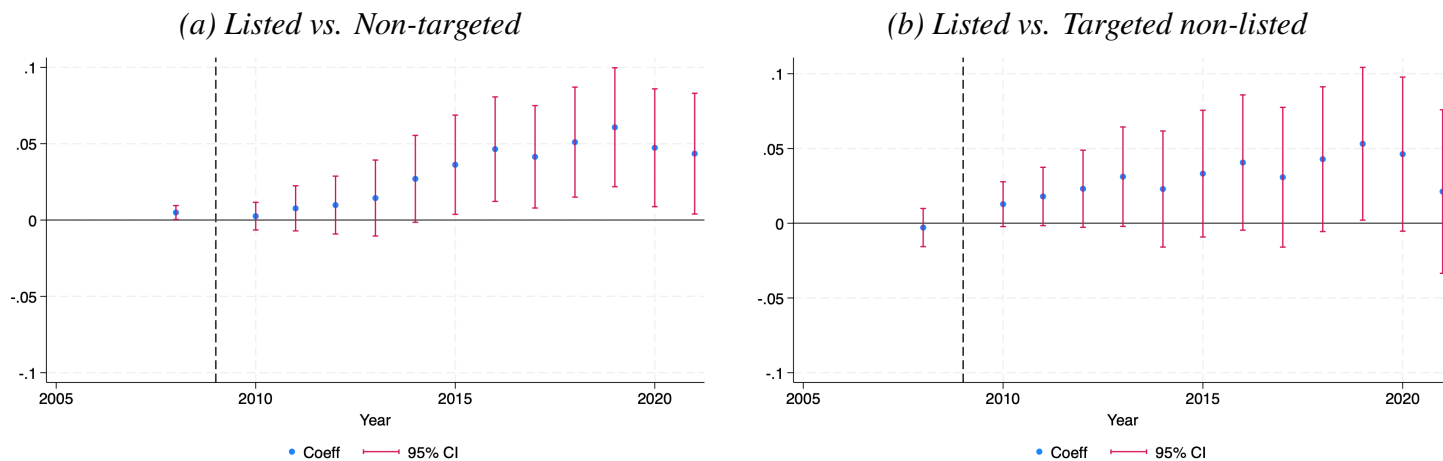
Figure 4: **Probability Chair is a Woman**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed

- Coeff — 95% CI

- Coeff — 95% CI
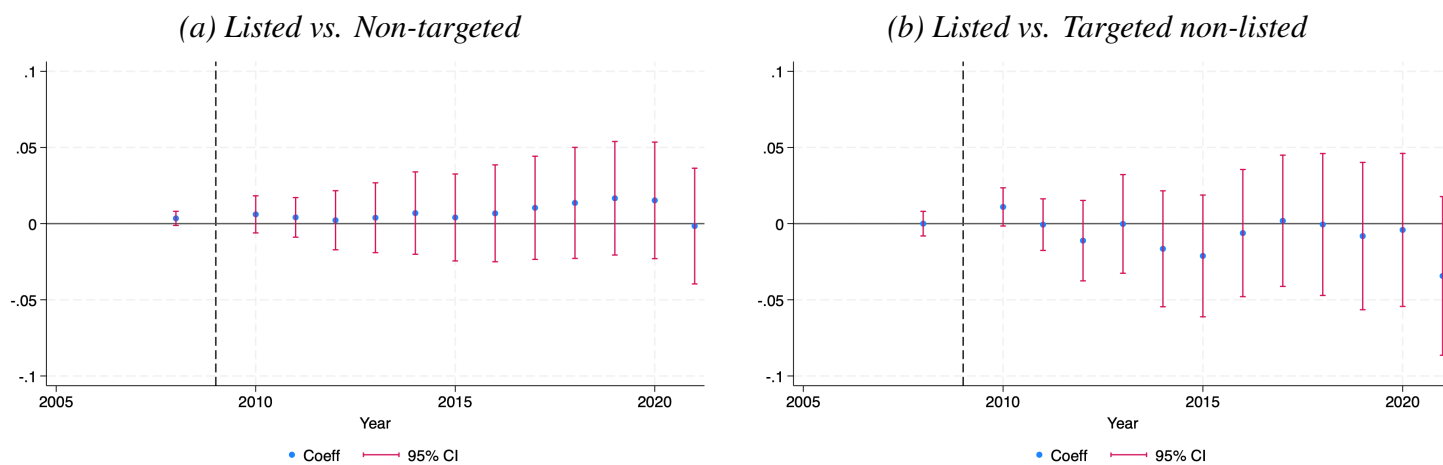
Figure 5: **Female Share of C-suite**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed

- Coeff — 95% CI

- Coeff — 95% CI
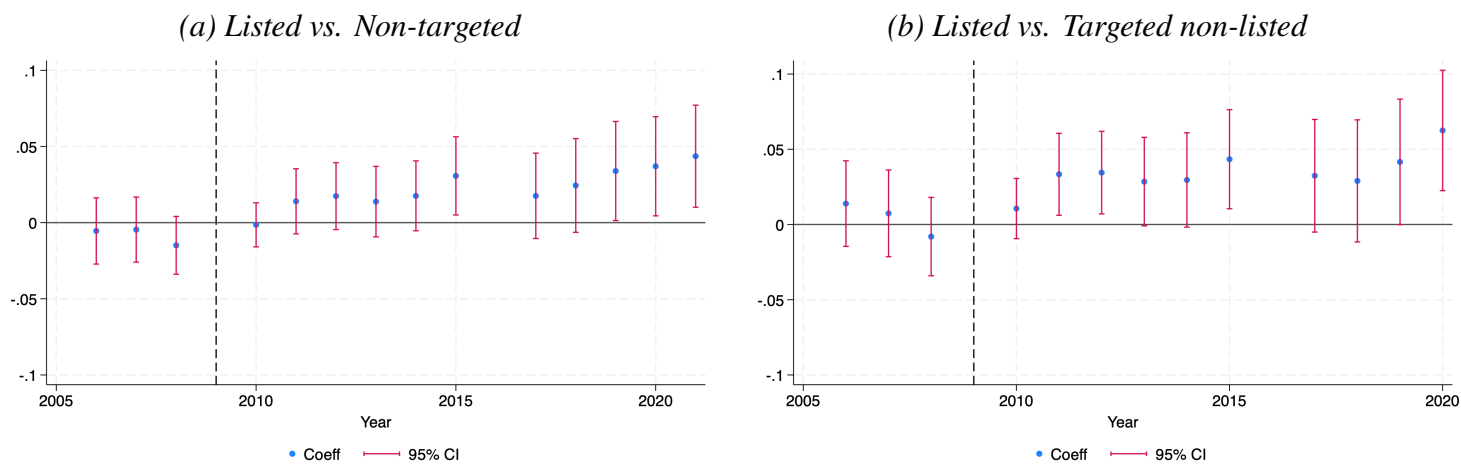
Figure 6: **Female Fraction Among Top 25% Earners**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
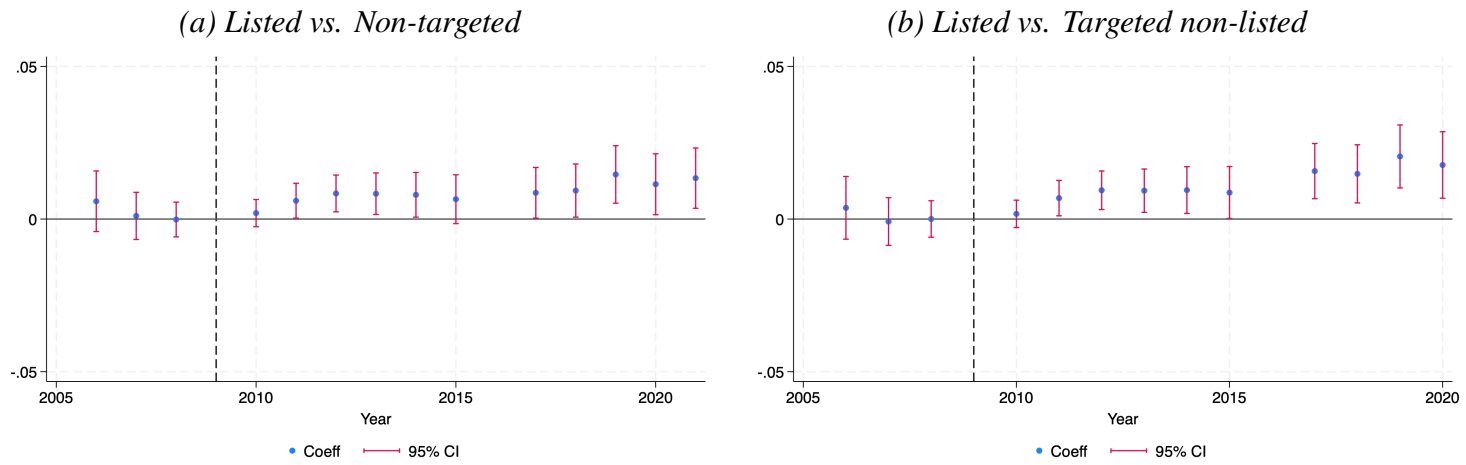
Figure 7: **Female Share Among Top 10% Earners**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
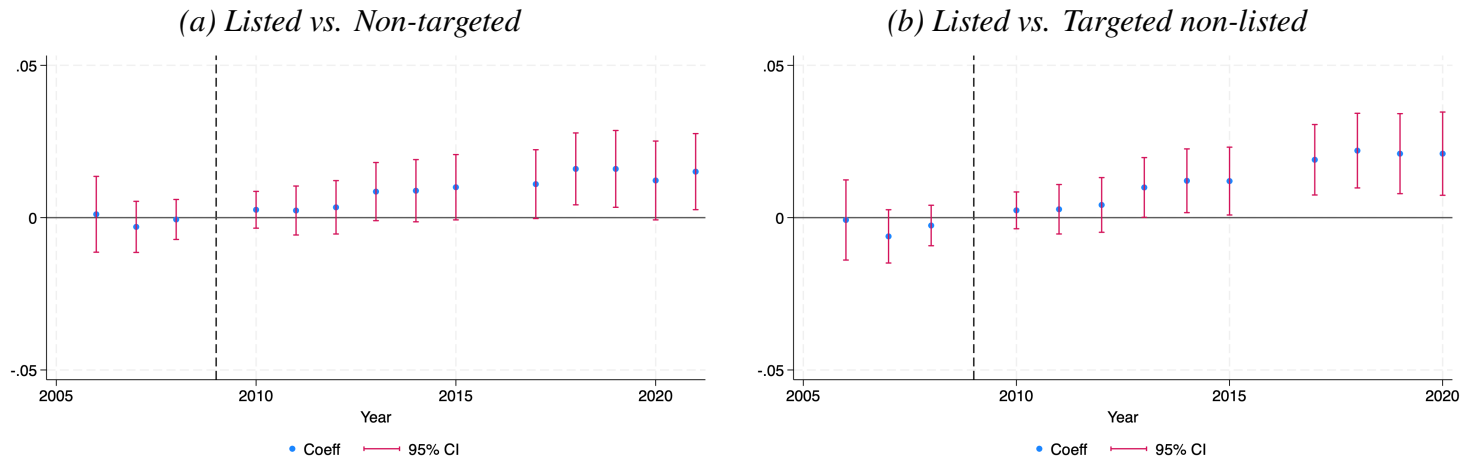
Figure 8: **Number of Women Among Top 10 Earners**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
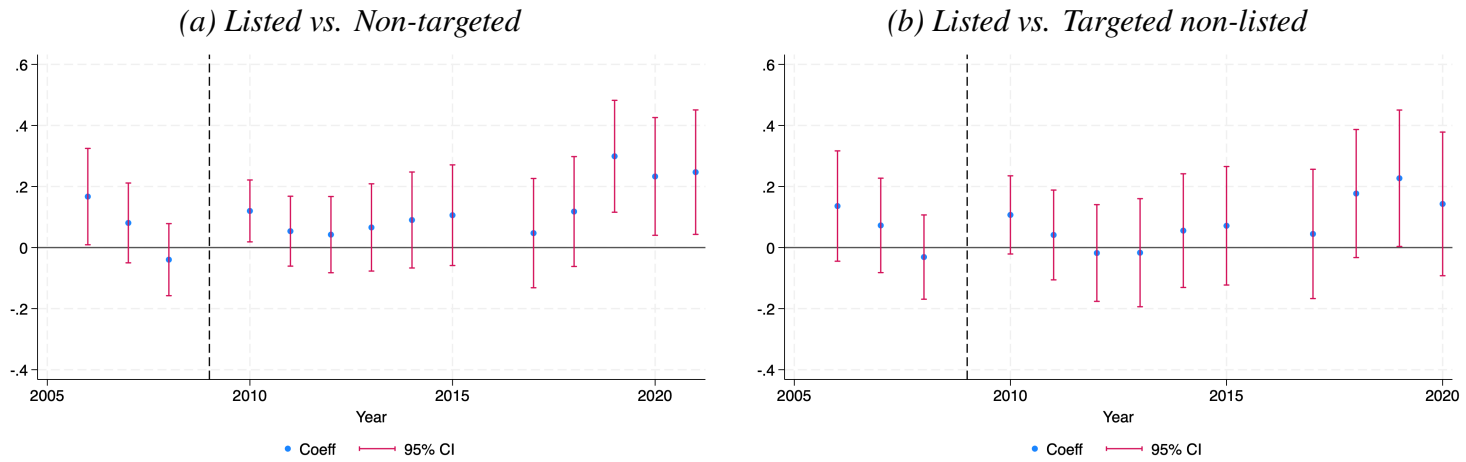
Figure 9: **75th Percentile Gender Wage Gap**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
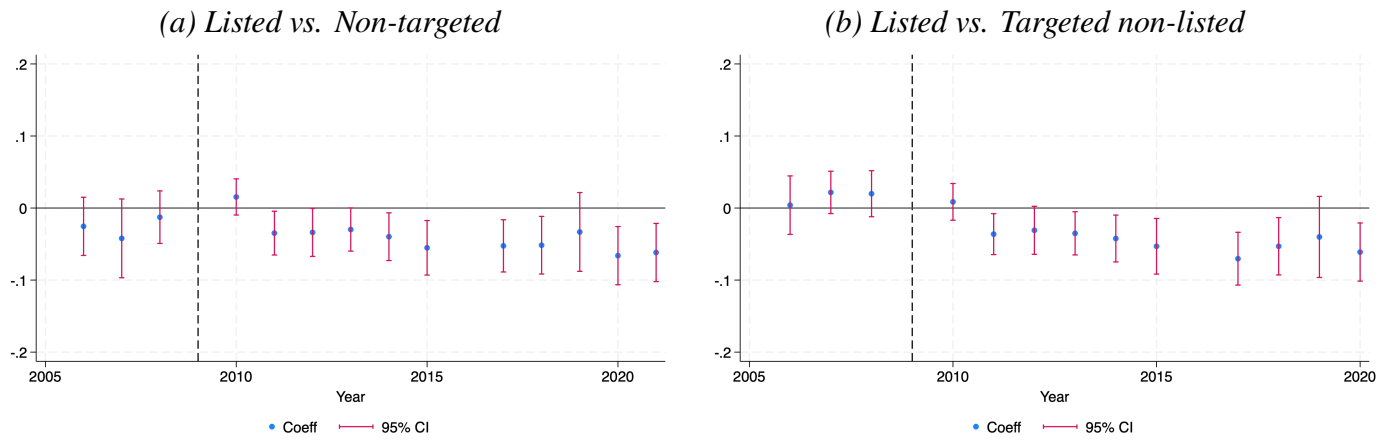
Figure 10: **90th Percentile Gender Wage Gap**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
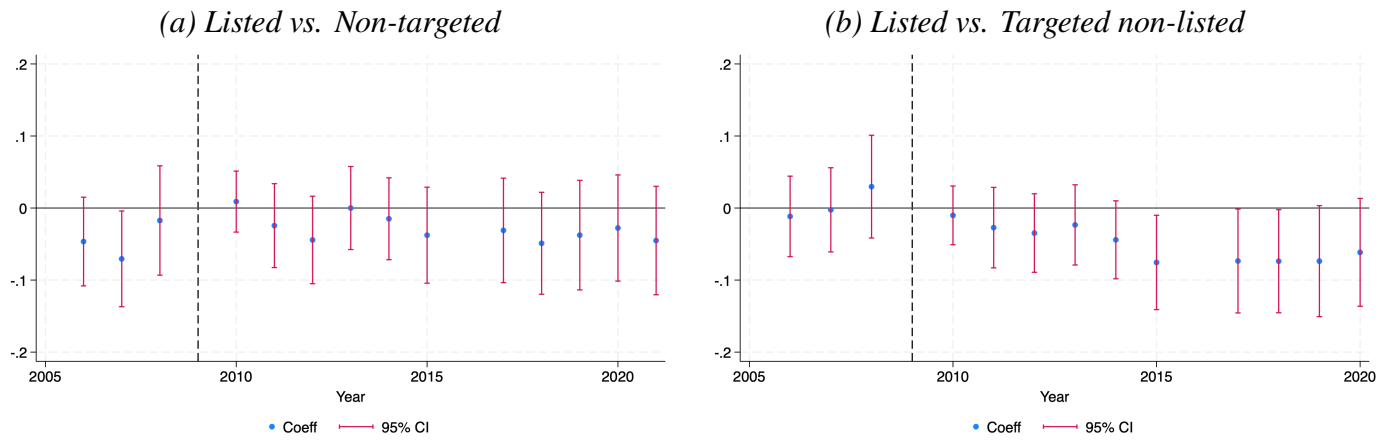
Figure 11: **10th Percentile Gender Wage Gap**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
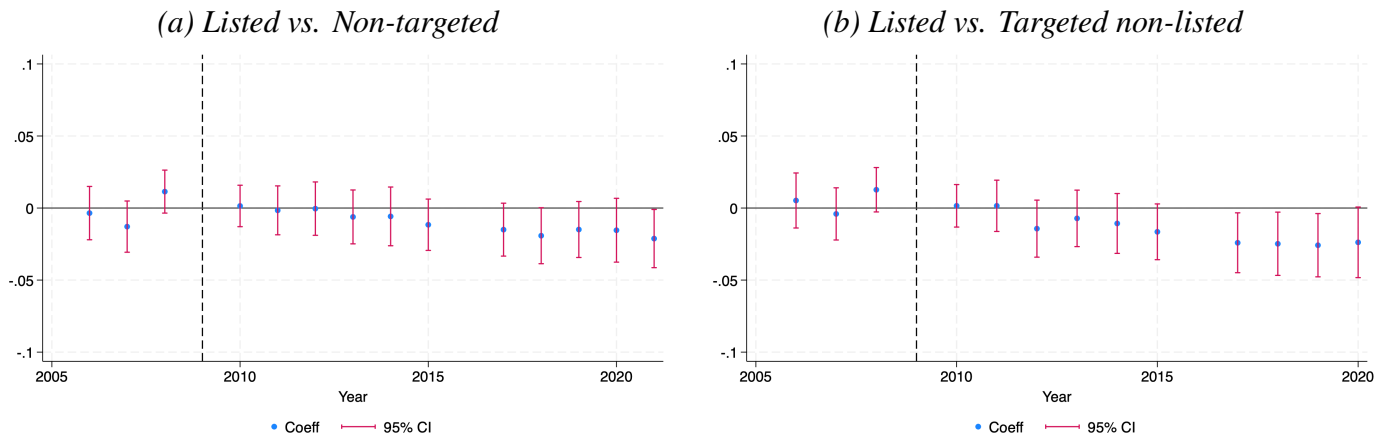
Figure 12: **25th Percentile Gender Wage Gap**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
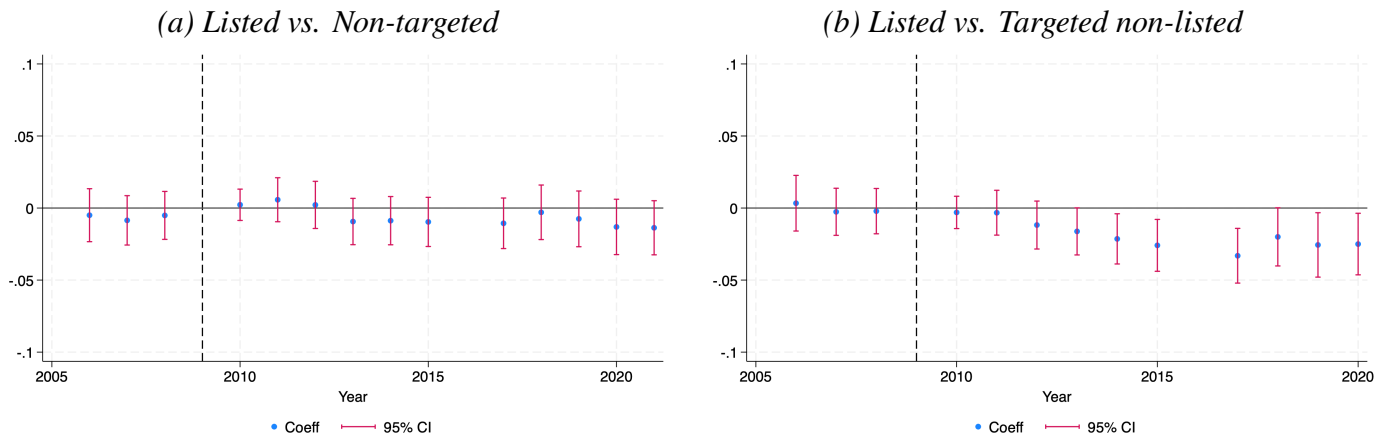
Figure 13: **Mean Gender Wage Gap**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
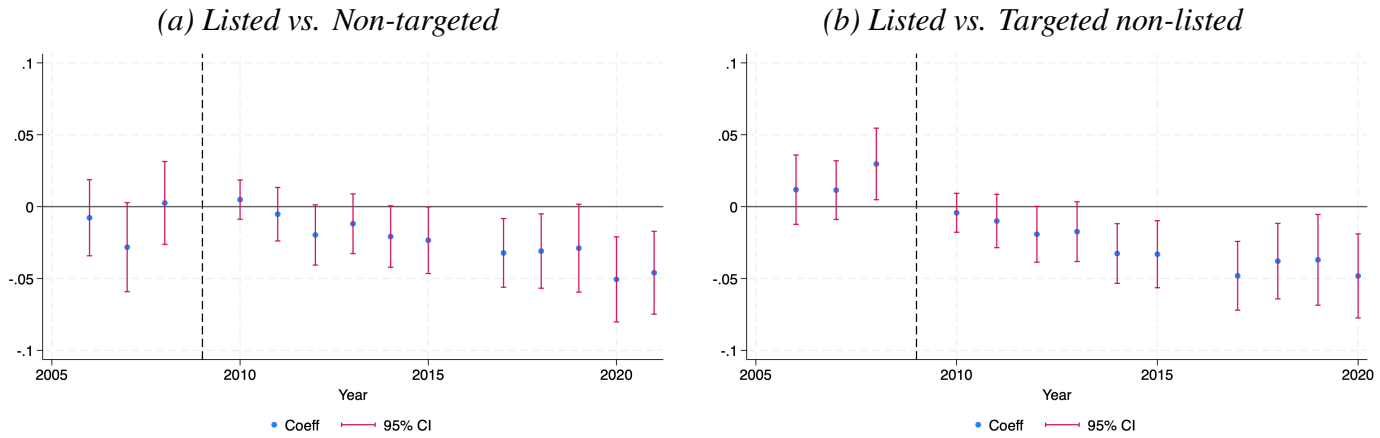
Figure 14: **Median Gender Wage Gap**

(a) Listed vs. Non-targeted

(b) Listed vs. Targeted non-listed
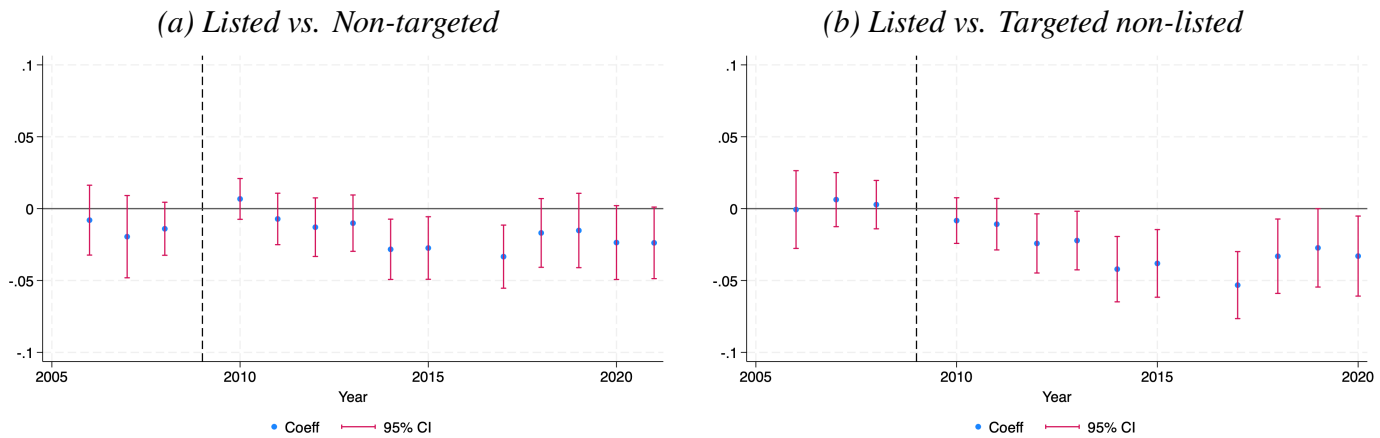
Figure 15: **2009 vs. 2021 Female Board Share**

(a) Listed in 2009
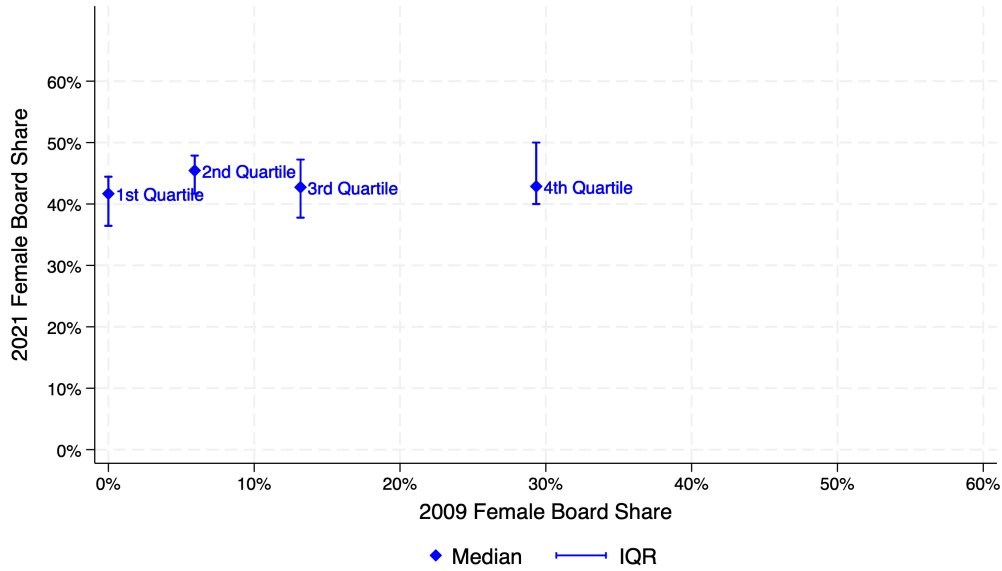
(b) Targeted non-listed in 2009
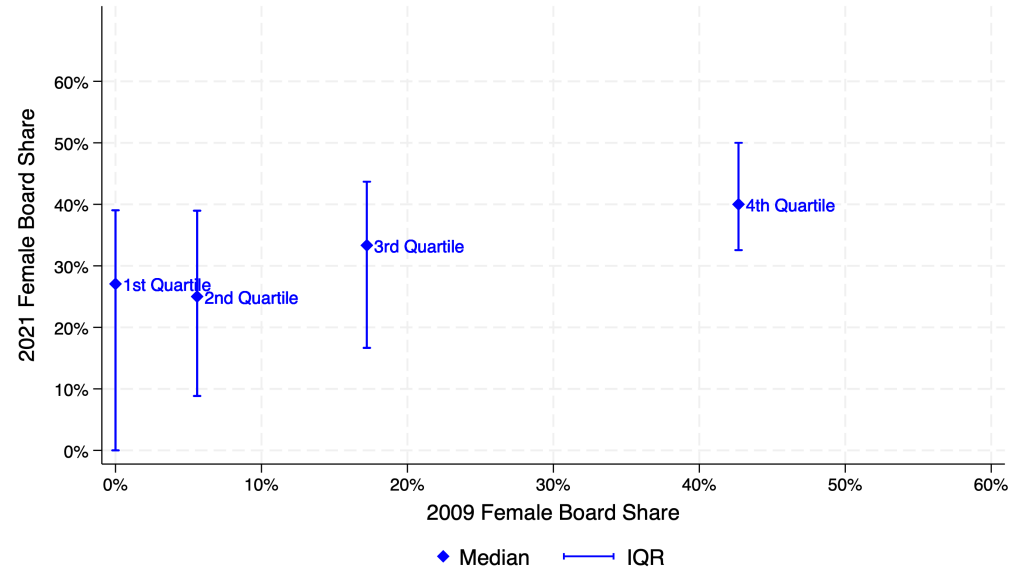
Note: This Figures plots the median FBS and the 25th and the 75th percentiles in 2021 as a function of the mean FBS in 2009. Firms are classified into four quartiles based on their FBS in 2009.

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A   Institutional context

Table A1: Corporate Forms in 2020

	SA/SCA	SAS	Other
	(1)	(2)	(3)
Board	Mandatory	Discretionary	Prohibited
N	37,369	822,339	2,443,956
Share	1.1%	24.9%	74.0%

Note: This table displays the number of firms by legal structure. Three of them (SA, SCA and SAS) allows for the establishment of a board. Source: Base SIRENE, Insee, 2023.

Table A2: Female Board Share for Firms with Board in 2021

	In-Sample (>= 50 Employees)			Out-Sample
	Targeted		Non-Targeted	
	Listed	Non-Listed		
	(1)	(2)	(3)	(4)
Female Board Share (FBS)	41.5%	27.8%	23.2%	24.0%
Share of Quota-Compliant Firms	77.0%	33.0%	22.1%	23.6%
Share of Firms with zero FBS	1%	18.7%	31.7%	32.7%
N	269	941	2,535	51,249
Share among firms with board	0.5%	1.7%	4.6%	93.2%

Note: Listed firms are firms publicly traded in 2021. Targeted non-listed firms are non-publicly traded firms with more than 250 employees and more than €50M of turnover/net assets from 2018 to 2020.

B Data and sample construction

Table A3: Sample Selection

	Targeted 2020		Non-Targeted in 2020	
	Balanced	Unbalanced	Balanced	Unbalanced
Female Board Share	31.3%	29.5%	23.5%	22.6%
N	935	1,210	1,684	2,535

Note:

Table A4: Probability of Being Targeted in 2021

	Listed in 2009	Targeted Non-Listed in 2009	Non-Targeted in 2009
Targeted in 2021	94.3%	95.1%	18.2%
N	248	344	2,027

C Difference-in-Differences

Table A5: Balance Checks - Firm Size in 2009

	2009				
	Listed in 2009	Targeted Non-Listed in 2009	Non-Targeted in 2009	L vs. NT	L vs. TNL
Employees (Mean)	3,731	3,241	171.7	3,559***	489
	[11,101]	[16,393]	[133.5]	(704)	(1129)
Employees (Median)	672	974	128		
Sales (Mean) (€M)	1,387.6	737.2	54.6	1,333***	650**
	[4,497]	[1,706]	[118.9]	(320)	(330)
Sales (Median) (€M)	191.9	254.9	26.5		
N	248	344	2,027		

Table A6: Balance Checks - Board's Exclusive Prerogatives in 2009

	Listed in 2009	Targeted Non-Listed in 2009	Non-Targeted in 2009	L vs. NT		L vs. TNL	
				No Cont.	Cont.	No Cont.	Cont.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CEO is Woman	0.024	0.078	0.091	-0.067***		-0.054***	
				(0.012)		(0.018)	
Chair is Woman	0.032	0.076	0.106	-0.073***		-0.043***	
				(0.013)		(0.018)	
N Women Among Top 10 Earners	1.008	1.102	-0.988***	-0.754***	-0.094	-0.105	
				(0.086)	(0.091)	(0.104)	(0.107)
Female Share in Layer 1	0.084	0.096	0.004	0.016	-0.011	-0.018	
				(0.012)	(0.012)	(0.015)	(0.016)
N	248	344	2,027				

Note: The first three columns shows average values of characteristics for firms in different groups. Columns 4 and 5 show regression coefficients and standard errors on indicated treatment firms (the omitted category is the non-targeted firms). Standard deviations are in brackets and robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Balance Checks - Outcomes at the Top in 2009

	Listed in 2009	Targeted Non-Listed in 2009	Non-Targeted in 2009	L vs. NT		L vs. TNL	
				No Cont.	Cont.	No Cont.	Cont.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female Share among Top							
25% Earners	0.250	0.255	0.276	-0.027***	-0.006	-0.005	0.001
				(0.010)	(0.009)	(0.013)	(0.012)
10% Earners	0.194	0.208	0.224	-0.031***	-0.003	-0.015	-0.001
				(0.010)	(0.010)	(0.012)	(0.012)
Percentile Gender Wage Gap							
75th	0.350	0.189	0.260	-0.090***	-0.002	0.161***	0.063**
				(0.027)	(0.026)	(0.029)	(0.027)
90th	0.510	0.293	0.452	0.057	-0.030	0.216***	0.090***
				(0.047)	(0.047)	(0.045)	(0.037)
N	248	344	2,027				

Note: The first three columns shows average values of characteristics for firms in different groups. Columns 4 to 7 show regression coefficients and standard errors on indicated treatment firms: the omitted category is the non-targeted firms (Columns 4 and 5) or the targeted non-listed firms (Columns 6 and 7). Controls X_{jt} for the human capital composition of firms (see Equation 2) are included in Columns 5 and 7. Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: Balance Checks - Outcomes at the Bottom in 2009

	Listed in 2009	Targeted Non-Listed in 2009	Non-Targeted in 2009	L vs. NT		L vs. TNL	
				No Cont.	Cont.	No Cont.	Cont.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Hourly Gender Wage Gap							
Mean	0.299	0.165	0.222	0.077***	-0.005	0.134***	0.0486***
				(0.020)	(0.019)	(0.021)	(0.018)
Median	0.220	0.120	0.146	0.074***	-0.013	0.100***	0.027
				(0.016)	(0.016)	(0.018)	(0.018)
Percentile Gender Wage Gap							
10th	0.111	0.0750	0.0670	0.044***	-0.012	0.036***	0.001
				(0.010)	(0.011)	(0.011)	(0.010)
25th	0.139	0.0800	0.0890	0.050***	-0.018	0.059***	0.010
				(0.011)	(0.012)	(0.012)	(0.013)
N	248	344	2,027				

Note: The first three columns shows average values of characteristics for firms in different groups. Columns 4 to 7 show regression coefficients and standard errors on indicated treatment firms: the omitted category is the non-targeted firms (Columns 4 and 5) or the targeted non-listed firms (Columns 6 and 7). Controls X_{jt} for the human capital composition of firms (see Equation 2) are included in Columns 5 and 7. Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

D IV Strategy

D.1 First stages

Table A9: First stage - 2009 to 2021

	All Firms	Targeted Only	Excl. Targeted Non Listed
	FBS	**FBS**	**FBS**
	(1)	(2)	(3)
Listed$_{2009}\times$2010	0.00935***	0.00604	0.00993***
	(0.00294)	(0.00393)	(0.00296)
Listed$_{2009}\times$2011	0.0404***	0.0351***	0.0412***
	(0.00479)	(0.00618)	(0.00481)
Listed$_{2009}\times$2012	0.0768***	0.0713***	0.0775***
	(0.00605)	(0.00765)	(0.00608)
Listed$_{2009}\times$2013	0.107***	0.0992***	0.108***
	(0.00699)	(0.00899)	(0.00703)
Listed$_{2009}\times$2014	0.137***	0.123***	0.139***
	(0.00776)	(0.0103)	(0.00780)
Listed$_{2009}\times$2015	0.161***	0.141***	0.164***
	(0.00857)	(0.0114)	(0.00860)
Listed$_{2009}\times$2016	0.183***	0.160***	0.187***
	(0.00932)	(0.0122)	(0.00936)
Listed$_{2009}\times$2017	0.221***	0.182***	0.228***
	(0.00962)	(0.0127)	(0.00967)
Listed$_{2009}\times$2018	0.243***	0.184***	0.252***
	(0.00977)	(0.0135)	(0.00980)
Listed$_{2009}\times$2019	0.246***	0.179***	0.257***
	(0.00993)	(0.0139)	(0.00997)
Listed$_{2009}\times$2020	0.245***	0.166***	0.258***
	(0.0101)	(0.0144)	(0.0102)
Listed$_{2009}\times$2021	0.238***	0.154***	0.252***
	(0.00985)	(0.0144)	(0.00991)
% Layer 1	0.108***	0.0495	0.106***
	(0.0235)	(0.0384)	(0.0244)
% Layer 2	0.0566***	0.0183	0.0544***
	(0.0187)	(0.0429)	(0.0191)
Male Mean Age	-0.000212	-0.00742**	-0.000264
	(0.000866)	(0.00307)	(0.000884)
Female Mean Age	0.000218	0.00594**	-0.000612
	(0.000648)	(0.00271)	(0.000637)
Observations	34,047	7,696	29,575
F-stat	59.28	18.83	64.70

Note: Robust standard errors in parentheses Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). This Table reports first stage estimates for Equation 3.

D.2 IV Results on Different Subsamples

Table A10: Outcomes at the Top

	Top 25% Earners - Tar	Top 25% Earners - WOTNL	Top 10% Earners - Tar	Top 10% Earners - WOTNL	75th Percentile Wage Gap - Tar	75th Percentile Wage Gap - WOTNL	90th Percentile Wage Gap - Tar	90th Percentile Wage Gap - WOTNL
FBS	0.0820***	0.0291*	0.110***	0.0521**	-0.302***	-0.178**	-0.381**	-0.153
	(0.0265)	(0.0172)	(0.0331)	(0.0225)	(0.110)	(0.0756)	(0.176)	(0.125)
Mean Targeted 2009	0.248	0.248	0.194	0.194	0.348	0.348	0.502	0.502
Mean Non-Targeted 2009	0.245	0.269	0.203	0.220	0.190	0.241	0.279	0.398
Observations	7,104	27,216	7,104	27,216	7,104	27,216	7,104	27,216

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

Table A11: Outcomes at the Bottom

	Mean Wage Gap - Tar	Mean Wage Gap - WOTNL	Median Hourly Wage Gap - Tar	Median Hourly Wage Gap - WOTNL	10th Percentile Wage Gap - Tar	10th Percentile Wage Gap - WOTNL	25th Percentile Wage Gap - Tar	25th Percentile Wage Gap - WOTNL
FBS	-0.233***	-0.152***	-0.187***	-0.0786*	-0.137**	-0.0823**	-0.142***	-0.0454
	(0.0680)	(0.0485)	(0.0674)	(0.0441)	(0.0554)	(0.0342)	(0.0517)	(0.0332)
Mean Targeted 2009	0.299	0.299	0.228	0.228	0.112	0.112	0.143	0.143
Mean Non-Targeted 2009	0.162	0.203	0.120	0.141	0.0740	0.0690	0.0800	0.0890
Observations	7,104	27,216	7,104	27,216	7,104	27,216	7,104	27,216

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

D.3   One- vs. Two-Tier Board Structure

Table A12: Outcomes at the Top - One- vs. Two-Tier System

	% Women Among Top .. Earners		Percentile Wage Gaps	
	25%	10%	75th	90th
	(1)	(2)	(3)	(4)
FBS	0.0433**	0.0620***	-0.203**	-0.179
	(0.0186)	(0.0232)	(0.0843)	(0.128)
FBS x Supervisory	-0.0350	-0.0226	-0.0509	0.0669
	(0.0427)	(0.0521)	(0.133)	(0.175)
Mean Listed 2009	0.250	0.194	0.350	0.510
Mean Non-Listed 2009	0.273	0.222	0.249	0.429
Observations	31,428	31,428	31,428	31,428

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

### Table A13: Outcomes at the Bottom - One- vs. Two-Tier System

	Mean Wage Gap	Percentile Wage Gaps		
		10th	25th	50th
	(1)	(2)	(3)	(4)
FBS	-0.170***	-0.0854**	-0.0647*	-0.0961**
	(0.0517)	(0.0370)	(0.0365)	(0.0486)
FBS x Supervisory	0.0225	0.0237	0.0624	-0.0606
	(0.0820)	(0.0747)	(0.0746)	(0.0981)
Mean Listed 2009	0.299	0.111	0.139	0.220
Mean Non-Listed 2009	0.214	0.0680	0.0880	0.142
Observations	31,428	31,428	31,428	31,428

Note: Robust standard errors in parentheses. Clustering at the firm level. Year firm, fixed effects, and controls are included (see Section 5). Estimates of Equation 3.

D.4 IV

Figure A16: Fraction of Firms with a Supervisory Board
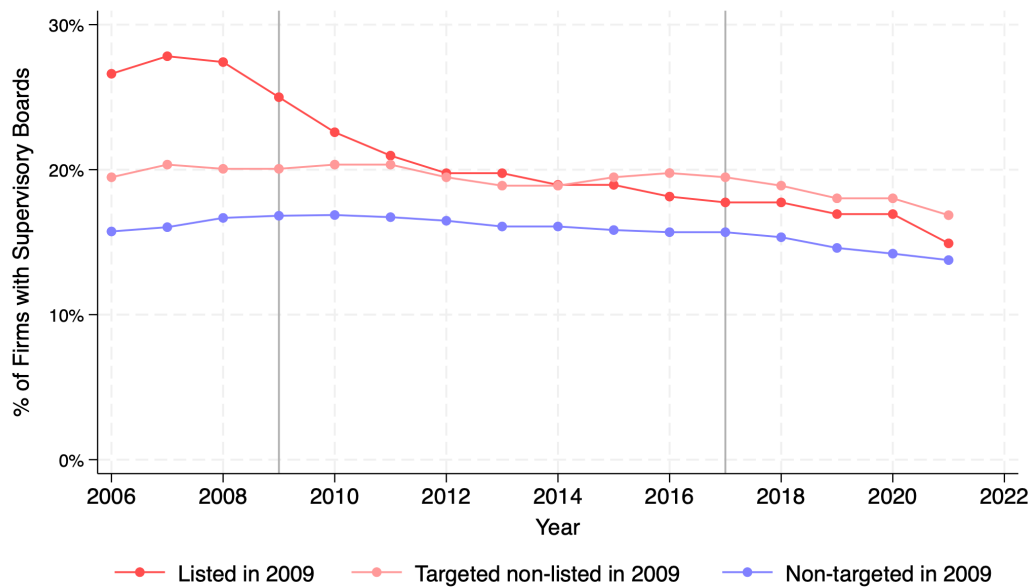
Note: This Figure plots the evolution of the fraction of firms with a supervisory (two–tier) board structure from 2006 to 2009.