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Three Essays on the Composition of Boards of Directors

Yasmine Skalli Housseini

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THÈSE DE DOCTORAT

de l'Université de recherche Paris Sciences et Lettres
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Préparée à l'Université Paris-Dauphine

Trois Essais sur la Composition des Conseils d'Administration

École Doctorale de Dauphine — ED 543

Spécialité **Sciences de gestion**

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Introduction générale : les rôles du conseil d'administration

La gouvernance d'entreprise peut être définie comme l'ensemble des mécanismes par lesquels les pourvoyeurs de fonds de l'entreprise s'assurent de la rémunération de leur investissement¹. Les faillites spectaculaires de grands groupes, notamment Enron et Worldcom, ainsi que les nombreuses crises qui se sont succédé ces deux dernières décennies ont remis en cause les mécanismes de gouvernance des entreprises. Ces mécanismes peuvent être externes ou internes à l'entreprise.

Le conseil d'administration est l'un des mécanismes internes qui a fait l'objet d'une recherche abondante. De par ses fonctions de contrôle des dirigeants et d'orientation des décisions stratégiques de l'entreprise, le conseil d'administration occupe une place importante dans la gouvernance et le processus de création de valeur des entreprises. Ainsi, son efficacité est devenue un sujet majeur et une préoccupation importante des actionnaires et des régulateurs. La composition du conseil d'administration est fréquemment abordée dans les travaux de recherche, avec l'idée qu'elle influence l'efficacité de son fonctionnement. Au-delà des études qui traitent de l'importance de l'indépendance dans le rôle de surveillance du conseil, les exigences économiques et managériales actuelles ont conduit les recherches récentes à s'intéresser aux critères de sa composition tels que l'expertise, la diversité et la capacité d'innovation des administrateurs.

Ce travail de recherche aborde ainsi ces thématiques qui sont liées au rôle et au fonctionnement des conseils d'administration : la reconnaissance de l'expertise des administrateurs, l'impact de la représentativité des femmes dans les conseils d'administration

¹ Voir Shleifer et Vishny (1997).

sur la valorisation boursière des entreprises, ou encore sur le fonctionnement du marché du travail des administrateurs.

Dans cette introduction, je mettrai en évidence le rôle d'orientation stratégique du conseil d'administration ainsi que la construction d'une nouvelle mesure de la qualité de conseil. Ensuite, j'aborderai le rôle de surveillance du conseil d'administration. Enfin, je présenterai l'impact de la féminisation des conseils d'administration.

1 Rôle d'orientation stratégique

L'orientation des décisions stratégiques de l'entreprise par le conseil d'administration constitue un enjeu crucial pour son fonctionnement optimal. Il conviendra alors de mettre en évidence les caractéristiques des administrateurs qui leur permettent de mieux conseiller les dirigeants.

1.1 Expertise et expérience des administrateurs

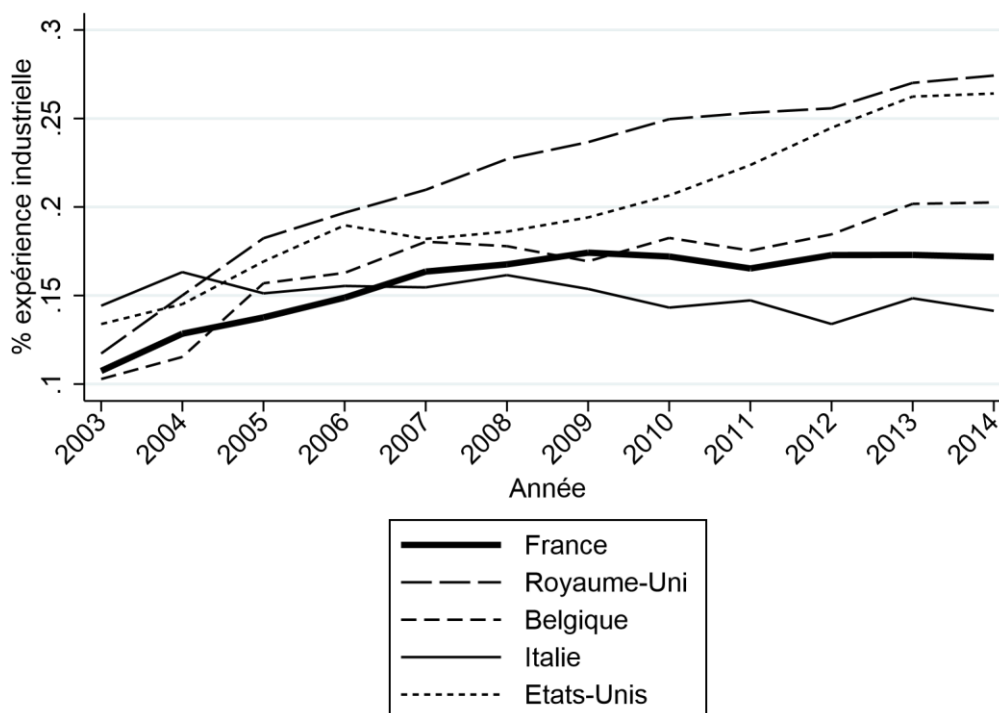
Selon Mace (1971), le rôle des administrateurs est de donner des conseils au dirigeant, ainsi que d'encadrer ses actions. Le sondage de Demb et Neubauer (1992) a souligné qu'environ deux tiers des administrateurs reconnaissent qu'une de leur fonction importante est de définir la direction stratégique de l'entreprise. Seulement une minorité d'entre eux considèrent le contrôle comme une de leurs responsabilités.

L'étude d'Adams et Ferreira (2007) a montré que la composition optimale d'un conseil d'administration nécessite un équilibre entre des administrateurs indépendants, assurant le rôle de contrôle, et des administrateurs non indépendants à l'entreprise, assurant le rôle de conseil stratégique. Les administrateurs indépendants sont les administrateurs non-exécutifs qui n'ont pas de relation personnelle avec les dirigeants et de relation professionnelle avec l'entreprise. En effet, si le degré de surveillance est trop élevé, les dirigeants ne seront pas enclins à partager de l'information avec les administrateurs, ce qui compromet l'efficacité de leur rôle de conseil stratégique.

Un administrateur dont le rôle est d'orienter la stratégie de l'entreprise doit avoir des compétences lui permettant d'avoir de bonnes connaissances de l'entreprise, des actions du dirigeant, de ses parties prenantes et de son industrie. Les administrateurs internes ont de telles compétences en raison de leur proximité avec l'entreprise (Mace, 1971). En revanche, les administrateurs indépendants sont plus distants de l'entreprise, manquant ainsi de ces

compétences (voir Bhagat et Black, 2001). Ainsi, le rôle d'orientation stratégique du conseil d'administration permet de conseiller les dirigeants quant à la mise en place de nouvelles stratégies.

L'étude de Faleye, Hoitash et Hoitash (2017) montre que l'expertise industrielle des administrateurs améliore l'efficacité de leur rôle de conseil. Les auteurs trouvent que les experts industriels sont exposés aux informations présentes dans les réseaux professionnels de l'industrie en question. De plus, ils permettent une meilleure compréhension des critères pertinents pour mesurer, évaluer et améliorer les performances dans l'industrie. Ils mettent également en évidence une amélioration de l'efficacité du rôle de contrôle avec l'expertise industrielle. D'autres études, notamment Drobetz, Meyerinck, Oesch et Schmid (2017) et Dass, Kini, Nanda, Onal et Wang (2014) ont révélé que l'expertise industrielle des administrateurs ajoute de la valeur. La Figure 1 montre que les entreprises ont augmenté la proportion d'administrateurs avec une expertise industrielle entre 2003 et 2014 pour la France, la Belgique, le Royaume-Uni, et les États-Unis. Cette évolution, plus prononcée pour les États-Unis et le Royaume-Uni, souligne ainsi que l'expérience d'un administrateur dans l'industrie de l'entreprise est une caractéristique de plus en plus attractive dans les conseils d'administration.



Source : BoardEx

Figure 1 – Évolution du pourcentage d'experts industriels au sein des conseils d'administration

En revanche, l'étude de Kang, Kim et Lu (2017) a établi que l'effet de l'expérience industrielle d'un administrateur a un impact positif sur le Q de Tobin uniquement lorsqu'elle est associée à une expérience en tant que dirigeant. Leur analyse met en évidence que l'expertise industrielle ainsi que l'expérience en tant que dirigeant, prises séparément, n'ont pas d'impact sur la valeur des entreprises.

Fahlenbrach, Low et Stulz (2010) trouvent un résultat similaire, en montrant que l'expérience des administrateurs en tant que dirigeant n'ajoute pas de valeur. Ces résultats contredisent toutefois l'étude de Fich (2005), qui constate que les actionnaires valorisent l'expérience des administrateurs en tant que dirigeant. L'étude de Faleye, Hoitash et Hoitash (2013) complète cette littérature, en montrant que les administrateurs dont le rôle est de conseiller les dirigeants possèdent des expertises et des expériences professionnelles telles qu'une expérience en tant que dirigeant, une carrière entrepreneuriale, des diplômes de qualité et de longs mandats d'administrateurs.

1.2 Prix de prestige: une nouvelle mesure de la qualité de conseil

Le premier chapitre de cette thèse permet de renouveler l'approche sur les mesures de l'expertise des administrateurs et met également l'accent sur une autre dimension qui est celle de la notoriété de l'entreprise.

Cette étude examine l'effet de la reconnaissance de l'expertise des administrateurs sur les opportunités d'investissement et la gouvernance des entreprises. L'analyse se base sur des prix et titres de prestige obtenus par les administrateurs afin de mesurer la reconnaissance de leur expertise. Cet article analyse un échantillon d'entreprises cotées européennes et américaines sur la période 2003-2014. L'analyse compare la présence d'administrateurs ainsi récompensés par des prix dans des entreprises en tout point similaires. Cette stratégie d'identification permet d'isoler l'effet de la présence d'administrateurs primés sur les opportunités d'investissements des entreprises. Les résultats de cette étude montrent que la présence d'administrateurs récompensés au sein des conseils entraîne de meilleures opportunités d'investissement. Cette étude met en évidence que les administrateurs primés ont de meilleurs attributs que les administrateurs non primés. Ces prix récompensent donc leurs expertises. Par conséquent, les prix entraînent une augmentation du nombre de postes d'administrateurs ainsi que du nombre de livres écrits par ces administrateurs. Ainsi, les administrateurs primés contribuent au développement de la réputation de l'entreprise. Par

ailleurs, cette étude met en évidence l'effet de contagion qu'engendrent ces prix : premièrement, ils permettent une meilleure reconnaissance de l'expertise des autres administrateurs du conseil d'administration ; deuxièmement, les administrateurs primés sont plus susceptibles d'obtenir des prix à l'avenir. Ces résultats confirment l'idée que les prix apportent une plus grande notoriété à l'entreprise. Ce premier chapitre suggère que les administrateurs dont l'expertise a été récompensée par un prix entraînent de meilleures opportunités d'investissement, grâce à une plus grande notoriété et à un effet de contagion, générés par les prix.

Cette étude s'insère dans la littérature traitant du rôle de l'expertise des administrateurs, jusqu'à présent basée sur l'expertise industrielle (voir Masulis, Ruzzier, Xiao et Zhao, 2012, ou Faleye, Hoitash et Hoitash, 2017, entre autres) et l'expertise financière (notamment Güner, Malmendier et Tate, 2008). Ce chapitre complète également la littérature relative à l'expérience managérielle des administrateurs (voir Faleye, Hoitash et Hoitash, 2013) et l'article d'Adams, Akyol et Verwijmeren (2017) qui étudie les expertises communes des administrateurs d'un même conseil d'administration. Ainsi, ce premier chapitre offre un cadre unique d'analyse de la reconnaissance de l'expertise des administrateurs.

2 Rôle de contrôle

Le rôle de surveillance du conseil d'administration a été au centre de nombreux débats politiques portant sur des réformes de gouvernance, ainsi que l'objet de recherches académiques considérables. Il conviendra alors de mettre en évidence le rôle de contrôle des administrateurs indépendants, puis de présenter l'impact de la diversité sur l'indépendance des conseils d'administration.

2.1 Indépendance des administrateurs

L'étude de MacAvoy et Millstein (1999) a souligné que le rôle des conseils d'administration a évolué depuis les premières études traitant de ce sujet (notamment Mace, 1971 et Demb et Neubauer, 1992). En effet, l'activisme grandissant des actionnaires, ainsi que la mise en place croissante de régulations ont modifié la composition et les exigences d'indépendance des

conseils d'administration, devenus plus rigoureux dans leur rôle de contrôle du management et plus indépendants du dirigeant².

Des codes de gouvernance et des rapports ont souligné l'importance de l'indépendance des conseils d'administration. Dans certains pays, les exigences relatives à l'indépendance des conseils constituent une obligation légale, par exemple à travers la loi Sarbanes-Oxley, mise en place en 2002 aux États-Unis. D'autres pays, pour la plupart européens, ont mis en place l'approche réglementaire « comply or explain » (« appliquer ou expliquer »), qui énumère les règles auxquelles les entreprises doivent se conformer. Si elles ne le font pas, elles doivent en expliquer publiquement les raisons.

Pendant longtemps, les responsables politiques et les chercheurs ont pensé que l'indépendance était la principale caractéristique liée à l'efficacité des conseils d'administration, grâce à une plus grande aptitude à contrôler les dirigeants. D'autres études ont montré que l'indépendance du conseil n'a pas d'effet sur les performances des entreprises, quelle que soit la mesure³. Comme l'a montré l'étude d'Hermalin et Weisbach (1998), le nombre d'administrateurs indépendants semble augmenter à la suite de mauvaises performances. Les études d'Hermalin et Weisbach (1991) et de Bhagat et Black (2001) ont pris en compte les problèmes d'endogénéité qui en découlent, mais ne sont pas parvenues à prouver que l'indépendance améliore la performance des entreprises. Par ailleurs, des études empiriques ont souligné qu'en présence d'un conseil plus indépendant, les changements de dirigeants apparaissent plus directement liés à des mauvaises performances passées (voir par exemple Hermalin et Weisbach, 1988, Hermalin, 2005, Jenter et Kanaan, 2015).

L'étude d'Adams et Ferreira (2007) montre qu'une augmentation de l'indépendance d'un conseil d'administration à structure unitaire peut être néfaste pour les actionnaires. En effet, la réticence des dirigeants à partager de l'information avec les administrateurs lorsqu'il y a plus de contrôle dans le conseil compromet l'efficacité de leur rôle de contrôle. Ainsi, les actions des rôles de conseil et de contrôle d'un conseil d'administration unitaire dépendent l'une de l'autre. En revanche, la structure duale constitue une nette séparation des deux rôles du conseil, permettant au dirigeant de partager de l'information avec le directoire sans interférer

² Huson, Parrino et Starks (2001) et Kaplan et Minton (2012) ont montré la même évolution pendant la période 1971-1994 et plus récemment, respectivement.

³ Voir Baysinger et Butler (1985), Hermalin et Weisbach (1991), Mehran (1995), Klein (1998), Bhagat et Black (2001), pour les mesures de performance comptable ; Morck, Shleifer et Vishny (1988), Hermalin et Weisbach (1991), Bhagat et Black (2001) pour le Q de Tobin.

avec le conseil de surveillance⁴. Ainsi, une augmentation de l'indépendance d'un conseil de surveillance améliore la valeur de marché de l'entreprise.

Empiriquement, il est difficile de mesurer l'indépendance des administrateurs avec les mesures conventionnelles. Par exemple, l'étude de Fracassi et Tate (2012) montre que les administrateurs et les dirigeants d'une même entreprise peuvent être connectés à travers des réseaux non professionnels préexistants (par exemple à travers l'appartenance à un même club de golf). Ces connexions peuvent alors compromettre l'indépendance des administrateurs.

2.2 La diversité permet-elle plus d'indépendance?

Un autre pan de la littérature met en évidence l'existence de la cooptation comme mode de recrutement des membres du conseil d'administration, remettant également en question l'efficacité de l'indépendance des conseils (par exemple Nguyen, 2012, Kramarz et Thesmar, 2013, Fahlenbrach, Kim et Low, 2017). Compte tenu de la difficulté des femmes à accéder à certains réseaux informels et clubs (Higgs, 2003 ; Tyson, 2003), il convient de s'interroger sur l'efficacité d'une féminisation des conseils. Des études empiriques, notamment celles de Bøhren et Staubo, 2015, Adams et Ferreira, 2009 et Schwartz-Ziv, 2017, ont confirmé que la présence de femmes dans les conseils est associée à une plus grande indépendance, et donc à un rôle de contrôle du conseil. En revanche, ces études trouvent des résultats divergents quant à l'effet de la présence des femmes dans les conseils sur la valeur des entreprises. D'autres études montrent que la diversité de genre au sein des conseils est associée à de meilleures décisions de par l'élargissement des perspectives sur la stratégie de l'entreprise (voir Campbell et Minguez-Vera, 2008, 2010, entre autres).

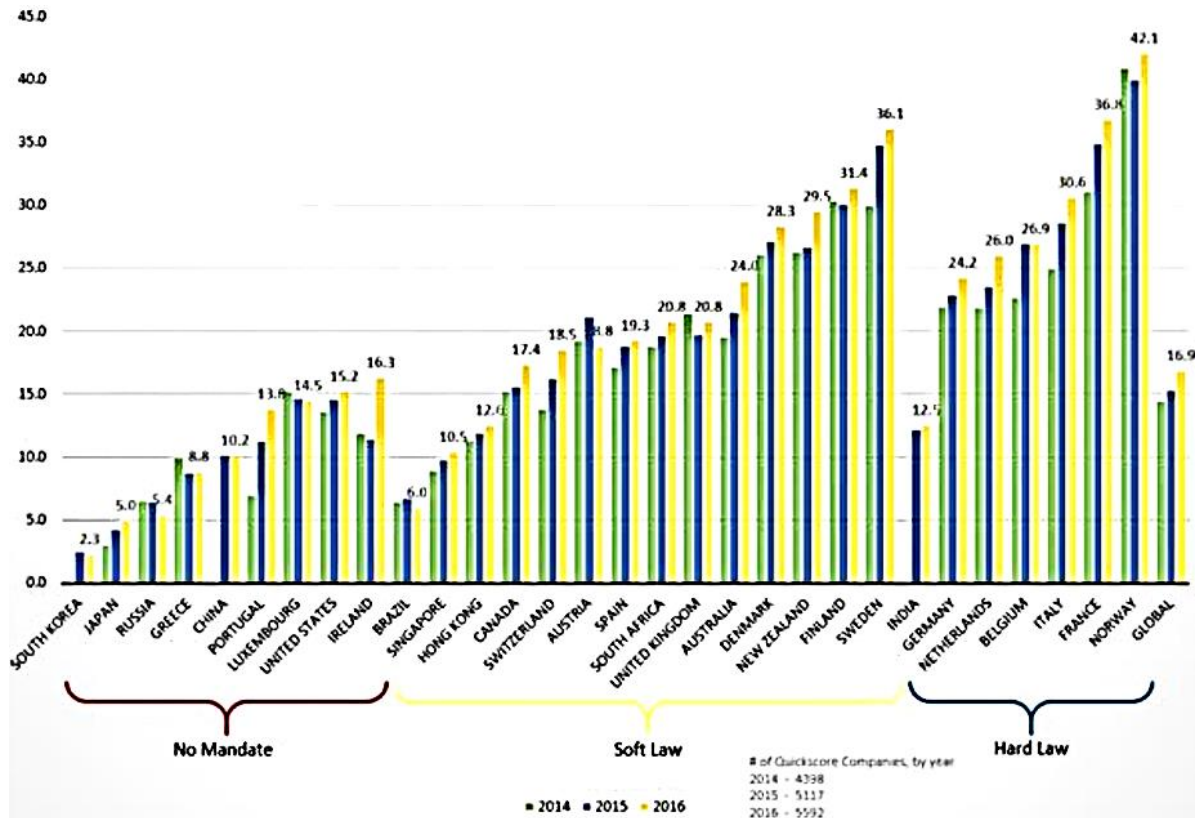
3 Les femmes dans les conseils d'administration

Les deuxième et troisième chapitres de ce manuscrit contribuent à une meilleure compréhension des actions publiques en faveur de la féminisation des conseils d'administration. Ces articles montrent comment interviennent les différentes parties prenantes: les investisseurs, les entreprises et les administrateurs. Il conviendra alors de présenter les quotas de femmes dans les conseils d'administration, puis de mettre en évidence l'apport de ces deux études.

⁴ Voir Belot, Ginglinger, Slovin et Sushka (2014).

3.1 Quotas de femmes dans les conseils d'administration

Les évolutions des politiques récentes sur le sujet ont relancé les interrogations sur l'effet de la présence des femmes dans les conseils d'administration sur la gouvernance. Comme le montre la Figure 2, de nombreux pays ont mis en place des lois imposant des quotas de femmes dans les conseils d'administration, augmentant de manière significative le pourcentage d'administratrices. Ainsi, les pays où aucune réglementation n'a été mise en place ont tendance

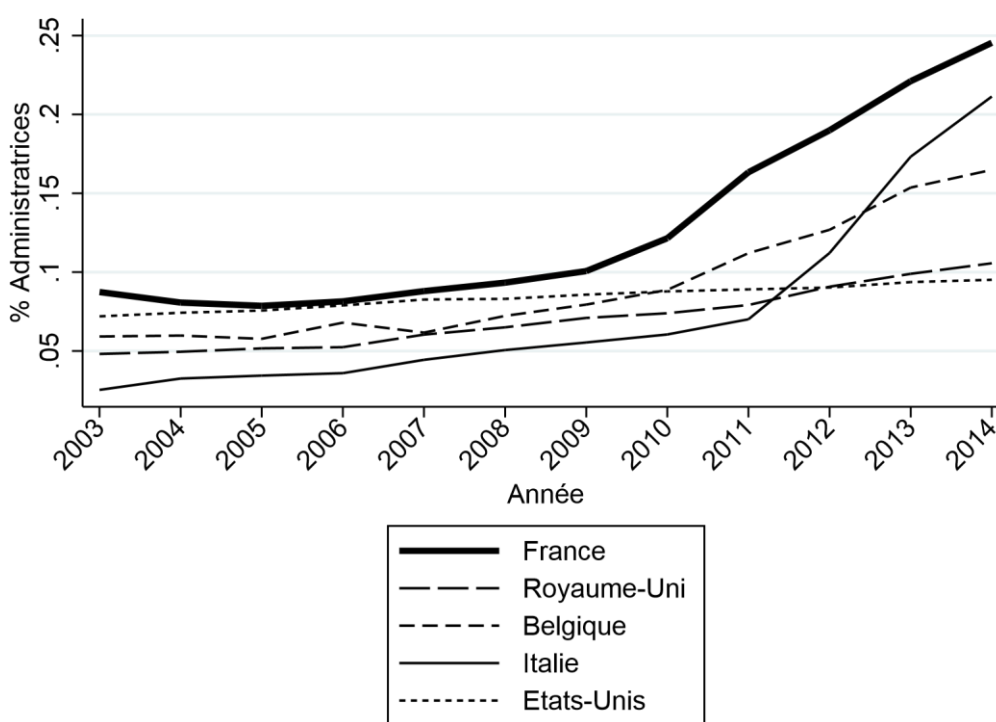


Source: Institutional Shareholder Services (2017)

Figure 2 – Pourcentage de femmes au sein des conseils d'administration par pays

à avoir moins de femmes administratrices que ceux qui ont mis en place des quotas. Cependant, le potentiel de ces réglementations dépend des régions où elles sont adoptées. Il est intéressant de noter que la plupart des pays ayant mis en place des lois imposant des quotas de femmes dans les conseils d'administration sont en Europe. Par exemple, la Norvège a été le premier pays à adopter une loi imposant un quota de femmes dans les conseils en 2003. La loi a été mise en œuvre en 2008 et impose un minimum de 40% d'administrateurs de chaque genre.

Avec 43% de femmes dans les conseils d'administration en 2017, la Norvège est le pays qui présente le degré de féminisation des conseils le plus élevé. On peut voir que les autres pays nordiques comme la Suède, la Finlande et le Danemark, n'ont pas eu besoin de loi imposant un quota de femmes, leurs conseils d'administration présentant déjà des pourcentages de femmes élevés. Non loin derrière la Norvège, la France compte 41% de femmes dans les conseils du SBF 120 à l'issue des assemblées générales 2017⁵. La loi Copé-Zimmermann, mise en place en janvier 2011, impose aux entreprises d'au moins 500 salariés ou réalisant au moins 50 millions d'euros de chiffre d'affaires, d'avoir au moins 20% de femmes dans leurs conseils d'administration ou de surveillance à compter de janvier 2014, et au moins 40% de femmes à partir de janvier 2017⁶. L'objectif a donc été atteint. La France est suivie de la Suède, qui compte 37% d'administratrices, puis de l'Italie, l'Allemagne, la Finlande et la Belgique avec des pourcentages de femmes dans les conseils d'administration proches ou au-dessus de 30%.



Source : BoardEx

Figure 3 – Évolution du pourcentage de femmes au sein des conseils d'administration

⁵ D'après les chiffres de gouvernance de la semaine du 16 juin 2017 du premier observatoire international de la gouvernance des sociétés cotées, Ethics and Boards.

⁶ En 2020, la mesure s'étendra aux entreprises d'au moins 250 salariés.

L'Italie et la Belgique ont également mis en place des quotas en 2011, imposant un seuil de 33%, à compter de 2015 et 2017, respectivement. Plus récemment, en décembre 2014, l'Allemagne a mis en place un quota de 30% de femmes dans les conseils d'administration, à compter de 2016. De plus, la Commission Européenne a adopté en 2012 une directive mettant en place un objectif de 40% de chaque genre dans les postes d'administrateurs non exécutifs des sociétés cotées en Europe d'ici 2020. Cette directive est toujours en cours de discussion.

L'introduction des quotas de femmes dans les conseils d'administration a conduit ainsi à des évolutions divergentes du degré de féminisation de ces instances. La Figure 3 montre cette différence d'évolution entre les pays qui ont instauré des quotas (France, Italie, Belgique) et les autres pays (États-Unis, Royaume-Uni), ainsi que l'augmentation immédiate du pourcentage d'administratrices en réponse aux quotas.

3.2 Effet sur la valeur boursière des entreprises

Le second chapitre étudie l'impact de l'introduction de quotas de femmes dans les conseils d'administration en France sur la valeur boursière des entreprises. Pour ce faire, cette étude examine dans un premier temps la réaction des cours des entreprises aux événements liés au processus d'adoption de la loi, qui ont mené à sa promulgation le 27 janvier 2011. En particulier, l'analyse inclut les sociétés étrangères cotées sur Euronext Paris, qui ne sont pas soumises au quota, pour s'assurer que la réaction du marché est causée par le quota et non pas par un autre événement. Les résultats montrent que le quota a engendré une réaction positive du marché à l'annonce de la promulgation de la loi, en particulier pour les conseils qui présentent un faible taux de féminisation. L'introduction de plus de femmes dans les conseils est donc perçue favorablement par les investisseurs. Cet article s'intéresse ensuite à la réaction des cours de bourse des entreprises aux annonces de nominations de femmes dans leurs conseils d'administration. L'introduction de quotas représente un choc exogène de la demande des femmes au sein des conseils d'administration, ce qui permet d'identifier la relation de causalité des changements de composition des conseils sur les réactions boursières. Avant le quota, les investisseurs réagissent positivement aux annonces de nominations d'administratrices, en particulier pour les conseils d'administration majoritairement masculins. En revanche, une fois la loi promulguée, les nominations de femmes ne conduisent plus à des réactions de cours différentes de celles des nominations d'hommes. Les investisseurs, considérant la promulgation de la loi le 27 janvier 2011 comme une bonne nouvelle, anticipent les recrutements de femmes résultant du quota. Les résultats sont robustes à la correction d'un biais de sélection de

l'échantillon. Ainsi, ce second chapitre suggère que la loi sur les quotas est considérée comme bénéfique par les investisseurs, et qu'elle a conduit les nominations de femmes à ne plus entraîner d'impact différencié par rapport aux réactions de nominations d'hommes.

Ce chapitre complète la littérature relative aux questions de diversité de genre dans les conseils (par exemple Adams et Ferreira, 2009, Schwartz-Ziv, 2017, Carter, Franco et Gine, 2017), notamment la littérature sur les nominations d'administratrices (par exemple Farrell et Hersch, 2005, Campbell et Minguez-Vera, 2010, Schmid et Urban, 2016). Ce second chapitre constitue aussi la première étude empirique sur l'effet de l'introduction du quota de femmes dans les conseils d'administration sur la valeur des entreprises françaises. Ce cadre permet ainsi de contrôler pour les problèmes d'endogénéité. Ainsi, il s'insère également dans la littérature traitant du quota en Norvège (notamment Ahern et Dittmar, 2012, Matsa et Miller, 2013 et Nygaard, 2011), qui a mené à des résultats divergents. De plus, comme l'ont souligné Eckbo, Nygaard et Thorburn (2016), ces études ne s'accordent pas sur des dates de loi communes. Cet article permet de trancher le débat, en analysant la réaction du marché aux différents événements du processus d'adoption de la loi, puis en utilisant ces événements pour définir différentes sous-périodes d'analyses.

3.3 Impact des quotas sur le marché du travail

Enfin, le troisième chapitre analyse l'impact du quota sur le marché du travail des administrateurs. Cette étude montre que l'introduction du quota de femmes dans les conseils d'administration en France a conduit à réduire le taux de départ des femmes administratrices des conseils d'un tiers, sans avoir d'impact sur celui des administrateurs. Ce résultat est principalement dû aux recrutements de femmes résultant du quota, et est plus marqué dans les entreprises qui recrutent habituellement des administrateurs issus de l'élite française. Ainsi, cette recherche suggère que le quota a permis aux entreprises « élitistes » de recruter en dehors de leurs cercles habituels de candidats. Leurs pratiques de recrutement dans les conseils d'administration sont ainsi devenues plus professionnelles. De ce fait, le quota a amélioré la stabilité des nouveaux recrutements. Les raisons peuvent être liées au fait que ces recrutements sont de meilleure qualité, ou que ces nouveaux administrateurs apprécient leurs mandats plus que ceux qui ont été recrutés à travers les réseaux. Dans les deux cas, le quota améliore la qualité des correspondances entreprise-administrateur, mesurée par le taux de départ des administrateurs.

Les contributions de cet article sont multiples. Les résultats mettent en lumière l'importance des réseaux informels au sein du marché des administrateurs et complètent la littérature qui traite de ce sujet (par exemple Nguyen, 2012, Kramarz et Thesmar, 2013). De plus, cet article montre que les administratrices peuvent bénéficier de l'introduction de quotas de plusieurs manières : plus de mandats s'ouvrent à elles, leurs mandats sont plus stables et elles deviennent plus sélectives quant aux mandats qu'elles se voient proposer. Cette étude contribue aussi à étendre l'ensemble de la littérature traitant du marché du travail des administrateurs (notamment Fahlenbrach, Kim et Low, 2017, Denis, Denis et Walker, 2015, 2017). Ce chapitre complète également la littérature portant sur la diversité dans les conseils d'administration.

Chapter 1

Award-Winning Directors

Abstract

I study the effect of the recognition of directors' expertise on growth opportunities through directors' receipt of prestigious awards. I use a matched sample of award-winning and non-award-winning directors of European and US firms and find that the presence of award winners on boards leads to better investment opportunities. First, award-winning directors have better attributes than non-award-winning directors. Second, I find that awards cause a significant increase in the number of directorships and in the number of books written. The evidence shows that award winners induce a spill-over effect. Overall, the results suggest that directors with recognized expertise enhance strategic decision-making and develop the firm's notoriety.

1.1 Introduction

The effectiveness of corporate governance is a worldwide concern that leads firms to seek the best candidates for board positions. Some scholars argue that independence is the most highly desired qualification, whereas others argue that industry experience is a more important dimension. Highly talented personnel appointments have also attracted increased public attention. There is no consensus on which skills matter for a directorship, making the appointment of the most suitable director a complex task.

This paper studies the effect of the legitimization of directors' expertise on growth opportunities. Prestigious awards gained by directors allow for construction of a proxy for the recognition of directors' expertise. A matched sample of award-winning and non-award-winning directors of European and US firms is used to investigate this impact.

The presence of such directors may have effects on growth opportunities. First, award-winning directors may enhance strategic decision-making. They can have a flexible corporate thinking. Second, the appointment of such directors may help redeploy assets. Such directors can also enhance firm notoriety. Award-winning directors can attract other award winners to the board. All these effects lead to better investment opportunities for firms.

The effect of the recognition of directors' expertise on corporate governance is an empirical question that leads to other questions: Does the presence of award-winning directors on boards affect growth opportunities? Are such effects different for the European and US samples? How do awards affect directors' outside activities? Do awards attract awards? Does the expertise become more recognized with awards?

A measure of the recognition of expertise was constructed using awards related to directorial and managerial achievements, awards conferred by business magazines and organizations, and obtained from local governments. In the base case results, Tobin's Q is used as a measure of growth opportunities. My first goal was to analyse the effect of the recognition of expertise on growth opportunities across a sample of US and European firms. The European sample includes France, Italy, Belgium, and the United Kingdom. Award winners on boards appear to have a positive effect on Tobin's Q in both samples.

To estimate the real effects of award-winning directors on corporate outcomes, this effect must be isolated from potential endogenous issues. One important concern is that award winners may either select or be selected by firms with better attributes; thus, the endogenous selection of such directors may explain their effect on growth opportunities. To correct for any

potential endogenous selection on observed variables, a propensity score-matched sample approach is implemented, and similar results were obtained for the matched samples.

Next, the mechanisms underlying this effect are investigated, with the results showing that award-winning directors generally appear to have more desirable attributes than non-award-winning directors in several relevant dimensions. Overall, they are more experienced than non-award-winning directors. They have more CEO experience, have held more positions as industry experts, and are older. Moreover, they are more independent directors seated in larger firms with higher returns on assets and larger boards. This univariate analysis strengthens the idea that awards capture directors' expertise and supports the proposition that such winners are better decision makers.

In addition, the consequences of awards at the director level are analysed. Awards cause a significant increase in both the number of directorships and the number of books written. This evidence suggests that award winners contribute to the development of the firm's reputation.

Finally, award-winning directors induce a spill-over effect. They allow for better recognition of expertise within a board. Award winners are more likely to receive awards in the future. These results support the idea that awards bring greater notoriety.

This evidence suggests that recognition of directors' expertise increases growth opportunities through different channels. First, award winners have attributes that suggest better decision-making abilities than those of non-award-winning directors. Second, awards lead to increased *coverage* of award-winning directors because of their greater number of books and directorships. This effect generates future awards both for winning directors and for non-award-winning directors who are connected with award winners. Overall, the recognition of directors' expertise leads to governance structures that increase investment opportunities by developing the firm's notoriety and enhancing strategic decision-making.

This paper contributes to the line of research on the role of directors' expertise. The literature has examined the role of directors' industry-specific expertise. For example, Masulis, Ruzzier, Xiao, and Zhao (2012) and Drobetz, Meyerinck, Oesch, and Schmid (2017) show that independent expert directors have a positive impact on several major corporate decisions, leading to better firm performance. Industry expert directors have both the incentives and the industry-specific knowledge to more effectively monitor and advise CEOs, leading more powerful CEOs to avoid them. Dass, Kini, Nanda, Onal, and Wang (2014) argue that "directors from related industries" are more likely to be appointed either when the information gap relative to related industries is more severe or when the firm has greater market power. These directors have a significant positive impact on firm value, especially when information problems are

more difficult. Faleye, Hoitash, and Hoitash (2017) propose that industry expertise improves board advising and is associated with enhanced innovation, leading to increased firm value. Kang, Kim, and Lu (2017) argue that the positive effect of industry expertise occurs when directors have also CEO experience in the related industry. Güner, Malmendier, and Tate (2008) study the role of financial experts and suggest that increasing financial expertise on boards may not benefit shareholders if conflicting interests are neglected. McDonald, Westphal, and Graebner (2008) show that outside director acquisition expertise delivers better benefits, especially when boards are independent of management. Faleye, Hoitash, and Hoitash (2013) propose that advisory directors possess professional expertise and experience that is valuable to the CEO for strategic decision-making, including entrepreneurial backgrounds, CEO-level experience, advanced degrees, and longer board tenures. They are associated with increased and better-quality corporate innovation and higher firm value. Adams, Akyol, and Verwijmeren (2017) studied twenty relevant director skill sets (e.g., academic, entrepreneurial, governance, and sustainability skills) that influence the selection of an individual for a board position. They focus on the commonality of such skills on boards, which leads to an increase in firm performance. One problem in this literature is that it is difficult to recognize directors' skills based on the evidence. Thus, the results of this analysis complement the literature by adding a new dimension: the recognition of directors' expertise proxied by awards.

Because one consequence of awards at the director level is an increase in directorships, this analysis is related to the literature on the relation between corporate governance and busy directors. Ferris, Jagannathan, and Pritchard (2003) propose that directors in larger firms and larger boards are more likely to attract directorships. They show that firm performance has a positive effect on the number of appointments held by a director. They did not find evidence that multiple directors shirk their responsibilities to serve on board committees or that they are associated with a greater likelihood of securities fraud litigation. Field, Lowry, and Mkrtchyan (2013) argue that among firms that probably rely heavily on their directors for advising, busy boards are common and contribute positively to firm value. Moreover, Masulis and Mobbs (2011) report that firms with inside directors that hold outside directorships have better operating performance and market-to-book ratios. Conversely, Fich and Shivdasani (2006) found that firms with busy boards are associated with weak corporate governance, and departures of busy outside directors generate positive abnormal returns.

This analysis is related to the work of Malmendier and Tate (2009), who used prestigious business awards to measure shocks to CEO status and found that award-winning CEOs underperform relative both to their prior performance and to a matched sample of non-

award-winning CEOs. They extract more compensation following the receipt of an award, and they spend more time on outside public and private activities. Here, prestigious awards are used in a different manner: to proxy for the legitimization of the expertise of directors and determine their effects on growth opportunities.

The remainder of this paper is organized as follows. The data and sample characteristics are described in the next section. Section 3 presents the results on growth opportunities and section 4 reports the results on the estimation of directors' outcomes. Section 5 presents an analysis of whether directors' awards lead to spill-over effects, and section 6 concludes.

1.2 Data

I analyse an unbalanced panel of European and US boards from 2003 to 2014 using data from Management Diagnostic's BoardEx database. The sample consists of 26,770 firm-year observations for 3,984 unique European firms and 68,170 firm-year observations for 10,490 unique US firms. The European sample includes data from four different countries: France, Italy, Belgium, and the United Kingdom (FIBU for the remainder of the paper). Accounting data were taken from Datastream. After excluding firm-year observations with missing firm size values (firm leverage), the sample included 19,137 (19,044) firm-year observations for the European sample and 45,222 (41,862) for the US sample.

1.2.1 Firm and board characteristics

Table 1 presents summary statistics of firm and board characteristics and a comparison between the European and US samples, separated by boards with/without award winners. Boards with award winners include at least one director who has received at least one award in the past (i.e., before the current year) and boards without award winners do not have award-winning directors.¹ The boards with award winners differ from the boards without award winners along all dimensions.

Among the European sample, boards with award winners have fewer dual CEO structures (36% for boards without award winners versus 29% for boards with award winners, on average) whereas the reverse is true for US boards (52% for boards without award winners

¹ The definition of the award measures are described in the next subsection.

versus 62% for boards with award winners, on average).² Notably, in the US, although regulatory authorities are pressuring firms to separate the function of CEO and chairman, a dual CEO structure is commonly used, as confirmed in the sample (52% of US firms have CEO duality). In contrast, similar recommendations have been made in Europe, resulting in the separation of CEO and chairman positions in several firms, particularly in the UK (33% of European firms have CEO duality).

In both the European and the US samples, the proportion of independent directors is higher on boards with award winners (the difference is approximately 11% in the European sample and 12% in the US sample). Moreover, boards with award winners have higher proportions both of directors with CEO experience and of industry expert directors (the difference is much more pronounced in the US).

Boards with award winners are larger in both the European firms and the US firms: the average number of board members is 9.3 (10.1) for boards with award winners and 6.4 (7.5) for boards without award winners in the European sample (US). Firm size, measured as the logarithm of total assets in millions of Euros,³ is higher (by nearly 2) for boards with award winners in both samples. The average leverage is also higher for boards with award winners for both the European and US firms.⁴

1.2.2 Award-winning directors on boards

Prestigious business awards were used to construct a proxy for the recognition of directors' expertise. The initial sample was completed with data related to directors' awards and achievements.⁵ An award was defined as follows: for a given year, it is either an award received from local governments, a directorial or managerial achievement (e.g., best director, best CEO, best manager), or an award conferred by one of a variety of publications and organizations (Business Week, Financial World Magazine, Chief Executive, Forbes, Industry Week, MorningStar, Time Magazine, Electronic Business Magazine, Ernst & Young, Fortune Magazine, and Super Lawyers Magazine). Thus, awards in the sample can be location-specific and include awards from local governments or international organizations for a specific achievement in a country or a region (e.g., European Businessman of the Year, National

² CEOs who jointly serve as board chairs.

³ This variable is winsorised at the 1% and 99% levels.

⁴ This variable is winsorised at the 1% and 99% levels.

⁵ Also from Management Diagnostic's BoardEx database, in a separate file named "Director Profile – Education & Achievements," under the "Achievements" tab.

Entrepreneur of the Year). Awards from international organizations can also highlight an achievement at the worldwide level: for example, CEO of the Year, Man of the Year, International Entrepreneur of the Year, or World's 20 Most Powerful Businessperson awards. These organizations' awards include other categories, among them industry-specific achievements (e.g., Smartest People in Tech) and gender-specific achievements (e.g., 50 Most Powerful Women in Business). The only striking difference between the European and US samples in the awards data is the proportion of awards from local governments: approximately 24% of awards in the European sample are conferred by local governments, whereas merely 1.6% of awards in the US are conferred by the US government. Despite the differing categories and this difference between the regions, the goal was to construct a proxy for recognition of the expertise of directors without distinguishing these differences.

Table 2 reports summary statistics for award-winning directors on boards and compares these statistics between the European and the US firms. An award-winning director was defined as a director who had received at least one award in the past (i.e., at least one year before the current year). The average proportion of award-winning directors on boards in the European sample was 7.6%, whereas it was approximately 0.85% in the US. Moreover, the European sample includes more boards with at least one award-winning director: the proportion of boards with at least one award-winning director from 2003 to 2004 was approximately 37% for the European firms and 6.5% for the US firms. Notably, the proportions of boards with at least two award-winning directors and at least three award-winning directors are also much higher in the European sample. The differences between the subsamples of boards with award winners were nearly the same. This can be explained by the difference in the proportion of awards from local governments between the European and the US samples.

1.2.3 Tobin's Q and the final sample

Tobin's Q, which is the ratio that relates the market value of the firm's assets to their replacement cost, was used as a proxy for growth opportunities. Tobin's Q is defined as the sum of total assets and market value of equity less the book value of equity divided by total assets. The market value of equity is the aggregate market value (i.e., price times shares outstanding). Note that firms with a higher Tobin's Q have more valuable growth opportunities, i.e., funds raised externally will be used more profitably in those firms. Tobin's Q measures a firm's incentive to invest (see, for example, Hermalin and Weisback (1991), Morck, Shleifer, and Vishny (1988), Villalonga and Amit (2006), and Fracassi and Tate (2012)). In the

regressions, because firm-year observations with missing values for firm size, firm leverage or Tobin's Q were excluded, the sample consists of 18,339 firm-year observations for the European sample and 40,732 for the US sample.

1.3 Growth Opportunities

1.3.1 Empirical specification

To estimate the effect of the recognition of directors' expertise on growth opportunities, the following regressions were run at the firm level:

$$Q_{i,t} = \alpha_0 + \alpha_t + \alpha_1 AwardWinners_{i,t} + \beta_1 x_{i,t} + u_{d,t}, \quad (1)$$

where $Q_{i,t}$ is the Tobin's Q of firm i at the end of fiscal year t , α_0 is a set of sector and country fixed-effects, α_t is a set of year fixed-effects, $AwardWinners_{i,t}$ is a proxy of the recognition of directors' expertise. The outcome depends on a vector of observable firm and board characteristics, $x_{i,t}$, that includes a dummy variable set to one if the CEO also holds the chairman position, the proportion of independent directors on the board, the proportion of directors with CEO experience, the proportion of industry expert directors, the board size, the firm size, and the leverage. The proxy of the recognition of expertise is the proportion of award-winning directors on the board, an indicator equal to one if there is at least one award-winning director on the board, an indicator equal to one if there are at least two award-winning directors on the board, an indicator equal to one if there are at least three award-winning directors on the board or an indicator equal to one if the proportion of award-winning directors is in the fourth quartile observed on a given year in a given region.

Table 3 shows the outputs of regressions of Tobin's Q on the measures of award winners on the board and other controls, as in equation (1), for the European (Columns 1 to 5) and US samples (Columns 6 to 10). Column 1 shows that the estimate of the proportion of award-winning directors on the Tobin's Q across the European sample is 0.79. Column 2 reveals that boards with at least one award-winning director have a Tobin's Q that is 21.7% higher than boards without award-winning directors. Similar results, with the same sign and similar magnitudes as those in Columns 3, 4, and 5 were obtained when the other measures of award

winner on the board were used. Thus, among the European sample, award-winning directors have an economically and statistically significant effect on Tobin's Q.

Column 6 enables the determination that the estimate of the proportion of award-winning directors on Tobin's Q in the US is positive and equal to 1.70. Column 7 reveals that, as in the European sample, boards with at least one award-winning director have a higher Tobin's Q than boards without award-winning directors. The difference is 22.3%, similar to the effect seen in Europe. Notably, similar results with the same sign and similar magnitudes as those in Columns 8 and 10 were observed when the other measures of award winners on the board were used. However, the indicator set to one if there are at least three award-winning directors is only borderline significant. Thus, these results exhibit the same economically and statistically significant positive effect of award winners on Tobin's Q in both Europe and the US. This evidence suggests that the recognition of directors' expertise leads to an increase in growth opportunities.

1.3.2 Endogenous concerns and propensity score analysis

It is possible that the regressions of Tobin's Q are mis-specified via reverse causality: individuals may receive awards because they sit on the boards of firms with high investment opportunities. This concern may be controlled for using directors' past awards, i.e., at least one year before the current year.⁶ Because current investment opportunities cannot lead to awards in the past, the results in Table 3 are free of the reverse causality concern.

However, it is likely that boards with and without award winners might differ in dimensions correlated with investment opportunities. For example, firms with certain attributes may have higher growth opportunities, which is a characteristic favoured by award winners. Table 1 suggests that this sample selection concern is warranted and reveals that boards with award winners differ from boards without award winners in all dimensions. Thus, the results in Table 3 could be attributable to differences in firm and board characteristics and are unlikely to provide a valid estimate of the effect of award winners on boards.

To address the potential sample selection concern, a propensity score matching approach is used. Although this approach cannot address the endogeneity bias caused by omitted unobservable firm and board characteristics, it allows for the correction of potential endogenous selection on observable firm and board characteristics.

⁶ An award-winning director is defined as a director with at least one award obtained in the past, i.e., at least one year before the current year.

To construct the control sample, the propensity scores were estimated using a logit model in which the dependent variable is an indicator set to one if there is at least one award-winning director on the board and zero otherwise. Given the differences in Table 1, CEO duality, the proportions of independent directors and directors with CEO experience, industry expert directors, board size, firm size, and firm leverage were included. The year, sector, and country (only for the European sample) fixed effects were also included. In Panel B of Table 4, Columns 1 and 3 report the marginal effects of these regressions across the European and the US samples, respectively.⁷ These estimates were used to generate a propensity score, i.e., a prediction of the firm's probability of having at least one award-winning director on the board. This propensity score was used to match each firm-year observation with at least one award-winning director to a firm-year observation without an award-winning director using a nearest-neighbour match without replacement.⁸ The propensity scores for each matched pair were required to be within +/- 1%. The resulting sample consists of 9,752 firm-year observations for the European firms and 5,412 for the US firms.

Panel A of Table 4 presents the differences in the propensity scores and firm and board characteristics between boards with and without award winners across the matched samples. The mean difference in propensity scores is not statistically significant and the means of observed variables are not significantly different across the matched samples. This confirms that the post-match samples are more similar along all these dimensions.

The regression model presented in Columns 1 and 3 of Panel B was run on the matched sample, and the results are shown in Columns 2 and 4. None of the control variables remain statistically significant and therefore do not explain any variation in the board award-winner status of matched firms. The results shown in Table 4 suggest that the matching procedure is valid.

In Table 5, equation (1) is estimated using the propensity score-matched samples. Column 1 (Column 6) shows that the estimate of the proportion of award-winning directors on Tobin's Q across the European sample (the US) decreases by 16.7% (20.5%) to 0.66 (1.35). Column 2 (Column 7) reveals that in Europe (the US), boards with at least one award-winning director have a Tobin's Q that is 19.9% (18.6%) higher than boards without award-winning directors. The results in the remainder of the table are roughly the same. Thus, sample-selection

⁷ After excluding firm-year observations with missing values for firm size or firm leverage, the sample includes 18,491 firm-year observations for the European sample (Column 1) and 40,827 for the US sample (Column 3).

⁸ Each control observation was used as a match for a treated observation no more than once.

issues only explain a fraction of the effect of award winners on the board on growth opportunities.

1.4 Director Outcomes

In this section, the mechanisms underlying the effect of award-winning directors on boards are explored by conducting a director-level analysis.

1.4.1 Univariate Analysis

The sample includes 165,416 director-year observations for the European sample and 415,177 director-year observations for the US sample. Table 6 compares director characteristics between the European and US samples, separated by award-winning directors. Award winners differ from non-award-winning directors in all dimensions.

Award-winning directors appear to be more experienced than non-award-winning directors in both the European and the US samples: they have more CEO experience and more positions as industry experts. Moreover, they have more board seats as independent directors and sit on larger firms with higher returns on assets⁹ and bigger boards. Award-winning directors are also older than non-award-winning directors and, in the European sample, they spent more time on their boards (the difference is not statistically significant in the US). Thus, this table suggests that award-winning directors generally appear to have better attributes in several relevant dimensions than non-award-winning directors. This simple comparison is consistent with the idea that awards capture directors' expertise. These attributes are likely to be valuable in strategic decision-making.

The consequences of awards at the director level were analysed using the regressions. The effects of awards on directors' outside activities such as the number of board seats, which was defined as the number of current boards seats held by the director in quoted firms, and the number of books authored, which is defined as the number of books written by the director in a current year, were investigated.¹⁰ Because director-year observations with missing values for average return on assets, average firm size, average tenure, age, or average number of board seats were excluded, the sample consisted of 107,924 (108,300) director-year observations for

⁹ Earnings before interest, taxes, depreciation, and amortization scaled by total assets.

¹⁰ Also from the file named "Director Profile – Education & Achievements," under the "Achievements" tab

the European sample and of 294,434 (295,587) director-year observations for the US sample for the number of board seats (number of books).

1.4.2 The effect of awards on outside activities

To study the effect of awards on outside activities, the following regressions were run at the director level:

$$y_{d,t} = \alpha_t + \alpha_1 \text{AwardWinner}_{d,t} + \beta_1 x_{d,t} + u_{d,t}, \quad (2)$$

where $y_{d,t}$ is the number of board seats or the number of books, α_t is a set of year fixed-effects, $\text{AwardWinner}_{d,t}$ is an indicator variable set to one if the director d got at least one award in the past and zero otherwise. The outcomes depend on a vector of observable director characteristics, $x_{d,t}$, that includes a dummy variable set to one if the director has a CEO experience, the director's average industry expert positions, the director's average independent positions, the average return on assets of firms in which the director sits, the average board size of firms in which the director sits, the average tenure of the director's board seats, the average firm size of firms in which the director seats, and the director's age.

The results are free from the reverse causality concern using the awards won by directors in the past. Because Table 6 suggests that the likelihood of a director to be an award winner is subject to a sample selection concern, a propensity score matching approach was used. The propensity scores were estimated using a logit model in which the dependent variable is an indicator set to one if the director is an award winner and zero otherwise. A set of predictors that were the same as the variables described in Table 6 was used, and year-fixed effects were included. In Panel B of Table 7, Columns 1 and 3 report the marginal effects of the logit regressions across the European and the US samples, respectively. Award-winning directors were then matched to non-award-winning directors. The resulting sample consists of 17,370 (17,452) director-year observations for the European sample and 5,404 (5,424) director-year observations for the US for the number of board seats (books).

Panel A of Table 7 presents the differences in the propensity scores and director characteristics between award-winning directors and non-award-winning directors across the matched samples. The mean differences in propensity scores are not statistically significant and

the means of observed variables are not significantly different across the two matched samples. This confirms that the post-match directors are more similar along all these dimensions.

The regression model presented in Columns 1 and 3 of Panel B was used on the matched samples and the results are reported in Columns 2 and 4. None of the control variables remain statistically significant and therefore, they do not explain any variation in the award-winner status of matched directors. The results shown in Table 7 suggest that the matching procedure of the director-level analysis is valid.

Table 8 shows the outputs of the regressions of outside activities outcomes on the award-winning director indicator as in equation (2) using both the unmatched samples (Columns 1, 3, 5, and 7) and the propensity score-matched samples (Columns 2, 4, 6, and 8). In Panel A, Columns 1 and 3 show that the estimates of the effect of the award-winning director indicator on the number of board seats was 0.33 in the European sample and 0.95 in the US sample. Interestingly, Columns 2 and 4 show that the estimates of this effect across the matched samples are the same as those in the unmatched samples. Panel B reveals that the estimates of the effect of the award-winning director indicator on the number of books were 0.5% in the European sample and 0.6% in the US sample. The same effects were observed in the matched samples. Thus, awards cause a significant increase in the number of directorships and the number of books written. This evidence suggests that award winners contribute to the development of the reputation of the firm, which may facilitate redeployment of assets and lead to better investment opportunities.

1.5 Spill-over Effects

An additional effect of award-winning directors may operate through a spill-over effect. In this section, the aim is to answer the following questions: Do award-winning directors attract awards? Does their expertise become more recognized with awards? The potential spill-over effect of award-winning directors is investigated through two channels: the effect on boards and the effect at the award-winning director level.

1.5.1 Spill-over effect on boards

To estimate the spill-over effect of award-winning directors on boards, the following regressions were run at the firm level for the European and US firms for the propensity score-matched samples:

$$AwardCurrent_{i,t} = \alpha_0 + \alpha_t + \alpha_1 AwardWinners_{i,t} + \beta_1 x_{i,t} + u_{d,t}, \quad (3)$$

where $AwardCurrent_{i,t}$ is an indicator set to one if there is at least one director on the board of firm i with at least one current award (i.e., obtained during the current year t), α_0 is a set of sector and country fixed-effects, α_t is a set of year-fixed effects, $AwardWinners_{i,t}$ is a proxy of the recognition of directors' expertise (as in equation (1)). The outcome depends on a vector of observable firm and board characteristics, $x_{i,t}$, that includes the same variables as in equation (1).

Table 9 shows the outputs of regressions of the current award winners indicator on the measures of (past) award winners on the board as in equation (3) for the European matched sample (Columns 1 to 5) and the US matched sample (Columns 6 to 10).¹¹ Column 1 (Column 6) shows that the estimate of the proportion of award-winning directors on the likelihood that at least one director receives an award during the current year in the European (US) matched sample is 0.208 (0.617). Moreover, Column 2 (Column 7) reveals that boards with at least one award-winning director are 4.2% (7.5%) more likely to have at least one director on the board with one current award. Similar results are presented in Columns 3, 4, and 5 (Columns 8, 9, and 10), and the positive effect increases with at least two or at least three award-winning directors on the board (approximately 6% and 11%, respectively, in Europe and approximately 3.6% and 22.1%, respectively, in the US).

These results reveal that the presence of award winners on the board has a strong positive effect on the likelihood that other directors on the board receive an award in the current year. In both the European and the US samples, having award winners on boards appears to lead to a spill-over effect. They allow for better recognition of the expertise within a board and this effect increases with the number of award winners on the board. This evidence supports the idea that awards bring the firm more notoriety.

1.5.2 Spill-over effect on award-winning directors

¹¹ Note that the matched samples are the same as those in subsection 3.2.

To determine whether there is a spill-over effect on award-winning directors, the following regressions were run at the director level on the matched samples:

$$AwardCurrentDum_{d,t} = \alpha_t + \alpha_1 AwardWinner_{d,t} + \beta_1 x_{d,t} + u_{d,t}, \quad (4)$$

where $AwardCurrentDum_{d,t}$ is an indicator set to one if the director d receives at least one award during the current year t , α_t is a set of year-fixed effects, and $AwardWinner_{d,t}$ is an indicator variable set to one if director d received at least one award in the past and zero otherwise. The outcome depends on a vector of observable director characteristics, $x_{i,t}$, that includes same variables as those in equation (2).

Table 10 shows the outputs of regressions of the current award-winner indicator on the (past) award-winning director indicator as in equation (4) for the European matched sample (Column 1) and the US matched sample (Column 2).¹² This table shows that the estimates of the effect of the award-winning director indicator on the likelihood of receiving an award during the current year are 2.9% for the European sample and 7.2% for the US sample.

This result reveals that award winners are more likely to receive awards in the future. In both the European and the US samples, there is also a spill-over effect at the director level. This evidence supports the idea that awards bring the firm increased notoriety.

1.6 Conclusion

In this paper, I show that the legitimization of directors' expertise leads to increased growth opportunities. Prestigious awards that directors received were used as a proxy for the recognition of their expertise. One possible explanation for this evidence is that directors with recognized expertise have skills that are valuable in strategic decision-making. There is empirical support for this interpretation: award-winning directors have more CEO experience, hold more board seats as industry experts and independent directors, and are older. Moreover, they sit on the boards of larger firms with higher returns on assets and larger boards.

Awards cause a significant increase in the number of directorships and books written. These effects suggest that award winners contribute to developing the firm's reputation. Moreover, the evidence shows that awards induce a spill-over effect: they lead to better

¹² Note that the matched samples are the same as those in subsection 4.2 for the number of books written.

recognition of the expertise of directors on a board, and award winners are more likely to receive awards in the future. The spill-over effect strengthens the idea that awards bring the firm increased notoriety.

One potential rationale for these results is that the recognition of directors' expertise leads to governance structures that increase investment opportunities by developing the firm's notoriety and enhancing strategic decision-making.

Appendix 1.A – Variable Definition

<i>Firm characteristics</i>		(Source: Datastream, BoardEx)
Firm size	Logarithm of the total assets in millions of Euros.	
Leverage	Total debts scaled by total assets.	
Tobin's Q	The ratio of market value of assets to book value of assets. [(Total assets + market value of equity - book value of equity)/ Total assets]	
<i>Board characteristics</i>		(Source: BoardEx)
Board size	Number of board members.	
CEO duality	Indicator set to one if the CEO also holds the chairman position and zero otherwise.	
Independent directors (%)	Ratio of independent directors on the board.	
Directors with CEO experience (%)	Ratio of directors with at least one CEO position (current or past) in his/her employment history.	
Industry expert directors (%)	Ratio of directors that are industry experts.	
Award-winning directors on board (%)	Ratio of directors who received at least one award in the past.	
At least one award-winning director on board	Indicator set to one if there is at least one director on the board who received at least one award in the past and zero otherwise.	
At least two award-winning directors on board	Indicator set to one if there are at least two directors on the board who received at least one award in the past and zero otherwise.	
At least three award-winning directors on board	Indicator set to one if there are at least three directors on the board who received at least one award in the past and zero otherwise.	
Last quartile of the proportion of award-winning directors	Indicator set to one if the proportion of directors who received at least one past award belongs to the fourth quartile in a given year and region and zero otherwise.	
At least one <i>current</i> award-winning director on board	Indicator set to one if there is at least one director on the board who received at least one award in the current year and zero otherwise.	
<i>Director characteristics</i>		(Source: Datastream, BoardEx)
CEO experience	Indicator set to one if the director has or had at least one CEO position in his/her employment history and zero otherwise.	
Age	Director's age in years.	
Industry expert	Indicator set to one if the sector of the firm in which the director is a board member is the same as at least one firm in his/her employment history and zero otherwise.	
Average industry expert positions	Average industry expert positions of the director.	
Independent	Indicator set to one if the director is independent and zero otherwise.	
Average independent positions	Average independent positions of the director.	
Tenure	Director tenure in years.	
Average tenure	Average tenure of the director's board seats.	
Average ROA	Average return on assets (earnings before interest, taxes, depreciation, and amortization scaled by total assets) of firms in which the director sits.	
Average board size	Average board size of firms in which the director sits.	
Average firm size	Average firm size of firms in which the director sits.	
Number of board seats	Number of current board seats held by the director in quoted firms.	
Number of books	Number of books written by the director in the current year.	
Award-winning director	Indicator set to one if the director received at least one award in the past and zero otherwise.	
<i>Current</i> award-winning director	Indicator set to one if the director received at least one award in the current year and zero otherwise.	

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Table 1.1 – Firm and Board Characteristics

This table details firm and board characteristics of the sample of European (Panel A. FIBU) and US firms (Panel B. US) with available board data in BoardEx from 2003-2014. The sample is separated into two groups of boards: boards in the first group (“With award winners”) include at least one award-winning director and boards in the second group (“Without award winners”) do not have award-winning directors. Observations are defined at the firm-year level. All variable definitions are described in the “Variable Definition” Appendix. Diff. denotes the difference between coefficients associated with boards without and with award-winning directors (Without award winners – With award winners) and ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Mean	Median	Min	Max	SD	N	With award winners	Without award winners	Diff.	t-stat.
<i>Panel A. FIBU</i>										
CEO duality	0.33	0	0	1	0.47	26770	0.29	0.36	0.07***	(10.607)
Independent directors (%)	0.36	0.38	0	1	0.28	26770	0.43	0.32	-0.11***	(-31.576)
Directors with CEO experience (%)	0.41	0.40	0	1	0.21	26770	0.43	0.40	-0.03***	(-12.241)
Industry expert directors (%)	0.21	0.14	0	1	0.24	26770	0.22	0.20	-0.02***	(-6.052)
Board size	7.47	7	1	55	3.74	26770	9.28	6.38	-2.9***	(-66.057)
Firm size	5.22	5.01	0.39	13.6	2.54	19137	6.49	4.47	-2.02***	(-57.621)
Leverage	0.17	0.13	0	0.91	0.18	19044	0.20	0.16	-0.04***	(-14.897)
<i>Panel B. US</i>										
CEO duality	0.52	1	0	1	0.50	68170	0.62	0.52	-0.1***	(-13.845)
Independent directors (%)	0.61	0.71	0	1	0.30	68170	0.72	0.60	-0.12***	(-26.388)
Directors with CEO experience (%)	0.39	0.38	0	1	0.22	68170	0.45	0.38	-0.07***	(-19.210)
Industry expert directors (%)	0.21	0.11	0	1	0.26	68170	0.26	0.20	-0.06***	(-13.349)
Board size	7.66	7	1	65	3.33	68170	10.1	7.49	-2.65***	(-52.233)
Firm size	6.14	6.16	-4.97	14.4	2.03	45222	7.96	5.99	-1.97***	(-56.812)
Leverage	0.20	0.15	0	0.98	0.21	41862	0.23	0.20	-0.03***	(-7.914)

Table 1.2 – Award-Winning Directors on Boards

This table reports summary statistics for award-winning directors on boards of the European (Panel A. FIBU) and US firms (Panel B. US) from 2003-2014. The first subsample (Full Sample) includes all the companies in the sample and the second subsample (Boards with award winners) includes the companies with at least one award-winning director on the board. Observations are defined at the firm-year level. All variable definitions are described in the “Variable Definition” Appendix. Diff. denotes the difference between coefficients associated with US and F.I.B.U. observations (US sample – F.I.B.U. sample) and ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Full Sample		Boards with award winners	
	Mean	N	Mean	N
<i>Panel A. FIBU</i>				
Award-winning directors on board (%)	0.076	26770	0.20	10026
At least one award-winning director on board	0.37	26770		
At least two award-winning directors on board	0.15	26770	0.41	10026
At least three award-winning directors on board	0.071	26770	0.19	10026
<i>Panel B. US</i>				
Award-winning directors on board (%)	0.0085	68170	0.13	4422
At least one award-winning director on board	0.065	68170		
At least two award-winning directors on board	0.012	68170	0.18	4422
At least three award-winning directors on board	0.0034	68170	0.053	4422
<i>Diff of means US-FIBU</i>				
	Diff.	t-stat.	Diff.	t-stat.
Award-winning directors on board (%)	-0.07***	(-133.729)	-0.07***	(-41.308)
At least one award-winning director on board	-0.3***	(-129.673)		
At least two award-winning directors on board	-0.1***	(-93.001)	-0.2***	(-27.822)
At least three award-winning directors on board	-0.07***	(-64.732)	-0.1***	(-21.746)

Table 1.3 – The Effect of Award-Winning Directors on Growth Opportunities

This table reports OLS estimates of the coefficient associated with the proportion of award-winning directors on the board, an indicator set to one if there is at least one award-winning director on the board, an indicator set to one if there are at least two award-winning directors on the board, an indicator set to one if there are at least three award-winning directors on the board, and an indicator set to one if the proportion of award-winning directors belongs to the fourth quartile in a given year in a given region. Additional controls include an indicator set to one if the CEO also holds the chairman position (“CEO duality”), the proportion of independent directors on the board (“Independent directors (%)”), the proportion of directors with CEO experience (“Directors with CEO experience (%)”), the proportion of industry expert directors (“Industry expert directors (%)”), the board size, the firm size, and the leverage. The dependent variable is the Tobin’s Q. Observations are defined at the firm-year level. The sample period is 2003-2014. Standard errors are clustered at the firm level and t-stat are reported in brackets. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

(Table continued on next page)

Table 1.3 – The Effect of Award-Winning Directors on Growth Opportunities (Cont'd)

VARIABLES	Dependent Variable: Tobin's Q									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Award-winning directors on board (%)	0.794*** [5.335]					1.699*** [4.304]				
At least one award-winning director on board		0.217*** [5.293]					0.223*** [4.255]			
At least two award-winning directors on board			0.172*** [3.831]					0.292*** [2.713]		
At least three award-winning directors on board				0.182*** [3.336]					0.312* [1.747]	
Last quartile of the proportion of award-winning directors					0.192*** [4.733]					0.223*** [4.255]
CEO duality	-0.093** [-2.260]	-0.091** [-2.208]	-0.101** [-2.447]	-0.103** [-2.492]	-0.096** [-2.330]	0.069** [2.547]	0.069** [2.569]	0.068** [2.516]	0.068** [2.525]	0.069** [2.569]
Independent directors (%)	0.219** [2.203]	0.219** [2.210]	0.232** [2.343]	0.240** [2.434]	0.224** [2.257]	0.055 [0.475]	0.054 [0.470]	0.061 [0.527]	0.063 [0.543]	0.054 [0.470]
Directors with CEO experience (%)	0.190** [2.412]	0.189** [2.405]	0.195** [2.471]	0.195** [2.457]	0.190** [2.415]	-0.063 [-0.789]	-0.063 [-0.787]	-0.052 [-0.655]	-0.050 [-0.630]	-0.063 [-0.787]
Industry expert directors (%)	0.093 [1.117]	0.082 [0.980]	0.091 [1.090]	0.093 [1.115]	0.092 [1.098]	0.267*** [3.729]	0.268*** [3.748]	0.270*** [3.784]	0.265*** [3.707]	0.268*** [3.748]
Board size	0.067*** [9.224]	0.062*** [8.521]	0.065*** [8.727]	0.066*** [8.947]	0.069*** [9.388]	0.019*** [3.335]	0.018*** [3.104]	0.019*** [3.370]	0.020*** [3.459]	0.018*** [3.104]
Firm size	-0.192*** [-12.907]	-0.191*** [-12.936]	-0.186*** [-12.575]	-0.185*** [-12.366]	-0.188*** [-12.678]	-0.101*** [-9.284]	-0.100*** [-9.207]	-0.096*** [-8.947]	-0.093*** [-8.744]	-0.100*** [-9.207]
Leverage	-0.321*** [-2.997]	-0.327*** [-3.058]	-0.324*** [-3.011]	-0.323*** [-2.997]	-0.321*** [-2.983]	-0.876*** [-11.247]	-0.879*** [-11.282]	-0.885*** [-11.384]	-0.890*** [-11.426]	-0.879*** [-11.282]
Constant	1.819*** [11.252]	1.841*** [11.421]	1.830*** [11.152]	1.827*** [11.110]	1.808*** [11.151]	2.590*** [15.522]	2.612*** [15.619]	2.588*** [15.622]	2.570*** [15.429]	2.612*** [15.619]
Observations	18,339	18,339	18,339	18,339	18,339	40,732	40,732	40,732	40,732	40,732
R-squared	0.190	0.190	0.187	0.186	0.189	0.224	0.224	0.223	0.222	0.224
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	-	-	-	-	-
Country	FIBU	FIBU	FIBU	FIBU	FIBU	US	US	US	US	US

Table 1.4 – Firm Level Analysis: Propensity Score Matching

Panel A of this table details the propensity scores and firm and board characteristics across a matched sample of boards with award winners and boards without award winners. Boards in the first group (Boards with award winners) include at least one award-winning director. Boards in the second group (Boards without award winners) do not have award-winning directors. The t-stat reported in brackets are related to the difference between coefficients associated with boards without award-winning directors and boards with award-winning directors (Boards without award winners – Boards with award winners). Panel B presents pre- and post- matching regression results for control variables, including an indicator set to one if the CEO also holds the chairman position (“CEO duality”), the proportion of independent directors on the board (“Independent directors (%)”), the proportion of directors with CEO experience (“Directors with CEO experience (%)”), the proportion of industry expert directors (“Industry expert directors (%)”), the board size, the firm size, and the leverage. In each regression specification, the dependent variable is an indicator set to one if there is at least one award-winning director on the board and zero otherwise. Columns (1) and (2) present the outputs for the sample of European firms and Columns (3) and (4) present the outputs for the sample of US firms. Columns (1) and (3) show the first-stage marginal effects from a logit regression used to compute the propensity scores for the matching procedure. Columns (2) and (4) show the marginal effects from the logit regressions in Columns (1) and (3), respectively, using each sample of matched firms. Observations are defined at the firm-year level. The sample period is 2003-2014. All variable definitions are described in the “Variable Definition” Appendix. Standard errors are clustered at the firm level and t-stat are reported in brackets. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A. Sample comparisons

	Boards with award winners				Boards without award winners				t-stat.
	Mean	Median	SD	N	Mean	Median	SD	N	
<i>FIBU</i>									
Propensity score	0.40	0.39	0.18	4876	0.40	0.39	0.18	4876	(0.607)
CEO duality	0.31	0	0.46	4876	0.31	0	0.46	4876	(-0.373)
Independent directors (%)	0.44	0.44	0.27	4876	0.43	0.43	0.26	4876	(-1.167)
Directors with CEO experience (%)	0.42	0.40	0.19	4876	0.42	0.40	0.20	4876	(0.477)
Industry expert directors (%)	0.22	0.17	0.23	4876	0.22	0.17	0.23	4876	(-0.578)
Board size	7.57	7	2.82	4876	7.62	7	3.13	4876	(0.786)
Firm size	5.45	5.46	2.23	4876	5.46	5.47	2.11	4876	(0.277)
Leverage	0.18	0.13	0.18	4876	0.18	0.14	0.18	4876	(0.494)
<i>US</i>									
Propensity score	0.20	0.15	0.17	2706	0.20	0.15	0.17	2706	(0.180)
CEO duality	0.60	1	0.49	2706	0.59	1	0.49	2706	(-0.360)
Independent directors (%)	0.78	0.82	0.13	2706	0.78	0.82	0.13	2706	(-0.150)
Directors with CEO experience (%)	0.45	0.44	0.16	2706	0.45	0.44	0.17	2706	(-0.718)
Industry expert directors (%)	0.26	0.20	0.25	2706	0.26	0.18	0.25	2706	(-0.339)
Board size	9.77	10	2.37	2706	9.81	10	2.63	2706	(0.521)
Firm size	7.65	7.84	2.09	2706	7.64	7.74	1.88	2706	(-0.220)
Leverage	0.23	0.20	0.20	2706	0.23	0.21	0.20	2706	(0.115)

(Table continued on next page)

Table 1.4 – Firm Level Analysis: Propensity Score Matching (Cont'd)

Panel B. Logit regression				
VARIABLES	Dependent Variable: At least one award-winning director on board			
	Pre-Matching (1)	Post-Matching (2)	Pre-Matching (3)	Post-Matching (4)
CEO duality	-0.264*** [-2.730]	0.017 [0.164]	-0.151 [-1.565]	0.009 [0.088]
Independent directors (%)	0.699*** [3.395]	0.093 [0.437]	0.743** [2.014]	0.098 [0.247]
Directors with CEO experience (%)	0.337* [1.682]	-0.052 [-0.245]	1.218*** [4.458]	0.098 [0.305]
Industry expert directors (%)	0.267 [1.393]	0.012 [0.061]	0.354 [1.483]	0.119 [0.459]
Board size	0.198*** [9.410]	-0.010 [-0.517]	0.149*** [5.357]	-0.010 [-0.384]
Firm size	0.245*** [8.394]	-0.004 [-0.132]	0.551*** [14.447]	0.002 [0.062]
Leverage	-0.106 [-0.461]	-0.053 [-0.215]	-0.992*** [-3.523]	-0.051 [-0.174]
Constant	-3.988*** [-7.365]	-0.020 [-0.033]	-7.255*** [-12.413]	-0.151 [-0.234]
Observations	18,491	9,751	40,827	5,412
Pseudo R-squared	0.172	0.002	0.227	0.004
Year FE	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES
Country FE	YES	YES	-	-
Country	FIBU	FIBU	US	US

Table 1.5 – The Effect of Award-Winning Directors on Growth Opportunities: Matched Sample

This table reports OLS estimates of the regressions presented in Table 3 for the propensity score-matched samples. Additional controls include an indicator set to one if the CEO also holds the chairman position (“CEO duality”), the proportion of independent directors on the board (“Independent directors (%)”), the proportion of directors with CEO experience (“Directors with CEO experience (%)”), the proportion of industry expert directors (“Industry expert directors (%)”), the board size, firm size, and leverage. The dependent variable is Tobin’s Q. Observations are defined at the firm-year level. The sample period is 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

(Table continued on next page)

Table 1.5 – The Effect of Award-Winning Directors on Growth Opportunities: Matched Sample (Cont'd)

VARIABLES	Dependent Variable: Tobin's Q									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Award-winning directors on board (%)	0.661*** [4.138]					1.351*** [3.228]				
At least one award-winning director on board		0.199*** [4.763]					0.186*** [3.384]			
At least two award-winning directors on board			0.118** [2.228]					0.228** [2.139]		
At least three award-winning directors on board				0.159** [2.337]					0.351 [1.479]	
Last quartile of the proportion of award-winning directors					0.167*** [3.798]					0.186*** [3.384]
CEO duality	-0.079 [-1.458]	-0.080 [-1.478]	-0.079 [-1.458]	-0.081 [-1.486]	-0.080 [-1.479]	0.112* [1.831]	0.115* [1.888]	0.115* [1.858]	0.113* [1.844]	0.115* [1.888]
Independent directors (%)	0.217* [1.730]	0.218* [1.734]	0.214* [1.692]	0.219* [1.740]	0.219* [1.744]	0.116 [0.506]	0.116 [0.506]	0.111 [0.486]	0.117 [0.510]	0.116 [0.506]
Directors with CEO experience (%)	0.203** [2.039]	0.202** [2.023]	0.202** [2.015]	0.198** [1.975]	0.199** [1.994]	-0.213 [-1.174]	-0.213 [-1.171]	-0.210 [-1.164]	-0.213 [-1.179]	-0.213 [-1.171]
Industry expert directors (%)	-0.031 [-0.341]	-0.035 [-0.387]	-0.033 [-0.367]	-0.032 [-0.355]	-0.030 [-0.332]	0.315* [1.956]	0.314* [1.954]	0.327** [2.045]	0.313* [1.953]	0.314* [1.954]
Board size	0.057*** [6.152]	0.054*** [5.816]	0.052*** [5.410]	0.052*** [5.434]	0.058*** [6.273]	0.008 [0.645]	0.002 [0.153]	0.001 [0.044]	0.001 [0.091]	0.002 [0.153]
Firm size	-0.168*** [-8.957]	-0.166*** [-8.916]	-0.168*** [-8.999]	-0.168*** [-8.969]	-0.166*** [-8.859]	-0.097*** [-3.837]	-0.094*** [-3.740]	-0.100*** [-3.925]	-0.097*** [-3.808]	-0.094*** [-3.740]
Leverage	-0.485*** [-3.552]	-0.491*** [-3.602]	-0.487*** [-3.554]	-0.487*** [-3.547]	-0.483*** [-3.528]	-0.978*** [-6.553]	-0.997*** [-6.677]	-0.981*** [-6.552]	-0.986*** [-6.556]	-0.997*** [-6.677]
Constant	1.774*** [8.155]	1.779*** [8.283]	1.872*** [8.438]	1.891*** [8.530]	1.781*** [8.106]	2.520*** [9.438]	2.546*** [9.412]	2.681*** [9.749]	2.656*** [9.687]	2.546*** [9.412]
Observations	9,752	9,752	9,752	9,752	9,752	5,412	5,412	5,412	5,412	5,412
R-squared	0.196	0.198	0.194	0.193	0.196	0.264	0.264	0.261	0.261	0.264
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	-	-	-	-	-
Country	FIBU	FIBU	FIBU	FIBU	FIBU	US	US	US	US	US

Table 1.6 – Univariate Statistics: Director Characteristics

This table details director characteristics in the European sample (Panel A. FIBU) and the US sample (Panel B. US) separated into two groups of directors. Directors in the first group (Award-winning directors) received at least one award in the past. Directors in the second group (Non-award-winning directors) did not receive an award in the past. Observations are defined at the director-year level. All variable definitions are described in the “Variable Definition” Appendix. Diff. denotes the difference between coefficients associated with non-award-winning directors and award-winning directors (Non-award-winning directors – Award-winning directors) and ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Award-winning directors	Non-award-winning directors	Diff.	t-stat.
<i>Panel A. FIBU</i>				
CEO experience	0.49	0.42	-0.07***	(-16.546)
Average industry expert positions	0.22	0.17	-0.05***	(-14.817)
Average independent positions	0.52	0.32	-0.2***	(-47.435)
Average ROA	0.068	0.048	-0.02***	(-10.258)
Average board size	10.5	9.13	-1.37***	(-31.022)
Average tenure	6.67	5.52	-1.15***	(-21.706)
Age	60.8	54.3	-6.5***	(-70.460)
Average firm size	7.14	5.83	-1.31***	(-45.356)
<i>Panel B. US</i>				
CEO experience	0.56	0.40	-0.16***	(-18.589)
Average industry expert positions	0.31	0.16	-0.15***	(-23.083)
Average independent positions	0.74	0.64	-0.1***	(-13.344)
Average ROA	0.084	0.051	-0.033***	(-10.276)
Average board size	10.5	9.04	-1.49***	(-20.519)
Average tenure	7.44	7.72	0.278*	(2.137)
Age	62.0	59.4	-2.6***	(-15.051)
Average firm size	8.26	6.35	-0.16***	(-18.589)

Table 1.7 – Director Level Analysis: Propensity Score Matching

Panel A of this table details the propensity scores and director characteristics for a propensity score-matched sample of European directors and a propensity score-matched sample of US directors separated into two groups of directors. Directors in the first group (Award-winning directors) received at least one award in the past. Directors in the second group (Non-award-winning directors) did not receive an award in the past. The first part of this table is related to the analysis for the “Number of board seats” measure and the second part is related to the analysis for the “Number of books” measure. The t-stat reported in brackets are related to the difference between coefficients associated with non-award-winning directors and award-winning directors (Non-award-winning directors – Award-winning directors). Panel B presents pre- and post- matching regression results for control variables, including an indicator set to one if the director has CEO experience, the average industry expert positions of the director (“Average industry expert positions”), the average independent positions of the director (“Average independent positions”), the average return on assets of firms in which the director sits (“Average ROA”), the average board size of firms in which the director sits (“Average board size”), the average tenure of board seats of the director (“Average tenure”), the average firm size of firms in which the director sits (“Average Firm Size”), and the director’s age. In each regression specification, the dependent variable is an indicator set to one if the director is an award-winner and zero otherwise. The first part presents pre- and post- matching regressions results for the “Number of board seats” and the second part presents the results for the “Number of books.” Columns (1) and (2) present the outputs for the European sample and Columns (3) and (4) present the outputs for the US sample. Columns (1) and (3) show the first-stage marginal effects from a logit regression used to compute the propensity scores for the matching procedure. Columns (2) and (4) show the marginal effects from the logit regressions in Columns (1) and (3), respectively, using each matched sample. Observations are defined at the director-year level. The sample period is 2003 to 2014. All variable definitions are described in the “Variable Definition” Appendix. Standard errors are robust and t-stat are reported in brackets. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

(Table continued on next page)

Table 1.7 – Director Level Analysis: Propensity Score Matching (Cont'd)

Panel A. Sample comparisons									
	Award-winning directors			Non-award-winning directors					
	Mean	Median	SD	N	Mean	Median	SD	N	t-stat.
	<i>Number of board seats measure</i>								
<i>FIBU</i>									
Propensity score	0.13	0.12	0.073	8685	0.13	0.12	0.073	8685	(0.009)
CEO experience	0.52	1	0.5	8685	0.52	1	0.5	8685	(1.139)
Average industry expert positions	0.23	0	0.38	8685	0.23	0	0.4	8685	(0.214)
Average independent positions	0.57	0.67	0.45	8685	0.58	1	0.47	8685	(1.131)
Average ROA	0.071	0.091	0.15	8685	0.068	0.082	0.14	8685	(-1.330)
Average board size	10.2	9.67	4.17	8685	10.1	9	4.58	8685	(-1.793)
Average tenure	6.66	4.9	6.65	8685	6.67	4.9	6.42	8685	(0.125)
Age	60.9	62	8.91	8685	60.9	62	9.07	8685	(-0.047)
Average firm size	7.17	7.29	2.73	8685	7.12	7.13	2.6	8685	(-1.358)
<i>US</i>									
Propensity score	0.029	0.020	0.030	2702	0.029	0.020	0.030	2702	(0.001)
CEO experience	0.56	1	0.50	2702	0.58	1	0.49	2702	(1.648)
Average industry expert positions	0.30	0	0.41	2702	0.30	0	0.43	2702	(0.451)
Average independent positions	0.79	1	0.36	2702	0.77	1	0.39	2702	(-1.402)
Average ROA	0.086	0.11	0.16	2702	0.087	0.089	0.11	2702	(0.242)
Average board size	10.5	10.5	2.44	2702	10.5	10	2.89	2702	(-0.625)
Average tenure	7.59	5.90	6.46	2702	7.61	5.90	6.65	2702	(0.130)
Age	62.2	63	7.85	2702	62.3	63	8.95	2702	(0.389)
Average firm size	8.34	8.66	2.03	2702	8.31	8.51	1.89	2702	(-0.541)

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Table 1.7 – Director Level Analysis: Propensity Score Matching (Cont'd)

	Award-winning directors			Non-award-winning directors				t-stat.	
	Mean	Median	SD	N	Mean	Median	SD		
<i>Number of books measure</i>									
<i>FIBU</i>									
Propensity score	0.13	0.12	0.073	8726	0.13	0.12	0.073	8726	(0.008)
CEO experience	0.52	1	0.5	8726	0.51	1	0.5	8726	(-0.727)
Average industry expert positions	0.23	0	0.38	8726	0.23	0	0.4	8726	(0.279)
Average independent positions	0.57	0.67	0.45	8726	0.58	1	0.47	8726	(1.090)
Average ROA	0.07	0.091	0.15	8726	0.069	0.084	0.13	8726	(-0.439)
Average board size	10.2	9.67	4.16	8726	10.1	9	4.67	8726	(-1.594)
Average tenure	6.66	4.9	6.64	8726	6.64	4.9	6.43	8726	(-0.221)
Age	60.9	62	8.91	8726	61	62	9.1	8726	(0.852)
Average firm size	7.18	7.29	2.73	8726	7.12	7.12	2.59	8726	(-1.451)
<i>US</i>									
Propensity score	0.029	0.020	0.030	2712	0.029	0.020	0.030	2712	(0.009)
CEO experience	0.56	1	0.50	2712	0.56	1	0.50	2712	(0.137)
Average industry expert positions	0.30	0	0.41	2712	0.31	0	0.43	2712	(0.596)
Average independent positions	0.78	1	0.36	2712	0.79	1	0.37	2712	(0.782)
Average ROA	0.086	0.11	0.16	2712	0.085	0.088	0.10	2712	(-0.096)
Average board size	10.5	10.5	2.44	2712	10.6	10.3	2.92	2712	(0.680)
Average tenure	7.59	5.92	6.46	2712	7.54	5.80	6.63	2712	(-0.276)
Age	62.2	63	7.85	2712	62.1	62	8.55	2712	(-0.523)
Average firm size	8.34	8.66	2.03	2712	8.33	8.50	1.92	2712	(-0.192)

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Table 1.7 – Director Level Analysis: Propensity Score Matching (Cont'd)

Panel B. Logit regression								
Dependent Variable: Award-winning director								
VARIABLES	Number of board seats measure				Number of books measure			
	Pre-Matching (1)	Post-Matching (2)	Pre-Matching (3)	Post-Matching (4)	Pre-Matching (1)	Post-Matching (2)	Pre-Matching (3)	Post-Matching (4)
CEO experience	0.346*** [14.876]	-0.037 [-1.191]	0.608*** [14.963]	-0.077 [-1.335]	0.344*** [14.813]	0.019 [0.613]	0.607*** [14.963]	-0.021 [-0.355]
Average industry expert positions	0.132*** [4.515]	-0.001 [-0.014]	0.718*** [15.565]	-0.012 [-0.169]	0.133*** [4.569]	-0.016 [-0.411]	0.720*** [15.639]	-0.058 [-0.850]
Average independent positions	0.557*** [21.852]	-0.051 [-1.421]	0.365*** [7.170]	0.088 [1.110]	0.557*** [21.909]	-0.031 [-0.868]	0.359*** [7.088]	-0.083 [-1.021]
Average ROA	-0.091 [-0.931]	0.134 [1.196]	0.252 [0.890]	-0.085 [-0.385]	-0.099 [-1.011]	0.008 [0.069]	0.223 [0.790]	0.002 [0.009]
Average board size	-0.016*** [-4.565]	0.005 [0.981]	-0.031*** [-4.761]	0.003 [0.233]	-0.016*** [-4.614]	0.004 [0.773]	-0.031*** [-4.717]	-0.011 [-0.917]
Average tenure	0.009*** [4.478]	-0.001 [-0.510]	-0.016*** [-4.853]	0.001 [0.233]	0.009*** [4.442]	0.001 [0.252]	-0.016*** [-4.884]	-0.001 [-0.218]
Age	0.050*** [35.284]	0.000 [0.180]	0.024*** [9.992]	-0.003 [-0.848]	0.050*** [35.433]	-0.001 [-0.790]	0.024*** [10.021]	0.002 [0.576]
Average firm size	0.168*** [24.493]	0.000 [0.053]	0.545*** [41.013]	0.008 [0.426]	0.168*** [24.607]	0.004 [0.489]	0.544*** [41.107]	0.010 [0.571]
Constant	-6.697*** [-73.711]	-0.012 [-0.094]	-10.465*** [-58.322]	-0.075 [-0.282]	-6.704*** [-73.873]	0.012 [0.094]	-10.451*** [-58.401]	-0.079 [-0.292]
Observations	107,924	17,370	294,434	5,404	108,300	17,452	295,587	5,424
Pseudo R-squared	0.084	0.0005	0.111	0.002	0.084	0.0004	0.110	0.001
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Country	FIBU	FIBU	US	US	FIBU	FIBU	US	US

Table 1.8 – The Effect of Awards on Directors’ Outside Activities

This table reports OLS estimates of the coefficient associated with dummy variables set to one if the director is an award-winner (“Award-winner director”), if the director has CEO experience, the average industry expert positions of the director (“Average Industry Expert positions”), the average independent positions of the director (“Average Independent positions”), the average return on assets of firms in which the director sits (“Average ROA”), the average board size of firms in which the director sits (“Average Board Size”), the average tenure of board seats of the director (“Average Tenure”), the average firm size of firms in which the director sits (“Average Firm Size”), and the director’s age. Panel A presents the outputs of the dependent variable: “Number of board seats,” which is defined as the number of current board seats held by the director in quoted firms. Panel B presents the outputs of the dependent variable: “Number of books,” which is defined as the number of books written by the director in a year. Columns (1) and (2) of Panel A (and (5) and (6) of Panel B) present the outputs from an unmatched sample of European directors and a propensity score-matched sample of European directors, respectively. Columns (3) and (4) of Panel A (and (7) and (8) of Panel B) present the outputs from an unmatched sample of US directors and a propensity score-matched sample of US directors, respectively. Observations are defined at the director-year level. The sample period is 2003-2014. Standard errors are robust and t-stat are reported in brackets. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

(Table continued on next page)

Table 1.8 – The Effect of Awards on Director Outside Activities (Cont'd)

VARIABLES	A. Number of board seats				B. Number of books			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Award-winning director	0.334*** [21.104]	0.329*** [16.625]	0.953*** [34.394]	0.955*** [27.650]	0.005*** [5.201]	0.005*** [5.109]	0.006*** [3.882]	0.006*** [3.681]
CEO experience	0.158*** [23.967]	0.195*** [9.433]	0.201*** [53.726]	0.193*** [5.349]	-0.001*** [-3.219]	-0.002** [-1.997]	-0.000 [-0.816]	-0.001 [-0.576]
Average industry expert positions	0.600*** [57.837]	0.596*** [21.010]	0.476*** [64.878]	0.314*** [6.980]	-0.000 [-0.531]	-0.001 [-0.391]	-0.000** [-2.025]	-0.003* [-1.824]
Average independent positions	0.332*** [44.550]	0.203*** [9.739]	0.232*** [68.391]	0.400*** [9.299]	0.002*** [4.978]	0.004*** [3.461]	0.000*** [2.919]	0.003** [2.121]
Average ROA	-0.212*** [-12.601]	-0.269*** [-4.889]	0.019** [2.032]	0.397*** [2.982]	-0.001 [-1.507]	-0.000 [-0.159]	-0.000** [-2.485]	-0.004 [-0.633]
Average board size	-0.010*** [-8.726]	-0.005 [-1.437]	-0.016*** [-22.755]	0.004 [0.593]	0.000 [0.386]	-0.000 [-0.355]	-0.000*** [-2.591]	-0.000* [-1.842]
Average tenure	-0.001** [-1.996]	0.002* [1.685]	-0.007*** [-35.999]	-0.027*** [-11.360]	-0.000* [-1.780]	-0.000 [-0.878]	-0.000 [-1.413]	0.000 [0.208]
Age	0.009*** [26.391]	0.006*** [4.927]	0.005*** [32.050]	0.009*** [3.551]	-0.000 [-0.008]	-0.000 [-1.529]	0.000 [0.069]	0.000 [0.188]
Average firm size	0.067*** [35.497]	0.117*** [20.747]	0.075*** [54.182]	0.023** [2.262]	0.000 [0.710]	0.000 [1.166]	0.000*** [3.702]	0.001 [1.294]
Constant	0.646*** [28.029]	0.582*** [6.847]	0.640*** [52.834]	0.864*** [5.083]	0.002 [1.602]	0.011** [1.991]	0.000 [0.727]	0.008 [1.068]
Observations	107,924	17,370	294,434	5,404	108,300	17,452	295,587	5,424
R-squared	0.130	0.112	0.092	0.173	0.002	0.005	0.002	0.008
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Sample	Unmatched	Matched	Unmatched	Matched	Unmatched	Matched	Unmatched	Matched
Country	FIBU	FIBU	US	US	FIBU	FIBU	US	US

Table 1.9 – The Spill-over Effect on the Boards

This table reports OLS estimates of the coefficient associated with the proportion of award-winning directors on the board, with an indicator set to one if there is at least one award-winning director on the board, an indicator set to one if there are at least two award-winning directors on the board, an indicator set to one if there are at least three award-winning directors on the board, and an indicator set to one if the proportion of award-winning directors belongs to the fourth quartile observed on a given year in a given region. “Additional firm and board controls” include an indicator set to one if the CEO also holds the chairman position (“CEO duality”), the proportion of independent directors on the board (“Independent directors (%)”), the proportion of directors with CEO experience (“Directors with CEO experience (%)”), the proportion of industry expert directors (“Industry expert directors (%)”), the board size, firm size, and leverage. The dependent variable is an indicator set to one if there is at least one director on the board with at least one *current* award (i.e., obtained in the current year) and zero otherwise. Observations are defined at the firm-year level. The sample includes the matched sample of European firms and the matched sample of US firms. The sample period is 2003-2014. Standard errors are clustered at the firm level and t-stat are reported in brackets. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	Dependent Variable: At least one <i>current</i> award-winning director on board									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Award-winning directors on board (%)	0.208*** [8.650]					0.617*** [7.311]				
At least one award-winning director on board		0.042*** [8.491]					0.075*** [8.376]			
At least two award-winning directors on board			0.060*** [6.352]					0.136*** [4.305]		
At least three award-winning directors on board				0.110*** [5.357]					0.221*** [3.515]	
Last quartile of the proportion of award-winning directors					0.046*** [7.624]					0.075*** [8.376]
Observations	9,752	9,752	9,752	9,752	9,752	5,412	5,412	5,412	5,412	5,412
R-squared	0.042	0.038	0.038	0.038	0.038	0.105	0.094	0.088	0.079	0.094
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	-	-	-	-	-
Additional firm and board controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country	FIBU	FIBU	FIBU	FIBU	FIBU	US	US	US	US	US

Table 1.10 – The Spill-over Effect of Director Awards

This table reports OLS estimates of the coefficient associated with dummy variables set to one if the director is an award-winner (“Award-winner director”) and zero otherwise, if the director has a CEO experience, the average industry expert positions of the director (“Average industry expert positions”), the average independent positions of the director (“Average independent positions”), the average return on assets of firms in which the director sits (“Average ROA”), the average board size of firms in which the director sits (“Average board size”), the average tenure of board seats of the director (“Average Tenure”), the average firm size of firms in which the director sits (“Average firm size”), and the director’s age. The dependent variable is an indicator set to one if the director receives at least one award in the *current* year and zero otherwise. Observations are defined at the director-year level. The sample includes a propensity score-matched sample of European directors and a propensity score-matched sample of US directors. The sample period is 2003-2014. Standard errors are robust and t-stat are reported in brackets. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	Dependent Variable: <i>Current</i> award-winning director	
	(1)	(2)
Award-winning director	0.029*** [10.948]	0.072*** [8.584]
CEO experience	0.003 [0.984]	0.017** [2.339]
Average industry expert positions	0.009** [2.338]	0.007 [0.832]
Average independent positions	-0.010*** [-3.172]	-0.059*** [-3.898]
Average ROA	0.006 [0.667]	0.027 [1.142]
Average board size	0.000 [0.454]	-0.002 [-1.526]
Average tenure	0.000 [0.379]	0.001 [1.248]
Age	-0.001*** [-4.671]	-0.001** [-2.284]
Average firm size	0.003*** [3.345]	0.012*** [4.414]
Constant	0.049*** [4.061]	0.066* [1.801]
Observations	17,452	5,424
R-squared	0.023	0.090
Year FE	YES	YES
Country	FIBU	US

Chapter 2

Is Mandated Female Board Representation Good News?

Abstract

This study examines the impact of board gender quotas on market valuation. I find that before the introduction of a quota in France, investors responded positively to female director nominations and expected greater benefits from the increase in gender diversity on male-dominated boards. In addition, I find that the announcement of the enactment of the law on January 27, 2011, was viewed as positive news in the stock market, particularly for boards with few female directors. The evidence suggests that post-quota female appointments are anticipated and expected to add value.

2.1 Introduction

There is no consensus on how the market values gender diversity on corporate boards in the short run. Female directors may be appointed based on tokenism, family connections, or compliance with gender quotas on boards without a sufficient supply of qualified female directors. Such appointments are not likely to be positively valued by the market. Conversely, the market is likely to respond positively to female director appointments if gender diversity is expected to produce potential benefits. Other firms, however, may appoint female directors because they are the best candidates for the job. The market's reaction to a female appointment made for gender-neutral reasons is unlikely to be different from its reaction to a male appointment. Given the introduction of gender quota laws in many European countries, including France, Norway, Italy, Belgium, the Netherlands, Spain, and Germany, this issue has become an increasing concern.

In this paper, I examine the introduction of a mandatory gender balance law in France through two channels. The first channel is the market reaction to key quota-related news events that led to the law's enactment on January 27, 2011.¹ The second one is the market reaction to announcements of female director nominations.

The law provides that beginning in January 2014, a minimum of 20% of board members must be women, a percentage that increases to 40% on January 1, 2017. I consider the introduction of this quota as an exogenous shock to the demand for female directors and use it to identify the causal effects of changes in board composition on stock returns. However, because the exact date of the quota shock is subject to interpretation, I detail different subperiods around the process of passing the law. Such a demand shock has opposing effects on the market reaction to announcements of (female) director appointments. Female director nominations may be gender-neutral, with stock prices reacting no differently than they would to male director nominations. Alternatively, firms may appoint female directors because of their gender, suggesting that gender influences director nominations and leading to different stock price reactions for female and male director appointments.

The objective of this paper is to empirically examine several questions. Does the introduction of the French gender quota affect the stock market's reaction in the short term? Are such effects different for low-percentage female boards than they are for high-percentage

¹ My approach is similar to that of Eckbo, Nygaard, and Thorburn (2016), who identify eleven key quota-related news events that led to the Norwegian quota law.

female boards? How does the market react to female director nominations compared to male director nominations? How do such reactions vary across the process of passing the law? Are such reactions different for non-compliant boards and compliant boards?

I begin with an event study that analyses the impact of quota news events on stock returns. To ensure that the short-run reaction is driven by the quota and not by another event, I include foreign firms listed on Euronext Paris that are not subject to the gender quota. The findings show that the quota caused a significant increase in company stock prices at the announcement of the law's enactment on January 27, 2011, especially for companies with boards that had a low proportion of female directors.

In addition, I examine the market reaction to announcements of director appointments by gender. Unlike most previous studies, I use the introduction of a gender quota as an exogenous shock to the demand for female directors. To be as accurate as possible, I divide the entire period of analysis using quota news events, obtaining the following three subperiods: before the law's submission to the National Assembly on December 3, 2009; during the process of passing the law, i.e., between the law's submission on December 3, 2009, and the law's enactment on January 27, 2011; and after the law's enactment.

Before the law's submission, announcements of female nominations are followed by a stronger market reaction than announcements of male nominations. During the process of passing the law, this gender gap in the market reaction is similar to the first subperiod. However, after the law's enactment, there is no longer a gap in the market's reactions to female and male nominations. These results suggest that before the quota, investors believe that female directors add value and expect benefits from gender diversity. Because the announcement of the law's enactment is viewed as good news by the market, announcements of female director nominations that occurred after the quota are both anticipated and expected to add value. This finding explains that the market's reactions to post-quota announcements of female and male director appointments are no longer different.

The study then investigates the mechanisms underlying the difference in the market's reactions to announcements of female versus male director nominations. First, I find that nominations announced on boards with few female directors explain the majority of this difference. Compared to female nominations to compliant boards,² female nominations to non-compliant boards exhibit a positive reaction during the process of passing the law. Before the law's submission, announcements of female nominations to boards with few female directors

² Compliant boards include a proportion of female directors that exceeds 20%.

(i.e., boards with female representation of less than 10%) resulted in a stronger market reaction than announcements of female nominations to boards with more female directors. Conversely, after the law's enactment, there is no difference between announcements of female nominations on compliant boards and non-compliant boards.

These findings suggest that before the quota, investors respond positively, on average, to female director nominations, particularly when such nominations are announced on boards with few female directors. Investors expect greater benefits from the increase in gender diversity on male-dominated corporate boards. At the announcement of the law's enactment, the market views the board gender quota as good news, particularly for male-dominated boards. This finding shows that post-quota female appointments are anticipated and expected to add value, particularly on non-compliant boards. Thus, the market's reaction to post-quota female appointments is not different from its reaction to post-quota male appointments, both for compliant and for non-compliant boards.

Finally, one potential concern is that firms that announce director nominations might have more positive attributes than firms that do not announce director nominations. Thus, the sample selection of such nominations may explain the effect on the market reaction. I find that larger boards are less likely to announce director nominations, whereas larger firms and boards with more independent directors are more likely to do so. To examine whether my results are robust to the correction of a potential sample selection bias, I use a Heckman procedure and find that the results are qualitatively unchanged. Moreover, this model shows that unobservable factors have no impact on the market reaction to announcements of director nominations.

My paper is related to the literature on board diversity (Adams and Ferreira, 2009; Adams and Funk, 2012; Adams and Kirchmaier, 2016; Schwartz-Ziv, 2017; Carter, Franco and Gine, 2017; Giannetti and Zhao, 2017) and more specifically, to the literature on the appointment of female directors (Farrell and Hersch, 2005; Campbell and Minguez-Vera, 2010; Kang, Ding, and Charoenwong, 2010; Adams, Gray, and Nowland, 2011; Schmid and Urban, 2016). These papers document conflicting results on the impact of gender diversity on boards. In France, the proportion of newly appointed directors who are women increases significantly with the quota.³ This finding encourages me to examine the market reaction to female director nominations using the introduction of the French mandatory gender balance law, which allows me to control for endogeneity problems.

³ See Ferreira, Ginglinger, Laguna, and Skalli (2017), Figure 3.

My paper is also related to the growing body of literature on the consequence of quotas. The most influential papers on the Norwegian mandatory gender quota, i.e., Ahern and Dittmar (2012) and Matsa and Miller (2013), suggest that the introduction of this quota had a negative effect on firm performance. The problem is that the first paper chooses 2003 as the event date and the second chooses 2006. Conversely, Nygaard (2011) chooses 2005 as the year of study. These differences highlight a lack of consideration of the different dates in the process of passing the law. In addition, Eckbo, Nygaard, and Thorburn (2016) fail to reject the hypothesis of a zero-valuation effect of Norway's 2005 gender quota law for company boards. To address this difficulty in choosing an accurate date, Ferreira, Ginglinger, Laguna, and Skalli (2017) exclude the year 2010 when comparing the pre-quota period and the post-quota period. My paper's contribution is to analyse the market's reaction to different quota-related news events and to use these events to define different subperiods for the shock. This study is the first to examine the effect of the French gender quota on market reactions both to quota news events and to announcements of director nominations.

The remainder of the article is organized as follows. The French context of the gender quota for corporate boards is presented in the next section. Section 3 describes the data and the characteristics of the samples, and section 4 presents the results of the market reaction to key quota event dates. Section 5 reports the results of the market reaction to announcements of director nominations and section 6 concludes.

2.2 Board Gender Quota

In France, the Zimmermann-Copé law was officially adopted on January 27, 2011. Firms were required to have a minimum of 20% of women on company boards by January 2014, and a minimum of 40% by January 2017. The quota applies to all board members (insiders and outsiders, except directors representing employees) of all listed and non-listed companies employing at least 500 employees or with revenues of at least EUR 50 million.⁴

All five important quota-related news events, ending with the enactment of the law on January 27, 2011, are summarized in Table 1. The first was the submission of the draft law on a board gender quota to the French National Assembly on December 3, 2009. The quota law was discussed and adopted on first reading in the National Assembly on January 20, 2010, and in the Senate on October 27, 2010. This event was followed by the law proposition on January

⁴ See Ferreira, Ginglinger, Laguna, and Skalli (2017) p. 7, for more details.

13, 2011 (as amended by the Senate) in the National Assembly. Finally, the president enacted the law on the balanced representation of women and men on boards of directors on January 27, 2011. The next day, the law was officially published.

Several European countries have adopted regulations to increase the representation of women on boards. In 2003, Norway became the first country to require firms to have gender-balanced boards; the mandate was implemented in 2008, requiring a minimum of 40% of board directors from each gender. Other examples include the following: Belgium's one-third quota law became effective in 2017; Italy's one-third quota law became effective in 2015; and Germany's gender quota of 30% was adopted in December 2014 and became effective in 2016 for the largest listed companies. Moreover, in 2012, the European Commission adopted a proposal for a directive establishing a minimum objective of having 40% of the under-represented gender in non-executive board-member positions in listed companies in Europe by 2020.

2.3 Data

The initial sample consists of an unbalanced panel of 3,369 firm-year observations for 414 unique French firms over the period 2003 to 2014 from Management Diagnostic's BoardEx database. Accounting data are taken from Datastream and ownership data are taken from IODS.

2.3.1 Firm and board characteristics around key event dates

I analyse the market reaction to key events leading up to the passage of the gender quota law. Because the initial sample is unbalanced, the 414 unique firms enter and exit the sample at different points over the sample period. If I restrict my sample to firms with available observations during the process of passing the law (i.e., between December 3, 2009, and January 27, 2011), the sample consists of 372 firms. In addition, I exclude firms with missing values for stock prices; the number of firms that are used for the event study ranges from 305 to 310, depending on the key event date. Finally, I also exclude firms with missing values for firm size and state ownership. Thus, the final sample consists of 264 firms.

Panel A of Table 2 presents summary statistics of firm and board characteristics around key events (see the Appendix for the definition of all variables used in this section). The average proportion of female directors on boards is 12% in France around key quota-related events. On

average, the board size (executive and non-executive board members) during this period is 10.7 and the proportion of independent directors is 36%. Firm size, measured as the logarithm of total assets in millions of Euros,⁵ is equal to 7.57 on average. Finally, 11% of French firms are either state-owned or privatized.

Panel B of Table 2 compares firm and board characteristics between low-percentage female and high-percentage female boards (i.e., boards in which the proportion of female directors is below/above the median, before each event). Low-percentage female boards have an average proportion of female directors of 4.4%, compared to 22% for high-percentage female boards. Overall, with respect to other firm and board characteristics, there is no difference between the two categories of boards.

2.3.2 Firm and board characteristics around director appointments

To analyse the stock market's reaction to female director appointments, I complete the initial sample with announcements data of events related to directors on boards (e.g., nominations, departures, role changes).⁶ From the announcements data, I use only director nominations announced in isolation and replacement announcements, isolating an accurate appointment effect uncontaminated by other director event announcements occurring at the same time. The final sample consists of 279 announcements (see Panel A, Table 3), including 180 unique director appointments (Panel B) and 99 director replacements (Panel C) (i.e., one appointment and one departure announced simultaneously). The sample period is from 2004 to 2014.

Table 3 presents summary statistics of firm and board characteristics for the announcement sample and compares these characteristics for male versus female nominations. The average proportion of female directors on French boards is 14% in the three panels. Notably, this proportion is higher than in the sample around key event dates. This result is not surprising, given that the sample around key event dates includes only observations during the process of passing the law and given that the average proportion of women on boards increases in response to the quota. In Panel A and Panel B, female nominations are announced on boards with more female directors than in male nominations (the proportion of female directors is 20% for female appointments versus 12% for male appointments in Panel A and 23% versus 10%, respectively, in Panel B). However, there is no difference in the proportion of female directors between announcements of male and female nominations in Panel C. In the three panels, I note

⁵ The variable "Total assets" is winsorized at the 1% and 99% levels.

⁶ Also from Management Diagnostic's BoardEx database, in a separate file named "Company Announcements."

that other characteristics are nearly similar and do not present differences between the announcements of male and female nominations.

Panel D compares firm and board characteristics between unique appointment announcements (Panel B) and replacement announcements (Panel C). The proportion of female directors is higher in replacement announcements with male nominations than in uniquely male announcements (on average, the proportion of female directors is 14% in replacement announcements with male nominations versus 10% in uniquely male announcements). Interestingly, the reverse is true for female nominations; the average proportion of female directors on boards is 15% in replacement announcements and 23% in uniquely female announcements. Boards are larger in replacement announcements: the average number of board members is 13.6 in replacement announcements and 12.6 in unique announcements. In addition, the proportion of independent directors is lower in replacement announcements than in unique announcements (42% versus 47%, respectively). Simultaneously, the average firm size is larger in replacement announcements than in unique announcements, as explained by the difference in firm size in male nominations. The average firm size is 9.55 in replacement announcements with male nominations and 8.52 in uniquely male nominations. Firms making replacement announcements are more likely to be either state-owned or privatized than firms making unique announcements. This difference is also explained by the difference in male nominations: on average, 31% of replacement announcements with male nominations are either state-owned or privatized, and 15% of uniquely male nominations are either state-owned or privatized.

2.3.3 Average abnormal stock returns

I match the two samples with daily stock prices downloaded from Datastream and compute cumulative abnormal returns over various short horizons. Because I analyse two different event studies (around key quota-related events and around announcements of director appointments), note that for the first event study, an “event” refers to one of the five key news announcements presented in Table 1, whereas for the second event study, an “event” refers to an announcement of a director appointment (unique nomination or replacement).

Returns are computed using the differences in the natural logarithm of daily closing prices. Next, daily abnormal returns are computed separately for each event using the market model and the Morgan Stanley Capital International (MSCI) world stock market index. Market model parameters are estimated from day -240 through day -40. The event day is denoted by date 0. To be included in this estimation, a firm must have return observations on both days in

the event window and in the estimation period. I compute the abnormal return from an event as follows:

$$AR_{i,d} = R_{i,d} - E(R_{i,d}), \quad (1)$$

where $AR_{i,d}$ is the abnormal return on the share price of company i on day d , $R_{i,d}$ is the return on the share of company i on day d and $E(R_{i,d})$ is the normal return. The normal return is the same as the expected return if the event does not occur. We compute $\hat{\beta}$ from the following regression:

$$E(R_{i,d}) = \alpha_i + \beta_i \cdot R_{M,d} + \varepsilon_{i,d}, \quad (2)$$

where d is taken from the estimation window, $R_{M,d}$ is the corresponding return on the MSCI index, α_i is a stable component of the share returns for firm i and is constant over time, β_i is the beta or a measure of the systematic risk of firm i and is stable over time, and $\varepsilon_{i,d}$ is the random error term. The equity price reaction is then computed as the cumulative abnormal return $CAR_i[d_1, d_2]$ from day d_1 to day d_2 around the event:

$$CAR_i[d_1, d_2] = \sum_{t=d_1}^{d_2} AR_{i,t}. \quad (3)$$

Finally, I winsorize this variable at the 1% and 99% levels.

2.4 Market Reaction to Key Quota Event Dates

2.4.1 Univariate Analysis

Table 4 lists the stock price reaction estimates to key quota event dates for each event in Table 1, from the law's submission to the law's enactment and over two event windows ($[0,+1]$ and $[-1,+1]$). Panel A includes the full sample around quota events, including French listed companies, a control group of foreign companies listed on Euronext Paris, and the long-short portfolio of domestic minus foreign firms. The sample of the stock returns of foreign firms from Datastream includes 32 firms (this number ranges from 31 to 33, depending on the event). To confirm that a quota event affected the stock market, I follow Eckbo, Nygaard and Thorburn

(2016) by requiring significant stock price reactions to both French listed companies and the long-short portfolio of domestic minus foreign firms listed on Euronext Paris. This requirement ensures that the stock price reaction is driven by the quota event itself.

The sample of French firms exhibits statistically significant cumulative returns for three of the five events. Among them, one is significantly negative (event (2), over the event windows $[0,+1]$ and $[-1,+1]$). Recall that on this event date, January 20, 2010, the quota law was discussed and adopted on first reading in the National Assembly. The stock price reaction is approximately -0.6% (-1.3%) over the $[0,+1]$ ($[-1,+1]$) event window. However, for this event, cumulative returns in the long-short portfolio are statistically insignificant. Thus, the evidence of the stock price reaction around event (2) fails to support the hypothesis that the quota law affects firm value in the short run.

I turn next to the two events with positive cumulative returns. The fourth event reports evidence of a positive stock price reaction of approximately 1.2% (1.9%) over the $[0,+1]$ ($[-1,+1]$) event window. Recall that event (4), on January 13, 2011, represents the law's introduction in the National Assembly. The long-short portfolio cumulative returns are nevertheless statistically insignificant over the two event windows for this event. Thus, the findings fail to support the hypothesis that the quota law affects stock prices for event (4).

The fifth event shows evidence of positive cumulative stock returns of approximately 0.6% over the $[0,+1]$ event window and 0.9% over the $[-1,+1]$ event window. Recall that on January 27, 2011, the president enacted the law on the balanced representation of female and male directors on boards. Moreover, the cumulative abnormal returns of foreign firms are statistically insignificant for this event, and the long-short portfolio cumulative abnormal return is a positive 1.4% and significant at the 5% level over the $[0,+1]$ event window and a positive 1.6% and significant at the 1% level over the $[-1,+1]$ event window.⁷ This evidence provides support for the hypothesis of a positive short-run valuation effect of the French board gender quota regarding the last and most important quota-related event.

Panel B shows cumulative returns around the five events for the sample of French companies, separated into two subsamples based on the pre-announcement proportion of female directors. Boards in the low-percentage female group (high-percentage female group) include a proportion of female directors that is below (above) the median in 2009 (for events (1) and (2)) and in 2010 (for events (3), (4) and (5)). This table compares cumulative returns between low-percentage and high-percentage female boards. Notably, the stock price reaction around

⁷ I replicate Panel A of this table using the market model with the Eurostoxx 600 stock market index and the mean model to calculate CARs. The conclusions are essentially the same.

event (5) is significantly higher for low-percentage female boards than for high-percentage female boards over the two event windows (differences of 0.5% over the [0,+1] event window and 0.7% over the [-1,+1] event window). This result is not surprising, given that high-percentage female boards would not be as significantly affected by the law as male-dominated boards.

My results have implications for previous event studies on board gender quotas. To the best of my knowledge, this paper is the first to examine the impact of the French corporate board gender quota on stock price. In the case of Norway, Nygaard (2011) finds significantly positive average abnormal returns for Norwegian firms, and Ahern and Dittmar (2012) show that the quota caused a significant decrease in stock prices at the announcement of the law. Eckbo, Nygaard, and Thorburn (2016) fail to reject the hypothesis of a zero-valuation effect of this shock to board composition.

The univariate analysis shows that the Zimmermann-Copé law caused a significant increase in stock price at the announcement of the law's enactment. Moreover, since foreign firms are not subject to the gender quota, I conclude from this analysis that the information behind the positive market reaction on January 27, 2011, is related to the quota *per se*. Finally, this result is more pronounced for firms that are most affected by the law (i.e., firms with a low proportion of female directors before the law).

2.4.2 Multivariate Analysis of the Market Reaction to the Law Enactment

Table 5 displays the outputs of regressions of the stock price reaction around event (5) (i.e., the enactment of the law on January 27, 2011) on the low-percentage female board indicator and other controls for the French firms sample. Recall that event (5) is the only one to exhibit a significant stock price reaction,⁸ which explains the choice to study a multivariate analysis around this event. Panel A presents the analysis of the stock price reaction over the [0,+1] event window, whereas Panel B is related to the [-1,+1] event window. Column 1 in both panels shows the estimate of the valuation impact on firms most affected by the quota, without any controls. One would expect board composition to systematically vary across industry sectors. By using sector-fixed effects, I control for such variations. I find that low-percentage female boards exhibit a market reaction to the enactment of the law over the [0,+1] ([-1,+1]) event window that is 0.6% (0.8%) higher than firms in which the proportion of female directors is

⁸ To both the domestic sample and the long-short portfolio of domestic minus foreign firms listed on Euronext Paris.

above the median in 2010. Then, in Columns 2 to 4 of Panel A and Panel B, I add four firm-level controls: proportion of independent directors on the board, number of board members, firm size, and an indicator for state-owned or privatized firms. Adding additional characteristics has no impact on the low-percentage female board indicator: over the $[0,+1]$ event window, there is a statistically significant (at the 1% level) stock reaction difference of 0.6% with high-percentage female boards. The $[-1,+1]$ event window reveals a statistically significant (at the 5% level) stock reaction difference of 0.8%. Finally, Table 5 enables me to conclude that at the announcement of the law's enactment, the market views the board gender quota as good news, in particular for boards with a low proportion of female directors.

2.5 Market Reaction to Director Nominations

In this section, I describe the empirical strategy and the empirical results of the market's reaction to announcements of director nominations.

2.5.1 Univariate Analysis

Table 6 presents a comparison of the cumulative abnormal returns for announcements of male nominations and female nominations, separated into different subperiods in the process of passing the law. In this section, I analyse the market reaction to announcements over the $[-2,+2]$ event window. Subperiods are based on key news events: "Process of Law=0" refers to the period before the law's submission (before December 3, 2009); "Process of Law=1" refers to the period over the process of passing the law between the law's submission and the law's enactment (between December 3, 2009, and January 27, 2011); and "Process of Law=2" refers to the period after the law's enactment (after January 27, 2011).

Panel A, which includes the sample of all nomination announcements, shows that over the entire period there is no statistically significant difference in the market reaction to announcements of male appointments versus announcements of female appointments. However, the period before the law's submission exhibits a significantly negative difference of -3.17%: the cumulative abnormal return for announcements of female nominations is a positive 2.47%, compared to a negative -0.7% for male nominations. Subperiods after the law's submission (when Process of Law=1 or Process of Law=2) report no statistically significant

differences in the market reaction to announcements of male appointments and female appointments.

Panel B includes unique nomination announcements that are associated with director nominations announced in a stand-alone way. The entire period and the subperiods present no statistically significant differences between male appointments and female appointments. Finally, Panel C shows cumulative reactions to replacement announcements that are associated with two simultaneous announcements, including one nomination and one departure. The period before the law's submission exhibits a significantly negative difference of -4.79%: the market reaction to female director nominations is a positive 4.65%, compared to a negative -0.14% for male director nominations. Other subperiods suggest no statistically significant differences between the two groups of appointments.⁹

2.5.2 The effect of the quota on market reaction to unique announcements

It is unclear what to expect regarding stock price reactions to announcements of female director nominations. Some firms may appoint female directors because they are the best candidates for the job. From this point of view, if director appointments are gender-neutral, there will be no significant differences in the stock price reaction to male and female appointments on average. However, other firms may appoint female directors because of their gender. In that situation, if gender matters with regard to director appointments, there would be significantly different stock price reactions to announcements of female director nominations after controlling for other factors that may impact the market reaction to director appointments.

If director appointments are not gender-neutral but instead are motivated by tokenism or by the avoidance of penalties related to the law, the expectation would be that the stock price reaction to female director nominations would be lower than the market reaction to male director nominations. In this case, the appointment of a female director is costly for the firm because it is motivated more by societal pressure for greater gender equality than by the quality of the appointee. Conversely, female directors may be viewed as a valued asset because gender diversity on boards may have benefits. Then, the expectation would be that the stock price reaction to female director nominations would be higher than the market reaction to male director nominations.

⁹ I replicate this table using the mean model to compute CARs. The conclusions are essentially the same.

Finally, if the market anticipates both that a female director will be appointed and that this appointment will add value, the stock price reaction to announcements of such nominations would not be detected. However, if there is discrimination in recruiting female directors or if female directors are in short supply, there will be a negative stock price reaction to their appointments.

To estimate the treatment effects of the quota on the stock market reaction to director appointments, I run the following regression with the sample of announcements of unique director appointments for the French firms sample:

$$CAR_{i,y}[-2, +2] = \alpha_0 + \alpha_1 w_d + \alpha_2 w_d p_y + \alpha_3 p_y + \beta_1 x_{d,y} + \beta_2 x_{i,y} + u_{i,y}, \quad (4)$$

where α_0 is a set of sector-fixed effects and w_d is an indicator variable equal to one if director d is female and zero otherwise. The variable p_y takes the value of zero if the announcement date y is before December 3, 2009, the value of one if the announcement date y is between December 3, 2009, and January 27, 2011, and the value of two if the announcement date y is after January 27, 2011. I allow the stock price reaction to depend on a vector of observable director characteristics, $x_{d,y}$, and on a vector of observable firm and board characteristics, $x_{i,y}$. Director controls include dummy variables set equal to one if the director is a member of at least one major committee, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is an industry expert director, if the director has CEO experience, if the director has a C-suite experience, the total number of directorships held by the director, and the director's age. Board and firm characteristics include the proportion of female directors on the board, the proportion of independent directors on the board, the board size, the firm size, and an indicator equal to one if the firm is either state-owned or privatized.

Table 7 shows the estimates of the treatment effects of the process of passing the law and the enactment of the law on the stock market reaction to female director appointments announced in isolation, as in equation (4). In Column 1, I observe that even without any control, the stock price reaction to unique female director appointments before the law's submission is higher than the market reaction to unique male director appointments (a statistically significant difference of 3.4%). Then, the estimate of the effect of the process of passing the law on the market reaction to female nominations is not significantly different from the effect before the submission of the law. Conversely, the estimate of the effect of the enactment of the law

becomes negative (a statistically significant difference of -4%), unlike the effect before the submission of the law. Note that the two coefficients of the effect on market reaction to female director nominations before the law's submission and after the law's enactment nearly compensate for each other (+3.4% and -4%). The coefficients of the process of the law dummy when it takes the value of one or two (i.e., during the process of passing the law and after the enactment of the law) are economically negligible and statistically insignificant, which means that the quota does not appear to affect the stock price reaction to male director appointments. Columns 2 to 8 replicate the same regression, adding additional controls, and show that the estimates of the difference in stock price reaction between female and male appointments range from 3.2% to 5% before the law's submission and from -3.8% to -5% after the enactment of the law, compared to before the law's submission. Note that the number of observations decreases in Columns 3 and 8 because of missing data for director age and major committee member indicators.

Overall, Table 7 indicates that before the law's submission, unique announcements of female nominations exhibit a positive market reaction. In addition, during the process of passing the law, the market's reaction to such nominations is not different than it was before the law's submission. Recall that Table 5 suggests that the announcement of the law's enactment is viewed as good news by the market. This result explains that post-quota announcements of female nominations are anticipated and expected to add value.

2.5.3 The effect of the quota on market reaction to replacement announcements

In this section, I consider a different announcement sample to estimate the treatment effects of the quota on the stock market reaction to female director appointments through a different channel.

I analyse stock price reactions to replacement announcements associated with two simultaneous announcements, including one appointment and one departure.¹⁰ Thus, I run the following regression with director replacement announcements for the French firms sample:

$$CAR_{i,y}[-2, +2] = \alpha_0 + \alpha_y + \alpha_1 w_app_d + \alpha_2 w_app_dp_y + \beta_1 x_{i,y} + u_{i,y}, \quad (5)$$

¹⁰ Regardless of gender, it includes the following: female appointment and male departure, female appointment and female departure, male appointment and male departure, male appointment and female departure (only two cases).

where α_0 is a set of sector-fixed effects, α_y is a set of year of announcement fixed-effects, and w_app_d is an indicator variable equal to one if replacing director d is female and zero otherwise. I allow the stock price reaction to depend on a vector of observable firm and board characteristics, $x_{i,y}$, including the proportion of female directors on the board, the proportion of independent directors on the board, the board size, the firm size, and an indicator equal to one if the firm is state-owned or privatized.

Table 8 depicts the estimates of the treatment effects of the process of passing the law and of the enactment of the law on the stock market reaction to director replacement announcements, as in equation (5). In this sample, before the law's submission, announcements of replacements by female directors exhibit a positive market reaction that is stronger than the positive market reaction to announcements of unique female nominations. Estimates of the difference in stock price reaction between replacements by female and male directors now range from 6.2% to 6.4% before the law's submission and from -5.7% to -6.3% after the enactment of the law, compared to before the law's submission. Notably, the coefficients of the effect on market reaction to replacements by female directors before the law's submission and after the law's enactment nearly compensate for each other.

Thus, I reach the same conclusions as in Table 7: before the law's submission, announcements of replacements by female directors exhibit a positive and strong market reaction. Again, during the process of passing the law, the market's reaction to such announcements is not different from before the law's submission. In addition, post-quota announcements of replacements by female directors are anticipated and expected to add value, and therefore they are not detected by the stock market.

2.5.4 Why does the market reaction decrease after the quota?

In Table 9, I present the results of the regression in (5), including the announcement sample, the unique appointment announcements sample and the replacement announcements sample. Before the law's submission, announcements of female director appointments exhibit a positive market reaction that ranges from 3.9% to 4.5%, compared to male director appointments. During the process of passing the law, the stock market reaction to announcements of female director nominations is not significantly different than before the law's submission. Estimates of the difference in stock price reaction between announcements of female and male director nominations range from -3.9% to -4.4% after the law's enactment, compared to before the law's

submission. Again, post-quota announcements of female nominations are anticipated and expected to add value, leading the stock market to not detect such announcements (coefficients before the law's submission and after the enactment of the law are compensating for each other).

I conclude that before the French quota, investors view female directors as a valued asset. In addition, the announcement of the enactment of the law is considered good news, leading to the anticipation of post-quota announcements of female director nominations.

In this section, I examine why the market reaction to announcements of female versus male directors is different before the quota. Given that a female director nomination is a signal of an increase in gender diversity, the natural question to ask is whether such a difference in the market reaction is the same for announcements of female nominations on male-dominated boards and on female-dominated boards. Thus, I investigate the effect of “non-compliant” boards on the stock price reaction to announcements of female nominations.

To do this, I add one more interaction in (5) and run the following regression using the announcement sample:

$$CAR_{i,y}[-2, +2] = \alpha_0 + \alpha_y + \alpha_1 w_{app_d} + \alpha_2 w_{app_d} p_y + \alpha_3 NC_{i,y} + \alpha_4 w_{app_d} NC_{i,y} + \alpha_5 NC_{i,y} p_y + \alpha_6 w_{app_d} p_y NC_{i,y} + \beta_1 x_{i,y} + u_{i,y}, \quad (6)$$

where $NC_{i,y}$ is an indicator equal to one if the board of firm i in year y is non-compliant, i.e., if the proportion of female directors on the board is below 20%, and zero otherwise.

Table 10 depicts the estimates of the treatment effects of the process of passing the law and of the enactment of the law on the stock market's reaction to announcements of female appointments on non-compliant boards, compared to compliant boards, as in equation (6). Before the law's submission, announcements of female nominations result in a stronger market reaction than announcements of male nominations (the difference ranges from 3.8% to 4.7%), and there is no difference in this gender gap in the market reaction between compliant boards and non-compliant boards. During the process of passing the law, the stock market reaction to announcements of female director nominations on non-compliant boards is higher than the market reaction to those on compliant boards. The overall effect on market reaction to female director nominations on non-compliant boards is positive during the process of passing the law. Conversely, after the enactment of the law, there is no statistically significant difference between announcements of female director nominations on compliant boards and on non-compliant boards. One may believe that before the law's submission, there is no difference in

the market reaction between female nominations on compliant boards and non-compliant boards because very few companies are compliant over this period. To isolate a potential difference between the effect on high-percentage female boards and low-percentage female boards over this period, I run a simple regression of the cumulative abnormal returns (CARs) associated with announcements of director nominations on the female director nomination dummy and additional controls before the law's submission. Table 11 depicts the estimates of this regression. The sample is separated into two subsamples: boards with less than 10% female directors and boards with more than 10% female directors. Before the law's submission, female nominations announced on boards with few female directors document a positive market reaction, whereas female nominations announced on boards with more female directors do not exhibit a significant positive market reaction.

Finally, I conclude that before the quota, investors expect more significant benefits from the increase in gender diversity on boards with few female directors. At the announcement of the enactment of the law, they view the board gender quota as good news, especially for male-dominated boards. This finding explains that post-quota announcements of female director nominations are anticipated and expected to add value. Thus, such appointments are not detected by the stock market.

2.5.5 Robustness Checks

In this section, I perform an additional test to ensure the robustness of my results with respect to potential endogeneity issues. Given that I am interested in the market reaction linked to female director appointments, my sample contains only unique appointment announcements and replacement announcements. Panel A of Table 12 reports the composition of the sample of all director appointments, including director appointments that are announced (unique appointment announcements and replacement announcements) and director appointments that are not announced (identified from the initial sample). The proportion of appointments that are announced is only 6.2% (5.4% for male appointments and 9.14% for female appointments). Moreover, 32% of appointments that are announced are related to female appointments, whereas 21% of appointments that are not announced are related to female appointments. These proportions suggest that announced appointments might not be representative of the entire sample of director appointments, potentially introducing a selection bias when the decision to make a director appointment announcement correlates with factors associated with

announcement returns. To determine whether this bias affects my findings, in Panel B of Table 12 I estimate Heckman's (1979) two-step procedure.

In the first stage, I estimate the announcement choice model using a Probit maximum likelihood estimation (Probit results are unreported). I allow the probability of announcing an appointment to depend on a vector of observable characteristics, including the female director appointment dummy, the proportion of female directors on the board, the proportion of independent directors on the board, the board size, the firm size, and an indicator equal to one if the firm is either state-owned or privatized. I also control for sector-fixed effects. I find that larger boards are less likely to announce director nominations, whereas larger firms and boards with more independent directors are more likely to do so. Next, I compute the inverse Mills' Ratio.

In the second stage, I replicate the results presented in Table 9 and include the inverse Mills' Ratio as an additional explanatory variable, which measures selection bias in the original model. In Columns 1 to 4, inverse Mills ratios are not statistically significant. This result suggests that there is no statistically significant correlation between a firm's choice to announce an appointment and the market's reaction to such announcements.

Finally, I can conclude that the results are qualitatively unchanged and that unobservable factors that induce firms to announce a director appointment have no impact on the market's reaction to announcements of director nominations. The results suggest that sample selection bias does not affect the evidence presented in this paper and that the OLS coefficients are not biased.

2.6 Conclusion

In this paper, I examine the impact on market valuation of the introduction of a corporate board gender quota in France. There is clear evidence that before the introduction of the quota, investors view female directors as a valued asset. They expect greater benefits from increased gender diversity on male-dominated boards. In addition, I analyse the impact of quota news events on stock returns. I show that the announcement of the enactment of the law on January 27, 2011, is considered good news, particularly for male-dominated boards. This result suggests that post-quota female director nominations are anticipated and expected to add value, especially on non-compliant boards. After the enactment of the law, there is no significant market reaction to announcements of female directors. The evidence suggests that the market's

reaction to post-quota female appointments is not different from its reaction to post-quota male appointments, both for compliant and for non-compliant boards.

Appendix 2.A – Variable Definition

<i>Firm characteristics</i>		(Source: Datastream, IODS)
Firm Size	The logarithm of total assets in millions of Euros.	
State/Priv.	Indicator equal to one if the firm is state-owned or privatized, zero otherwise.	
<i>Board characteristics</i>		(Source: BoardEx)
Women on Board	The ratio of female directors on the board.	
Low/High-Female Board	Indicator equal to one if the proportion of female directors on the board is below/above the median before the event, zero otherwise.	
Non-Compliant Board	Indicator equal to one if the proportion of female directors on the board is below 20%, zero otherwise.	
Board Size	The number of board members.	
Independent Directors	The ratio of independent directors on the board.	
<i>Director Characteristics</i>		(Source: BoardEx)
Age	Director age in years.	
Female	Indicator equal to one if the director is female, zero otherwise.	
Family	Indicator equal to one if the director shares his last name with at least one other director, zero otherwise.	
Independent	Indicator equal to one if the director is independent, zero otherwise.	
Number of Directorships	Number of current board seats held by the director in quoted firms.	
Major Committee Member	Indicator equal to one if the director is member of the audit, compensation, nomination, strategy, executive or governance committee, zero otherwise.	
Industry Expert	Indicator equal to one if the sector of the firm where the director is a board member is the same of at least one firm in his/her employment history.	
Process of Law	Equal to zero if the nomination date is before December 3, 2009; to one if the nomination date is between December 3, 2009, and January 27, 2011; to two if the nomination date is after January 27, 2011.	
CEO Experience	Indicator equal to one if the director has or had at least one CEO position in his/her employment history.	
C-Suite Experience	Indicator equal to one if the director has or had at least one C-suite position in his/her employment history.	

References for Chapter 2

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Table 2.1 – Key News Events Leading up to the Passage of a Board Gender Quota in France

This table presents key news events that led to the enactment of the French board gender quota law in early 2011. Event dates begin with the law's submission in the National Assembly and end with the law's enactment.

<i>Event date</i>	<i>Description</i>
(1) December 3, 2009	Francois Coppé, Marie-Jo Zimmermann, Christian Jacob and Michèle Tabarot present the draft law regarding a board gender quota to the National Assembly.
(2) January 20, 2010	Discussion and adoption on first reading in the National Assembly.
(3) October 27, 2010	Discussion and adoption in the Senate.
(4) January 13, 2011	Law proposition (as amended by the Senate) in the National Assembly.
(5) January 27, 2011	Law enactment by the president on the balanced representation of women and men on boards of directors and supervisory and professional equality.

Table 2.2 – Firm and Board Characteristics around Key Events

This table details firm and board characteristics across French firms with available board data in BoardEx during the process of passing the law (from 2009-2011) and with available stock price data in Datastream (Panel A), separated by two groups of boards (Panel B). Boards in the first group (low-percentage female boards) include a proportion of female directors that is below the median before the event. Boards in the second group (high-percentage female boards) include a proportion of female directors that is above the median before the event. All variable definitions are described in the Appendix “Variable Definition.” Diff. denotes the difference between coefficients associated with low- and high-percentage female boards (high-female boards – low-female boards), and ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	Mean	Median	Min	Max	SD	N
<i>Panel A. All firms in the law adoption sample</i>						
Prop. of Women on Board	0.12	0.11	0	0.75	0.12	264
Board Size	10.7	10	2	27	4.38	264
Prop. of Independent Directors	0.36	0.33	0	1	0.22	264
Firm Size	7.57	7.18	3.21	21.4	2.46	264
State/Priv.	0.11	0	0	1	0.31	264
	Low-female board	High-female board	Diff.	t stat.		
<i>Panel B. Low- vs High-female board</i>						
Prop. of Women on Board	0.044	0.22	0.18***	(18.380)		
Board Size	10.8	10.6	-0.2	(-0.336)		
Prop. of Independent Directors	0.35	0.38	0.02	(0.911)		
Firm Size	7.43	7.77	0.34	(1.125)		
State/Priv.	0.12	0.088	-0.032	(-0.842)		

Table 2.3 – Firm and Board Characteristics around Appointments

This table details firm and board characteristics across French firms in the announcements of director appointments sample and with available stock price data in Datastream, separated by male and female appointments. Panel A includes all announcements, including unique appointment announcements (in Panel B) and replacement announcements (Panel C). Panel D compares firm and board characteristics between Panel B and Panel C. The sample period is from 2004-2014. All variable definitions are described in the Appendix “Variable Definition.” In Panel A, B, and C, Diff. denotes the difference between coefficients associated with male and female appointments (male nomination – female nomination), while in Panel D, Diff. denotes the difference between coefficients associated with replacement announcements and unique announcements (replacement – unique), and ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

(Table continued on next page)

Table 2.3 – Firm and Board Characteristics around Appointments (Cont'd)

	Mean	Median	Min	Max	SD	N	Male Nomination	Female Nomination	Diff.	t stat.
<i>Panel A. All sample</i>										
Women on Board	0.14	0.13	0	0.50	0.11	279	0.12	0.20	-0.09***	(-6.629)
Board Size	13.0	13	4	27	3.80	279	13.0	12.8	0.2	(0.419)
Independent Directors	0.45	0.44	0	1	0.20	279	0.44	0.48	-0.04	(-1.627)
Firm Size	9.10	8.92	3.10	21.5	2.92	279	8.89	9.54	-0.65*	(-1.736)
State/Priv.	0.22	0	0	1	0.41	279	0.21	0.24	-0.03	(-0.580)
<i>Panel B. Unique announcements</i>										
Women on Board	0.14	0.13	0	0.50	0.11	180	0.10	0.23	-0.13***	(-8.246)
Board Size	12.6	12	4	23	3.74	180	12.7	12.5	0.2	(0.358)
Independent Directors	0.47	0.47	0	0.91	0.20	180	0.45	0.50	-0.05	(-1.607)
Firm Size	8.77	8.84	3.10	21.2	2.59	180	8.52	9.30	-0.78*	(-1.909)
State/Priv.	0.16	0	0	1	0.37	180	0.15	0.19	-0.04	(-0.715)
<i>Panel C. Replacement announcements (1 nomination and 1 departure)</i>										
Women on Board	0.14	0.13	0	0.43	0.10	99	0.14	0.15	-0.01	(-0.504)
Board Size	13.6	14	5	27	3.83	99	13.7	13.5	0.2	(0.192)
Independent Directors	0.42	0.40	0	1	0.20	99	0.41	0.43	-0.02	(-0.545)
Firm Size	9.68	9.17	4.01	21.5	3.37	99	9.55	9.97	-0.43	(-0.581)
State/Priv.	0.31	0	0	1	0.47	99	0.31	0.32	-0.01	(-0.136)
<i>Panel D. Unique vs Replacement announcements</i>										
	All Nomination		Male Nomination		Female Nomination					
	Diff.	t stat.	Diff.	t stat.	Diff.	t stat.				
Women on Board	-0.0001	(-0.004)	0.0371**	(2.440)	-0.0780***	(-3.858)				
Board Size	0.9985**	(2.115)	0.9797*	(1.716)	1.0334	(1.218)				
Independent Directors	-0.0527**	(-2.128)	-0.0437	(-1.482)	-0.0708	(-1.568)				
Firm Size	0.9085**	(2.514)	1.0269***	(2.792)	0.6712	(0.822)				
State/Priv.	0.1520***	(2.994)	0.1613***	(2.674)	0.1329	(1.407)				

Table 2.4 – Market Reaction to Key Quota Event Dates

This table reports cumulative abnormal returns (CARs) associated with key quota event dates over [0,+1] and [-1,+1] event windows. Stock returns are collected from Datastream. Panel A includes all the samples, including French listed companies, a control group of foreign companies listed on Euronext Paris, and the long-short portfolio of domestic minus foreign firms. Panel B includes the sample of French companies, separated into two subsamples: boards in the low-percentage female group (high-percentage female group) include a proportion of female directors that is below (above) the median in 2009 (for events (1) and (2)) and in 2010 (for events (3), (4) and (5)). Diff. denotes the difference between coefficients associated with low- and high-percentage female boards (low-female boards – high-female boards). The t-stats are reported in brackets, and ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	Mean CARs							
	French firms			Foreign firms quoted on Euronext Paris			Domestic-Foreign	
	[0,+1]	[-1,+1]	# Firms	[0,+1]	[-1,+1]	# Firms	[0,+1]	[-1,+1]
<i>Panel A. All Sample</i>								
(1) December 3, 2009	-0.001 [-0.645]	0.001 [0.440]	306	-0.014** [-2.216]	0.010 [0.418]	32	0.013** [2.064]	-0.009 [-0.394]
(2) January 20, 2010	-0.006*** [-4.283]	-0.013*** [-8.880]	308	-0.009 [-0.950]	-0.039* [-1.742]	33	0.004 [0.367]	0.025 [1.153]
(3) October 27, 2010	0.002* [1.933]	0.000 [0.067]	305	0.000 [0.159]	-0.007* [-1.751]	31	0.002 [0.710]	0.007* [1.701]
(4) January 13, 2011	0.012*** [9.001]	0.019*** [9.630]	310	-0.005 [-0.580]	0.009 [1.389]	33	0.017* [1.832]	0.009 [1.383]
(5) January 27, 2011	0.006*** [5.492]	0.009*** [6.250]	309	-0.007 [-1.393]	-0.007 [-1.410]	32	0.014** [2.501]	0.016*** [3.133]

		French firms		
		[0,+1]	[-1,+1]	# Firms
<i>Panel B. Low-Female vs High-Female</i>				
(1) December 3, 2009	Low-female boards	-0.002	-0.002	138
	High-female boards	0.001	0.004	117
	<i>Diff.</i>	-0.003	-0.005*	
(2) January 20, 2010	Low-female boards	-0.005	-0.014	139
	High-female boards	-0.005	-0.012	119
	<i>Diff.</i>	0.000	-0.002	
(3) October 27, 2010	Low-female boards	0.003	0.001	148
	High-female boards	0.001	-0.001	114
	<i>Diff.</i>	0.002	0.002	
(4) January 13, 2011	Low-female boards	0.012	0.019	151
	High-female boards	0.013	0.020	114
	<i>Diff.</i>	-0.001	-0.000	
(5) January 27, 2011	Low-female boards	0.008	0.012	150
	High-female boards	0.003	0.005	114
	<i>Diff.</i>	0.005**	0.007**	

Table 2.5 – Multivariate Analysis of the Market Reaction to the Law Enactment

This table reports OLS estimates of the coefficient associated with an indicator equal to one if the proportion of female directors is below the median (“Low-female board”), the proportion of independent directors on the board (“Independent directors”), the board size, the firm size, and an indicator equal to one if the firm is either state-owned or privatized (“State/Priv.”). The dependent variable is the cumulative abnormal return (CAR) associated with the event (5) for the French firms sample. Panel A presents the outputs over the [0,+1] event window. Panel B presents the outputs over the [-1, +1] event window. All variables are in 2010. Standard errors are robust and t-stats are reported in brackets. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

VARIABLES	(1)	(2)	(3)	(4)
<i>Panel A. CAR[0,+1]</i>				
Low-female Board	0.006*** [2.659]	0.006*** [2.738]	0.006*** [2.698]	0.006*** [2.698]
Independent Directors		-0.008 [-1.434]	-0.008 [-1.420]	-0.007 [-1.341]
Board Size		-0.001*** [-2.945]	-0.001* [-1.693]	-0.001* [-1.840]
Firm Size			-0.000 [-0.260]	-0.000 [-0.383]
State/Priv.				0.006 [1.300]
Constant	0.006 [0.540]	0.016 [1.444]	0.018 [1.525]	0.018 [1.630]
Observations	264	264	264	264
R-squared	0.172	0.209	0.210	0.216
<i>Panel B. CAR[-1,+1]</i>				
Low-female Board	0.008** [2.430]	0.008** [2.427]	0.008** [2.383]	0.008** [2.386]
Independent Directors		-0.005 [-0.708]	-0.005 [-0.717]	-0.005 [-0.648]
Board Size		-0.001* [-1.698]	-0.001 [-1.344]	-0.001 [-1.540]
Firm Size			0.000 [0.101]	-0.000 [-0.064]
State/Priv.				0.008 [1.384]
Constant	0.022*** [3.318]	0.029*** [3.752]	0.029*** [3.127]	0.029*** [3.439]
Observations	264	264	264	264
R-squared	0.172	0.182	0.182	0.188
Sector FE	YES	YES	YES	YES

Table 2.6 – Market Reaction to Director Nominations

This table reports cumulative abnormal returns (CARs) associated with director appointment announcements over different subperiods, separated by male and female appointments. Stock returns are collected from Datastream and CARs are computed over the [-2, +2] event window. Panel A includes all announcements, including unique appointment announcements (Panel B) and replacement announcements (Panel C). The sample period is from 2004-2014. “Process of Law=0” refers to the period before the law’s submission, “Process of Law=1” refers to the period during the process of passing the law, and “Process of Law=2” refers to the period after the law’s enactment. Diff. denotes the difference between coefficients associated with male and female appointment (male appointment – female appointment), and ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	All sample		Process of Law=0		Process of Law=1		Process of Law=2	
	CAR	# events	CAR	# events	CAR	# events	CAR	# events
<i>Panel A. All sample</i>								
Male Appointment	-0.0057	190	-0.0070	105	-0.0021	18	-0.0047	67
Female Appointment	-0.0005	89	0.0247	13	-0.0038	16	-0.0050	60
<i>Diff.</i>	<i>-0.0052</i>	279	<i>-0.0317**</i>	118	<i>0.0018</i>	34	<i>0.0003</i>	127
<i>Panel B. Unique announcements</i>								
Male Appointment	-0.0053	122	-0.0092	75	-0.0014	13	0.0019	34
Female Appointment	-0.0059	58	0.0111	8	-0.0113	10	-0.0080	40
<i>Diff.</i>	0.0006	180	-0.0203	83	0.0099	23	0.0098	74
<i>Panel C. Replacement announcements (1 nomination and 1 departure)</i>								
Male Appointment	-0.0064	68	-0.0014	30	-0.0037	5	-0.0115	33
Female Appointment	0.0097	31	0.0465	5	0.0087	6	0.0008	20
<i>Diff.</i>	<i>-0.0162*</i>	99	<i>-0.0479**</i>	35	<i>-0.0124</i>	11	<i>-0.0123</i>	53

Table 2.7 – The Effect of the Quota on Market Reaction to Appointments: Unique Announcements

This table reports OLS estimates of the treatment effects of the process of passing the law (“Process of Law=1”) and of the enactment of the law (“Process of Law=2”) on the stock market reaction to female director appointments (“Female”). Treatment effects are measured by the following variable set: “Female X Process of Law=1” and “Female X Process of Law=2.” “Additional director controls” include dummy variables set equal to one if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committee), if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is an industry expert director, if the director has a CEO experience, if the director has a C-suite experience, the total number of directorships held by the director, and the director age. “Additional board controls” include the proportion of female directors on the board, the proportion of independent directors on the board, and the board size. “Additional firm controls” include the firm size and an indicator equal to one if the firm is state-owned or privatized. The dependent variable is the cumulative abnormal return (CAR) over the [-2,+2] event window associated with unique director appointment announcements for the French firms sample. The sample period is from 2004-2014. Standard errors are clustered at the firm level and t-stats are reported in brackets. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES								
Female	0.0344** [2.4470]	0.0318** [2.1573]	0.0364*** [3.2152]	0.0368** [2.3056]	0.0413*** [2.8322]	0.0454*** [2.8330]	0.0421** [2.4176]	0.0498*** [3.6463]
Process of Law=1	0.0103 [0.7777]	0.0057 [0.4116]	0.0039 [0.2784]	0.0107 [0.8349]	-0.0001 [-0.0065]	-0.0003 [-0.0232]	-0.0037 [-0.2709]	-0.0068 [-0.4999]
181 Process of Law=2	0.0121 [1.1691]	0.0112 [0.9683]	0.0118 [0.9067]	0.0161 [1.3566]	0.0089 [0.8358]	0.0126 [1.0362]	0.0125 [0.9176]	0.0143 [1.0374]
Female X Process of Law=1	-0.0233 [-1.0844]	-0.0225 [-0.9937]	-0.0248 [-1.1254]	-0.0239 [-1.0474]	-0.0213 [-1.0360]	-0.0228 [-1.0600]	-0.0216 [-0.9187]	-0.0202 [-0.9276]
Female X Process of Law=2	-0.0402** [-2.3172]	-0.0384** [-2.0508]	-0.0401** [-2.2878]	-0.0394** [-2.0358]	-0.0480*** [-2.6572]	-0.0477** [-2.4193]	-0.0455** [-2.1302]	-0.0504** [-2.5844]
Constant	-0.0239 [-1.3216]	-0.0211 [-1.1655]	0.0208 [0.5517]	-0.0324 [-1.3960]	-0.0106 [-0.3917]	-0.0139 [-0.5254]	-0.0128 [-0.5003]	0.0455 [1.0004]
Observations	180	180	154	180	180	180	180	154
R-squared	0.2591	0.2751	0.2991	0.2670	0.3097	0.3179	0.3325	0.3744
Sector FE	YES	YES	YES	YES	YES	YES	YES	YES
Additional Director Controls	NO	YES	YES	NO	NO	NO	YES	YES
Additional Board Controls	NO	NO	NO	YES	NO	YES	YES	YES
Additional Firm Controls	NO	NO	NO	NO	YES	YES	YES	YES

Table 2.8 – The Effect of the Quota on Market Reaction to Appointments: Replacement Announcements

This table reports OLS estimates of the treatment effects of the process of passing the law (“Process of Law=1”) and of the enactment of the law (“Process of Law=2”) on the stock market reaction to replacements made by female directors (“Female Appointment”). Treatment effects are measured by variables set: “Female X Process of Law=1” and “Female X Process of Law=2.” “Additional board controls” include the proportion of female directors on the board, the proportion of independent directors on the board, and the board size. “Additional firm controls” include the firm size and an indicator equal to one if the firm is state-owned or privatized. The dependent variable is the cumulative abnormal return (CAR) over the [-2,+2] event window associated with director replacement announcements for the French firms sample (i.e., one appointment and one departure, announced simultaneously). The sample period is from 2004-2014. Standard errors are clustered at the firm level and t-stats are reported in brackets. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

VARIABLES	(1)	(2)	(3)	(4)
Female Appointment	0.0642*** [3.9370]	0.0625*** [3.4193]	0.0639*** [3.6277]	0.0637*** [3.0531]
Female Appointment X Process of Law=1	-0.0561* [-1.9008]	-0.0631* [-1.7450]	-0.0444 [-1.3667]	-0.0468 [-1.1669]
Female Appointment X Process of Law=2	-0.0601*** [-2.8740]	-0.0632*** [-3.0125]	-0.0573** [-2.5774]	-0.0634** [-2.6307]
Constant	0.0073 [0.5229]	0.0576 [0.8276]	0.0411 [0.7755]	0.0759 [1.0318]
Observations	99	99	99	99
R-squared	0.5893	0.5985	0.6122	0.6342
Sector FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Additional Board Controls	NO	YES	NO	YES
Additional Firm Controls	NO	NO	YES	YES

**Table 2.9 – The Effect of the Quota on Market Reaction to Appointments:
All Announcements**

This table reports OLS estimates of the treatment effects of the process of passing the law (“Process of Law=1”) and of the enactment of the law (“Process of Law=2”) on the stock market reaction to all female director appointments (“Female Appointment”), including unique announcements and replacement announcements. Treatment effects are measured by the following set of variables: “Female X Process of Law=1” and “Female X Process of Law=2.” “Additional board controls” include the proportion of female directors on the board, the proportion of independent directors on the board, and the board size. “Additional firm controls” include the firm size and an indicator equal to one if the firm is either state-owned or privatized. The dependent variable is the cumulative abnormal return (CAR) over the [-2,+2] event window associated with director appointment announcements for the French firms sample. The sample period is from 2004 to 2014. Standard errors are clustered at the firm level and t-stats are reported in brackets. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

VARIABLES	(1)	(2)	(3)	(4)
Female Appointment	0.0388*** [3.6593]	0.0422*** [3.8289]	0.0419*** [4.2813]	0.0452*** [4.4231]
Female Appointment X Process of Law=1	-0.0285* [-1.8347]	-0.0290* [-1.8545]	-0.0275* [-1.8512]	-0.0274* [-1.8208]
Female Appointment X Process of Law=2	-0.0394*** [-3.1349]	-0.0402*** [-3.0721]	-0.0429*** [-3.6023]	-0.0436*** [-3.5158]
Constant	-0.0328 [-1.0651]	-0.0349 [-0.9166]	-0.0049 [-0.1361]	-0.0104 [-0.2716]
Observations	279	279	279	279
R-squared	0.2822	0.2989	0.3101	0.3282
Sector FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Additional Board Controls	NO	YES	NO	YES
Additional Firm Controls	NO	NO	YES	YES

Table 2.10 – Market Reaction to Appointments in Non-Compliant Boards

This table reports OLS estimates of the treatment effects of the process of passing the law (“Process of Law=1”) and of the enactment of the law (“Process of Law=2”) on the stock market reaction to all female director appointments (“Female Appointment”), for non-compliant boards (“Non-Compliant Board”). The variable “Non-Compliant Board” is an indicator equal to one if the proportion of female directors on the board is below 20%. Treatment effects are measured by variables set: “Female X Process of Law=1 X Non-Compliant” and “Female X Process of Law=2 X Non-Compliant.” “Additional board controls” include the proportion of independent directors on the board, and the board size. “Additional firm controls” include the firm size and an indicator equal to one if the firm is either state-owned or privatized. The dependent variable is the cumulative abnormal return (CAR) over the [-2,+2] event window associated with director appointment announcements for the French firms sample. The sample period is from 2004-2014. Standard errors are clustered at the firm level and t-stats are reported in brackets. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

(Table continued on next page)

Table 2.10 – Market Reaction to Appointments in Non-Compliant Boards (Cont'd)

VARIABLES	(1)	(2)	(3)	(4)
Female Appointment Dummy	0.0400*** [3.3375]	0.0382*** [3.1035]	0.0467*** [3.3237]	0.0447*** [3.0726]
Female Appointment X Process of Law=1	-0.0900*** [-5.9879]	-0.0981*** [-5.9884]	-0.0981*** [-5.8379]	-0.1069*** [-5.8798]
Female Appointment X Process of Law=2	-0.0366*** [-2.8088]	-0.0349*** [-2.6622]	-0.0452*** [-3.0250]	-0.0432*** [-2.8342]
Non-Compliant Board	0.0068 [0.5175]	0.0044 [0.3015]	0.0138 [0.9107]	0.0111 [0.6582]
Female Appointment X Non-Compliant	-0.0036 [-0.1951]	-0.0043 [-0.2281]	-0.0058 [-0.3110]	-0.0065 [-0.3380]
Process of Law=1 X Non-Compliant	0.0031 [0.1574]	0.0057 [0.2642]	-0.0137 [-0.6417]	-0.0107 [-0.4579]
Process of Law=2 X Non-Compliant	0.0024 [0.1459]	0.0021 [0.1181]	-0.0057 [-0.3111]	-0.0058 [-0.2979]
Female Appointment X Process of Law=1 X Non-Compliant	0.0661** [2.5818]	0.0789*** [2.8018]	0.0756*** [3.0007]	0.0894*** [3.1721]
Female Appointment X Process of Law=2 X Non-Compliant	-0.0052 [-0.2592]	-0.0038 [-0.1873]	0.0014 [0.0677]	0.0027 [0.1252]
Constant	-0.0406 [-1.1850]	-0.0494 [-1.2828]	-0.0201 [-0.5331]	-0.0290 [-0.7440]
Observations	279	279	279	279
R-squared	0.2917	0.2981	0.3196	0.3270
Sector FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Additional Board Controls	NO	YES	NO	YES
Additional Firm Controls	NO	NO	YES	YES

Table 2.11 – Market Reaction to Appointments: Before the Law’s Submission

This table reports OLS estimates of the coefficient associated with the female director appointments dummy. The sample includes appointments that were announced before the law submission and is separated into two subsamples: boards that include a proportion of female directors below 10% (“Less than 10% of women: YES”) and boards that include a proportion of female directors above 10% (“Less than 10% of women: NO”). “Additional board controls” include the proportion of independent directors on the board and the board size. “Additional firm controls” include the firm size and an indicator equal to one if the firm is either state-owned or privatized. The dependent variable is the cumulative abnormal return (CAR) over the [-2,+2] event window associated with director appointment announcements for the French firms sample. Standard errors are clustered at the firm level and t-stats are reported in brackets. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES								
Female Appointment Dummy	0.0548*** [2.8163]	0.0093 [0.4508]	0.0623*** [3.4853]	0.0260** [2.6592]	0.0524*** [3.4277]	0.0274 [1.6294]	0.0568*** [3.3498]	0.0333* [1.8697]
Constant	-0.0513* [-1.6753]	-0.0530 [-0.8357]	-0.0508 [-0.5634]	0.0153 [0.2029]	0.0474 [0.6422]	-0.1062 [-1.0945]	0.0091 [0.0955]	-0.1614** [-2.7125]
Observations	79	39	79	39	79	39	79	39
R-squared	0.2489	0.8971	0.2805	0.9194	0.2735	0.9262	0.2952	0.9541
Sector FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Additional Board Controls	NO	NO	YES	YES	NO	NO	YES	YES
Additional Firm Controls	NO	NO	NO	NO	YES	YES	YES	YES
Less than 10% of Women	YES	NO	YES	NO	YES	NO	YES	NO

Table 2.12 – Robustness Check: Sample Selection Issue with a Heckman Procedure

Panel A of this table reports the composition of the sample of all director appointments, including director appointments that are announced (unique appointment announcements and replacement announcements), and director appointments that are not announced. Announced appointments are based on announcements data of events related to directors on boards in BoardEx, whereas unannounced appointments are identified from the initial sample of BoardEx. The sample is separated by male and female appointments. Panel B replicates Table 9 using the Heckman two-step method. The first-stage model (Probit results are unreported) includes variables that predict the announcement of a director appointment: a female director appointment indicator, the proportion of female directors on the board, the proportion of independent directors on the board, the board size, the firm size, an indicator equal to one if the firm is state-owned or privatized, and sector-fixed effects. In the second-stage regression, “additional board controls” include the proportion of female directors on the board, the proportion of independent directors on the board, and the board size. “Additional firm controls” include an indicator equal to one if the firm is either state-owned or privatized. “Inv. Mills’ Ratio” is the inverse Mills’ ratio drawn from the Heckman selection model first stage. The sample period is from 2004-2014. Standard errors are clustered at the firm level and t-stats are reported in brackets. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

<u>Panel A: New directors announced vs not announced</u>	<u>N</u>	<u>(Not)Announced/ Total New</u>	<u>(Not)Announced/ Total(Not)Announced</u>
All new directors			
Announced	279	6.23	100
Not Announced	4200	93.8	100
Total	4479	100	100
New Male			
Announced	190	5.42	68.1
Not Announced	3315	94.6	78.9
Total	3505	100	78.3
New Female			
Announced	89	9.14	31.9
Not Announced	885	90.9	21.1
Total	974	100	21.7

Table 2.12 – Robustness Check: Sample Selection Issue with a Heckman Procedure (Cont'd)

	(1)	(2)	(3)	(4)
<u>Panel B: Heckman procedure</u>				
Female Appointment Dummy	0.0408*** [4.0093]	0.0462*** [4.1831]	0.0429*** [4.5010]	0.0480*** [4.5853]
Female Appointment X Process of Law=1	-0.0289* [-1.9062]	-0.0280* [-1.7912]	-0.0278* [-1.8987]	-0.0259* [-1.6867]
Female Appointment X Process of Law=2	-0.0391*** [-3.1598]	-0.0407*** [-3.1220]	-0.0425*** [-3.5798]	-0.0443*** [-3.5446]
Inv. Mills' Ratio	0.0163* [1.7672]	0.0139 [1.0827]	0.0101 [1.1592]	0.0017 [0.1313]
Constant	-0.0649* [-1.8182]	-0.0676 [-1.3088]	-0.0268 [-0.7226]	-0.0150 [-0.2861]
Observations	279	279	279	279
R-squared	0.2905	0.3078	0.3132	0.3333
Sector FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Additional Board controls	NO	YES	NO	YES
Additional Firm Controls	NO	NO	YES	YES

Chapter 3

Board Quotas and Director-Firm Matching*

Abstract

We study the impact of board gender quotas on the labor market for corporate directors. We find that the annual rate of turnover of female directors falls by about a third following the introduction of a quota in France in 2011. This decline in turnover is more pronounced for new appointments induced by the quota, and for appointments made by firms that regularly hire directors who are members of the French business elite. By contrast, the quota has no effect on male director turnover. The evidence suggests that, by changing the director search technology used by firms, the French quota has improved the stability of director-firm matches.

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3.1 Introduction

A well-functioning labor market for corporate directors contributes to the quality of corporate governance by helping firms attract and retain the right kind of directors. But since no market is perfect, directors and firms may sometimes find themselves matched with the wrong partner. Such poor director-firm matches may persist for some time, especially in the presence of search and matching frictions.¹ But such matches tend to be eventually terminated, either because unhappy directors voluntarily step down, or because firms do not reappoint problematic directors. By contrast, high-quality matches are stable. Although we typically cannot observe the quality of a match, we can measure the *stability* of a director-firm match by the director turnover rate.² Turnover rates thus allow us to measure how the parties jointly value the match, offering us insights into the functioning of the labor market for directors and its implications for corporate governance.

In this paper, we study the introduction of a mandatory gender balance law in France in 2011, and its immediate effect on corporate director turnover. Beginning with Norway, many European countries have recently passed similar gender quota laws, including Italy, Belgium, The Netherlands, Spain, and Germany. Such laws typically require firms to have a minimum proportion of each gender on their boards. We see the French case as a laboratory for studying the effects of policy interventions on boards' recruitment and retention policies. The labor market for directors in France is particularly interesting because of its reliance on one particular network – *Grande Ecole* graduates – whose members are disproportionately represented on corporate boards. This feature allows us to use the quota experiment to study policy interventions in a thin labor market, i.e., a labor market in which most participants come from a relatively small pool.

The introduction of a gender quota is an exogenous shock to the demand for female directors. Such a demand shock has opposing effects on the stability of director-firm matches. On the one hand, the total surplus generated by a director-firm pair may fall after the quota,

¹ Evidence of search and matching frictions in the labor market for directors can be found in Harford (2003), who finds that directors take many years to replace their board seats lost in takeovers, and in Denis, Denis, and Walker (2015), who show that newly formed boards created due to spinoffs are significantly different from ongoing boards.

² Here we follow the theoretical matching literature, which typically defines a stable match as one in which no individual or a pair of agents can unilaterally improve upon their situation by disrupting an existing match (see e.g. Roth and Sotomayor, 1990). In dynamic settings, an originally stable match may eventually become unstable, either because of changes in preferences and agent types, or because of learning. Empirically, the termination of unstable matches generates turnover.

because firms may hire less-qualified female directors. In addition, female directors may choose to leave their firms more frequently, because of improved outside opportunities. Both of these effects lead to an increase in female director turnover. On the other hand, the quota may increase firms' costs of replacing female directors. In addition, match quality may improve if the introduction of a quota forces firms to abandon search technologies (i.e., selection and hiring practices) that under-recruit qualified women.³ Both of these effects lead to a decrease in female director turnover.

The overall effect of quotas on director turnover is thus an empirical question. In our empirical work, we look for answers to a number of questions: Do quotas affect director turnover? Are such effects different for male and female directors? Are such effects different for pre-quota and post-quota directors? How do such effects vary across firms? How do quotas affect hiring practices? What does the evidence reveal about the labor market for directors?

Our target quantity is the average difference in annual turnover rates between male and female directors. We call this quantity the (*gender*) *turnover gap*. The turnover gap in France for the 2003-2014 period is 4.6%: On average, the male turnover rate is 12.2% and the female turnover rate is 7.6%. We show that the introduction of the quota widens the turnover gap, and it is indeed the main reason why this gap exists in the first place: The gap increases from virtually zero before the introduction of the quota to 3%-5% after the quota. We also find that average male director turnover remains unchanged after the quota, implying that we can attribute virtually all of this gap to a decrease in female director turnover. The pre-quota female turnover rate was 11%; the quota has then reduced this rate by about 27%-45%.

To estimate the effect of the quota on the turnover gap, we need to isolate such an effect from other confounding effects. Our approach is to measure *residual* turnover differences: Male-female turnover differences that are not explained by any time-varying firm-level variables (such as size or performance) or some observable director characteristics (such as age or tenure). We are able to perfectly control for any fixed or time-varying firm characteristic by using only *within firm-year* variation in turnover rates across directors. This approach is possible because we focus on individual director outcomes, and thus our study has some methodological advantages over studies that focus on firm-level consequences of quotas.⁴

³ This argument has been used in the literature on affirmative action policies: "Whereas the policy is costly when it distorts the selection of the best qualified individual, this need not be the case when the initial selection is suboptimal. If the best qualified candidates fail to be selected or fail to apply, then the introduction of affirmative action may reduce if not eliminate these costs" (Niederle, Segal, and Vesterlund, 2013, p. 1).

⁴ Our approach is similar to that of Jiang, Wan, and Zhao (2016), who use within-board variation to study the voting behavior of corporate directors in China.

For comparison, we also estimate the turnover gap for US firms during the same period. There has been no real discussion of mandatory quotas in the US, unlike in most European countries. We find that the US has a much lower gender turnover gap: 1.85%, which is fully explained by firm-year fixed effects and director characteristics (in particular age and tenure). Thus, in contrast with France, in the US there is no residual turnover gap. We also find that the empirical determinants of director turnover in the US are very similar to those in France, which validates the use of US directors as a control group. Difference-in-differences estimates, using US directors as the control group, confirm that the quota fully explains the residual turnover gap in France.

After establishing our main results, we then investigate the mechanisms behind the decrease in female turnover. First, we find that post-quota appointments explain most of the decrease in turnover: Relative to new male appointments, newly-appointed female directors have lower turnover probabilities. The quota thus appears to have improved the stability of *new* matches.

Second, we find that the decrease in female turnover is more pronounced in firms that regularly employ directors who are members of the French business elite. We measure the degree of board elitism by the proportion of elite *Grande Ecole* graduates on the board. This is in line with Nguyen (2012) and Kramarz and Thesmar (2013), who argue that a *Grande Ecole* degree is a good proxy for membership in elite business networks in France. We find that lower turnover of women recently appointed to elitist boards explains virtually all of the effect of the quota.

To interpret the results, we use a simple theoretical framework in which the turnover rate is decreasing in the *net surplus* from a director-firm match. Net surplus is a natural measure of match quality. Because high-quality matches are less likely to be dissolved, the turnover rate is an empirical proxy for the (unobservable) net surplus. We use this framework to argue that the evidence suggests that forced changes in hiring practices (what we call *search technology*) among elitist firms explains the bulk of the quota effect on turnover. We discuss some additional anecdotal evidence in line with this interpretation.

Although we cannot see what is behind a firm's search technology, the evidence suggests two main possibilities. First, elitist firms may recruit directors mostly through their own social networks, and women are likely to be underrepresented in networks of *Grande Ecole* graduates. In principle, the use of such networks may be both rational and efficient: Employers may find it easier to evaluate candidates who are similar to themselves (see Cornell and Welch, 1996). However, the use of networks may also be a consequence of search frictions (see

Mailath, Samuelson, and Shaked, 2000). Second, it could be that those working in elitist firms have a higher propensity to stereotype women as being less competent at board work. Bordalo, Coffman, Gennaioli, and Shleifer (2016a) provide evidence that people tend to overestimate the performance of men in male-type domains (see also Bordalo et al (2016b) for a theory of stereotypes). In either case, changes in hiring practices among elitist firms are the main force behind the change in turnover behavior.

We show a number of additional results. Based on observables – including age, executive experience, and education – post-quota female directors seem no less qualified than pre-quota female directors. We also find that post-quota female directors are more independent and less likely to have family connections to owners than pre-quota female directors. Female director “entrenchment” is thus unlikely to explain the fall in turnover rates after the quota. In addition, we find that – after the quota – experienced female directors are *more* likely to leave poorly-performing firms and firms with more volatile performances, suggesting that improved labor market opportunities allow experienced female directors to cherry pick the boards on which they sit.

The evidence in this paper makes a number of contributions to the academic literature and policy debates on the topic. First, our evidence highlights the importance of social networks in the market for corporate directors. In their survey of the corporate board literature, when discussing directions for future research, Adams, Hermalin, and Weisbach (2010) ask: “*How are potential outside directors identified? (...) What is the role of social networks in this process?*” (p. 99). Our work complements the existing literature on this topic (e.g., Fracassi and Tate, 2012; Nguyen, 2012; Kramarz and Thesmar, 2013; Fahlenbrach, Kim, and Low, 2017) by showing how networks interact with policy interventions in the market for directors.

Second, in line with the theoretical arguments in Mailath, Samuelson, and Shaked (2000), our evidence suggests that search technologies that disproportionately target candidates from certain groups may constitute a significant matching friction. The largest improvements in female job stability occur precisely in those firms that relied more on the “old boy network” for selecting directors. These are the firms more likely to have – perhaps inadvertently – discriminated against female directors.

Third, a natural concern about board quotas is that they may lead to lower standards for selecting female directors. In the case of Norway, Bertrand, Black, Jensen, and Lleras-Muney (2014) show that this concern has little empirical support; they find that the introduction of the quota improved the observable characteristics of female appointees. We reach a similar conclusion through a different route: The greater stability of post-quota female appointments

suggests that the quality of the director selection process has not been compromised by the quota.

Finally, our results show that female directors may benefit in multiple ways from the introduction of quotas. Not only quotas make more board seats available to women, they may also increase female director job stability – especially in “elitist” boards – and allow female directors to be more selective about the boards on which they sit. Although the gain in the number of board seats for women comes largely at the expense of men, the additional gain in job stability does not: We find that male director turnover rates are largely unchanged after the quota.

This paper contributes mainly to a recent literature on the labor market for corporate directors, with a focus on director appointments and match formation (see e.g. Denis, Denis, and Walker, 2015, 2017; Matveyev 2016; Fahlenbrach, Kim, and Low, 2017; Adams, Akyol, and Verwijmeren, 2017; Becher, Walkling, and Wilson, 2017; Cai, Nguyen, and Walkling, 2017). Our main contribution to this literature is to show how the market for corporate directors functioned *before* the introduction of the quota, which disrupted the existing equilibrium. Our findings suggest that search frictions and networks are important features of this market.

This paper also contributes to a recent literature on board diversity (Adams and Ferreira, 2009; Adams and Funk, 2012; Adams and Kirchmaier, 2016; Schmid and Urban, 2016; Schwartz-Ziv, 2017; Carter, Franco and Gine, 2017; Bernile, Bhagwat, and Yonkers, 2017; Giannetti and Zhao, 2017), in particular to the literature on the consequence of quotas (Nygaard, 2011; Ahern and Dittmar, 2012; Matsa and Miller, 2013; Bøhren and Staubo, 2014, 2015; Bertrand, Black, Jensen, and Lleras-Muney, 2014; Eckbo, Nygaard and Thorburn, 2016; Reberieux and Roudaut, 2016). More broadly, this paper is related to the literature on male-female differences in behavior and labor market outcomes for executives and other high-skill workers (e.g., Bertrand, Goldin, and Katz, 2010; Huang and Kisgen, 2013). Our paper is also related to the vast literature on CEO and director turnover, which focuses mostly on the links between performance and turnover.⁵ Our focus is however quite different; by construction, our measure of residual turnover is free from the effect of performance and other firm-level variables.

⁵ See e.g., Warner, Watts, and Wruck (1988), Weisbach (1988), Denis and Denis (1995), Parrino (1997), Huson, Parrino, and Starks (2001), Fee and Hadlock (2004), Yermack (2004), Bushman, Dai, and Wang (2010), Kaplan and Minton (2012), Peters and Wagner (2014), Jenter and Kanaan (2015), Fahlenbrach, Low, and Stulz (2016), and Bates, Becher, and Wilson (2016).

3.2 Institutional Background

3.2.1 Board gender quotas

In France, the Zimmermann-Copé law, adopted on January 27, 2011, requires a minimum of 20% of women on company boards from January 2014 on, rising to 40% on January 1, 2017. When a firm has a dual board (a supervisory board and a management board), the law applies only to the supervisory board. Within boards, the quota applies to all members—insiders and outsiders—with one exception: Directors representing employees, who are usually union representatives.

The law applies to all listed and non-listed companies employing at least 500 employees⁶ or with revenues of at least EUR 50 million. The legal forms that are subject to this law are limited liability corporations (*Sociétés Anonymes*), limited partnerships that include at least one general partner and a number of limited partners who buy shares in the entity (known as “*commandite par actions*” corporations), and *Societas Europaea* (the European company statutes). All listed companies have to adopt one of these three legal forms. Non-listed companies can opt for other legal forms, which are not subject to quotas (SARL, *sociétés à responsabilité limitée*, which have no boards, or SAS, *sociétés anonymes simplifiées*, in which boards are optional).

The law was submitted to the French National Assembly on December 3, 2009, and adopted in first reading on January 20, 2010. The parliamentary debates continued throughout 2010 to January 2011, when the law was formally approved. As many companies have anticipated the adoption of the law in 2010, we exclude the 2010 year when comparing the pre-quota period with the post-quota period.

For several years now, European countries have had a number of high-profile policy debates about quotas on company boards. Norway was the first country to adopt such a law in 2003, which was implemented in 2008, requiring a minimum of 40% of board directors from each gender. On November 14, 2012, the European Commission adopted a proposal for a directive setting a minimum objective of having 40% of the under-represented gender in non-executive board-member positions in listed companies in Europe by 2020. This directive is still under debate. Meanwhile, several countries adopted regulations requiring greater representation of women on boards. The two countries closest to France are Italy and Belgium. Both countries

⁶ A new law passed on August 5, 2014, lowering the threshold from 500 to 250 employees from January 1, 2020.

adopted a one-third quota law, which are effective from 2015 (Italy) and 2017 (Belgium). Even Germany, initially reluctant to consider quotas, adopted in December 2014 a law establishing a gender quota of 30%, effective in 2016 for the largest listed companies.

3.2.2 Boards in France

Under French law, the size of the board may range from three to 18 members. French firms can adopt either a unitary board or a dual board, with a supervisory board and a management board. The maximum term for a director is six years. The company bylaws determine the duration of directors' terms. The Association of French Companies' (AFEP-MEDEF) code, adhered to by many French firms, calls for a maximum of four years. Renewal is permitted.

According to the AFEP-MEDEF code, independent directors should account for at least half the members of the board in widely-held companies. In closely-held companies, independent directors should account for at least a third of the board. After twelve years on the board, independent directors lose their independent status. The governance code recommends that the outside directors meet periodically without the executive directors. An outside director should not hold more than five directorships in listed corporations, including foreign corporations. An executive director should not hold more than three directorships in listed corporations, including foreign corporations. This limit does not apply to directorships held in subsidiaries and holdings.

French law does not cover the number or composition of board committees, which are determined by each board. However, French firms typically have three committees: audit, nomination, and compensation.

3.2.3 French business elites

The higher education system in France is divided into two separate blocks: universities and elite establishments called "*Grandes Ecoles*". In contrast with universities, where entrance after high school is guaranteed by law, *Grandes Ecoles* are highly selective, and their students represent only 5% of the total of those who enroll in higher education each year. In addition to excellent high school records, the selection entrance at *Grandes Ecoles* is based upon an examination that requires two years of intensive preparation (*Classes Préparatoires aux Grandes Ecoles*).

In France, the majority of business and governmental elites (administrative, scientific, and executive) are former students of the *Grandes Ecoles*. For instance, around two-thirds of

the chief executives in France's largest firms graduated from the *Grandes Ecoles* (for more details, see Dudouet and Joly, 2010).

Due to historical reasons, those business elites not only benefit from a highly selective education, but also from pervasive political and social connections. After World War II, numerous former civil servants (from the Ministry of Finance or the Ministry of Industry) who graduated from the *Grandes Ecoles* began to be hired at top-level management positions by big companies (especially state-owned and privatized companies) (for more details, see Bertrand, Kramarz, Schoar, and Thesmar, 2007).

A second distinctive feature of *Grandes Ecoles* is the under-representation of women among the student body. According to Albouy and Wanecq (2003), among graduates from *Grandes Ecoles* who were born during the 1949-1958 period, 2432 are male and 546 are female (respectively 1829 and 732 among graduates who were born during the 1959-1968 period). Ecole Polytechnique (the top engineering *Grande Ecole*) did not accept female candidates until 1972, and had in 2015 less than 20% female students. Moreover, between 1989 and 2009, the proportion of female graduates from the Ecole Nationale d'Administration was only around 25-30% (Larat, 2015).

3.3 Data

We analyze an unbalanced panel of French and US boards over the period 2003 to 2014 using data from Management Diagnostic's BoardEx database. The sample consists of 3,369 firm-year observations for 414 unique French firms, and of 68,170 firm-year observations for 10,490 unique US firms. Accounting data are taken from Datastream. If we exclude firm-year observations with missing values for firm size (firm operating performance), the sample consists of 3,126 (3,086) firm-year observations for France and of 45,222 (42,926) firm-year observations for the US.

3.3.1 Firm and board characteristics

Panel A of Table 1 presents summary statistics of firm characteristics for two subsamples: Before and after 2010 (see Appendix A1 for the definition of all variables used in this section). Firm size is measured as total assets in millions of Euros, and return on assets is the ratio of operating income before interest, taxes, depreciation, and amortization to total assets. Both

variables are winsorised at the 1% and 99% levels. Average size and operating performance are very similar before and after 2010, especially in the French sample.

Panel B of Table 1 shows board characteristics. Boards are larger and the proportion of independent directors (i.e., non-executive directors who are classified as independent by BoardEx) is lower in the French sample. The average board size in France is very similar before and after 2010. Before 2010, both France and the US had similar proportions of female directors: 9% and 8%, respectively. After 2010, there is a significant change: France now has 19% of female directors, while the US has 9%. This difference is, of course, explained by France introducing a quota in January 2011.

3.3.2 Director characteristics

The sample includes 35,233 director-firm-year observations for France and 521,948 director-firm-year observations for the US. In our regressions we use only outside (i.e., non-executive) directors, thus we also exclude 6,913 director-firm-year observations for France, and 92,357 director-firm-year observations for the US, where the director is an executive of the firm. Finally, we exclude 2,916 director-firm-year observations for France and 8,297 for the US. with missing values for age and tenure. The final sample used in the regression models consists of 21,367 director-firm-year observations for France and 344,552 for the US over the period 2003 to 2014.

Table 2 compares outside director characteristics between France and the US by gender. In this table, we restrict the sample to outside directors, and include only observations for which age and tenure data are available.⁷ Relative to male directors, female directors are younger and more independent, both in the US and in France. However, female directors on French boards are more likely than their male counterparts to be family members, defined (following Ahern and Dittmar, 2012) as directors who share the same last name as another board member.

Overall, there is a gender gap in terms of expertise and board experience, which is slightly more pronounced in France than in the US. Among French boards, female directors hold a lower number of board seats (1.88 seats for female directors versus 2.28 seats for male directors, on average), while among US boards the reverse is true (2.91 seats for female directors versus 2.17 seats for male directors, on average). Moreover, in France, female directors are much less likely to be member of a major committee (audit, compensation,

⁷ Table IA.1, in the Internet Appendix, replicates Table 2 with the unrestricted sample.

nomination, or governance committees) than in the US. The gender gap in terms of industry expertise is larger in France than in the US (8% in France versus 2% in the US).

In France, female directors are also less likely to be a graduate from a set of nine elite *Grandes Ecoles*.⁸ The difference is substantial: While 40% of all male directors come for this small set of schools, only 23% of female directors hold similar degrees. This is not surprising, given that *Grandes Ecoles* (especially Ecole Nationale d'Administration and most engineering schools) include (even until recently) only a small proportion of female graduate students. In our sample, the school with the lowest representation of female directors is Ecole Polytechnique, with slightly less than 3% of female directors among its graduate-directors.⁹ By contrast, in the US, 28% of all directors hold an Ivy League degree, with no difference between male and female directors.

3.3.3 Turnover rates

To construct turnover rates, we follow the same procedure as in Bates, Becher, and Wilson (2016). We follow a director from one firm-year board report date on BoardEx to the next, where a report date corresponds to the fiscal year end. Directors who are no longer listed at a subsequent report date are classified as turnover directors, while those who remain listed are classified as non-turnover directors. We cannot measure director turnover when the firm is no longer available in the database the next year. As a result, the sample excludes 4,037 firm-director-year observations for France, and 76,742 firm-director-year observations for the US, for which we cannot identify director turnover.

The unconditional director turnover rates are on average higher in France than in the US and, accordingly, the average director tenure is lower in France (see Table 2). In both the US and France, female directors spend less time on boards than their male counterparts: The board tenure of female directors is on average 1.74 (1.16) years lower than that of male directors in France (US). Female board members are much less likely than male directors to quit boards in any given year: Female directors have lower turnover rates than male directors. These differences in turnover rates are also much larger in France than in the US (4.6% in France versus 1.8% in the US).

⁸ We consider the following schools as elite *Grandes Ecoles*: Ecole Polytechnique Paris, Corps des Mines, Mines Paristech, Centrale Paris, Ecole des Ponts Paristech, Telecom Paristech, Supélec, HEC Paris, and ENA.

⁹ Tables IA.2 to IA.8, in the Internet Appendix, show detailed descriptive statistics of director characteristics for graduates of each elite *Grande Ecole* separately.

3.4 Descriptive Evidence

Figure 1 shows the speed of adjustment to the new law. While the average proportion of women on French boards is 10% in 2009, it rises monotonically to 25% in 2014.

Firms may adjust to the new requirements in two ways: They may increase the number of female directors and/or reduce the number of male directors. By reducing the size of the board through the dismissal of some male directors, firms may be able to comply with the law without needing to employ many female directors. Figure 2 shows that, on average, firms did not choose such a strategy. The average board size in the unbalanced sample appears to decline both before and after the quota, but this is mostly a composition effect. In balanced samples, we can see that the average board sizes do not change much: For the same set of firms, board sizes in 2014 are very similar to their 2007 levels. This figure does suggest, however, that new entrants to the sample have smaller boards on average.

Figure 3 confirms that most of the adjustment occurs through the selection of new directors: The proportion of newly-appointed directors who are female jumps from about 13% in 2009 to 32% in 2010, and continues to rise afterwards, reaching 50% in 2014. This figure clearly shows that the quota changed firms' director selection process very quickly. Since the law only passed in January 2011, the significant increase in the proportion of women among new directors in 2010 suggests that some firms anticipated the passing of the law (see the discussion in Section 2). We see no evidence of anticipation in 2009 or earlier.

Since firms chose to appoint so many female directors so quickly, a natural question is whether firms have lowered the standards for selecting new female directors. Panel A of Table 3 shows a comparison of female director characteristics before and after the quota. Perhaps the most striking conclusion from this table is that, along a number of relevant dimensions, post-quota female directors appear to have better attributes on average. Post-quota female directors are older, have more CEO and C-suite experience, and are more likely to be assigned to major committees, to be industry experts, and not less likely to hold an MBA degree. They have spent significantly less time on their boards, which is to be expected, because many of these directors have only been appointed because of the quota. Post-quota women are also more independent and less likely to be related to the families that control their firms.¹⁰ Interestingly, despite having

¹⁰ This is in contrast with the case of Norway, where post-quota women are more likely to be related to the controlling family (see Ahern and Dittmar (2012)).

better qualifications in most dimensions, post-quota female directors are less likely to be graduates from an elite *Grande Ecole*. Finally, we note that the average female turnover rate falls from 11% to 6%.

Panel B shows a comparison between newly-appointed women before the quota and newly-appointed women after the quota. Panel B confirms that post-quota new appointments are slightly older and more independent. Post-quota female directors are again less likely to be *Grande Ecole* graduates; the difference is exactly the same as in Panel A, but now it is not statistically significant (Panel B has a much smaller sample size). All other observable characteristics are, however, very similar. Again, we find significant differences in turnover rates: Post-quota new female directors have a 4% turnover rate, which is substantially lower than the 9% rate for new appointments before the quota.

This simple comparison allows us to draw some preliminary conclusions. On the basis of observable characteristics, there is no evidence that firms select post-quota female directors who are less qualified than pre-quota female directors. There is clear evidence that post-quota female directors are more independent, measured either by family ties or by formal director independence. This latter finding mirrors the evidence from Norway (see Bøhren and Staubo, 2014). Whether independence is good or bad however depends on the context (see e.g., Adams and Ferreira, 2007 and 2009).

In the Internet Appendix we replicate Table 3 for male directors. The main finding is that there is little difference in male turnover rates before and after 2010. For all male directors, the turnover rate is exactly 12% both before and after the quota. For newly appointed male directors, turnover falls from 9.2% to 8.1% after the quota, a change that is not statistically significant, despite the fact that the male director sample is much larger than the female director sample.

Figures 4 and 5 show the annual average turnover rate for both men and women over our sample period. The turnover rate for men looks stable over the years and, consistent with the discussion above, does not seem to be much affected by the introduction of the quota. The female turnover rate is much more variable, as is to be expected from a much smaller sample, but does not appear to differ much from the male rate until 2010. After 2010, we observe a persistent gap between these two rates.

Note that we only observe a turnover gap from 2011. Although there are many quota-induced female appointments in 2010, turnover for such appointments obviously can only be observed in 2011. The fact that we do not see a turnover gap in the years just before the quota – 2009 and 2010 – strengthens the hypothesis that such a gap is a consequence of the quota.

3.5 Empirical Strategy

Here we describe our empirical strategy. Let y_{dft} be an indicator variable that equals 1 if director d leaves firm f at the end of fiscal year t , and zero for all $t' < t$, and let w_d take the value of 1 if director d is female and zero otherwise. We use y and w to denote the random variables associated with these indicators. We define the *gender turnover gap* as

$$g \equiv E(y|w = 0) - E(y|w = 1). \quad (1)$$

In words, the turnover gap is the difference between the average turnover rates of male and female directors. We can estimate g by a simple regression of y_{dft} on w_d and a constant.

The existence of a turnover gap may be a consequence of endogenous matching of firms and directors. For example, large, mature, better performing, and stable firms may provide more job stability, which could be a characteristic favored by female directors. It is likely that characteristics that are relevant for matching, such as e.g., firm performance, change over time. We thus use *firm-year fixed effects* α_{ft} to eliminate all sources of variation at the firm-year level. Such an approach means that our estimates of the *residual* turnover gap (i.e., after accounting for firm-year fixed effects) are free from any time-varying endogenous matching at the firm level.

Because we only use within firm-year variation, the turnover gap can only be explained by differences between male and female directors, in the same firm, at the same time. Personal characteristics, such as age, tenure, and others, could explain part or all of this gap, leaving nothing to gender. To account for such possibilities, we include a vector of observable director characteristics, \mathbf{x}_{dt} . The residual turnover gap thus reflects characteristics that are not included in \mathbf{x}_{dt} .

Finally, we consider the effect of the board quota by introducing an indicator variable p_t , which takes the value of 1 for $t > 2010$, and zero for $t < 2010$,¹¹ and interacting it with w_d . We thus have the following regression specification:

$$y_{dft} = \alpha_{ft} + a_1 w_d + a_2 w_d p_t + a_3 p_t + \boldsymbol{\beta} \mathbf{x}_{dt} + u_{dft}. \quad (2)$$

¹¹ 2010 is omitted because it is a difficult year to classify.

Note that p_t is absorbed by the fixed effects and, therefore, a_3 is not directly recoverable. The effect of the quota on the (residual) turnover gap is thus given by:

$$g^{BA} \equiv E(g|p = 1, \alpha, \mathbf{x}) - E(g|p = 0, \alpha, \mathbf{x}) = -a_2, \quad (3)$$

which can be directly estimated from (2). An estimator for g^{BA} is a *before-after* estimator of the average effect of the quota on the turnover gap.¹²

A before-after estimator is all we need if we assume that the gender gap was not trending over time. Although Figure 4 shows no clear trend for the difference between male and female turnover rates, we cannot rule out the possibility that the turnover gap changes over time independently of the introduction of the quota. We thus consider US firms as a control group. The advantage of using US firms is that there has been no realistic threat of legal action against those US firms that do not promote gender balance on boards. This is unlike the case of most leading European economies, where such legal actions have been taken or are being seriously discussed. The obvious drawback is that US firms may operate in a very different environment. Differences in turnover rates between France and the US may exist because of differences in competition, regulation, governance practices, and business cultures, among other reasons.

To address this latter concern, we estimate turnover regressions as in (2), but without p_t , for both France and the US. We find that the empirical determinants of turnover are remarkably similar in both countries (Table 4 below shows the results). This finding suggests that institutional and environmental differences between US and France have little impact on the turnover behavior of corporate directors. This validation exercise increases our confidence that the US is a reasonable control group.

We then run the following regression with data from both France and the US:

$$y_{dft} = \alpha_{ft} + a_1 w_d + a_2 w_d p_t + a_3 p_t + a_4 w_d q_f + a_5 w_d q_f p_t + a_6 p_t q_f + a_7 q_f + \beta \mathbf{x}_{dt} + u_{dft}, \quad (4)$$

¹² Because our goal is to estimate partial effects, as in (3), we use linear probability models. An alternative is to use binary dependent variable models that allow for fixed effects, such as Logit models. We present estimates using Logit models in the Internet Appendix (Tables IA.10 to IA.16). The estimates for Logit models with fixed effects are statistically stronger than those for linear models, and they confirm all the results obtained with linear models. A problem with Logit models is that we cannot recover the partial effect in (3) without making assumptions about the distribution of the firm-year fixed effects. A similar problem arises with duration models, with the additional problem of incidental parameters associated with fixed effects. This explains our preference for linear models.

where q_f is an indicator variable that takes the value of 1 if the firm is in France (i.e., the firm is “treated”) and zero otherwise. Notice that a_3 , a_6 and a_7 are absorbed by the fixed effects.¹³ The *difference-in-differences* effect of the quota on the (residual) turnover gap is thus given by:

$$g^{DD} \equiv g^{BA}(q = 1) - g^{BA}(q = 0) = -a_5. \quad (5)$$

If the turnover gap has no trends that are unrelated to the quota, then $g^{BA} = g^{DD}$. Otherwise, g^{DD} is preferred.

Our methodology allows us – under the maintained assumptions – to identify the effect of the quota on the residual turnover gap. But what can we say about the effect of the quota on female turnover *levels*? If we are willing to assume that the quota had no effect on the turnover behavior of men, then $a_3 = 0$, and g^{BA} is now a difference-in-differences estimator of the average effect of the quota on female turnover rates, and g^{DD} is a triple-difference estimator of this effect. Although we do not make the assumption that $a_3 = 0$, we note that, empirically, a_3 indeed appears to be very close to zero. Therefore, in practice it does not make much difference which interpretation we follow: Changes in the gender gap are almost identical to changes in female turnover rates.

3.6 Main Empirical Results

In this section we present our main empirical results.

3.6.1 The effect of the quota on female director turnover

Table 4 shows the outputs of regressions of the turnover variable on the female indicator and other controls, for France (Columns 1 to 4) and the US (Columns 5 to 8), for the whole period of 2003-14. Column 1 shows the estimate of the gender turnover gap in a simple regression without any controls or fixed effects. We find that the “raw” turnover gap in France is 4.6%. Then, in Column 2, we add firm-year fixed effects. The gap falls by roughly 21%, and is now 3.6%. Endogenous matching of firms and directors explain only a small fraction of the gap. In

¹³ According to our notation, any variable that doesn’t have a d subscript is absorbed by the firm-year fixed effects.

Column 3, we add a measure of director tenure (number of years on the board) and a fourth-order polynomial of age.¹⁴ The measured gap is now 2.9%. In Column 4, we add five additional director-level covariates: the number of additional directorships, and indicators for (possible) family connections, independence, membership in major committees, and industry expertise. The number of observations now falls because of some missing data. We see that all director-specific variables appear to affect turnover in a statistically precise way, with the exception of industry expertise, which is only borderline significant. There is an economically and statistically significant gender turnover gap of 3.5%. Adding even more director characteristics reduces sample size but has little impact on the gender gap (we consider educational variables in Table 6).

Columns 4 to 8 replicate the same exercise for US firms. From Column 5 we see that a gender gap also exists in the US, although it is much lower: 1.85%. Note that male turnover is also lower in the US than in France, which is compatible with the hypothesis that the US market for corporate directors is more developed, and thus more stable.¹⁵ Column 6 reveals that, as in France, firm-year effects explain only a small portion of the gender gap, which is now 1.56%. The most important difference arises in Column 7: After controlling for tenure and age, the gender turnover gap all but disappears. The estimated gap of 0.29% is economically irrelevant and borderline statistically significant, despite the very large sample. Once the additional controls are added, the turnover gap is obliterated: It is now 0.03% with a *t*-statistic of 0.16. With a sample size of more than 300,000 observations, we can safely conclude that there is no residual gender tenure gap in the US.

Table 4 allows us to draw two important conclusions. First, firm-year effects and director characteristics cannot fully explain the gender turnover gap in France. By contrast, firm-year effects and director characteristics – in particular age and tenure – explain all of the turnover gap in the US, leaving no room for pure gender effects. In the US, male and female turnover rates are essentially identical to one another, once other characteristics are controlled for. We conclude that there is something specific to French directors, which is not yet captured by the covariates included in our empirical model.

Second, comparing Columns 4 and 8, we find that, with the above noted exception of the gender gap, the empirical determinants of turnover are strikingly similar in both countries. Note that not only all coefficients share the same signs, but their magnitudes are very similar

¹⁴ Fourth-order polynomials – or quartics – of age are typically used in labor economics when studying gender effects (see e.g., Goldin, 2014). Alternative specifications for tenure and age yield very similar results.

¹⁵ See Section 7 for interpretation.

too. The effects of tenure and age are, in particular, very similar. The shape of the age polynomial is remarkably similar, differing only by a level effect. Because constant level effects are differenced out in difference-in-differences estimations, the comparison between Columns 4 and 8 suggests that, at least for the purpose of estimating director turnover, the US is indeed a good control group for France.

Table 5 displays our main results. In Columns 1 to 4 we run increasingly more saturated versions of the model in (2), from no controls to a full set of controls. In Column 1 we see that, even without any control variable or firm-year effect, the turnover gap is fully explained by the years after the quota. Our before-after estimate of the effect of the quota on the turnover gap is 5.14%. Note that the coefficient of the post-2010 dummy is economically negligible and statistically insignificant. This indicates that the turnover gap is fully explained by a reduction in female turnover after the quota; male director turnover does not seem to be affected by the quota. Thus, we reach the same conclusions independently of whether we interpret the results as a reduction in the gap or as a reduction in female director turnover. Columns 1 to 4 show estimates of the gender gap that range between 3% and 5%. In sum, the post 2010 period explains virtually all of the residual gender gap reported earlier in Table 4.

Columns 5 to 8 show the difference-in-differences estimates as in model (4), using the US as a control. We find estimates of the gender turnover gap that are remarkably similar to those obtained through before-after estimators, suggesting that there are no trends in the differences between female and male turnover rates that confounded the before-after estimates.

We have not used educational variables as covariates in the regressions in Tables 4 and 5, because missing data reduce the sample size significantly. For robustness, in Table 6 we present the results of the full-model regressions when we include an MBA dummy, a *Grande Ecole* dummy (for France), and an Ivy League dummy (for the US) among the set of director characteristics. We find that the quota effects appear stronger when educational variables are included, with estimated effects in the 4.2%-4.7% range for the full model, in contrast with an effect of about 3% in Table 5.¹⁶

We conclude that the French quota has reduced female director turnover. This effect is quite robust and about 3 to 5 percentage points, depending on the specification and the sample.

¹⁶ Tables IA.17 to IA.24, in the Internet Appendix, present additional results after controlling for whether directors are foreigners, have CEO experience, and C-Suite experience. The estimates of the effect of the quota are very similar.

3.6.2 Why does female director turnover go down?

In this section, we consider additional cuts of the data to investigate some of the reasons why female director turnover goes down.

One possibility is that, after the quota, turnover falls because firms become more reluctant to let incumbent female directors go. This would happen if the cost of replacing female directors increases after the quota (that is, if the quota worsens the firm's outside options; see Section 7). This hypothesis predicts that the gender gap should increase both for existing appointments and for new appointments.

Table 7 shows before-after and difference-in-differences estimates of the effect of the quota on the gender turnover gap, after we restrict the sample to appointments (male and female) made before 2010. We see that, in this sample, the effect of the quota is weaker than that in the unrestricted sample. The quota effect now ranges between 2.3%-3.2% and fails to be statistically significant when all controls are included. These estimates suggest that the quota effect is stronger for post-2010 appointments. Table 8 confirms this suggestion. There we see that the quota effect for new appointments after 2010 ranges from 3.7% to 5.5%, and this effect appears stronger when more controls are included.

What can we conclude? One may think that the stronger effect for new appointments is a somewhat mechanical effect, because new appointments are less likely to be terminated in the near future than old appointments. But note that this cannot be the case, because the turnover gap compares new female appointments with *new* male appointments; any mechanical effect should also affect new male appointments. In fact, we see from the evidence in Section 3 that turnover for new male appointments after the quota are not much different than that for pre-quota new male appointments. It must then be that female director-firm matches formed after the quota are more stable than pre-quota matches.

It is possible that, when recruiting directors, some boards rely more on some observable director characteristics than others. There is evidence that networks based on common educational backgrounds affect the selection of executives and directors in France (Nguyen (2012); Kramarz and Thesmar (2013)). Thus, here we investigate the effect of board elitism, measured by the proportion of *Grande Ecole* and Ivy League graduates on the board (we include Ivy League graduates to construct a similar variable for US firms).

With one more interaction, interpreting the coefficients becomes more difficult, so it's important that we define formally which effects we want to estimate. Let e be a dummy variable that equals 1 if the board has a proportion of elite school graduates that is below the sample

median. We are interested in three quantities (we omit the conditioning variables α and \mathbf{x} to simplify notation):

$$\begin{aligned} g(e = 0) &\equiv E(g|p = 1, e = 0) - E(g|p = 0, e = 0) \\ g(e = 1) &\equiv E(g|p = 1, e = 1) - E(g|p = 0, e = 1) \\ \Delta g(e) &\equiv g(e = 1) - g(e = 0). \end{aligned} \tag{6}$$

In words, $g(e = 0)$ is the effect of the quota on the turnover gap for low-elitism boards, $g(e = 1)$ is the effect of the quota on the turnover gap for high-elitism boards, and $\Delta g(e)$ is the effect of the quota on the difference in turnover gaps between high-elitism boards and low-elitism boards.

Table 9 presents both before-after and difference-in-differences estimates for the effects in (6). We find that the quota has an economically strong and statistically precise effect on the turnover gap for high-elitism boards: Our estimates all lie in a narrow range between 5.4% and 6.6%. By contrast, the quota has virtually no effect on the turnover gap for low-elitism boards. Finally, the difference between the two effects is about 5 percentage points.

As before, we also split the sample into pre 2010 appointments and post 2010 appointments. Table 10, Panel A, shows that, for pre 2010 positions only, the effect of the quota for high-elitism board is a bit weakened: It ranges from 3.4% to 4.4%, and its significance is sometimes marginal. As before, the quota effect on low-elitist boards is small and statistically insignificant. Panel B considers post 2010 appointments and shows an even stronger effect of the quota on the turnover gap for high-elitism boards: Our estimates now lie between 5.5% and 7.4%. Again, we see virtually no effect on low-elitism boards. The difference between the two is large – between 4.7 and 6.8 percentage points – but fails statistical significance tests, probably because of the reduction in sample size (there are only 1,882 new appointments in France after 2010).

There are a number of firm characteristics that could be related to board elitism. Is board elitism just a proxy for other important characteristics that affect turnover? We have investigated some of the main candidate variables: We considered sample splits on firm size, industries with high versus low number of female employees, the fraction of women on boards pre-2010, (partial) government ownership, and firm location (Paris versus the rest of the country). The effect of the quota on turnover does not seem to vary across these characteristics (results are omitted for brevity, but available in the Internet Appendix).

In sum, French boards that rely more on educational networks are the ones most affected by the quota. Female directors hired by those boards after the quota experience much lower turnover rates (relative to men) than before. Again, this effect is particularly strong for new appointments.

3.6.3 Has the quota improved female director job market opportunities?

An additional effect of gender quotas on female director turnover operates through the labor market for directors. Board quotas increase the demand for female directors and thus improve their job market opportunities. With more opportunities, experienced female directors may choose to work only for some of the best companies. Such directors may then voluntarily depart from boards that they no longer find attractive. This *labor market effect* increases voluntary turnover.

Figure 6 shows the number of directorships held by directors appointed before 2010, for three cohorts of incumbent directors: 2007, 2008, and 2009. While the number of directorships held by incumbent men appears fairly stable from 2007 to 2014, the number of directorships held by incumbent female directors increases significantly from 2010. For example, female directors who are incumbents in 2007 experience an increase in their average number of directorships from 1.7 seats in 2007 to 2.6 seats in 2014. While in 2007 this cohort holds significantly fewer board seats than its equivalent male cohort, in 2014 the same cohort holds more seats than its male counterpart. Finally, notice that earlier cohorts tend to hold more seats throughout the sample period than later cohorts, suggesting that experience is a valuable attribute in the market for corporate directors.

Figure 6 shows clear evidence that the quota has improved the job market opportunities of experienced female directors. If the quota significantly improves the market for incumbent female directors, such directors may “cherry pick” the boards on which sit: They can now afford to leave poor-performing firms because there are additional seats available to them. We then have an apparent puzzle: When faced with more opportunities for board appointments, shouldn’t female directors display higher turnover rates? Directors cannot hold too many seats, either because of regulations¹⁷ or simply because they may not have sufficient time available. Directors may also choose to depart from boards of poor performing or volatile firms to avoid negative reputational effects (see e.g., Fahlenbrach, Low, and Stulz, 2016).

¹⁷ French regulations recommend that a non-executive director should not hold more than five directorships in listed corporations, including foreign corporations, not affiliated with his or her group.

Our evidence shows that turnover rates decrease for both new and existing appointments (see Tables 7 and 8). This effect is, however, weaker for existing appointments, which is consistent with the hypothesis that female directors become more likely to engage in cherry-picking behavior after the quota. To investigate the cherry-picking hypothesis more directly, we estimate the effect of the quota on the turnover gaps for low and median/high performing firms. We define a low-performance indicator as a dummy variable that takes the value of 1 if the ROA (return on assets) of firm f in year t is in the lowest quintile relative to other firms in the benchmark. We use a set of European firms as the benchmark for France and US firms as the benchmark for the US. The use of percentiles of performance is standard in the most recent literature on CEO and director turnover (see, e.g., Jenter and Lewellen, 2016; Jenter and Kanaan, 2015; Bates, Becher, and Wilson, 2016) and helps substantially when interpreting the results. The choice of the lowest quintile as a measure of poor performance is made for convenience; different thresholds lead to similar results.

Table 11 reports the results in which we interact the poor-performance dummy with the quota and the female dummy. In the sample of pre 2010 appointments, we find that the quota *reduces* the turnover gap for low-ROA firms: This effect ranges from 15,3% to 18,4%. The difference in the turnover gaps between low-performing and high/median-performing firms ranges between 18,6 to 21,6 percentage points and is statistically significant. By contrast, in the sample of post 2010 appointments, the quota increases the turnover gap for both low and high/median performing firms and the difference between the two groups is never statistically significant.

In the internet appendix, we replicate the analysis in Table 11, now using the absolute value of the change in ROA as a measure of recent volatility. In the sample of pre 2010 appointments, the gender gap increases for volatile firms and decreases for firms with stable profitability. The difference in the turnover gap between volatile and stable firms ranges between 18.9 to 20.8 percentage points and is statistically significant. Similar to previous results for profitability, in the sample of post 2010 appointments, the difference in impact on turnover gap between volatile and stable firms is not statistically significant.

We conclude that, after the quota, experienced female directors are more likely to depart from poor-performing and volatile firms than experienced male directors. This evidence and the evidence of a disproportionate increase in board appointments for experienced female directors jointly suggest that the quota has allowed these directors to cherry pick the boards on which they sit.

3.7 Interpretation

3.7.1 The effect of the quota on female turnover rates: Possible explanations

In the Appendix, we provide a simple theoretical framework that is helpful for interpreting the evidence. Here we present an informal version of this framework.

Define the *net surplus* from a firm-director pair (f, d) as

$$Q_{fd} \equiv S_{fd} - V_f - U_d, \quad (7)$$

where S_{fd} is the gross surplus from the match (or the *internal match quality*), and V_f and U_d are the parties' outside options, for the firm and the director, respectively. We may interpret these outside options as what each party expects to receive under an alternative match, minus searching and matching costs. Because a match should be continued only when the net surplus is sufficiently high, it is natural to interpret Q_{fd} as a measure of (*net*) *match quality*. This implies that the probability of turnover is decreasing in match quality (the Appendix formalizes this claim).

It's important not to confuse match quality with shareholder value; increases in match quality can actually reduce firm value, for two reasons. First, note that the unit of analysis is a firm-director pair (f, d) , and thus Q_{fd} measures the *joint* net surplus from this match, without any reference to how this surplus is shared between the parties. An increase in net surplus that is accompanied by an increase in directors' bargaining power can thus reduce shareholder value. Second, an important aspect of (7) is that the firm is represented by its *controlling agent* (i.e., the party who effectively controls board appointments), such as the CEO or a controlling shareholder. The controlling agent maximizes her objective function, which may include private benefits. To give a concrete example, suppose that the quota is used as an excuse to appoint some of the controlling agent's female relatives to the board. This may increase match quality from the joint perspective of the controlling agent and the director, but it is certainly bad news for the non-controlling shareholders.

What is the effect of a board gender quota on match quality? The effect of the quota on outside options is unambiguous: Because the quota increases the demand for female directors, if director d is female, V_f decreases and U_d increases. By contrast, the effect of the quota on the gross surplus from the match, S_{fd} , is ambiguous. Note the quota can only affect S_{fd} by

influencing the formation of new matches. If the quota induces firms to hire less-qualified female directors, S_{fd} falls after the quota. On the other hand, if the quota induces firms to hire more-qualified female directors, S_{fd} increases after the quota.

How can we apply this framework to make sense of the evidence? First, notice that the evidence that female director turnover decreases after the quota suggests an increase in match quality. But what is the mechanism through which the quota affects match quality? When trying to answer this question, we use the decomposition of match quality into three components, as in (7), as a way of organizing the different explanations:

(i) Changes in V_f

We expect V_f to fall after the quota, because firms may find it more difficult to replace female directors because of more competition. This effect alone could explain the increase in match quality.¹⁸ We call this explanation the *replacement cost hypothesis*.

If an increase in replacement costs was the only reason for the decrease in female turnover, we would expect to see similar reductions in turnover for both new and existing appointments. If anything, we would expect firms to find harder to replace experienced incumbent female directors than newly-appointed female directors. However, we find that the effect of the quota on turnover is much stronger for post-quota appointments. This evidence cannot be explained by an increase in firm's replacement costs.

The replacement cost hypothesis should also have more bite among firms that are far from compliance, that is, firms that have fewer women on their boards. But the effect of the quota on turnover is unaffected by proportion of female directors on the board (see the Internet Appendix).

We conclude that an increase in replacement costs may still explain part of the fall in female turnover, but it can neither explain why such a decrease is concentrated among newly-appointed directors, nor explain why the effect does not depend on how far boards are from the quota.

(ii) Changes in U_d

Since the quota is likely to *increase* U_d , which then decreases match quality, one may think that we can quickly rule out changes in U_d as a possible explanation for the decrease in

¹⁸ Alternatively, it is possible that the quota increases V_f , perhaps because a large number of women now enter the director labor market. This is, however, unlikely to happen in the short run.

female turnover. But there is a subtle way through which changes in U_d could still help explain the evidence: If the quota induces firms to hire new female directors with worse outside opportunities, the *average* U_d may actually fall. But we find no evidence that such “rookie” directors have lower turnover than experienced directors, casting doubt on explanations based on U_d only (these results are presented in the Internet Appendix).

(iii) Changes in S_{fd}

For this mechanism to explain the evidence, we need the quota to increase the (gross) surplus generated by the match, S_{fd} . That is, *internal* match quality needs to increase. How is this possible?

Internal match quality may increase if the quota eliminates frictions in the matching process. This could happen if, before the quota, some firms only considered a restricted set of qualified women as potential candidates. If the quota forces firms to change their hiring practices, firms may now find even better female candidates, thus improving internal match quality.

The data offer some support for this explanation. First, this explanation is compatible with the evidence that the quota effects operate mainly through new appointments. Second, we find that, based on observable characteristics, post-quota female appointments are clearly no less qualified than pre-quota female directors. If anything, new appointments are older (and thus perhaps more experienced) and more independent.

Third, the quota effects are much stronger for firms that regularly hire directors who are members of the French business elite. Firms may find it difficult to identify qualified female candidates in a network in which women are underrepresented. This interpretation is in line with Mailath, Samuelson, and Shaked (2000), who develop a model in which firms search for workers, who are either “red” or “green.” Although reds and greens are equally qualified for the job, there is an equilibrium in which firms search only for green workers. The authors “interpret a strategy of searching only for greens as the cultivation of a contact network that involves primarily greens” (p.48).

Finally, this explanation is consistent with some existing anecdotal evidence. The business media has reported many instances of changes in hiring practices as a consequence of the quota. Here are a couple of examples:

"The transformation induced by the Copé-Zimmermann Law had several consequences,

amongst which more professional recruitment methods. Careful selection of candidates replaced old friendly cooptation." (Le Nouvel Economiste, January 2016).

"From 2011, when Hubert Sagnières (CEO of Essilor) received a large amount of unsolicited applications and recommendations for joining the board (particularly women), he wished to ensure the independence of the hiring decision by using a headhunter." (Source: Les Echos Business, March 2016).

Although the use of search firms is just one aspect of the recruitment process, it is a good indicator of the professionalization of this process. After 2010, some executive search firms have created separate departments for female directors. For example, Leyders Associates introduced "*Femmes au Cœur des Conseils*," which has a database of more than one thousand women as potential candidates for board positions.

The quota may also have affected the supply side of the director labor market. Before the quota, most women knew that opportunities to be on boards were very rare (except for family and some very well connected women). After the quota, many more women chose to train to become a director. For example, since 2010, the *Institut Français des Administrateurs*, a non-profit organization of directors, offers a degree "*Le Certificat Administrateur de Sociétés*" (executive education over 6 months) aimed at people who would like to become a director. Over the period 2010-2016, 54% of the participants have been women.

3.7.2 Related evidence

Our results relate to the literature on the effect of affirmative action policies on gender differences. For example, Niederle, Segal, and Vesterlund (2013) show experimental evidence that the introduction of female "quotas" for winners in a competitive tournament increases the supply of qualified female participants. They show that this supply effect fully offsets the potential negative effect of the quota on the average performance of winners. This happens because, without the quota policy, many high-performing women choose not to participate in the tournament.

Another study that shows evidence of possible frictions in the selection of men versus women is Kaplan and Sorensen (2016), who study the characteristics of candidates for top executive positions, using a private database of executive assessments. They identify four clusters of characteristics that predict the likelihood of becoming CEO. In their sample, there

are no significant differences between men and women with respect to these observable characteristics. Nonetheless, after holding these four clusters of characteristics constant, women are still less likely to be hired as CEO than men.

3.8 Conclusion

We conclude with a discussion of some possible interpretations and consequences of our findings.

There is clear evidence that the introduction of board gender quotas in France has decreased the rate of turnover of female directors. One possible explanation for this evidence is that firms uniformly became keener to reappoint most female directors at the end of their terms. But this story cannot explain why most of the effect of the quota is on newly-appointed female directors: Quota-induced matches are much more stable than pre-quota matches. Thus, any explanation must account for the differences between pre-quota and post-quota appointments.

Female directors appointed after the quota do not appear to be less qualified than pre-quota female directors. Post-quota female appointees are slightly older and more independent than pre-quota female directors, which also means that post-quota female directors are less connected to shareholders and executives.

The effect of the quota on turnover is more pronounced for firms that typically hire from the French business elite. This evidence suggests that the quota forced “elitist” firms to look beyond their normal pool of candidates. Because women are underrepresented among *Grande Ecole* graduates, we expect these firms to find it difficult to select female directors without changing their selection practices. It is thus perhaps not surprising that such firms prefer to hold on to their female directors. But note again that difficulties in selecting women cannot explain the differential turnover rates among incumbent and newly-appointed female directors.

One story that can rationalize the results is as follows. It is possible that some firms used a search technology that excluded a number of potentially qualified individuals from the pool of candidates. This does not mean that firms discriminated against women per se; discrimination may happen indirectly and incidentally as a consequence of existing hiring norms. Slow-changing hiring practices may thus represent a real matching friction. Large, mature, and profitable firms, such as those in our sample, may survive or even thrive despite such practices. It may also be that hiring through social connections is ultimately beneficial to firms because

of the connections themselves, even if firms pass up opportunities to hire better qualified candidates.

Once the quota forces firms to change their hiring practices, they start tapping into a different pool of talent. The new recruits form more stable matches, perhaps because they are of high quality but were previously ignored, or because these new directors value their board positions more than those who have been hired through connections. In either case, match quality – as measured by the probability of termination – is improved.

Appendix 3.A1 – Variable Definition

<i>Firm characteristics</i>		(Source: Datastream)
Firm Size	Total assets in Millions of Euros.	
Return on Assets (ROA)	Earnings before interest, taxes, depreciation, and amortization scaled by total assets.	
<i>Board characteristics</i>		(Source: BoardEx)
Board Size	The number of board members.	
Proportion of independent directors	The ratio of independent directors on the board.	
Proportion of women on board	The ratio of female directors on the board.	
<i>Director Characteristics</i>		(Source: BoardEx)
Age	Director age in years.	
Time on board	Director tenure in years.	
Female	Indicator equal to one if the director is female, zero otherwise.	
Family	Indicator equal to one if the director shares his last name with at least one other director, zero otherwise.	
Independent	Indicator equal to one if the director is independent, zero otherwise.	
Number of directorships	Number of current board seats held by the director in quoted firms.	
Major Committee Member	Indicator equal to one if the director is member of the audit, compensation, nomination, strategy, executive or governance committee, zero otherwise.	
Industry Expert	Indicator equal to one if the sector of the firm where the director is a board member is the same of at least one firm in his/her employment history.	
Turnover Dummy	Indicator equal to one if a director turns over in the year following the fiscal year end for each firm-year observation, zero otherwise.	
Post 2010	Indicator equal to zero if the year of turnover is ≤ 2009 , one if the year of turnover is ≥ 2011 .	
MBA Dummy	Indicator equal to one if a director has a MBA degree, zero otherwise.	
Grande Ecole Dummy	Indicator equal to one if a director has a degree from Ecole Polytechnique Paris, Corps des Mines, Mines ParisTech, Centrale Paris, Ecole des Ponts ParisTech, Telecom ParisTech, Supelec, HEC Paris or ENA.	
Ivy League Dummy	Indicator equal to one if a director has a degree from an Ivy League University.	
CEO Experience	Indicator equal to one if the director has or had at least one CEO position in his/her employment history.	
C-Suite Experience	Indicator equal to one if the director has or had at least one c-suite position in his/her employment history.	

Appendix 3.A2 – Theoretical Framework

This is not a full-fledged theory, but simply a formalization of the argument.

At the beginning of each period t , firms select directors to join boards of a fixed size s (a strictly positive integer). To simplify the exposition, we consider a single representative firm. This firm has a number of vacancies $a_t \leq s$ it needs to fill. Vacancies are created because some of the incumbent directors leave the firm at the end of each period. The number of new matches, m_t (i.e., the number of vacancies that are filled), is determined by the matching function $m_t = \min\{a_t, n_t\}$, where n_t is the number of director candidates available for the firm to choose. This function implies that, provided that $a_t \leq n_t$, all vacancies are filled.

Candidates come from the set $N_t \subset N_t$; n_t is the number of elements in N_t , and N_t denotes the population of director candidates. We assume that the set N_t is sufficiently large, so that all vacancies can be filled, provided that we choose a sufficiently large subset of the population as the set of candidates. We also assume (for simplicity only) that all directors in set N_t are observationally equivalent from the firm's perspective, and thus all directors in N_t have the same probability of being matched with the firm. In this formulation, matching frictions can only occur because the set of candidates N_t excludes some potential candidates in N_t .

There are many interpretations of the set N_t : It can denote the set of all potential candidate in the firm's network of contacts, the set of candidates suggested by head-hunters, etc. For simplicity, we take N_t as exogenously given. In reality, we expect the firm to choose N_t through its choice of hiring practices.

To avoid complications, we assume that directors can work for two consecutive periods, and then retire. That is, a director "born" in year $t-1$ can work in years t and $t+1$; firms live forever. Directors can only be appointed at the beginning of each period, and director terms last for one period. Young directors are either retained from year t to $t+1$ or terminated at the end of year t . Old directors are always terminated at the end of the year, thus there is no retention decision in those cases. Because our focus is on endogenous turnover, here we confine our analysis to young directors.

If the firm hires a new director $d \in N_t$, the match between the firm and the director produces a joint gross surplus denoted by a random variable S_{dt} , with cumulative distribution function F_{dt} defined over $(0, \infty)$. The realization of this variable, s_{dt} , becomes known to both parties as soon as the director is appointed and, for simplicity only, the joint surplus remains constant at $t+1$: $s_{dt} = s_{dt+1}$. For simplicity only, we assume that S_{dt} and $S_{d't}$, $d \neq d'$, are independent

random variables. This assumption implies that the surplus produced by a board member is independent of the composition of the board.

All potential directors in N_t have a binary observable characteristic $w \in \{0,1\}$, which denotes gender, with $w = 0$ for men and $w = 1$ for women. For simplicity only, we assume that gender is not a productive characteristic: $F_{dt}(s | w = 1) = F_{dt}(s | w = 0)$.

A match formed at time t can only be dissolved at time $t+1$. If the match is dissolved, the parties receive their (expected) outside options v_{t+1} and u_{dt+1} , for the firm and the director, respectively. These outside options may be interpreted as what each party expects to receive under an alternative match, minus the (possibly deadweight) searching and matching costs.

We can now define the net surplus from a match at time t as the following random variable:

$$Q_{dt} = S_{dt} - v_t - u_{dt}.$$

At each t , the surplus is split between the firm and the director according to the sharing rule $\alpha \in [0,1]$, where the firm receives $v_t + \alpha q_{dt}$ and the director receives $u_{dt} + (1-\alpha)q_{dt}$.

The retention decision. Consider a young director d who is hired at time t . Immediately after being hired, both parties learn $s_{dt} = s_{dt+1}$. Assuming efficient bilateral bargaining,¹⁹ the match is dissolved at the end of t if and only if $q_{dt+1} < 0$, i.e. the net surplus is negative.

The probability of turnover. Since Q_{dt+1} is a random variable as of t , we can define the probability that a match formed at t is terminated at the end of year as $\delta_{dt} = \Pr_t(Q_{dt+1} < 0)$. Let H_t^w denote the set of directors of gender $w \in \{0,1\}$ hired at time t , and $H_t \equiv H_t^0 \cup H_t^1$. The cross-sectional average probabilities of turnover for all young directors and for young directors of each gender are

$$\delta_t \equiv \sum_{d \in H_t} \frac{\delta_{dt}}{a_t} \text{ and } \delta_t^w \equiv \sum_{d \in H_t^w} \frac{\delta_{dt}}{a_t^w},$$

where a_t^w is the number of vacancies allocated to directors of gender w .

The quota. Suppose that at date t' , an unexpected shock occurs, such as the introduction of the quota. We are interested in the effect of the introduction of a quota on δ_t^w . In what follows, we consider only the expected effect of the quota on female directors, i.e. we make $w = 1$. There is a number of combination of effects that could explain why male director turnover does not change with the quota; empirically, we are unable to separate between these possibilities.

¹⁹ Bargaining costs don't change the conclusions, as long as the quota does not affect such costs. The quota is likely to affect bargaining power, but not the deadweight costs of bargaining.

The quota can affect average female turnover in two ways: It may affect the set of female directors who are hired, H_t^1 , and/or the individual probabilities of turnover δ_{dt} .

Consider first the effect on δ_{dt} . After the shock (i.e., for periods $t \geq t'$), the net surplus is given by

$$Q'_{dt} = S'_{dt} - v'_t - u'_{dt},$$

and the probability of turnover is δ'_{dt} . For a given female director d , we expect $u'_{dt} > u_{dt}$, that is, the quota should improve their outside opportunities. As this effect increases δ_t^1 , we conclude changes in outside opportunities for a given female director cannot explain the evidence.

Next, for a given firm, we expect $v'_t < v_t$, that is, the quota should restrict their outside opportunities. This effect decreases δ_t^1 and thus can, in principle, explain the observed reduction in female turnover rates. But, empirically, we also find that δ_t^1 falls significantly more for newly appointed directors. Changes in firms' outside opportunities alone cannot explain why turnover falls more for newly appointed directors; if anything, replacing experienced incumbent female directors should become even more difficult after the quota.

Finally, we consider the effect of the quota on the gross surplus for a given match, S_{dt} . Conditional on the firm complying with the quota, there is no reason to expect any immediate change in the gross surplus generated by a given director. This conclusion might not hold in the long run; perhaps, given time, female directors can invest more in their human capital in response to the quota, and firms may also change their "board technology" to adapt to a more gender diverse board. But, given the speed and the magnitude of the quota effect on female turnover, it seems unlikely that director training and management technology changes explain any substantial fraction of the fall in turnover rates.

We now consider the effect of the quota on H_t^1 . Clearly, the quota must have a direct effect on the size of this set, which must now increase. Such an increase creates the possibility that the directors appointed after the quota are different from those appointed before the quota. Our model allows for two such differences:

(1) Differences in u_{dt} . It could be that some of the new female directors have lower u_{dt} , which could then explain the fall in turnover. But this is hard to reconcile with the evidence that rookie female directors (i.e., directors who enter our sample only after the quota) have similar turnover rates as seasoned directors (who are defined as directors are present in our sample before the introduction of the quota).

(2) Differences in F_{dt} . To explain this case, we first need to introduce a criterion for ranking distribution functions. We assume that all F_{dt} 's can be unambiguously ranked by first-

order stochastic dominance (even when the firm cannot differentiate between them): F_{dt} is (weakly) better than $F_{d't}$ if and only if $F_{dt}(s) \leq F_{d't}(s)$ for all s .

Now, differences in F can arise because firms may need to choose from a new set N_t' , perhaps because the original set N_t is too small. Suppose first that the original set has all the best possible female candidates. Thus, if $d' \in N_t'$ but $d' \notin N_t$, then for any $d \in N_t$, F_{dt} is better than $F_{d't}$. This implies that turnover should increase after the quota, which is not what we observe.

This leaves us with the possibility that the new set N_t' has the best possible female candidates. Why would that be the case? Perhaps the quota forces firms to change their hiring practices, such as relying less on personal connections, and more on professional recruitment firms. An expanded, improve set of female director candidates can simultaneously explain the three main pieces of the evidence: (i) a decrease in female turnover, (ii) the larger effect of the quota on newly-appointed directors, and (iii) the larger effect of the quota on those firms that hire mostly through informal networks (in which women are underrepresented).

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Table 3.1 – Firm and Board Characteristics

This table details firm and board characteristics across French and U.S. companies with available board data in BoardEx for two subsamples: Before and after 2010. The sample period is 2003-2014. All variable definitions are described in the Table A1 “Variable Definition”.

	Mean	Median	Min	Max	SD	N
Panel A. Firm Characteristics						
<u>France</u>						
<i>Before 2010</i>						
Firm Size (€ millions)	13703.8	1170.8	8.98	712400	55686.9	1626
Return on assets	0.10	0.10	-0.69	0.61	0.09	1615
<i>After 2010</i>						
Firm Size (€ millions)	14056.7	995.5	3.60	819768	59610.4	1500
Return on assets	0.08	0.09	-1.03	0.54	0.10	1471
<u>US</u>						
<i>Before 2010</i>						
Firm Size (€ millions)	3139.3	401.7	0.01	1589194.8	21472.4	26941
Return on assets	0.05	0.08	-6	0.56	0.20	25574
<i>After 2010</i>						
Firm Size (€ millions)	4248.3	610	0.01	1803679.5	29474.4	18281
Return on assets	0.05	0.08	-1.04	0.43	0.18	17352
Panel B. Board Characteristics						
<u>France</u>						
<i>Before 2010</i>						
Board Size	10.8	10	2	36	4.50	1730
Proportion of independent directors	0.31	0.31	0	1	0.23	1730
Proportion of women on board	0.09	0.07	0	0.75	0.11	1730
<i>After 2010</i>						
Board Size	10.2	10	2	28	4.24	1639
Proportion of independent directors	0.37	0.38	0	1	0.22	1639
Proportion of women on board	0.19	0.19	0	0.75	0.12	1639
<u>US</u>						
<i>Before 2010</i>						
Board Size	7.92	8	1	65	3.07	36308
Proportion of independent directors	0.67	0.71	0	1	0.24	36308
Proportion of women on board	0.08	0	0	1	0.11	36308
<i>After 2010</i>						
Board Size	7.37	7.00	1	58	3.58	31862
Proportion of independent directors	0.55	0.68	0	1	0.35	31862
Proportion of women on board	0.09	0	0	1	0.12	31862

Table 3.2 – Director Characteristics

This table details director characteristics in France and the U.S. separated by gender. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The sample period is 2003-2014. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with Men and Women directors (Men – Women).

	Mean	Median	Min	Max	SD	N	Women	Men	Diff.	t stat.
<i>Panel A. France</i>										
Age	58.7	60	23	92	10.4	24037	53.6	59.5	5.89	(31.309)
Time on board	5.99	4.40	0	57.8	5.94	24037	4.50	6.24	1.74	(15.965)
Family	0.065	0	0	1	0.25	24037	0.11	0.058	-0.050	(-11.049)
Independent	0.48	0	0	1	0.50	24037	0.51	0.47	-0.040	(-4.306)
Number of directorships	2.22	2	1	17	1.72	23607	1.88	2.28	0.40	(12.501)
Major Committee Member	0.67	1	0	1	0.47	22188	0.59	0.68	0.095	(10.638)
Industry Expert	0.19	0	0	1	0.39	24037	0.12	0.20	0.078	(10.862)
Turnover dummy	0.12	0	0	1	0.32	21367	0.076	0.12	0.046	(6.984)
MBA	0.15	0	0	1	0.36	18447	0.14	0.15	0.0070	(0.911)
Grande Ecole	0.37	0	0	1	0.48	18447	0.23	0.40	0.17	(16.845)
Ivy League	0.083	0	0	1	0.28	18447	0.052	0.088	0.036	(6.100)
CEO Experience	0.44	0	0	1	0.50	24037	0.30	0.46	0.16	(18.124)
C-Suite Experience	0.032	0	0	1	0.17	24037	0.032	0.031	-0.00060	(-0.187)
<i>Panel B. US</i>										
Age	60.7	61	21	103	9.58	401106	57.6	61.1	3.51	(71.837)
Time on board	7.24	5.30	0	67.8	6.92	401106	6.20	7.36	1.16	(32.550)
Family	0.021	0	0	1	0.14	401106	0.020	0.021	0.0012	(1.645)
Independent	0.86	1	0	1	0.35	401106	0.91	0.85	-0.059	(-32.625)
Number of directorships	2.25	1	1	50	4.60	370766	2.91	2.17	-0.73	(-30.205)
Major Committee Member	0.88	1	0	1	0.33	380954	0.91	0.87	-0.035	(-20.397)
Industry Expert	0.22	0	0	1	0.41	401106	0.20	0.22	0.020	(9.331)
Turnover dummy	0.085	0	0	1	0.28	344552	0.068	0.087	0.018	(11.928)
MBA	0.34	0	0	1	0.47	347596	0.31	0.34	0.033	(12.958)
Grande Ecole	0.0016	0	0	1	0.040	347596	0.00032	0.0018	0.0015	(6.678)
Ivy League	0.28	0	0	1	0.45	347596	0.28	0.28	-0.0015	(-0.596)
CEO Experience	0.35	0	0	1	0.48	401106	0.24	0.36	0.12	(48.847)
C-Suite Experience	0.056	0	0	1	0.23	401106	0.080	0.053	-0.027	(-23.248)

Table 3.3 – Female Director Characteristics in France

This table details female director characteristics among French Boards before and after the quota (introduced in 2010). Panel A includes all non-executive female board members. Panel B includes newly-appointed non-executive female board members. All observations with missing information for director age and tenure are excluded. The sample period is 2003-2014. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with the period After 2010 and the period Before 2010 (Before 2010 – After 2010).

	Before 2010	After 2010	Diff.	t stat.
<i>Panel A - All Female Directors</i>				
Age	53	54	-1	(-1.977)
Time on board	5.90	3.96	1.94	(9.134)
Family	0.17	0.08	0.09	(7.680)
Independent	0.34	0.58	-0.24	(-12.814)
Number of directorships	1.8	1.9	-0.1	(-1.541)
Major Committee Member	0.55	0.60	-0.05	(-2.773)
Industry Expert	0.09	0.13	-0.04	(-3.378)
Turnover dummy	0.11	0.06	0.05	(4.609)
MBA	0.12	0.15	-0.03	(-1.675)
Grande Ecole	0.27	0.21	0.06	(3.250)
CEO Experience	0.244	0.318	-0.074	(-4.245)
C-Suite Experience	0.015	0.039	-0.024	(-3.644)
<i>Panel B - New Female Directors</i>				
Age	49	51	-2	(-2.854)
Time on board	0.54	0.55	-0.01	(-0.590)
Family	0.05	0.03	0.02	(1.306)
Independent	0.45	0.60	-0.15	(-3.601)
Number of directorships	1.8	1.8	0	(0.592)
Major Committee Member	0.507	0.495	0.012	(0.262)
Industry Expert	0.13	0.12	0.01	(0.373)
Turnover dummy	0.09	0.04	0.05	(2.760)
MBA	0.11	0.15	-0.04	(-1.194)
Grande Ecole	0.27	0.21	0.06	(1.382)
CEO Experience	0.281	0.331	-0.050	(-1.238)
C-Suite Experience	0.018	0.044	-0.026	(-1.570)

Table 3.4 – Director Turnover in France and in the US, 2003-2014

This table reports OLS estimates of the coefficient associated with dummy variables set equal to one if the director is a woman (“Female”), if the director shares the same name of at least one director within the same board (“Family”), if the director is an independent director (“Independent”), if the director is a member of at least one major committee such as governance, management, compensation, nomination, or audit committees (“Major Committee Member”), the total number of directorships held by the director (“Number of directorships”), the number of years since the director first joined the board (“Tenure”), and fourth degree polynomials of director age. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.0457 [-8.571]	-0.0362 [-6.050]	-0.0289 [-4.579]	-0.0350 [-5.124]	-0.0185 [-13.179]	-0.0156 [-10.538]	-0.0029 [-1.891]	-0.0003 [-0.159]
Family				-0.0896 [-7.146]				-0.0434 [-9.551]
Independent				-0.0424 [-5.675]				-0.0653 [-18.790]
Number of directorships				-0.0059 [-3.828]				-0.0017 [-3.630]
Major Committee Member				-0.0537 [-8.637]				-0.0405 [-14.764]
Industry Expert				-0.0114 [-1.752]				-0.0013 [-0.756]
Time on Board			0.0018 [3.289]	0.0024 [4.188]			0.0025 [21.213]	0.0019 [15.445]
Age			0.1698 [4.009]	0.1663 [3.592]			0.1654 [11.581]	0.1798 [11.454]
Age ²			-0.4602 [-3.916]	-0.4486 [-3.501]			-0.4652 [-12.499]	-0.5026 [-12.361]
Age ³			0.0523 [3.721]	0.0508 [3.322]			0.0540 [12.786]	0.0583 [12.707]
Age ⁴			-0.0021 [-3.423]	-0.0020 [-3.047]			-0.0022 [-12.445]	-0.0024 [-12.463]
Constant	0.1219 [30.670]	0.1207 [157.204]	-2.1079 [-3.804]	-2.0132 [-3.303]	0.0866 [124.182]	0.0863 [556.185]	-1.9618 [-9.732]	-2.0770 [-9.303]
Observations	21,367	21,367	21,367	19,561	344,552	344,552	344,552	314,131
R-squared	0.0023	0.2199	0.2271	0.2336	0.0004	0.2466	0.2618	0.2484
Firm-Year FE	NO	YES	YES	YES	NO	YES	YES	YES
Country	France	France	France	France	US	US	US	US

Table 3.5 – The Effect of the Quota on Turnover

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). Treatment effects (“Female X Post 2010” and “Female X Post 2010 X Treated”) are highlighted in boxes. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.0137 [-1.217]	-0.0114 [-0.934]	-0.0099 [-0.787]	-0.0186 [-1.416]	-0.0169 [-8.277]	-0.0163 [-7.375]	-0.0061 [-2.710]	-0.0029 [-1.298]
Post 2010	0.0036 [0.510]				-0.0066 [-4.829]			
Female X Post 2010	-0.0514 [-3.877]	-0.0421 [-2.942]	-0.0335 [-2.302]	-0.0306 [-2.109]	-0.0036 [-1.204]	0.0002 [0.047]	0.0053 [1.634]	0.0046 [1.410]
Treated					0.0312 [5.473]			
Female X Treated					0.0032 [0.282]	0.0049 [0.393]	-0.0073 [-0.567]	-0.0220 [-1.656]
Treated X Post 2010					0.0102 [1.417]			
Female X Post 2010 X Treated					-0.0479 [-3.525]	-0.0423 [-2.843]	-0.0353 [-2.354]	-0.0303 [-2.007]
Constant	0.1208 [21.467]	0.1213 [143.997]	-1.9973 [-3.370]	-1.9387 [-3.019]	0.0896 [97.556]	0.0887 [546.958]	-1.9691 [-10.099]	-2.1065 [-9.689]
Observations	19,360	19,360	19,360	17,680	333,052	333,052	333,052	304,257
R-squared	0.0033	0.2229	0.2307	0.2367	0.0014	0.2431	0.258	0.248
Tenure + 4th order poly of age	NO	NO	YES	YES	NO	NO	YES	YES
Firm-Year FE	NO	YES	YES	YES	NO	YES	YES	YES
Additional director controls	NO	NO	NO	YES	NO	NO	NO	YES
Treated Group	France	France	France	France	France	France	France	France
Control Group					US	US	US	US

Table 3.6 – Turnover Regressions with Education Controls

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) and additional education control variables which include dummy variables set equal to one if the director holds a MBA (“MBA”), if the director graduated from a Grande Ecole in France (“Grande Ecole”), and if the director graduated from the Ivy League in the U.S. (“Ivy League”). Treatment effects (“Female X Post 2010” and “Female X Post 2010 X Treated”) are highlighted in boxes. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)
Female	-0.0366 [-4.252]	0.0005 [0.321]	-0.0057 [-0.320]	-0.0014 [-0.594]	-0.0015 [-0.636]
Female X Post 2010			-0.0466 [-2.338]	0.0035 [0.986]	0.0036 [1.029]
Female X Treated					-0.0113 [-0.643]
Female X Post 2010 X Treated					-0.0421 [-2.098]
MBA	0.0149 [1.990]	0.0027 [2.063]	0.0060 [0.741]	0.0023 [1.702]	0.0025 [1.834]
Grande Ecole	-0.0006 [-0.088]		0.0002 [0.033]		0.0010 [0.174]
Ivy League		0.0029 [2.118]		0.0033 [2.270]	0.0036 [2.487]
Observations	15,351	272,039	13,860	247,940	261,800
R-squared	0.254	0.2656	0.258	0.2658	0.2655
Tenure + 4th order poly of age	YES	YES	YES	YES	YES
Additional director controls	YES	YES	YES	YES	YES
Firm-Year FE	YES	YES	YES	YES	YES
Treated Group	France	US	France	US	France
Control Group					US

Table 3.7 – The Effect of the Quota on Turnover: Pre 2010 Appointments

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). The sample includes all directors that were appointed before 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Female X Post 2010	-0.0323	-0.0264	-0.0234			
	[-2.157]	[-1.720]	[-1.523]			
Female X Post 2010 X Treated				-0.0315	-0.0276	-0.0254
				[-2.028]	[-1.761]	[-1.598]
Observations	17,538	17,538	16,096	306,061	306,061	284,549
R-squared	0.2326	0.2405	0.2467	0.2466	0.2619	0.253
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table 3.8 – The Effect of the Quota on Turnover: Post 2010 Appointments

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). The sample includes all directors that were appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES						
Female	-0.0460	-0.0481	-0.0551			
	[-2.523]	[-2.502]	[-2.536]			
Female X Treated				-0.0373	-0.0405	-0.0440
				[-1.853]	[-1.975]	[-2.053]
Observations	1,822	1,822	1,584	26,991	26,991	19,708
R-squared	0.4954	0.496	0.529	0.5348	0.537	0.5281
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table 3.9 – Turnover in High-Elitism Boards vs Low-Elitism Boards

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of boards. Boards in the first group (“high-elitism”) include a proportion of directors who graduated either from a Grande Ecole or from the Ivy League which is above the median. Boards in the second group (“low-elitism”) include a proportion of directors who graduated either from a Grande Ecole or from the Ivy League which is below the median. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director is a graduate either from a Grande Ecole or from the Ivy League, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
Quota effect on high-elitism boards ($g(e = 1)$)	-0.0629 [-3.171]	-0.0538 [-2.669]	-0.0535 [-2.729]	-0.0664 [-3.221]	-0.0584 [-2.799]	-0.0555 [-2.714]
Quota effect on low-elitism boards ($g(e = 0)$)	-0.0123 [-0.615]	-0.0042 [-0.208]	0.0042 [0.205]	-0.0083 [-0.398]	-0.0027 [-0.128]	0.0067 [0.313]
Difference ($g(e = 1) - g(e = 0)$)	-0.0506 [-1.801]	-0.0496 [-1.760]	-0.0577 [-2.027]	-0.0581 [-1.985]	-0.0558 [-1.905]	-0.0621 [-2.101]
Observations	19,360	19,360	17,680	333,052	333,052	304,257
R-squared	0.2308	0.2309	0.2369	0.258	0.258	0.248
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table 3.10 – Turnover in High-Elitism Boards vs Low-Elitism Boards: Pre 2010 Appointments and Post 2010 Appointments

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for “high-elitism” boards and “low-elitism” boards as described in Table 9. Panel A includes all directors that were appointed before 2010, and Panel B includes all directors that were appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director is a graduate either from a Grande Ecole or from the Ivy League, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
<u>Panel A: Pre 2010 appointments</u>						
Quota effect on high-elitism boards ($g(e = 1)$)	-0.0414 [-1.999]	-0.0342 [-1.616]	-0.0347 [-1.651]	-0.0441 [-2.052]	-0.0396 [-1.819]	-0.0399 [-1.843]
Quota effect on low-elitism boards ($g(e = 0)$)	-0.0213 [-0.987]	-0.0169 [-0.780]	-0.0079 [-0.357]	-0.0161 [-0.719]	-0.0134 [-0.601]	-0.0064 [-0.280]
Difference ($g(e = 1) - g(e = 0)$)	-0.0201 [-0.666]	-0.0173 [-0.572]	-0.0269 [-0.873]	-0.0280 [-0.894]	-0.0262 [-0.839]	-0.0335 [-1.058]
Observations	17,538	17,538	16,096	306,061	306,061	284,549
R-squared	0.2405	0.2406	0.2468	0.2619	0.2619	0.253
<u>Panel B: Post 2010 appointments</u>						
Quota effect on high-elitism boards ($g(e = 1)$)	-0.0663 [-2.776]	-0.0695 [-2.810]	-0.0738 [-2.829]	-0.0550 [-2.085]	-0.0604 [-2.257]	-0.0678 [-2.490]
Quota effect on low-elitism boards ($g(e = 0)$)	-0.0125 [-0.451]	-0.0131 [-0.453]	-0.0105 [-0.321]	-0.0073 [-0.237]	-0.0072 [-0.231]	-0.0001 [-0.004]
Difference ($g(e = 1) - g(e = 0)$)	-0.0539 [-1.463]	-0.0565 [-1.500]	-0.0633 [-1.615]	-0.0477 [-1.170]	-0.0532 [-1.287]	-0.0677 [-1.583]
Observations	1,822	1,822	1,584	26,991	26,991	19,708
R-squared	0.4976	0.4983	0.5323	0.5371	0.5371	0.5283
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table 3.11 – Turnover and Firm Performance

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of firms. Firms in the first group (“low-ROA firms”) belong to the bottom quintile of operating performances observed on a given year in a given region (Europe for French firms, and the U.S. for U.S. firms). Firms in the second group (“high-ROA firms”) belong to the second to fifth quintiles of operating performances observed on a given year in a given region. Operating performance is the ratio of operating income before interest, taxes, and depreciation to the firm total assets. Panel A includes all directors appointed before 2010, and Panel B includes all directors appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Pre 2010 appointments						
Quota effect on low-ROA firms	0.1527 [2.251]	0.1556 [2.378]	0.1733 [2.982]	0.1743 [2.509]	0.1643 [2.457]	0.1839 [3.077]
Quota effect on high/median-ROA firms	-0.0372 [-2.213]	-0.0307 [-1.807]	-0.0309 [-1.813]	-0.0343 [-1.967]	-0.0290 [-1.652]	-0.0319 [-1.805]
Difference (low minus high)	0.1899 [2.673]	0.1863 [2.708]	0.2042 [3.307]	0.2086 [2.867]	0.1932 [2.752]	0.2158 [3.398]
Observations	14,353	14,353	13,213	218,438	218,438	216,374
R-squared	0.007	0.239	0.2427	0.0174	0.2331	0.2412
Panel B: Post 2010 appointments						
Quota effect on low-ROA firms	-0.0767 [-1.344]	-0.0827 [-1.423]	-0.0994 [-2.075]	-0.0443 [-0.721]	-0.0506 [-0.789]	-0.0518 [-1.002]
Quota effect on high/median-ROA firms	-0.0430 [-1.952]	-0.0467 [-1.998]	-0.0453 [-1.818]	-0.0370 [-1.549]	-0.0422 [-1.734]	-0.0392 [-1.583]
Difference (low minus high)	-0.0338 [-0.543]	-0.0361 [-0.580]	-0.0541 [-1.018]	-0.0073 [-0.110]	-0.0083 [-0.121]	-0.0126 [-0.216]
Observations	1,377	1,377	1,303	15,982	15,982	15,422
R-squared	0.0196	0.5237	0.5328	0.0163	0.4961	0.5092
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

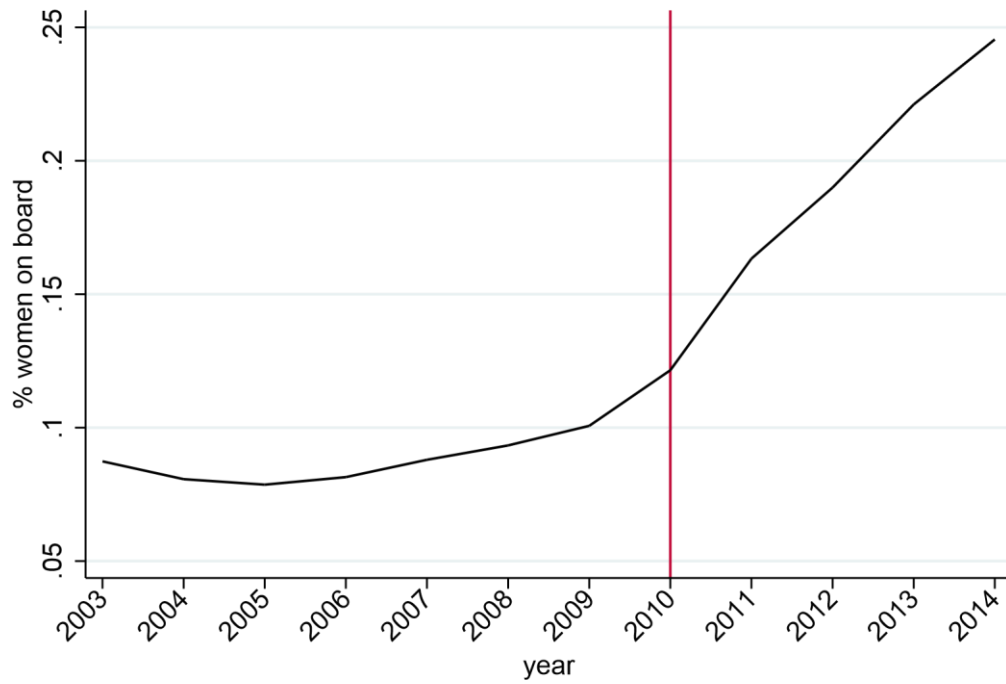


Figure 3.1 – Percentage of female directors on French boards. This figure reports the average proportion of women on boards each year over the 2003-2014 period. The sample consists of 414 French firms from BoardEx. The vertical line marks the year of the implementation of the law.

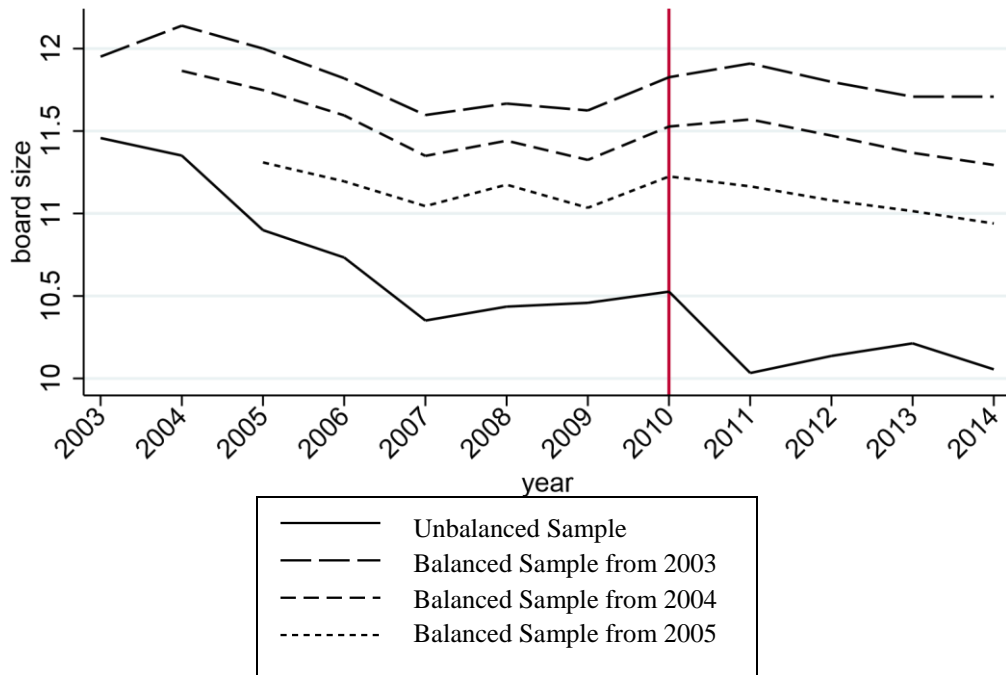


Figure 3.2 – Average board size in France. This figure reports the average number of directors (outsiders and executives) on boards each year over the 2003-2014 period. The solid line represents the unbalanced sample, while the dashed lines represent balanced samples from 2003, 2004 and 2005. The vertical line marks the year of the implementation of the law.

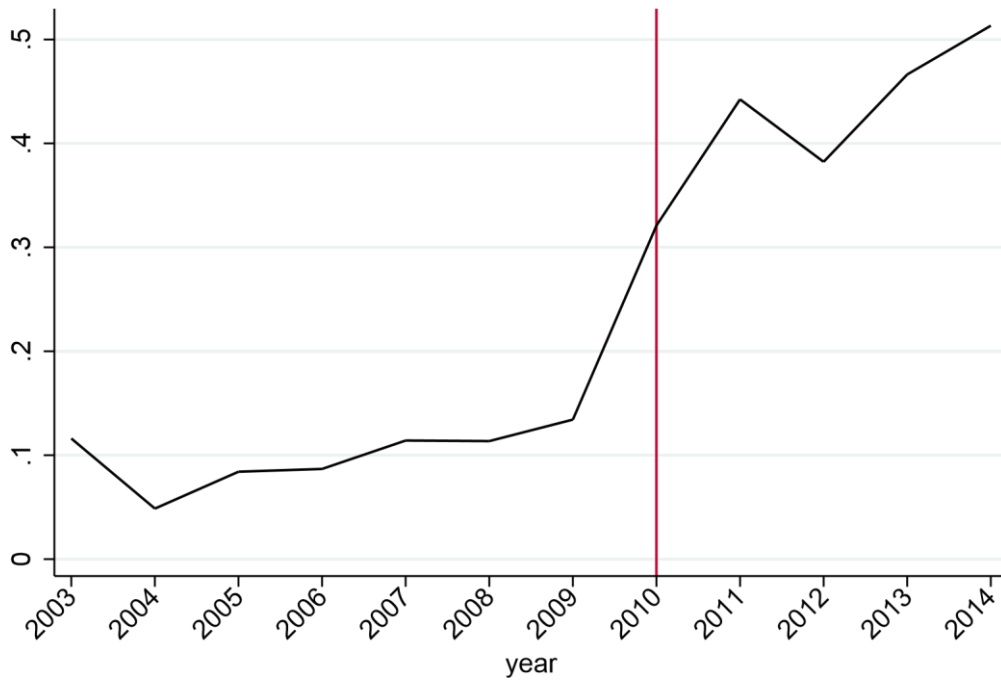


Figure 3.3 – Percentage of new female positions over total new positions in France. This figure reports the proportion of newly-appointed female directors over all newly-appointed directors. We estimate this proportion as the ratio of the average probability to get a new position for a female director times the number of new female positions, over the average probability to get a new position for a male or female director times the number of new positions for male or female directors. The sample includes only non-executive directors over the 2003-2014 period. The vertical line marks the year of the implementation of the law.

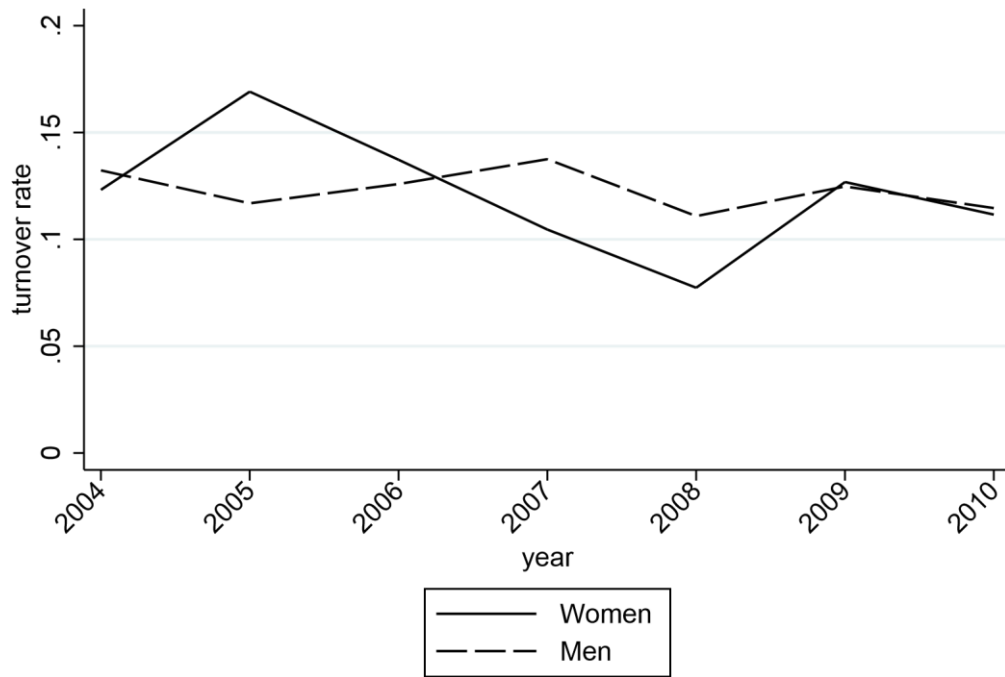


Figure 3.4 – Average turnover rate by gender in France before 2010. This figure represents the annual turnover rate in France each year, separated by gender. The solid line represents the turnover rate for female directors, while the dashed line represents the turnover rate for male directors. Turnover is defined as an indicator equal to one if a director leaves the board at the end of the fiscal year. The sample includes only non-executive directors over the 2003-2010 period.

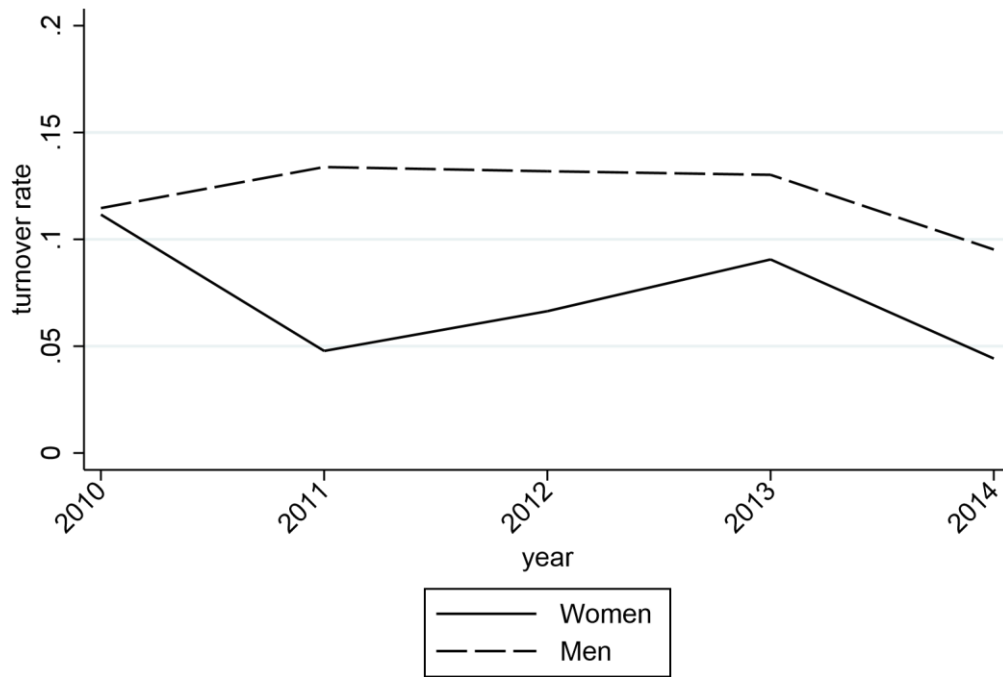


Figure 3.5 – Average turnover rate by gender in France after 2010. This figure represents the annual turnover rate in France each year, separated by gender. The solid line represents the turnover rate for female directors, while the dashed line represents the turnover rate for male directors. Turnover is defined as an indicator equal to one if a director leaves the board at the end of the fiscal year. The sample includes only non-executive directors over the 2010-2014 period.

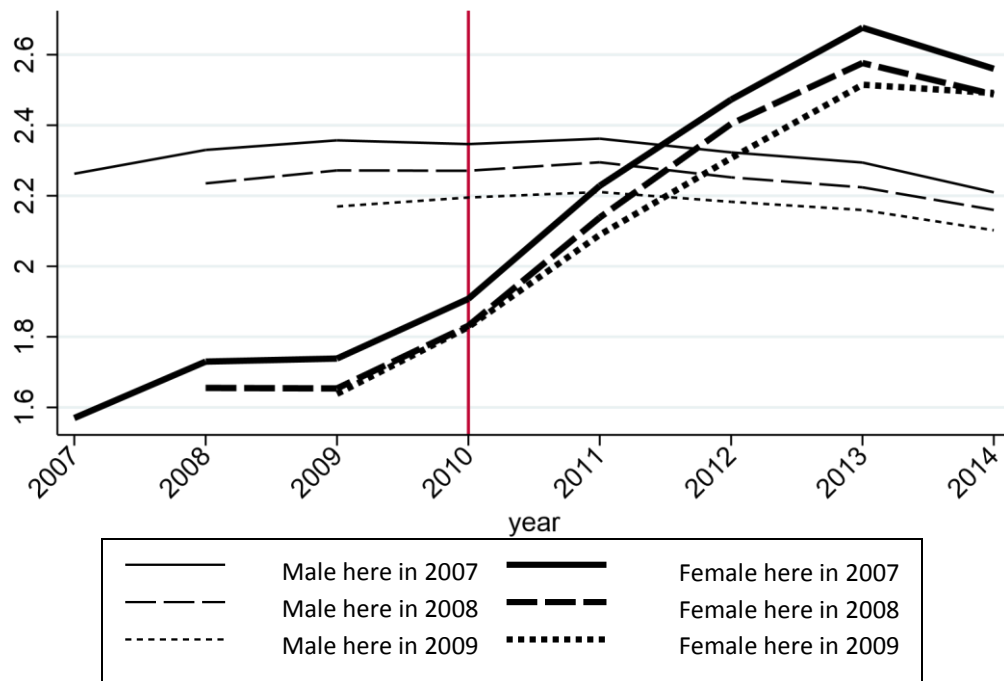


Figure 3.6 – Number of directorships in France by Gender. This figure shows the number of directorships held by both female and male directors for three cohorts of incumbent directors: 2007 (solid lines), 2008 (long-dashed lines), and 2009 (short-dashed lines). The sample includes only non-executive directors over the 2003-2014 period. The vertical line marks the year of the implementation of the law.

Internet Appendix for Chapter 3

This Internet Appendix reports the results of supplementary and robustness tests.

Table IA.1 – Director Characteristics: Unrestricted Sample

This table details director characteristics in France and the U.S. separated by gender. The sample is not restricted to outside directors and to observations with available data for age and tenure. The sample period is 2003-2014. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with Men and Women directors (Men – Women).

	Mean	Median	Min	Max	SD	N	Women	Men	Diff.	t stat.
<i>Panel A. France</i>										
Age	57.6	58	23	92	10.3	30467	53.2	58.2	5	(28.275)
Time on board	6.42	4.6	0	57.8	6.31	35228	4.88	6.66	1.78	(18.055)
Family	0.1	0	0	1	0.3	35233	0.14	0.10	-0.04	(-8.576)
Independent	0.36	0	0	1	0.48	35233	0.42	0.35	-0.07	(-9.523)
Number of directorships	2	1	1	17	1.6	34457	1.69	2.04	0.35	(13.901)
Major Committee Member	0.57	1	0	1	0.5	30643	0.533	0.575	0.042	(5.053)
Industry Expert	0.17	0	0	1	0.38	35233	0.1	0.18	0.08	(13.582)
Turnover dummy	0.11	0	0	1	0.32	31196	0.081	0.12	0.04	(6.511)
MBA	0.15	0	0	1	0.36	24593	0.14	0.15	0.01	(1.896)
Grande Ecole	0.36	0	0	1	0.48	24593	0.23	0.38	0.15	(16.503)
Ivy League	0.074	0	0	1	0.26	24593	0.047	0.078	0.031	(6.199)
CEO Experience	0.46	0	0	1	0.5	35233	0.29	0.49	0.2	(25.247)
C-Suite Experience	0.047	0	0	1	0.21	35233	0.041	0.048	0.007	(2.026)
<i>Panel B. US</i>										
Age	59.7	60	19	103	9.81	499111	57.1	59.9	3	(58.973)
Time on board	7.53	5.3	0	68.8	7.39	521806	6.316	7.653	1.337	(38.326)
Family	0.034	0	0	1	0.18	521948	0.03	0.034	0.004	(5.053)
Independent	0.66	1	0	1	0.47	521948	0.79	0.65	-0.14	(-61.314)
Number of directorships	2.1	1	1	50	4.23	452544	2.777	2.024	-0.753	(-35.455)
Major Committee Member	0.76	1	0	1	0.43	468345	0.85	0.75	-0.1	(-47.419)
Industry Expert	0.21	0	0	1	0.41	521948	0.19	0.21	0.02	(9.884)
Turnover dummy	0.085	0	0	1	0.28	445206	0.073	0.087	0.014	(9.410)
MBA	0.34	0	0	1	0.47	448770	0.31	0.34	0.03	(13.947)
Grande Ecole	0.0016	0	0	1	0.04	448770	0.00053	0.00176	0.00123	(6.043)
Ivy League	0.27	0	0	1	0.44	448770	0.27	0.27	0.00	(-1.422)
CEO Experience	0.42	0	0	1	0.49	521948	0.27	0.44	0.17	(73.378)
C-Suite Experience	0.08	0	0	1	0.27	521948	0.093	0.078	-0.015	(-11.694)

Table IA.2 – Director Characteristics for Polytechnique Graduates

This table details director characteristics in France separated by Polytechnique graduates. Panel A includes the entire sample period (i.e., 2003-2014). Panel B includes the period before 2010. Panel C includes the period after 2010. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with Polytechnique graduates and other directors (Polytechnique Graduate: No – Yes).

	Polytechnique Graduate		Diff.	t stat.
	Yes	No		
<i>Panel A. All Period</i>				
Female Director	0.028	0.14	0.11	(17.228)
Age	59.7	56.9	-2.81	(-14.327)
Time on board	6.82	6	-0.81	(-6.896)
Family	0.031	0.066	0.035	(7.392)
Independent	0.42	0.41	-0.018	(-1.901)
Number of directorships	2.47	2.26	-0.21	(-6.191)
Major Committee Member	0.67	0.59	-0.076	(-7.729)
Industry Expert	0.23	0.2	-0.033	(-4.230)
Turnover dummy	0.11	0.11	0.0005	(0.077)
MBA	0.095	0.16	0.061	(8.818)
CEO Experience	0.68	0.53	-0.15	(-15.652)
C-Suite Experience	0.062	0.057	-0.0048	(-1.063)
<i>Panel B. Before 2010</i>				
Female Director	0.01	0.069	0.059	(9.559)
Age	59.1	56.6	-2.56	(-9.958)
Time on board	6.32	5.66	-0.65	(-4.354)
Family	0.029	0.063	0.034	(5.666)
Independent	0.4	0.38	-0.027	(-2.151)
Number of directorships	2.63	2.44	-0.2	(-4.037)
Major Committee Member	0.68	0.58	-0.1	(-7.721)
Industry Expert	0.22	0.19	-0.035	(-3.393)
Turnover dummy	0.11	0.12	0.01	(1.230)
MBA	0.091	0.15	0.06	(6.646)
CEO Experience	0.68	0.54	-0.14	(-11.054)
C-Suite Experience	0.057	0.058	0.00088	(0.146)
<i>Panel C. After 2010</i>				
Female Director	0.052	0.21	0.16	(13.468)
Age	60.5	57.2	-3.3	(-10.817)
Time on board	7.52	6.36	-1.16	(-6.190)
Family	0.035	0.069	0.034	(4.633)
Independent	0.45	0.44	-0.016	(-1.094)
Number of directorships	2.24	2.06	-0.18	(-3.701)
Major Committee Member	0.66	0.61	-0.047	(-3.169)
Industry Expert	0.24	0.21	-0.035	(-2.830)
Turnover dummy	0.12	0.11	-0.015	(-1.390)
MBA	0.1	0.16	0.061	(5.636)
CEO Experience	0.69	0.52	-0.16	(-10.994)
C-Suite Experience	0.069	0.056	-0.013	(-1.803)

Table IA.3 – Director Characteristics for Mines ParisTech Graduates

This table details director characteristics in France separated by Mines Paritech graduates. Panel A includes the entire sample period (i.e., 2003-2014). Panel B includes the period before 2010. Panel C includes the period after 2010. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with Mines ParisTech graduates and other directors (Mines ParisTech Graduate: No – Yes).

	Mines ParisTech Graduate		Diff.	t stat.
	Yes	No		
<i>Panel A. All Period</i>				
Female Director	0.089	0.13	0.037	(3.499)
Age	57.1	57.3	0.17	(0.537)
Time on board	5.66	6.12	0.47	(2.414)
Family	0	0.064	0.064	(8.417)
Independent	0.49	0.40	-0.085	(-5.426)
Number of directorships	2.77	2.26	-0.50	(-8.959)
Major Committee Member	0.66	0.60	-0.058	(-3.682)
Industry Expert	0.23	0.20	-0.032	(-2.460)
Turnover dummy	0.11	0.11	0.0035	(0.333)
MBA	0.072	0.15	0.080	(7.056)
CEO Experience	0.77	0.54	-0.23	(-14.738)
C-Suite Experience	0.046	0.058	0.012	(1.664)
<i>Panel B. Before 2010</i>				
Female Director	0.086	0.060	-0.026	(-2.584)
Age	55.7	57.0	1.32	(3.201)
Time on board	4.91	5.80	0.89	(3.660)
Family	0	0.061	0.061	(6.283)
Independent	0.48	0.38	-0.10	(-5.108)
Number of directorships	2.80	2.45	-0.36	(-4.526)
Major Committee Member	0.65	0.59	-0.063	(-3.043)
Industry Expert	0.22	0.19	-0.022	(-1.328)
Turnover dummy	0.12	0.12	0.0023	(0.167)
MBA	0.082	0.15	0.063	(4.330)
CEO Experience	0.73	0.55	-0.18	(-8.719)
C-Suite Experience	0.041	0.058	0.017	(1.774)
<i>Panel C. After 2010</i>				
Female Director	0.095	0.20	0.10	(5.249)
Age	59.1	57.5	-1.59	(-3.189)
Time on board	6.74	6.47	-0.26	(-0.847)
Family	0	0.068	0.068	(5.549)
Independent	0.50	0.44	-0.069	(-2.810)
Number of directorships	2.71	2.06	-0.65	(-8.342)
Major Committee Member	0.67	0.61	-0.056	(-2.280)
Industry Expert	0.26	0.21	-0.049	(-2.395)
Turnover dummy	0.10	0.11	0.0070	(0.406)
MBA	0.057	0.16	0.10	(5.682)
CEO Experience	0.84	0.53	-0.31	(-12.439)
C-Suite Experience	0.052	0.058	0.0055	(0.476)

Table IA.4 – Director Characteristics for Centrale Paris/ Supelec Graduates

This table details director characteristics in France separated by Centrale Paris/ Supelec graduates. Panel A includes the entire sample period (i.e., 2003-2014). Panel B includes the period before 2010. Panel C includes the period after 2010. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with Centrale Paris/Supelec graduates and other directors (Centrale Paris/Supelec Graduate: No – Yes).

	Centrale Paris/Supelec Graduate			
	Yes	No	Diff.	t stat.
<i>Panel A. All Period</i>				
Female Director	0.048	0.13	0.079	(6.385)
Age	57.0	57.3	0.29	(0.764)
Time on board	7.51	6.06	-1.45	(-6.371)
Family	0.11	0.060	-0.048	(-5.289)
Independent	0.37	0.41	0.042	(2.259)
Number of directorships	2.71	2.27	-0.44	(-6.654)
Major Committee Member	0.63	0.60	-0.026	(-1.298)
Industry Expert	0.26	0.20	-0.059	(-3.906)
Turnover dummy	0.11	0.11	0.00073	(0.057)
MBA	0.19	0.15	-0.046	(-3.438)
CEO Experience	0.70	0.55	-0.15	(-8.189)
C-Suite Experience	0.059	0.057	-0.0014	(-0.157)
<i>Panel B. Before 2010</i>				
Female Director	0.030	0.062	0.032	(2.671)
Age	56.2	57.0	0.78	(1.536)
Time on board	6.73	5.72	-1.01	(-3.417)
Family	0.097	0.057	-0.040	(-3.364)
Independent	0.35	0.38	0.030	(1.212)
Number of directorships	2.75	2.45	-0.30	(-3.123)
Major Committee Member	0.61	0.59	-0.023	(-0.850)
Industry Expert	0.25	0.19	-0.060	(-2.993)
Turnover dummy	0.13	0.12	-0.015	(-0.917)
MBA	0.18	0.14	-0.038	(-2.126)
CEO Experience	0.65	0.56	-0.097	(-3.855)
C-Suite Experience	0.087	0.057	-0.030	(-2.566)
<i>Panel C. After 2010</i>				
Female Director	0.070	0.20	0.13	(5.757)
Age	58.0	57.6	-0.38	(-0.665)
Time on board	8.46	6.43	-2.04	(-5.818)
Family	0.12	0.064	-0.058	(-4.185)
Independent	0.39	0.44	0.052	(1.885)
Number of directorships	2.66	2.07	-0.60	(-6.679)
Major Committee Member	0.65	0.61	-0.032	(-1.082)
Industry Expert	0.27	0.21	-0.059	(-2.581)
Turnover dummy	0.086	0.11	0.025	(1.284)
MBA	0.21	0.15	-0.057	(-2.808)
CEO Experience	0.76	0.54	-0.22	(-7.907)
C-Suite Experience	0.024	0.058	0.034	(2.609)

Table IA.5 – Director Characteristics for Ecole des Ponts Graduates

This table details director characteristics in France separated by Ecole des Ponts graduates. Panel A includes the entire sample period (i.e., 2003-2014). Panel B includes the period before 2010. Panel C includes the period after 2010. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with Ecole des Ponts graduates and other directors (Ecole des Ponts Graduate: No – Yes).

	Ecole des Ponts Graduate		Diff.	t stat.
	Yes	No		
<i>Panel A. All Period</i>				
Female Director	0.040	0.13	0.086	(5.929)
Age	56.8	57.3	0.48	(1.082)
Time on board	6.31	6.10	-0.21	(-0.787)
Family	0.0038	0.063	0.059	(5.571)
Independent	0.44	0.41	-0.027	(-1.255)
Number of directorships	1.79	2.29	0.51	(6.450)
Major Committee Member	0.60	0.60	0.0044	(0.198)
Industry Expert	0.23	0.20	-0.026	(-1.438)
Turnover dummy	0.13	0.11	-0.016	(-1.061)
MBA	0.097	0.15	0.052	(3.323)
CEO Experience	0.68	0.55	-0.14	(-6.162)
C-Suite Experience	0.031	0.058	0.028	(2.680)
<i>Panel B. Before 2010</i>				
Female Director	0.010	0.062	0.052	(3.725)
Age	55.7	57.0	1.30	(2.227)
Time on board	6.15	5.74	-0.41	(-1.197)
Family	0.0067	0.059	0.053	(3.842)
Independent	0.39	0.38	-0.0048	(-0.169)
Number of directorships	1.80	2.48	0.68	(6.069)
Major Committee Member	0.58	0.59	0.0093	(0.305)
Industry Expert	0.19	0.20	0.0038	(0.163)
Turnover dummy	0.13	0.12	-0.010	(-0.549)
MBA	0.084	0.14	0.060	(2.919)
CEO Experience	0.67	0.56	-0.12	(-4.072)
C-Suite Experience	0.027	0.058	0.031	(2.304)
<i>Panel C. After 2010</i>				
Female Director	0.080	0.20	0.12	(4.389)
Age	58.3	57.6	-0.70	(-1.023)
Time on board	6.51	6.48	-0.030	(-0.070)
Family	0	0.067	0.067	(4.024)
Independent	0.50	0.44	-0.063	(-1.894)
Number of directorships	1.77	2.09	0.31	(2.955)
Major Committee Member	0.62	0.61	-0.0036	(-0.106)
Industry Expert	0.28	0.21	-0.066	(-2.408)
Turnover dummy	0.13	0.11	-0.023	(-0.994)
MBA	0.12	0.16	0.041	(1.678)
CEO Experience	0.69	0.54	-0.16	(-4.651)
C-Suite Experience	0.035	0.058	0.022	(1.437)

Table IA.6 – Director Characteristics for Telecom ParisTech Graduates

This table details director characteristics in France separated by Telecom ParisTech graduates. Panel A includes the entire sample period (i.e., 2003-2014). Panel B includes the period before 2010. Panel C includes the period after 2010. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with Telecom ParisTech graduates and other directors (Telecom ParisTech Graduate: No – Yes).

	Telecom ParisTech Graduate			
	Yes	No	Diff.	t stat.
<i>Panel A. All Period</i>				
Female Director	0.11	0.12	0.019	(1.081)
Age	57.6	57.2	-0.37	(-0.672)
Time on board	5.59	6.11	0.52	(1.589)
Family	0	0.063	0.063	(4.835)
Independent	0.46	0.41	-0.052	(-1.976)
Number of directorships	2.31	2.28	-0.023	(-0.242)
Major Committee Member	0.61	0.60	-0.0054	(-0.194)
Industry Expert	0.18	0.20	0.027	(1.254)
Turnover dummy	0.13	0.11	-0.012	(-0.658)
MBA	0.057	0.15	0.093	(4.838)
CEO Experience	0.72	0.55	-0.17	(-6.413)
C-Suite Experience	0.17	0.056	-0.11	(-9.005)
<i>Panel B. Before 2010</i>				
Female Director	0.035	0.062	0.026	(1.541)
Age	59.0	56.9	-2.11	(-2.950)
Time on board	5.59	5.76	0.17	(0.406)
Family	0	0.059	0.059	(3.535)
Independent	0.46	0.38	-0.077	(-2.227)
Number of directorships	2.53	2.46	-0.071	(-0.519)
Major Committee Member	0.70	0.59	-0.11	(-2.975)
Industry Expert	0.14	0.20	0.060	(2.128)
Turnover dummy	0.11	0.12	0.0081	(0.345)
MBA	0.055	0.14	0.088	(3.542)
CEO Experience	0.70	0.56	-0.14	(-4.002)
C-Suite Experience	0.21	0.055	-0.16	(-9.402)
<i>Panel C. After 2010</i>				
Female Director	0.20	0.19	-0.0049	(-0.150)
Age	55.7	57.6	1.93	(2.293)
Time on board	5.60	6.49	0.89	(1.747)
Family	0	0.066	0.066	(3.278)
Independent	0.46	0.44	-0.026	(-0.635)
Number of directorships	2	2.08	0.083	(0.637)
Major Committee Member	0.49	0.62	0.12	(2.984)
Industry Expert	0.23	0.21	-0.018	(-0.544)
Turnover dummy	0.15	0.11	-0.044	(-1.512)
MBA	0.060	0.16	0.097	(3.262)
CEO Experience	0.75	0.54	-0.21	(-5.123)
C-Suite Experience	0.11	0.057	-0.056	(-2.933)

Table IA.7 – Director Characteristics for HEC Paris Graduates

This table details director characteristics in France separated by HEC Paris graduates. Panel A includes the entire sample period (i.e., 2003-2014). Panel B includes the period before 2010. Panel C includes the period after 2010. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with HEC Paris graduates and other directors (HEC Paris Graduate: No – Yes).

	HEC Paris Graduate		Diff.	t stat.
	Yes	No		
<i>Panel A. All Period</i>				
Female Director	0.098	0.13	0.030	(4.173)
Age	56.4	57.3	0.91	(4.154)
Time on board	6.24	6.09	-0.15	(-1.178)
Family	0.061	0.062	0.0011	(0.213)
Independent	0.42	0.41	-0.0085	(-0.798)
Number of directorships	2.53	2.26	-0.28	(-7.162)
Major Committee Member	0.63	0.60	-0.031	(-2.824)
Industry Expert	0.20	0.20	0.0044	(0.502)
Turnover dummy	0.10	0.12	0.013	(1.825)
MBA	0.22	0.14	-0.078	(-10.114)
CEO Experience	0.59	0.55	-0.045	(-4.217)
C-Suite Experience	0.067	0.056	-0.011	(-2.104)
<i>Panel B. Before 2010</i>				
Female Director	0.046	0.063	0.016	(2.284)
Age	56.0	57.0	1.01	(3.362)
Time on board	5.69	5.76	0.069	(0.394)
Family	0.053	0.059	0.0059	(0.848)
Independent	0.40	0.38	-0.021	(-1.463)
Number of directorships	2.71	2.44	-0.27	(-4.772)
Major Committee Member	0.62	0.59	-0.032	(-2.062)
Industry Expert	0.19	0.20	0.00047	(0.040)
Turnover dummy	0.12	0.12	0.0023	(0.239)
MBA	0.22	0.13	-0.084	(-8.062)
CEO Experience	0.60	0.55	-0.051	(-3.423)
C-Suite Experience	0.061	0.057	-0.0036	(-0.526)
<i>Panel C. After 2010</i>				
Female Director	0.16	0.20	0.042	(3.391)
Age	56.9	57.7	0.80	(2.461)
Time on board	6.86	6.44	-0.42	(-2.131)
Family	0.070	0.065	-0.0045	(-0.569)
Independent	0.43	0.44	0.0045	(0.290)
Number of directorships	2.33	2.06	-0.27	(-5.456)
Major Committee Member	0.64	0.61	-0.031	(-1.937)
Industry Expert	0.21	0.21	0.0084	(0.647)
Turnover dummy	0.084	0.11	0.029	(2.604)
MBA	0.22	0.15	-0.071	(-6.252)
CEO Experience	0.58	0.54	-0.039	(-2.495)
C-Suite Experience	0.074	0.056	-0.018	(-2.510)

Table IA.8 – Director Characteristics for ENA Graduates

This table details director characteristics in France separated by ENA graduates. Panel A includes the entire sample period (i.e., 2003-2014). Panel B includes the period before 2010. Panel C includes the period after 2010. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with ENA graduates and other directors (ENA Graduate: No – Yes).

	ENA Graduate		Diff.	t stat.
	Yes	No		
<i>Panel A. All Period</i>				
Female Director	0.092	0.13	0.037	(5.508)
Age	58.6	57.1	-1.53	(-7.488)
Time on board	5.79	6.14	0.36	(2.891)
Family	0.0033	0.069	0.066	(13.454)
Independent	0.50	0.40	-0.11	(-10.642)
Number of directorships	2.89	2.21	-0.69	(-19.168)
Major Committee Member	0.68	0.59	-0.090	(-8.883)
Industry Expert	0.21	0.20	-0.0031	(-0.376)
Turnover dummy	0.12	0.11	-0.0085	(-1.253)
MBA	0.012	0.17	0.15	(21.360)
CEO Experience	0.61	0.54	-0.071	(-7.044)
C-Suite Experience	0.10	0.052	-0.051	(-10.862)
<i>Panel B. Before 2010</i>				
Female Director	0.049	0.063	0.014	(2.121)
Age	58.0	56.8	-1.20	(-4.373)
Time on board	5.37	5.80	0.44	(2.714)
Family	0	0.066	0.066	(10.270)
Independent	0.49	0.37	-0.12	(-8.845)
Number of directorships	3.17	2.37	-0.80	(-15.398)
Major Committee Member	0.67	0.58	-0.094	(-6.807)
Industry Expert	0.20	0.19	-0.0093	(-0.855)
Turnover dummy	0.12	0.12	-0.0033	(-0.373)
MBA	0.0087	0.16	0.15	(15.889)
CEO Experience	0.63	0.55	-0.076	(-5.604)
C-Suite Experience	0.10	0.052	-0.051	(-8.039)
<i>Panel C. After 2010</i>				
Female Director	0.14	0.20	0.055	(4.607)
Age	59.3	57.4	-1.96	(-6.447)
Time on board	6.30	6.50	0.21	(1.087)
Family	0.0074	0.072	0.065	(8.692)
Independent	0.52	0.43	-0.097	(-6.438)
Number of directorships	2.55	2.03	-0.52	(-10.879)
Major Committee Member	0.69	0.60	-0.088	(-5.866)
Industry Expert	0.21	0.21	0.0031	(0.247)
Turnover dummy	0.12	0.11	-0.016	(-1.495)
MBA	0.016	0.17	0.15	(14.236)
CEO Experience	0.60	0.54	-0.064	(-4.232)
C-Suite Experience	0.10	0.052	-0.051	(-7.306)

Table IA.9 –Male Director Characteristics in France

This table details male director characteristics among French Boards before and after the quota (introduced in 2010). Panel A includes all non-executive male board members. Panel B includes newly-appointed non-executive male board members. All observations with missing information for director age and tenure are excluded. The sample period is 2003-2014. All variable definitions are described in the Table A1 “Variable Definition”. Diff. denotes the difference between coefficients associated with the period After 2010 and the period Before 2010 (Before 2010 – After 2010).

	Before 2010	After 2010	Diff.	t stat.
<i>Panel A - All Male Directors</i>				
Age	59.1	60.2	-1.20	(-8.388)
Time on board	5.65	7.05	-1.39	(-16.766)
Family	0.049	0.067	-0.016	(-5.014)
Independent	0.46	0.49	-0.029	(-4.201)
Number of directorships	2.45	2.09	0.35	(13.866)
Major Committee Member	0.68	0.70	-0.026	(-3.778)
Industry Expert	0.18	0.22	-0.035	(-6.310)
Turnover dummy	0.12	0.13	-0.0040	(-0.816)
MBA	0.15	0.16	-0.015	(-2.542)
Grande Ecole	0.41	0.38	0.033	(4.233)
CEO Experience	0.46	0.47	-0.010	(-1.445)
C-Suite Experience	0.031	0.033	-0.0013	(-0.529)
<i>Panel B - New Male Directors</i>				
Age	54.1	54.1	0.017	(0.042)
Time on board	0.53	0.55	-0.020	(-1.879)
Family	0.022	0.040	-0.018	(-2.603)
Independent	0.41	0.36	0.048	(2.269)
Number of directorships	2.30	1.90	0.40	(5.645)
Major Committee Member	0.56	0.51	0.054	(2.359)
Industry Expert	0.20	0.22	-0.023	(-1.304)
Turnover dummy	0.092	0.081	0.011	(0.867)
MBA	0.16	0.18	-0.016	(-0.916)
Grande Ecole	0.40	0.33	0.071	(3.024)
CEO Experience	0.44	0.44	0.00032	(0.015)
C-Suite Experience	0.037	0.043	-0.0055	(-0.662)

Table IA.10 – Table 4 with Logit model

This table reports Logistic regression estimates of the coefficient associated with dummy variables set equal to one if the director is a woman (“Female”), if the director shares the same name of at least one director within the same board (“Family”), if the director is an independent director (“Independent”), if the director is a member of at least one major committee such as governance, management, compensation, nomination, or audit committees (“Major Committee Member”), the total number of directorships held by the director (“Number of directorships”), the number of years since the director first joined the board (“Tenure”), and fourth degree polynomials of director age. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.5205 [-7.206]	-0.4664 [-5.925]	-0.3782 [-4.604]	-0.4510 [-4.935]	-0.2599 [-12.032]	-0.2469 [-10.776]	-0.0554 [-2.275]	-0.0093 [-0.362]
Family				-1.2284 [-5.501]				-0.5663 [-8.085]
Independent				-0.4620 [-6.054]				-0.7355 [-22.309]
Number of directorships				-0.0648 [-3.675]				-0.0181 [-2.572]
Major Committee Member				-0.5694 [-9.233]				-0.5062 [-17.511]
Industry Expert				-0.1211 [-1.764]				-0.0132 [-0.550]
Time on Board			0.0226 [3.883]	0.0302 [5.020]			0.0356 [23.837]	0.0275 [17.145]
Age			2.4630 [4.390]	2.3045 [4.105]			2.5521 [15.505]	2.8569 [15.636]
Age ²			-6.6098 [-4.450]	-6.2009 [-4.135]			-7.1654 [-16.678]	-7.9730 [-16.782]
Age ³			0.7514 [4.415]	0.7075 [4.076]			0.8372 [17.201]	0.9303 [17.339]
Age ⁴			-0.0305 [-4.281]	-0.0288 [-3.919]			-0.0345 [-17.062]	-0.0383 [-17.265]
Constant	-1.9747 [-53.184]				-2.3562 [-267.264]			
Observations	21,367	12,337	12,337	11,530	344,552	141,895	141,895	129,544
Firm-Year FE	NO	YES	YES	YES	NO	YES	YES	YES
Country	France	France	France	France	US	US	US	US

Table IA.11 – Table 5 with Logit model

This table reports logistic regression estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). Treatment effects (“Female X Post 2010” and “Female X Post 2010 X Treated”) are highlighted in boxes. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.1359	-0.1292	-0.0979	-0.1931	-0.2277	-0.2440	-0.0864	-0.0274
	[-1.158]	[-0.977]	[-0.715]	[-1.279]	[-7.637]	[-7.564]	[-2.576]	[-0.791]
Post 2010	0.0335				-0.0835			
	[0.509]				[-4.796]			
Female X Post 2010	-0.6778	-0.6287	-0.5385	-0.5277	-0.0778	-0.0303	0.0313	0.0010
	[-4.341]	[-3.612]	[-3.023]	[-2.814]	[-1.679]	[-0.590]	[0.598]	[0.017]
Treated					0.3332			
					[6.159]			
Female X Treated					0.0918	0.1148	-0.0332	-0.2134
					[0.759]	[0.844]	[-0.230]	[-1.333]
Treated X Post 2010					0.1170			
					[1.721]			
Female X Post 2010 X Treated					-0.5999	-0.5984	-0.5162	-0.4725
					[-3.687]	[-3.302]	[-2.759]	[-2.344]
Constant	-1.9853				-2.3185			
	[-37.475]				[-205.922]			
Observations	19,360	11,120	11,120	10,400	333,052	141,027	141,027	129,504
Tenure + 4th order poly of age	NO	NO	YES	YES	NO	NO	YES	YES
Firm-Year FE	NO	YES	YES	YES	NO	YES	YES	YES
Additional director controls	NO	NO	NO	YES	NO	NO	NO	YES
Treated Group	France	France	France	France	France	France	France	France
Control Group					US	US	US	US

Table IA.12 – Table 6 with Logit model

This table reports Logistic regression estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) and additional education control variables which include dummy variables set equal to one if the director holds a MBA (“MBA”), if the director graduated from a Grande Ecole in France (“Grande Ecole”), and if the director graduated from the Ivy League in the U.S. (“Ivy League”). Treatment effects (“Female X Post 2010” and “Female X Post 2010 X Treated”) are highlighted in boxes. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)
Female	-0.4501 [-4.203]	-0.0006 [-0.022]	-0.0445 [-0.238]	-0.0161 [-0.428]	-0.0194 [-0.519]
Female X Post 2010			-0.6715 [-2.833]	0.0032 [0.053]	0.0032 [0.054]
Female X Treated					-0.1001 [-0.525]
Female X Post 2010 X Treated					-0.5798 [-2.362]
MBA	0.1963 [2.449]	0.0372 [1.976]	0.0060 [0.741]	0.0023 [1.702]	0.0325 [1.699]
Grande Ecole	-0.0311 [-0.460]		0.0002 [0.033]		-0.0261 [-0.395]
Ivy League		0.0537 [2.749]		0.0033 [2.270]	0.0636 [3.173]
Observations	8,481	102,094	7,659	93,711	101,370
Tenure + 4th order poly of age	YES	YES	YES	YES	YES
Additional director controls	YES	YES	YES	YES	YES
Firm-Year FE	YES	YES	YES	YES	YES
Treated Group	France	US	France	US	France
Control Group					US

Table IA.13 – Table 7 with Logit model

This table reports Logistic regression estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). The sample includes all directors that were appointed before 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Female X Post 2010	-0.4635	-0.3822	-0.3493			
	[-2.540]	[-2.028]	[-1.760]			
Female X Post 2010 X Treated				-0.4161	-0.3502	-0.2935
				[-2.182]	[-1.752]	[-1.359]
Observations	9,920	9,920	9,320	127,717	127,717	118,862
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table IA.14 – Table 8 with Logit model

This table reports Logistic regression estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). The sample includes all directors that were appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES						
Female	-0.8658 [-3.125]	-0.8942 [-3.154]	-1.1754 [-3.544]			
Female X Treated				-0.6997 [-2.354]	-0.7982 [-2.528]	-0.9919 [-2.797]
Observations	378	378	307	5,387	5,387	4,009
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table IA.15 – Table 9 with Logit model

This table reports Logistic regression estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of boards. Boards in the first group (“high-elitism”) include a proportion of directors who graduated either from a Grande Ecole or from the Ivy League which is above the median. Boards in the second group (“low-elitism”) include a proportion of directors who graduated either from a Grande Ecole or from the Ivy League which is below the median. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director is a graduate either from a Grande Ecole or from the Ivy League, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
Quota effect on high-elitism boards ($g(e = 1)$)	-0.8443 [-3.911]	-0.7405 [-3.302]	-0.7619 [-3.394]	-0.8674 [-3.835]	-0.7497 [-3.136]	-0.7191 [-2.941]
Quota effect on low-elitism boards ($g(e = 0)$)	-0.2667 [-0.969]	-0.1995 [-0.718]	-0.1125 [-0.358]	-0.1664 [-0.582]	-0.1421 [-0.490]	-0.0597 [-0.179]
Difference ($g(e = 1) - g(e = 0)$)	-0.5775 [-1.664]	-0.5409 [-1.525]	-0.6495 [-1.668]	-0.7011 [-1.938]	-0.6076 [-1.623]	-0.6594 [-1.587]
Observations	11,120	11,120	10,400	141,027	141,027	129,504
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table IA.16 – Table 10 with Logit model

This table reports Logistic regression estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for “high-elitism” Boards and “low-elitism” boards as described in Table IA.17. Panel A includes all directors that were appointed before 2010, and Panel B includes all directors that were appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director is a graduate either from a Grande Ecole or from the Ivy League, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
<u>Panel A: Pre 2010 appointments</u>						
Quota effect on high-elitism boards ($g(e = 1)$)	-0.5192 [-2.295]	-0.4184 [-1.769]	-0.4122 [-1.716]	-0.5317 [-2.236]	-0.4315 [-1.707]	-0.3878 [-1.473]
Quota effect on low-elitism boards ($g(e = 0)$)	-0.4090 [-1.334]	-0.3621 [-1.170]	-0.2882 [-0.833]	-0.2836 [-0.893]	-0.2832 [-0.867]	-0.2089 [-0.567]
Difference ($g(e = 1) - g(e = 0)$)	-0.1101 [-0.288]	-0.0563 [-0.144]	-0.1241 [-0.290]	-0.2481 [-0.623]	-0.1484 [-0.359]	-0.1789 [-0.391]
Observations	9,920	9,920	9,320	127,717	127,717	118,862
<u>Panel B: Post 2010 appointments</u>						
Quota effect on high-elitism boards ($g(e = 1)$)	-1.1540 [-3.414]	-1.2081 [-3.457]	-1.5781 [-3.660]	-0.9398 [-2.559]	-1.0773 [-2.822]	-1.3603 [-3.145]
Quota effect on low-elitism boards ($g(e = 0)$)	-0.2750 [-0.564]	-0.2573 [-0.514]	-0.2087 [-0.348]	-0.1750 [-0.339]	-0.1522 [-0.274]	-0.1281 [-0.203]
Difference ($g(e = 1) - g(e = 0)$)	-0.8790 [-1.480]	-0.9508 [-1.544]	-1.3694 [-1.838]	-0.7648 [-1.205]	-0.9251 [-1.375]	-1.2322 [-1.608]
Observations	378	378	307	5,387	5,387	4,009
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table IA.17 – Table 4 with more controls

This table reports OLS estimates of the coefficient associated with dummy variables set equal to one if the director is a woman (“Female”), if the director is a foreign director (“Foreign Director”), if the director has or had at least one CEO position in his/her employment history (“CEO experience”), if the director has or had at least one c-suite position in his/her employment history (“C-Suite Experience”), if the director shares the same name of at least one director within the same board (“Family”), if the director is an independent director (“Independent”), if the director is a member of at least one major committee such as governance, management, compensation, nomination, or audit committees (“Major Committee Member”), the total number of directorships held by the director (“Number of directorships”), the number of years since the director first joined the board (“Tenure”), and fourth degree polynomials of director age. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors). The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)
Female	-0.0374 [-4.801]	-0.0013 [-0.553]
Foreign Director	0.0234 [3.100]	0.0124 [2.900]
CEO Experience	-0.0144 [-2.438]	-0.0045 [-2.634]
C-Suite Experience	-0.0121 [-0.792]	-0.0019 [-0.558]
Family	-0.0960 [-6.178]	-0.0490 [-7.049]
Independent	-0.0377 [-4.479]	-0.0700 [-13.162]
Number of directorships	-0.0050 [-2.967]	-0.0012 [-1.914]
Major Committee Member	-0.0543 [-8.022]	-0.0408 [-9.723]
Industry Expert	-0.0099 [-1.506]	-0.0036 [-1.456]
Time on Board	0.0028 [4.508]	0.0017 [9.588]
Age	0.1838 [3.285]	0.2480 [7.773]
Age ²	-0.4820 [-3.151]	-0.6825 [-8.480]
Age ³	0.0535 [2.960]	0.0787 [8.870]
Age ⁴	-0.0021 [-2.695]	-0.0032 [-8.895]
Constant	-2.3438 [-3.140]	-3.0117 [-6.453]
Observations	16,031	176,480
R-squared	0.2430	0.3196
Firm-Year FE	YES	YES
Country	France	US

Table IA.18 – Table 5 with more controls

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). Treatment effects (“Female X Post 2010” and “Female X Post 2010 X Treated”) are highlighted in boxes. “Additional director controls” include dummy variables set equal to one if the director is a foreign director, if the director has or had at least one CEO position in his/her employment history, if the director has or had at least one c-suite position in his/her employment history, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors). The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)
Female	-0.0215 [-1.604]	-0.0032 [-1.040]
Female X Post 2010	-0.0340 [-2.238]	0.0044 [0.916]
Female X Treated		-0.0224 [-1.575]
Female X Post 2010 X Treated		-0.0326 [-1.942]
Constant	-2.4384 [-3.061]	-3.1756 [-8.018]
Observations	14,517	176,118
R-squared	0.2462	0.3127
Tenure + 4th order poly of age	YES	YES
Firm-Year FE	YES	YES
Additional director controls	YES	YES
Treated Group	France	France
Control Group		US

Table IA.19 – Table 6 with more controls

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) and additional education control variables which include dummy variables set equal to one if the director holds a MBA (“MBA”), if the director graduated from a Grande Ecole in France (“Grande Ecole”), and if the director graduated from the Ivy League in the U.S. (“Ivy League”). Treatment effects (“Female X Post 2010” and “Female X Post 2010 X Treated”) are highlighted in boxes. “Additional director controls” include dummy variables set equal to one if the director is a foreign director, if the director has or had at least one CEO position in his/her employment history, if the director has or had at least one c-suite position in his/her employment history, if the director shares the same name of at least one director within the same board, if the director is independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors). The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)	(3)	(4)	(5)
Female	-0.0364 [-3.764]	-0.0002 [-0.091]	-0.0053 [-0.293]	-0.0024 [-0.712]	-0.0027 [-0.817]
Female X Post 2010			-0.0504 [-2.523]	0.0054 [1.064]	0.0056 [1.107]
Female X Treated					-0.0082 [-0.451]
Female X Post 2010 X Treated					-0.0459 [-2.169]
MBA	0.0069 [0.787]	0.0026 [1.391]	0.0060 [0.741]	0.0023 [1.702]	0.0022 [1.145]
Grande Ecole	0.0094 [1.282]		0.0002 [0.033]		0.0063 [0.940]
Ivy League		0.0021 [1.090]		0.0033 [2.270]	0.0031 [1.529]
Observations	12,968	158,842	11,731	145,233	156,964
R-squared	0.2638	0.3371	0.2660	0.3382	0.3312
Tenure + 4th order poly of age	YES	YES	YES	YES	YES
Additional director controls	YES	YES	YES	YES	YES
Firm-Year FE	YES	YES	YES	YES	YES
Treated Group	France	US	France	US	France
Control Group					US

Table IA.20 – Table 7 with more controls

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). The sample includes all directors that were appointed before 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director is a foreign director, if the director has or had at least one CEO position in his/her employment history, if the director has or had at least one c-suite position in his/her employment history, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors). The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)
Female X Post 2010	-0.0288 [-1.807]	
Female X Post 2010 X Treated		-0.0303 [-1.705]
Observations	13,564	168,009
R-squared	0.2524	0.3154
Tenure + 4th order poly of age	YES	YES
Additional director controls	YES	YES
Firm-Year FE	YES	YES
Treated Group	France	France
Control Group		US

Table IA.21 – Table 8 with more controls

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”). The sample includes all directors that were appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director is a foreign director, if the director has or had at least one CEO position in his/her employment history, if the director has or had at least one c-suite position in his/her employment history, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors). The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

VARIABLES	(1)	(2)
Female	-0.0573 [-1.856]	
Female X Treated		-0.0448 [-1.267]
Observations	953	8,109
R-squared	0.6095	0.6594
Tenure + 4th order poly of age	YES	YES
Additional director controls	YES	YES
Firm-Year FE	YES	YES
Treated Group	France	France
Control Group		US

Table IA.22 – Table 9 with more controls

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of boards. Boards in the first group (“high-elitism”) include a proportion of directors who graduated either from a Grande Ecole or from the Ivy League which is above the median. Boards in the second group (“low-elitism”) include a proportion of directors who graduated either from a Grande Ecole or from the Ivy League which is below the median. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director is a foreign director, if the director has or had at least one CEO position in his/her employment history, if the director has or had at least one c-suite position in his/her employment history, if the director is a graduate either from a Grande Ecole or from the Ivy League, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors). The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)
Quota effect on high-elitism boards ($g(e = 1)$)	-0.0526 [-2.763]	-0.0510 [-2.398]
Quota effect on low-elitism boards ($g(e = 0)$)	-0.0002 [-0.010]	-0.0017 [-0.068]
Difference ($g(e = 1) - g(e = 0)$)	-0.0523 [-1.806]	-0.0493 [-1.537]
Observations	14,517	176,118
R-squared	0.2466	0.3128
Tenure + 4th order poly of age	YES	YES
Additional director controls	YES	YES
Firm-Year FE	YES	YES
Treated Group	France	France
Control Group		US

Table IA.23 – Table 10 with more controls

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for “high-
elitism” Boards and “low-
elitism” boards as described in Table IA.25. Panel A includes all directors that were appointed before 2010, and
Panel B includes all directors that were appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director
controls” include dummy variables set equal to one if the director is a foreign director, if the director has or had at least one CEO position in
his/her employment history, if the director has or had at least one c-suite position in his/her employment history, if the director is a graduate
either from a Grande Ecole or from the Ivy League, if the director shares the same name of at least one director within the same board, if the
director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit
committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board.
Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors). The dependent variable
is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard
errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)
<u>Panel A: Pre 2010 appointments</u>		
Quota effect on high-elitism boards ($g(e = 1)$)	-0.0354 [-1.747]	-0.0376 [-1.661]
Quota effect on low-elitism boards ($g(e = 0)$)	-0.0209 [-0.842]	-0.0247 [-0.910]
Difference ($g(e = 1) - g(e = 0)$)	-0.0145 [-0.455]	-0.0128 [-0.368]
Observations	13,564	168,009
R-squared	0.2527	0.3154
<u>Panel B: Post 2010 appointments</u>		
Quota effect on high-elitism boards ($g(e = 1)$)	-0.0704 [-1.869]	-0.0622 [-1.413]
Quota effect on low-elitism boards ($g(e = 0)$)	0.0106 [0.312]	0.0109 [0.232]
Difference ($g(e = 1) - g(e = 0)$)	-0.0810 [-1.725]	-0.0731 [-1.161]
Observations	953	8,109
R-squared	0.6169	0.6598
Tenure + 4th order poly of age	YES	YES
Additional director controls	YES	YES
Firm-Year FE	YES	YES
Treated Group	France	France
Control Group		US

Table IA.24 – Table 11 with more controls

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of firms. Firms in the first group (“low-ROA firms”) belong to the bottom quintile of operating performances observed on a given year in a given region (Europe for French firms, and the U.S. for U.S. firms). Firms in the second group (“high-ROA firms”) belong to the second to fifth quintiles of operating performances observed on a given year in a given region. Operating performance is the ratio of operating income before interest, taxes, and depreciation to the firm total assets. Panel A includes all directors appointed before 2010, and Panel B includes all directors appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director is a foreign director, if the director has or had at least one CEO position in his/her employment history, if the director has or had at least one c-suite position in his/her employment history, if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors). The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)
<u>Panel A: Pre 2010 appointments</u>		
Quota effect on low-ROA firms	0.1741 [2.532]	0.2143 [2.797]
Quota effect on high/median-ROA firms	-0.0307 [-1.693]	-0.0378 [-1.870]
Difference (low minus high)	0.2047 [2.835]	0.2520 [3.150]
Observations	11,004	126,722
R-squared	0.2505	0.3052
<u>Panel B: Post 2010 appointments</u>		
Quota effect on low-ROA firms	-0.0586 [-1.077]	-0.0478 [-0.626]
Quota effect on high/median-ROA firms	-0.0496 [-1.482]	-0.0409 [-1.058]
Difference (low minus high)	-0.0090 [-0.151]	-0.0069 [-0.081]
Observations	779	6,273
R-squared	0.6201	0.6571
Tenure + 4th order poly of age	YES	YES
Additional director controls	YES	YES
Firm-Year FE	YES	YES
Treated Group	France	France
Control Group		US

Table IA.25 – Turnover in Big Firms vs Small Firms

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of firms. Firms in the first group (“big firms”) are above the median in terms of total assets for a given country-year. Firms in the second group (“Small firms”) are below the median in terms of total assets for a given country-year. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
Quota effect on big-firms boards	-0.0542	-0.0471	-0.0402	-0.0531	-0.0466	-0.0415
	[-2.293]	[-1.974]	[-1.813]	[-2.195]	[-1.930]	[-1.823]
Quota effect on small-firms boards	-0.0305	-0.0199	-0.0277	-0.0183	-0.0053	-0.0101
	[-1.318]	[-0.876]	[-1.084]	[-0.754]	[-0.220]	[-0.380]
Difference (big - small)	-0.0237	-0.0272	-0.0125	-0.0348	-0.0413	-0.0314
	[-0.717]	[-0.827]	[-0.366]	[-1.015]	[-1.210]	[-0.896]
Observations	15,559	15,559	14,307	243,815	243,815	241,030
R-squared	0.229	0.235	0.239	0.213	0.229	0.237
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table IA.26 – Turnover in High-Female vs Low-Female Industries

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups. The first group (“high-female industries”) includes firms that belong to a 2-digit SIC industry code with above-the-median ratio of female managers (12% of the sample, source: Amadeus). The second group (“low-female industries”) includes firms that belong to a 2-digit SIC industry code with below-the-median ratio of female managers (Source: Amadeus). Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)
Quota effect on high-female industries	-0.0643 [-2.040]	-0.0588 [-1.825]	-0.0506 [-1.333]
Quota effect on low-female industries	-0.0415 [-2.323]	-0.0322 [-1.787]	-0.0355 [-1.979]
Difference (high - low)	-0.0229 [-0.632]	-0.0266 [-0.719]	-0.0151 [-0.358]
Observations	14,618	14,618	13,556
R-squared	0.211	0.218	0.224
Tenure + 4th order poly of age	NO	YES	YES
Additional director controls	NO	NO	YES
Firm-Year FE	YES	YES	YES
Treated Group	France	France	France
Control Group	NONE	NONE	NONE

Table IA.27 – Turnover in High-Female Boards vs Low-Female Boards

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of boards. Boards in the first group (“high-female”) are firms above-the-median in terms of proportion of female directors in 2009. Boards in the second group (“low-female”) are firms below-the-median in terms of proportion of female directors in 2009. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
Quota effect on high-female boards	-0.0042 [-0.273]	-0.0055 [-0.319]	0.0012 [0.066]	-0.0311 [-1.993]	-0.0295 [-1.661]	-0.0207 [-1.142]
Quota effect on low-female boards	-0.1622 [-6.055]	-0.1104 [-3.802]	-0.1037 [-3.593]	-0.0554 [-1.988]	-0.0225 [-0.749]	-0.0228 [-0.764]
Difference (high minus low)	-0.1581 [-5.125]	-0.1049 [-3.122]	-0.1049 [-3.103]	0.0243 [0.761]	-0.0070 [-0.202]	0.0021 [0.059]
Observations	17,737	17,737	16,547	279,543	279,543	261,411
R-squared	0.0058	0.2203	0.2262	0.0036	0.2495	0.2386
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table IA.28 – Turnover and Government Ownership

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of firms. Firms in the first group (“with state ownership”) are (partially) state-owned (Source: IODS). Firms in the second group (“without state ownership”) have not a state ownership (Source: IODS). Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)
Quota effect on firms with state ownership	-0.1042 [-1.474]	-0.1025 [-1.435]	-0.0969 [-1.424]
Quota effect on firms without state ownership	-0.0348 [-2.620]	-0.0253 [-1.868]	-0.0222 [-1.636]
Difference (with minus without)	-0.0694 [-0.963]	-0.0772 [-1.060]	-0.0748 [-1.072]
Observations	19,360	19,360	17,680
R-squared	0.2231	0.2309	0.2369
Tenure + 4th order poly of age	NO	YES	YES
Additional director controls	NO	NO	YES
Firm-Year FE	YES	YES	YES
Country	France	France	France

Table IA.29 – Turnover and Firm Location

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of firms. Firms in the first group (“Paris”) are located in Paris or its suburb Hauts-de-Seine (Source: Amadeus). Firms in the second group (“Province”) are located in the rest of France (Source: Amadeus). Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)
Quota effect on Paris-firms boards	-0.0400 [-1.881]	-0.0337 [-1.573]	-0.0363 [-1.678]
Quota effect on Province-firms boards	-0.0607 [-2.060]	-0.0514 [-1.808]	-0.0570 [-1.761]
Difference (Paris - Province)	0.0208 [0.571]	0.0177 [0.497]	0.0207 [0.532]
Observations	12,544	12,544	11,693
R-squared	0.211	0.218	0.221
Tenure + 4th order poly of age	NO	YES	YES
Additional director controls	NO	NO	YES
Firm-Year FE	YES	YES	YES
Treated Group	France	France	France
Control Group	NONE	NONE	NONE

Table IA.30 – Turnover and Firm Performance Volatility

This table reports OLS estimates of the treatment effects of the quota (“Post 2010”) on the gender turnover coefficient (“Female”) for two separate groups of firms. Firms in the first group (“extreme ROA Abs Growth”) belong to the fifth quintile of absolute growth in operating performances observed on a given year in a given region (Europe for French firms, and the U.S. for U.S. firms). Firms in the second group (“normal ROA Abs Growth”) belong to the first to fourth quintiles of absolute growth in operating performances observed on a given year in a given country. Operating performance is the ratio of operating income before interest, taxes, and depreciation to the firm total assets. Panel A includes all directors appointed before 2010, and Panel B includes all directors appointed after 2010. Only treatment effects on the turnover gap are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
<u>Panel A: Pre 2010 appointments</u>						
Quota effect on extreme ROA Abs Growth firms	0.1453 [2.292]	0.1494 [2.350]	0.1672 [2.394]	0.1531 [2.359]	0.1504 [2.357]	0.1650 [2.362]
Quota effect on normal ROA Abs Growth firms	-0.0501 [-2.636]	-0.0429 [-2.234]	-0.0410 [-2.109]	-0.0473 [-2.405]	-0.0382 [-1.940]	-0.0410 [-2.041]
Difference (extreme minus normal)	0.1955 [2.809]	0.1923 [2.759]	0.2083 [2.717]	-0.2004 [-2.817]	-0.1886 [-2.690]	-0.2060 [-2.681]
Observations	12,478	12,478	11,627	185,072	185,072	183,620
R-squared	0.2267	0.2332	0.2410	0.2150	0.2322	0.2380
<u>Panel B: Post 2010 appointments</u>						
Quota effect on extreme ROA Abs Growth firms	-0.0384 [-1.761]	-0.0415 [-1.765]	-0.0409 [-1.639]	-0.0302 [-1.191]	-0.0351 [-1.345]	-0.0292 [-1.111]
Quota effect on normal ROA Abs Growth firms	-0.1034 [-1.364]	-0.1063 [-1.373]	-0.1237 [-1.803]	-0.0819 [-0.985]	-0.0797 [-0.951]	-0.0940 [-1.259]
Difference (extreme minus normal)	0.0649 [0.822]	0.0648 [0.809]	0.0829 [1.172]	0.0517 [0.593]	0.0446 [0.508]	0.0648 [0.821]
Observations	1,271	1,271	1,213	12,002	12,002	11,918
R-squared	0.5269	0.5279	0.5282	0.5427	0.5459	0.5512
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Table IA.31 – Turnover of Rookie vs Experienced Directors: Post-2010 Appointments

This table reports OLS estimates of the gender turnover coefficient (“Female”) in interaction with a treatment dummy for “Rookie” directors. The sample includes only director appointments after 2010. “Rookie” directors are directors appointed after 2010 and that were not board members before 2010. Only treatment effects are shown. “Additional director controls” include dummy variables set equal to one if the director shares the same name of at least one director within the same board, if the director is an independent director, if the director is a member of at least one major committee (e.g., compensation, nomination, or audit committees), and the total number of directorships held by the director. “Tenure” is the number of years since the director first joined the board. Observations are defined at the firm-year-director level. The sample includes only outsiders (non-executive directors), and all observations with missing information for director age and tenure are excluded. The dependent variable is a dummy set equal to one if the director leaves the board at the end of the fiscal year. The sample period is from 2003 to 2014. Standard errors are clustered at the firm level and t-stat are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
Rookie	-0.0459 [-1.508]	-0.0526 [-1.687]	-0.0444 [-1.198]	-0.0480 [-1.514]	-0.0497 [-1.564]	-0.0445 [-1.268]
Female	-0.0704 [-1.777]	-0.0741 [-1.841]	-0.0624 [-1.448]	-0.0540 [-1.298]	-0.0594 [-1.421]	-0.0500 [-1.125]
Rookie x Female	0.0406 [0.890]	0.0420 [0.913]	0.0178 [0.349]	0.0253 [0.519]	0.0304 [0.617]	0.0159 [0.299]
Observations	1,822	1,822	1,584	26,991	26,991	19,708
R-squared	0.498	0.499	0.531	0.535	0.537	0.528
Tenure + 4th order poly of age	NO	YES	YES	NO	YES	YES
Additional director controls	NO	NO	YES	NO	NO	YES
Firm-Year FE	YES	YES	YES	YES	YES	YES
Treated Group	France	France	France	France	France	France
Control Group				US	US	US

Conclusion générale

Cette thèse étudie l'impact de la composition du conseil d'administration, en termes d'expertise des administrateurs et de diversité de genre, sur la gouvernance des entreprises.

Le premier chapitre examine l'effet de la reconnaissance de l'expertise des administrateurs sur les opportunités d'investissement des entreprises. Les résultats montrent que la présence d'administrateurs qui ont bénéficié d'une reconnaissance de leur expertise à travers des prix et titres de prestige entraîne de meilleures opportunités d'investissement. L'étude met en évidence que les administrateurs primés ont de meilleurs attributs que les administrateurs non primés. Les prix récompensent donc leurs expertises. Par conséquent, les prix entraînent une augmentation du nombre de postes d'administrateurs ainsi que du nombre de livres écrits par ces administrateurs. Ainsi, les administrateurs primés contribuent au développement de la réputation de l'entreprise. Par ailleurs, cette étude met en évidence l'effet de contagion qu'engendrent ces prix. D'une part, ils permettent une meilleure reconnaissance de l'expertise des autres administrateurs du conseil d'administration. D'autre part, les administrateurs primés sont plus susceptibles d'obtenir des prix à l'avenir. Ces résultats confirment l'idée que les prix apportent une plus grande notoriété à l'entreprise. Ce premier chapitre suggère que les administrateurs dont l'expertise a été récompensée par un prix entraînent de meilleures opportunités d'investissement, grâce à une plus grande notoriété et à un effet de contagion générés par les prix.

Le deuxième chapitre s'intéresse à l'impact de l'introduction de quotas de femmes dans les conseils d'administration en France sur la valeur boursière des entreprises. Les résultats montrent que le quota a engendré une réaction positive du marché à l'annonce de la promulgation de la loi, en particulier pour les conseils qui présentent un faible taux de féminisation. L'introduction de plus de femmes dans les conseils est donc perçue favorablement

par les investisseurs. Avant le quota, les investisseurs réagissent positivement aux annonces de nominations d'administratrices, en particulier pour les conseils d'administration majoritairement masculins. En revanche, une fois la loi promulguée, les nominations de femmes ne conduisent plus à des réactions de cours différentes de celles des nominations d'hommes. Les investisseurs, considérant la promulgation de la loi le 27 janvier 2011 comme une bonne nouvelle, anticipent les recrutements de femmes résultant du quota.

Le troisième chapitre de cette thèse analyse l'impact du quota sur le marché du travail des administrateurs. Cette étude montre que l'introduction du quota de femmes dans les conseils d'administration en France a conduit à réduire le taux de départ des femmes administratrices des conseils, sans avoir d'impact sur celui des administrateurs. Ce résultat est principalement dû aux recrutements de femmes résultant du quota. Il est aussi plus marqué dans les entreprises qui recrutent habituellement des administrateurs issus de l'élite française. Ainsi, cette recherche suggère que le quota a permis aux entreprises « élitistes » de recruter en dehors de leurs cercles habituels de candidats. Leurs pratiques de recrutement dans les conseils d'administration sont ainsi devenues plus professionnelles. De ce fait, le quota a amélioré la qualité des correspondances entreprise-administrateur, mesurée par le taux de départ des administrateurs.

Enfin, il convient de mettre en évidence les limites des apports présentés dans ce manuscrit. Le premier chapitre permet de renouveler l'approche sur les mesures de l'expertise des administrateurs et met l'accent sur une autre dimension qui est celle de la notoriété de l'entreprise. Cependant, cette étude ne permet pas de comprendre les interactions entre l'effet de contagion qu'entraînent les prix et titres de prestige des administrateurs et leur effet sur les opportunités d'investissement. De plus, il aurait été intéressant d'analyser la réaction des cours des entreprises autour des dates d'annonces d'obtention des prix, pour déterminer la perception des investisseurs. Les données disponibles ne reportent pas (ou très rarement) la date exacte d'obtention du prix.

Les chapitres deux et trois s'intéressent à l'effet de l'introduction de quotas de femmes dans les conseils d'administration en France. La loi Copé-Zimmermann impose un premier seuil de 20% à compter de janvier 2014, et un deuxième seuil de 40% à compter de janvier 2017. Les données de BoardEx utilisées pour ces deux études sont limitées à 2014. Étendre la période d'analyse à 2017 permettrait ainsi d'analyser les effets du quota sur une plus longue période. Cette période d'analyse constituerait ainsi une opportunité pour étudier les effets du quota sur la valeur des entreprises à moyen-terme. Afin de vérifier la validité externe de ces articles, l'effet de l'introduction de quotas de femmes dans les conseils d'administration

pourrait être étudié dans d'autres pays. La mise en place, en 2015, de quotas en Allemagne constituerait un cadre d'analyse intéressant.

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Résumé

Ce manuscrit présente trois chapitres distincts couvrant des sujets liés au fonctionnement et au rôle des conseils d'administration.

Le premier chapitre étudie l'effet de la reconnaissance de l'expertise des administrateurs sur les opportunités de croissance de l'entreprise, en utilisant des prix de prestige obtenus par les administrateurs. Les résultats indiquent que la présence d'administrateurs primés dans les conseils d'administration entraîne de meilleures opportunités d'investissement.

Le deuxième chapitre analyse l'impact du quota de femmes dans les conseils d'administration en France sur la valeur boursière des entreprises. Avant le quota, les investisseurs réagissent positivement aux annonces de nominations d'administratrices, en particulier pour les conseils d'administration majoritairement masculins. L'annonce de la promulgation de la loi le 27 janvier 2011 est considérée comme une bonne nouvelle sur le marché boursier, ce qui conduit les investisseurs à anticiper les recrutements de femmes résultant du quota.

Le troisième chapitre traite de l'impact du quota sur le marché du travail des administrateurs. Les résultats indiquent que le quota a changé les pratiques de recrutement dans les conseils d'administration et que, de ce fait, il a amélioré la stabilité des correspondances entreprise-administrateur.

Mots Clés

Gouvernance d'entreprise; Conseils d'Administration; Expertise; Récompenses; Diversité; Quotas de Femmes; Marché du Travail

Abstract

This dissertation presents three distinct chapters covering topics related to the functioning and the role of corporate boards.

The first chapter studies the effect of the recognition of directors' expertise on growth opportunities through directors' receipt of prestigious awards. The results show that the presence of award-winners on boards leads to better investment opportunities.

The second chapter analyzes the impact of a board gender quota in France on market valuation. Before the quota, investors respond positively to female director nominations, especially on male-dominated boards. The announcement of the enactment of the law on January 27, 2011, was viewed as positive news in the stock market, which leads to the anticipation of post-quota female appointments.

The third chapter focuses on the impact of the quota on the labor market for corporate directors. The evidence suggests that, by changing the director search technology used by firms, the French quota has improved the stability of director-firm matches.

Keywords

Corporate Governance; Corporate Boards; Expertise; Awards; Diversity; Gender Quotas; Labor Market