Winds of Change:

Gender Quota on Boards in the Face of Patriarchy[*]

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Abstract :

We study the introduction of gender quotas in India, the first country with strong patriarchal views to mandate female directors on corporate boards. Despite small penalties, we find high compliance rates, resulting in a threefold expansion of the female director labor pool. After the reform, almost half of the firms appoint and retain female directors beyond the ambit of the quota, a change that is significantly weaker on boards with stronger patriarchal views. The better opportunities for females manifest in a higher likelihood of appointment on important subcommittees and in a reduction in the gender gap in director remuneration from 30% to 3%. Our results suggest that although gender quotas deepen and diversify the director pool, strong patriarchal views among incumbent directors hinder the transition to gender-diverse boards.

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The underrepresentation of women on corporate boards remains one of the most debated topics in corporate governance in the 21st Century. The debate has intensified with the introduction of gender quotas in advanced economies, starting with a 40% gender quota in Norway in 2003 followed by recent legislations in Germany, France, Italy, and the United States (i.e., California).[1] At the same time, gender quotas have gained traction in emerging markets, which are often characterized by strong patriarchal views and lower corporate governance standards, with India and Pakistan mandating at least one female director on corporate boards.[2] Despite a rich literature on gender disparity on corporate boards, which focuses on the first wave of gender quotas introduced in environments with more egalitarian views, evidence on the effect of gender quotas in environments with strong patriarchal views remains scant.

From a corporate governance perspective, the effect of gender quotas in emerging markets with strong patriarchal views remains an open empirical question. First, firms may have male incumbent directors with strong patriarchal views, opposing female involvement in the highest corporate echelons. Such views may manifest by minimal compliance in responding to the gender quota or appointing females related to company insiders, thus limiting the size and quality of the director labor pool. Second, in theory, quotas can be an effective tool to deepen and diversify the talent pool of corporate directors by creating opportunities for women. This might be particularly true in emerging markets, where lower corporate governance standards impede the selection of qualified directors. However, the supply of high-quality female directors might be limited in emerging markets due to more significant gender disparities in the labor market, questioning whether gender quotas will provide opportunities for females in the labor market as directors.

This study examines the effect of the gender quota on the labor market for corporate directors in India, the first country with strong patriarchal views to mandate female directors. The gender quota required firms to have at least one female director by April 1, 2015, pushing two-thirds of the firms to appoint a female director before the compliance date. We infer patriarchal views of incumbent male directors exploiting variation in their nationality and geography of educational attainment. Following the gender economics literature (Fortin 2005; Alesina, Giuliano, and Nunn 2013; Ke 2018), we measure patriarchal views using answers to the question "*When jobs are scarce, men should have more right to a job than women*," from the World Value Survey. It follows that individuals with stronger patriarchal views would answer "yes," whereas individuals with weaker patriarchal views would answer "no" (see Appendix Figure

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[1] As the first wave of gender quotas were introduced in developed economies, prior work focused on analyzing the effect of gender quotas in Norway (Ahern and Dittmar, 2011; Matsa and Miller, 2011; Bertrand et al., 2019; Eckbo, Nygaard, and Thorburn, 2020), Belgium, France, Italy, and Spain (Comi et al., 2016), Italy (Ferrari et al., 2016), Sweden (Hinnerich and Jansson, 2017), France (Ferriera et al., 2020), and California in the United States (von Meyerinck et al., 2021; Gertsberg, Mollerstrom, and Pagel, 2021; Greene, Intintoli, and Kahle, 2020; Hwang, Shivdasani, and Simintzi, 2020).

[2] Table 1 provides the chronology of gender quotas that mandate female directors across countries, while Appendix Figure A1 ranks countries on their patriarchal views based on the World Value Survey and uses the response to the question "*When jobs are scarce, men should have more right to a job than women*".

A1). We then assign values to boards in two ways: First, we assign values to all male directors based on their nationality, and second, we assign values to all male Indian directors based on the country of their educational attainment. We average these values for each board and use the lagged values in our empirical specification. A board where all male directors are Indians (Swedes) has an average value of the first measure based on the nationality of 52.4 (2), reflecting that 52.4% (2%) of Indians respond "Yes" to the above question in the World Value Survey. The attractiveness of the two measures of patriarchal views is that they are persistent over time and therefore reflect the views of incumbent directors when the board considers appointments of new directors.

The starting point of our analyses is to examine how firms respond to the introduction of the gender quota. One year before the compliance date, firms with strong patriarchal views were 12 to 15 percent less likely relative to firms with weaker patriarchal views to have a female director on their board. This difference converges to 2 percent by the compliance date, suggesting that the gender quota pushed boards with stronger patriarchal views to appoint female directors. The high compliance rate was achieved, despite small monetary penalties for non-compliance. Firms responded by increasing the average number of female directors from 0.5 to 1.1, a trend that continued with the number reaching 1.6 five years after the compliance date. The appointment of female directors beyond the ambit of the quota motivates our subsequent analysis, focusing on understanding the resulting changes to female opportunities in the labor market for corporate directors.

We focus on changes in voluntary appointments of female directors around the introduction of the gender quota. We define appointments of female directors as voluntary in the pre-reform period and the post-reform period if the firm already complies with the quota mandating one female director. To ensure that we capture the effect beyond the ambit of the quota, we exclude one year leading up to the compliance date (i.e., the financial year 2014-15). We find that the appointment rate of females increased by 11.6%, relative to a baseline probability of voluntary female director appointment of 0.6% before the reform. The increase is 16.7% among independent directors and 7.6% among inside directors. Importantly, boards with stronger patriarchal views are less likely to voluntarily appoint female directors after the introduction of the gender quota. The magnitude of this effect is economically significant: Boards with strong patriarchal views are 17 percentage points less likely to appoint female directors voluntarily after the reform. We further find that the appointment of new female directors drives the increase in voluntary appointments and that few female directors become busy. As a result, the female director pool expands three-folds (from 350 to more than 1,000 unique female directors), and the fraction of firms with two or more female directors increases from less than 10% to 45% five years after the reform.

Next, we examine the role of director networks in increasing voluntary appointments of female directors. Director networks might contribute to voluntary appointments for two reasons. First, recent

work in the context of the United States finds that connected directors raise gender diversity on boards by potentially allowing firms to tap into professional networks of directors, thus reducing search costs (Cai, Nguyen, and Walking, 2021). Second, we also expect connected directors to affect gender diversity across firms if hiring decisions reflect their patriarchal views. We find that director networks play an important role in facilitating voluntary female director appointments. These results suggest that gender quotas table discussion on board diversity leading male-dominated boards to appoint female directors voluntarily, although the effect is weaker on boards with stronger patriarchal views.

The increase in voluntary appointments suggests potential changes in labor market opportunities for female directors on important board committees and in the highest corporate echelons after the reform. We find that the increase in the appointment rates is reflected in important committees, albeit by a smaller magnitude. The fraction of females on the audit and nomination & remuneration committees increase from less than 4% to more than 12% five years after the reform. Before the reform, 1% to 2% of the chairpersons on these key committees were females increasing to 6% for the audit committee and 10% for the nomination & remuneration committee. These effects, however, do not extend to the highest corporate echelon, either as the chairperson of the board or as top executives of the firm.

A natural question is whether the expansion of the female director labor pool is associated with changes in the quality of appointed directors. We find that the marginal female director appointment is similar to the marginal male director appointment, as measured by stock price reactions, education, and specialization. The stock price reactions are negative for mandatory female director appointments, which is attributable to: (i) that a majority of firms opt to comply with the quota by expanding their board size, and (ii) that there is a temporary drop in female director quality as measured by experience at the time of the compliance with the quota, which subsequently reverses as the pool of female directors expand and gain experience. We also examine whether the appointment of directors related to the controlling owner family, indicative of tokenism, drives the expansion of the female director labor pool. We find that the fraction of related directors on the boards increased from 4% to 6%, which is economically small. The stock market reacts negatively to appointments of related directors, suggesting that these appointments are perceived by shareholders as value decreasing. Overall, these findings indicate that firms appoint high-quality female directors voluntarily after the reform by tapping into the increased pool of experienced female directors.

Lastly, we examine whether the gender gap in director remuneration narrows after the introduction of the gender quota. Two years before the reform, female independent directors earned 30% less than male independent directors serving the same role on the same company's board. Five years after the reform, the gap *within* the board reduces to 3.3%. The 26.7 percentage point reduction in the gender gap in

remuneration is statistically and economically significant.[3] In further analysis, we find that the gender gap in director remuneration reduces both for female directors appointed before and after the reform, ruling out that differences in director quality drive the reduction. More importantly, these changes are driven by increasing pay to female directors rather than reducing pay disparity among directors within the board. The disappearing gender gap in director compensation further suggests that the opportunities for females in the labor market for corporate directors improved after the introduction of the gender quota.

Although our results suggest that the introduction of the gender quota in India expand the female director labor pool and increase opportunities for females, these changes might alternatively be explained by interaction with international financial markets or international product markets, pressure from (foreign) institutional investors, or general trends in society towards gender equality or passing of gender quotas in countries associated with incumbent male directors either through nationality or educational attainment. Further, the reform is also introduced at an active time for corporate governance reforms highlighting the importance of assessing alternative explanations for our findings. In particular, we address the possibility that boards appoint female independent directors to replace male independent directors who leave boards following the introduction of personal liability that coincided with the gender quota. Further, we rule out the concern that female directors are appointed in response to firm-specific events that trigger director vacancies by focusing on the subsample of firms that experienced a vacancy due to the unexpected death of a male director. Overall, we find that none of these alternative explanations drive the increase in voluntary appointments.

Our study contributes to the literature on the effect of gender quotas on corporate boards. We study the effect in an emerging market with strong patriarchal views and provide new evidence highlighting that strong patriarchal views among incumbent male directors hinder the transition to gender-diverse boards. Prior work focuses on countries with egalitarian views, starting with Norway, the first country to introduce binding gender quotas (Nygaard, 2011; Ahern and Ditmar, 2012; Matsa and Miller, 2013; and Eckbo, Nygaard, and Thornburn, 2019). Other studies have analysed the effect of gender quotas on firm value in other European countries (Comi et al., 2016; Ferrari et al., 2016; Hinnerich and Jansson, 2017; Ferriera et al., 2020) and California (Hwang, Shivdasani and Simintzi, 2020; Greene, Intintoli, and Kahle, 2020; von Meyerinck et al., 2020).[4] These studies find that introducing gender quotas either has no effect or a negative effect on firm value and interpret the latter as evidence of supply-side constraints in the market for corporate directors. In comparison to these studies, our findings also suggest that gender quotas can deepen and diversify director pools even in the face of strong patriarchal views. We find that the marginal

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[3] To ensure that the estimated gender gap is not an artifact of gender differences in committee assignments or individual characteristics like tenure, experience, and expertise, we include these time-varying director characteristics as controls in our empirical specification. The estimated gender gap is virtually similar with and without director characteristics as controls.

[4] Comi et al., (2016) analyze gender quotas in Belgium, France, Italy, and Spain. Ferrari et al., (2016) analyzes gender quota in Italy. Hinnerich and Jansson (2017) analyze gender quotas in Sweden.

female director appointment is similar to the marginal male director appointment in terms of director quality, contrasting the evidence from developed economies with many studies arguing that supply-side constraints imposed by the mandate result in negative stock price reactions among firms that appoint female directors. One possible explanation for this difference is that the lower corporate governance standards in emerging markets impede the selection of high-quality male directors. Our results also suggest that although gender quotas can deepen and diversify the talent pool, strong patriarchal views hinder the transition to gender-diverse boards.

Our second contribution is to evaluate the resulting changes in opportunities for females in the labor market for corporate directors. We find evidence of significant improvements for females through (i) an increase in female director appointments, (ii) a greater female representation on important subcommittees but not in top positions such as CEOs or chairs of the board, and (iii) a significant reduction in the gender gap in director remuneration. Our findings complement the evidence from Norway in Bertrand et al. (2019) by documenting that better opportunities also emerge after the introduction of a gender quota in an environment with strong patriarchal views. Our evidence highlights that the implementation of a less stringent gender quota (one female director vs. 40% of all directors) in such an environment might be an effective tool to expand the female director pool without making female directors busy. Our results highlight a (underexplored) potential tradeoff between a faster transition to gender-equal boards at the expense of the quality of the labor pool of female directors.

Our study also relates to the emerging literature highlighting the importance of corporate culture and gender equality (Guiso, Sapienza, and Zingales, 2014; Grennan, 2017; Graham et al., 2017; 2019). Female leadership shapes corporate culture, resulting in improved workplace conditions and compensation for women (Tate and Yang, 2015; Duchin, Simutin, and Sosyura, 2020; Lins et al., 2020; and Giannetti and Wang, 2021). In comparison, our findings provide evidence suggesting that policies aimed at gender equality in emerging markets can have a positive long-run impact in shaping corporate boards and reducing the gender gap in director remuneration.

Finally, our study is related to the broader literature examining the impact of policies aimed at gender equality in emerging markets. Several studies provide evidence that gender quotas have effectively encouraged female participation in politics (Chattopadhyay and Duflo, 2004) and entrepreneurship (Naaraayanan, 2021). Relatedly, exposure to female leaders in politics improves voter attitudes towards females, and such policies have a role model effect influencing adolescent girls' career aspirations and educational attainment (Beaman et al., 2009; Beaman et al., 2012). Compared to these studies, we evaluate the effect of gender quotas on corporate boards and show that they can deepen and diversify director pools in environments with strong patriarchal views.

A central thesis in this study is that gender quotas allow firms to tap into a deeper talent pool of directors. Our results on gender quotas catalyzing the increase in gender diversity on corporate boards are echoed in media reports (IiAS, 2020). They report that regulatory changes have led to greater female representation on corporate boards, females garnering important committee positions, and a reduction in the gender gap in director remuneration.

Collectively, our study is the first to evaluate the effect of gender quotas on corporate boards in an institutional setting with strong patriarchal views. The first wave of gender quotas was introduced in developed economies and many empirical studies argue gender quotas impose substantial costs on firms due to supply constraints in the labor market for directors. More recently, gender quotas have gained traction in emerging markets, with Kenya and Pakistan alongside India mandating female directors on corporate boards. Many emerging markets also have stronger patriarchal views and lower corporate governance standards, highlighting the importance of understanding the effect of gender quotas in such contexts. To this end, our study provides the first informative evidence for policymakers and market participants.

The remainder of the paper is organized as follows: Section 1 provides an overview of the gender quota and corporate governance reforms in India. In addition, it discusses the data and provides summary statistics, and details our measures of patriarchal views. Section 2 examines how firms comply with the gender quota, while Section 3 focuses on changes in voluntary appointments of female directors after the reform. Section 4 relates patriarchal views and director networks on voluntary appointments of female directors. Section 5 focuses on whether the gender quota provides better opportunities for women in the labor market for corporate directors. Section 6 addresses alternative explanations of our findings, including interaction with international financial markets and international product markets, general societal trends in gender equality, institutional investors' pressure to reform boards, contemporaneous corporate governance reforms, and market developments. Lastly, Section 7 offers concluding remarks. An Internet Appendix provides many supporting details.

1. Institutional setting, data and measures of patriarchal views

The introduction of the gender quota on corporate boards is part of a regulatory push to improve board diversity and corporate governance standards in India. Starting in 1999, The Ministry of Corporate Affairs (MCA) and the securities market regulator, the Securities and Exchange Board of India (SEBI), appointed the Birla Committee to improve corporate governance standards. The Birla Committee recommended strengthening the structure of boards and internal controls (e.g., audit committee,

remuneration committee, and disclosure to shareholders) but did not focus on gender diversity.[5] The SEBI introduced recommendations of the Birla Committee through Clause 49 of the listing agreement, which became effective for all firms on January 1, 2006.[6]

Alongside these regulatory initiatives, the government proposed three bills to amend the corporate governance sections of the Companies Act of 1956. The Companies (Amendment) Bill, 2003 included a provision for female directors on corporate boards. However, the government withdrew the Bill for its review or rectification by the MCA following criticism by chambers of commerce and industry groups. In the revised Companies Bill, 2009, there was no reference to gender diversity on boards. The Bill was ultimately withdrawn because the Ministry of Finance and the MCA failed to agree regarding the delegation of regulatory oversight to the SEBI.

The Companies Bill, 2011, followed the withdrawal and introduced a gender quota, requiring firms to have at least one female director to encourage more female participation in corporate decision making.[7] The proposal was enacted as the Companies Act, 2013 in August 2013.[8] Following the enactment of the Companies Act in 2013, the SEBI aligned the corporate governance provisions in Clause 49 with the new law. The revised Clause 49 mandated at least one female director, introduced restrictions on director eligibility and remuneration, and mandatory annual performance reviews for independent directors. Moreover, the law introduced stringent personal liability, which temporarily deterred individuals from serving as independent directors (Naaraayanan and Nielsen, 2021). All changes were effective from October 1, 2014, except for the gender quota, which was effective from April 1, 2015.

Moreover, to further improve the corporate governance standards, the SEBI instituted the Kotak Committee on Corporate Governance in June 2017. Based on the suggestions by the committee and comments from stakeholders, the SEBI, through its revision, reduced the maximum number of directorships to 7, expanded the eligibility criteria for independent directors, and mandated the largest 500 (1,000) listed firms by market capitalization to have at least one female independent director by April 1, 2019 (April 1, 2020).

In keeping with the extant literature on gender quotas, we analyze how the stock market reacts to the administrative announcements related to the quota and the enactment of the final law (Ahern and Dittmar, 2011; Matsa and Miller, 2011; Comi et al., 2016; Ferrari et al., 2016; Hinnerich and Jansson, 2017;

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[5] In fact, there is no mention of "diversity", "gender", "female" or "woman" in the Report of the Kumar Mangalam Birla Committee on Corporate Governance (1999).

[6] Appendix Figure A2 shows the timeline of corporate governance reforms in India. See Black and Khanna (2007) and Dharmapala and Khanna (2012) for studies of the valuation consequences of the introduction of Clause 49 in 2006.

[7] The parliamentary committee report on the Companies Bill, 2011 offers one justification for the proposal by stating that the provision is "*likely to be in line with the policy of the Government for encouraging more and more women participation in decision making at various levels*" (Kamalnaath and Peddada, 2012). The Parliamentary Committee Report on the Companies Bill, 2011 can be accessed here.

[8] Section 149 of Companies Act, 2013 states that "Provided further that such class or classes of companies as may be prescribed, shall have at least one woman director."

Ferriera et al., 2020; Eckbo, Nygaard, and Thorburn, 2020; Greene, Intintoli, and Kahle, 2020; Hwang, Shivdasani, and Simintzi, 2020, among others). In Appendix Table A1, we find that the stock price reactions to these announcements are negative, with the difference in stock price reactions between firms that comply and firms that do not comply with the gender quota is economically small and statistically insignificant.[9] Prior work interprets stock price reactions as a test of supply-side constraints in the market for corporate directors, and through this lens, our evidence suggests that the market does not seem to be concerned about the limited supply of high-quality female directors.

Further, alongside the regulatory initiatives focusing on improving board efficiency, the regulation introduced by the SEBI in 2010 required mutual funds to be transparent about their policies regarding voting on the resolutions of shareholder meetings (see Subramanian, 2016). This new regulation fueled the growth of the proxy advising industry in India, catering to the mutual funds' need for external advice on corporate governance issues. In summary, the gender quota is introduced at an active time for corporate governance reforms brought about by regulation and market developments. In Section 6, we, therefore, address whether our findings capture everything happening in the arena of corporate governance during this time.

1.1 Data and summary statistics

To analyze the effect of the gender quota on corporate boards, we obtain data on board composition and firm financials for firms listed on the National Stock Exchange (NSE) in India for the period from 2010 to 2020.[10] Data on board composition are from Indian Boards, a database maintained by the Prime database group. This dataset is equivalent to BoardEx for the United States and most recently used in Naaraayanan and Nielsen (2021). The data contain information on director characteristics such as age, gender, nationality, education, experience, director type, date of appointment, cessation date, the reason for cessations, and director remuneration.[11]

Accounting data and stock prices are from Prowess, the Indian equivalent of CRSP/Compustat. Prowess is maintained by the Center for Monitoring Indian Economy (CMIE) and has been used in several prior studies on Indian firms, including Bertrand, Mehta, and Mullainathan (2002); Gopalan, Nanda, and Seru (2007; 2014); Siegel and Choudhary (2012); Chakrabarti and Subramanian (2016).

Our final sample consists of a panel of firms listed on the NSE from 2010 to 2020. This sample corresponds to 10,084 firm-year observations and 86,713 director-year observations. In our analysis, "year"

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[9] To account for the return co-movement in time regardless of the differential firm-level impact of news announcements, we follow the methodology outlined in Eckbo, Nygaard, and Thorburn (2020).

[10] The NSE is the leading stock exchange in India. It is the world's 11th largest stock exchange with a market capitalization of more than US$2.27 trillion (as of April 2018).

[11] Director remuneration and committee assignments are available for the period 2013-14 to 2019-20. Therefore, for analysis involving director remuneration and committee assignments, we restrict the sample period from 2013-14 to 2019-20.

refers to the financial year instead of the calendar year, as the financial year in India runs from April 1 to March 31. Thus, we refer to the financial year starting on April 1, 2014, and ending on March 31, 2015, as 2014-15.

1.2 Patriarchal views of the board

As discussed in the introduction, we infer patriarchal views of incumbent male directors using variation in their nationality and geography of educational attainment. Following the gender economics literature (Fortin 2005; Alesina, Giuliano, and Nunn 2013; Ke 2018), we measure country-level patriarchal views using answers to the question "*When jobs are scarce, men should have more right to a job than women*," from the World Value Survey. It follows that individuals with stronger patriarchal views would answer "yes," whereas individuals with weaker patriarchal views would answer "no." Based on this logic, we take the average fraction of the survey respondents in a country that answer "yes" to measure the strength of patriarchal views. This measure varies significantly across countries: the proportion of Indian respondents who agree with the preceding statement is 52.4 percent, compared with only 2 percent for the Swedish participants (see Appendix Figure A1).

We then assign values to boards in two ways: First, we assign values to all male directors based on their nationality, and second, we assign values to all male Indian directors based on the country of their educational attainment.[12] We average these values for each board and use the lagged values in our empirical specification. For example, if all male directors on the board are Indians, then the average value of the first measure based on nationality will be 52.4. If all male directors were from Sweden, the country with the lowest patriarchal views, the measure would be 2. Using this approach, we obtain variation at the board level in patriarchal views based on nationality from 13.5 to 56.5 with a standard deviation of 7.4. Similarly, our second measure reflects variation in the country of educational attainment for male Indian directors and exploits that around 30 percent of them are educated abroad. At the board level, the second measure of patriarchal views based on educational attainment varies from 5.7 to 52.4 with a standard deviation of 9.8.

The attractiveness of the two measures of patriarchal views is persistent over time. The top panel of Appendix Figure A3 shows that the fraction of firms with foreign male directors varies between 16 and 20 percent during the sample period. As a result, the average board-level measure of patriarchal views based on nationality has little variation across time. The measure of patriarchal views based on education captures variation in views arising from differences in the country of educational attainment among male Indian directors. The bottom panel of Appendix Figure A3 shows that the fraction of firms with at least

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[12] Unlike Indian directors, there is limited variation in the country of educational attainment different from their nationalities for foreign directors. Hence, we exploit variation in the country of education among male Indian directors on boards.

one male Indian director educated abroad varies between 73 and 79 percent during the sample period. As a result, the average board-level measure of patriarchal views based on education is stable at around 40 percent across time.

In Section 6, we address concerns related to the interpretation of the measure of patriarchal views. In particular, we show that our results cannot be attributed to general trends in patriarchal views based on regional or industry variation. In unreported tests, we also find that the measures of patriarchal views do not capture exposure to gender quotas abroad. Only 17 percent of the foreign male directors are exposed to gender quotas at home (83 percent of the foreign directors are serving at a time when their home country did not have a gender quota), and only 6 percent of male Indian directors attain education from a country that has introduced a gender quota. Finally, we show in Section 6.1 and 6.2 that exposure to international capital markets, international product markets, and pressure from foreign institutional investors do not explain our findings.

2. Compliance with the gender quota

We start our analysis by examining how Indian firms respond to the introduction of the gender quota. Table 2 presents descriptive statistics related to female directors and the size of the director pool at the end of each financial year. Panel A reports the characteristics of the balanced panel of 919 NSE-listed firms in our sample.[13] Further, it reports the number of firms with and without a female director and the average number of female directors on the board. The table shows that in 2013-14, the year before the gender quota, 59% of the firms (541 out of 919) did not have a female director. In 2014-15, 95% of the firms (857 out of 919) complied with the gender quota. We also note that the average number of female directors increased to 1.6 by the end of our sample, rising from 0.5 before the reform. The increase implies that many firms appoint more female directors than required by the gender quota.

Figure 1 relates the two measures of patriarchal views on the board to the fraction of firms in non-compliance with the gender quota in a window of 12 months around the introduction of the gender quota. We plot compliance rates at the beginning of the month to align with the compliance date of April 1, 2015.[14] In general, the fraction of firms in our sample that do not have a female director drops from 60.8 percent to 8.1 percent by the compliance date. To enforce strict compliance, SEBI introduced a series of fines starting with INR 5,000 (USD 75) for firms in non-compliance after three months, increasing to INR 142,000 (USD 750) and an additional INR 5,000 (USD 75) per day after six months. After introducing

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[13] Our sample only includes 894 firms in the financial year 2019-20 because a few firms reported late as they used extensions granted by the government amidst COVID-19.

[14] In comparison, Table 2 reports compliance rates (number of firms with a female director by the end of the financial year), with small differences in compliance rates between Figure 1 and Table 2 due to changes in the board at the beginning of the month.

relatively modest monetary penalties, the fraction of firms in non-compliance further dropped to less than 4 percent.

The two panels of Figure 1 illustrate the difference in compliance rates for boards split by patriarchal views as measured by the country of educational attainment for male Indian directors (top panel) and the nationality of male directors (bottom panel).[15] We note that in both panels boards with strong patriarchal views are less likely to have a female director before the reform and that many of these waited until the last minute to appoint a female director. Thus, boards with strong patriarchal views comply with the gender quota despite the small monetary penalties associated with non-compliance.

Table 3 explores differences in non-compliance rates in the year of the reform in a regression framework. In Columns 1 and 3, we find that firms with all male promoters are more likely to be non-compliant and that firms with expert directors are more likely to comply both before and after the compliance date.[16] Interestingly, we find no effect of foreign directors on the likelihood of appointing female directors. However, when we examine the patriarchal views of the directors, we find that boards with strong patriarchal views are less likely than boards with weak patriarchal views to appoint female directors one year before the compliance date of April 1, 2015. This difference disappears by the compliance date. These effects are robust and qualitatively similar when considering the measure based on either nationality of male directors or based on the geography of educational attainment among Indian male directors.

In Appendix Table A2, we also relate patriarchal views to the type of female director appointments. Firms with foreign directors are less likely to appoint an inside or related female director, and boards with strong patriarchal views are more likely to appoint related female directors and expand board size.

The implementation of the gender quota increased the size of the female director pool significantly, as shown in Panel B of Table 2. The number of unique female directors increased from 394 in 2013-14 to more than 1,000 by the end of the sample period. This increase came at the expense of unique male directors, decreasing from over 6,000 to 5,388. Further, most of the increase in female directorships can be attributed to appointments of independent directors, increasing from 210 in 2013-14 to 924 in 2019-20. The threefold expansion of the female director pool complements the evidence from Norway, which saw a smaller increase in the female director pool, making the average female director busy (Bertrand et al., 2019).[17] In contrast, our evidence from India suggests that the reform made the director pool more

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[15]In the top panel, we classify boards with at least one (all) male Indian director educated in a country with weaker (equal to or strong) patriarchal views than India as weak (strong) patriarchal views. In the bottom panel, we classify boards with at least one (all) director(s) of nationality with weaker (equal to or stronger) patriarchal views than India as weak (strong) patriarchal views.

[16] We classify directors as "Expert" based on their specialization and highest educational degree obtained. Expert directors possess an *accounting, finance & law degree* or are a chartered accountant, CPA, CFA, JD, LLB or LLM qualification, or possess general business degrees and MBAs, or are professors, or hold a *Doctorate* degree.

[17] France and Italy saw a twofold increase, while Belgium and Spain saw an almost onefold increase in the proportion of female directors on the board (Comi, Grasseni, Origo, and Pagani, 2016).

diverse but that the average female director did not become busy after the reform (see Appendix Figure A4).

In Figure 2, we examine the fraction of females among director appointments. In the year of the reform, more than 40% of all appointments are females. After the reform, around 20% of all appointments are female directors, more than twice the fraction before the reform. Consistently, the bottom panel of Figure 2 shows that appointments of independent directors drive these changes. Five years after the reform, more than 30% of all appointments of independent directors were female directors, compared to less than 10% before the reform.

The persistent increase in female director appointments outside of the gender quota is somewhat surprising in an environment with strong patriarchal views, motivating our research question of understanding the role of patriarchal views on female appointments and female director labor market outcomes. This question remains unexplored because the first wave of gender quotas, studied extensively by prior literature, occurred in countries with more egalitarian views toward female participation in corporate decision-making at various levels.

3. Voluntary appointments of female directors after the reform

In this section, we present changes in boards' propensity to appoint women beyond the ambit of the gender quota.[18] We focus on female director appointments to corporate boards after excluding the reform year and examine further whether such appointments extend to important committee positions or the highest executive positions in the firm. To formally test whether the appointment rates are higher after the reform, we use an Ordinary Least Squares (OLS) regression specification, where the dependent variable is an indicator for a female director.[19] Our main specification focuses on testing whether female directors are more likely to be appointed in 2015-16 and after post-reform years. To ensure that we capture the effect beyond the ambit of the quota, we exclude one year leading up to the compliance date (i.e., the financial year 2014-15).[20]

In keeping with prior literature, we control for firm characteristics (firm size, fraction of independent directors on the board, market to book value, ownership of the controlling shareholder, return on assets, stock return, and stock price volatility) and include firm fixed effects in the specification. The inclusion of

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[18] We focus our analyses on director appointments but note that we obtain qualitatively similar results if we alternatively use an indicator for having two or more female directors on the board as our dependent variable. Our choice of the dependent variable is motivated by the fact that appointments allow us to focus on the board's decision-making more frequently and relate them to measures of patriarchal views.

[19] Given that the dependent variable is an indicator, we should ideally be using a probit or a logistic regression model. However, we use an OLS model to avoid the incidental parameters problem associated with nonlinear fixed-effects estimation in a panel setting (Neyman and Scott, 1948).

[20] Through Clause 49, introduced at the beginning of the financial year 2014-15, SEBI required firms to comply with the gender quota by April 1, 2015. Figure 1 confirms that most firms comply with the gender quota by appointing female directors during the financial year.

firm fixed effects ensures that time-invariant firm characteristics correlated with director appointments are not driving our results. Table 4 reports the results.

Column 1 of Table 4 shows that the female director appointment rate is 13.4 percentage points higher after the introduction of the gender quota. This effect is economically and statistically significant, given the baseline appointment rate of 7.3% for female directors before the reform. To ascertain that the replacement of outgoing female directors does not drive the increase in female director appointments, in Figure 3, we focus on the boards' propensity to voluntarily appoint female directors after the reform. The top panel of Figure 3 plots the fraction of director appointments and director turnovers that are female. The difference between the two bars shows the net increase in female director appointments, which is larger after the reform than before.

As evident from panel B of Table 2, the average firm has 1.6 female directors on its board by the end of the sample period, suggesting that firms respond by appointing female directors beyond the ambit of the quota. Therefore, in subsequent tests, we focus on voluntary appointments. We define voluntary appointments both before and after the reform: before the gender quota, any appointment of a female director is voluntary, while after the gender quota, appointments of female directors are voluntary if there is already one female on the board.

In the bottom panel of Figure 3, we present the fraction of firms with two (three) or more female directors resulting from voluntary appointments beyond the ambit of the quota. We find a persistent increase in the fraction of firms with two or more female directors after the reform. Before the gender quota, less than 10% (3%) of all firms have two (three) or more female directors. After the reform, the fraction of firms with two (three) or more female directors increased from 10% to 44% (3% to 10%).

Column 2 of Table 4 focuses on voluntary appointments. The indicator for post-reform years shows that the probability of a voluntary appointment of a female director increased by 11.6% after the introduction of the gender quota. These results suggest that the increase in female director appointments after the reform is not driven by late compliance or replacements. Column 3 shows that the effects are driven by independent directors, with the probability increasing by 16.7% after the introduction of the gender quota. The increase is smaller for inside directors, as shown in column 4.

In sum, after the gender quota, firms voluntarily appoint female directors, leading to a substantial increase in female representation on the boards beyond the ambit of the gender quota.

4. Patriarchal views, director networks, and voluntary appointments of female directors

The increase in the number of female directors on corporate boards beyond the ambit of the gender quota begs the question of which types of firms voluntarily appoint them. If the introduction of the gender

quota tables discussion about diversity on corporate boards, we expect the male incumbent board members' views to be central and reflected in female director appointments.

Table 5 relates voluntary female director appointments to proxies for patriarchal views as well as interactions between these measures and the post-reform indicator. To be consistent with our baseline analyses (Table 4), we exclude the year of the reform (i.e., the financial year 2014-15). The dependent variable is an indicator variable for whether the firm appointed a female director voluntarily. Columns 1 to 3 show that firms with all male controlling shareholder directors, a greater fraction of expert directors, and foreign directors were equally likely than other firms to appoint female directors voluntarily before the reform. In contrast, firms with all-male controlling shareholder directors are 4.8 percentage points less likely to appoint female directors voluntarily after the reform. After the reform, firms with expert directors on their boards are 4.8 percentage points more likely to appoint female directors. We also find that firms with foreign directors on their boards are 3.2 percentage points more likely to appoint female directors voluntarily.

To explore the role of patriarchal views, we exploit the two measures of patriarchal views among (i) all male directors based on their nationality and (ii) Indian directors based on the country of educational attainment. If patriarchal views affect hiring decisions, we expect boards with strong patriarchal views to appoint fewer female directors voluntarily. Column 4 suggests that the board members' patriarchal views did not affect voluntary appointments of female directors before the reform, perhaps due to limited discussion of gender diversity on boards. However, after the reform, boards with stronger patriarchal views have a lower probability of voluntarily appointing female directors.[21] The magnitude of this effect is economically significant: a board with strong patriarchal views is 17 percentage points less likely to appoint female directors after the reform voluntarily.[22] In comparison, after the reform, the baseline increase in voluntary appointments is 11.6 percentage points. At the same time, we find a negative but statistically insignificant effect on the likelihood of voluntary appointments of female directors when we focus on the measure derived using educational attainment for male Indian directors. In column 5, we obtain similar results when including all the firm characteristics in the specification. These results suggest that gender quota tables discussion on board diversity leading male-dominated boards to appoint female directors voluntarily. We also document that the voluntary appointment of female directors is significantly weaker on boards with stronger patriarchal views. Overall, our findings suggest that patriarchal views play a role in shaping diversity on corporate boards.

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[21] We find that the fraction of foreign directors on boards was reasonably stable at 5% throughout our sample period. Further, Appendix Table A3 shows that staggered introduction of gender quotas in foreign countries during the sample period does not explain voluntary female director appointments.

[22] We multiply the coefficient of -0.388 on "Post x Patriarchal views (boards), nationality" with the maximum difference in the measure of Patriarchal views 0.43 (0.565-0.135). This difference captures the effect of going from the board with the strongest patriarchal views to the board with the weakest patriarchal views in our sample.

Next, we examine the role of director networks in increasing voluntary appointments of female directors. Director networks might contribute to voluntary appointments for two reasons. First, recent work in the context of the United States finds that connected directors raise gender diversity on boards by potentially allowing firms to tap into professional networks of directors, thus reducing search costs (Cai, Nguyen, and Walking, 2021). Second, we also expect connected directors to affect gender diversity across firms if hiring decisions, as suggested in Table 5, reflect their views on female directors on boards.

Table 6 relates measures of director networks to the likelihood of appointing female directors voluntarily. We define three measures of directors networks that capture the exposure to female directors based on directorships on other boards: (i) at least one of the male directors serves as a director of another firm that has two or more female directors, (ii) across all male directors of a firm, we calculate the average number of other boards they serve on that have two or more female directors, and (iii) across all male directors of a firm, we use the maximum number of other boards they serve on that have two or more female directors. Before the reform, there is a positive association between connected directors and voluntary appointments of female directors, and this association becomes even stronger after the reform. This increase in voluntary appointments of female directors does not come at the expense of female directors getting busier, as documented in Appendix Figure A4.

Overall, we find a significant increase in voluntary appointments of female directors with director networks facilitating female director appointments. Our results also suggest that although gender quota tables discussion about board diversity, strong patriarchal views among incumbent male directors hinder the transition to gender-diverse boards.

5. Effects on the labor market for directors

Given the significant changes in board composition, we next study the concomitant effects on the labor market for directors. Specifically, we examine female representation on important committees and top executive positions, the quality of marginal directors, and the gender gap in director compensation.

5.1 Female representation on important committees and in top executive positions

We begin by examining whether female appointments extend to important committee positions and the highest executive positions in the firm. Figure 5 shows the fraction of chairs or members of the audit and nomination & remuneration committees that are females, respectively.[23] The top (bottom) panel shows that around 3.4% (3.9%) of the members of the audit (nomination & remuneration) committee are

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[23] Due to data availability, we observe committee assignments for directors from 2012-13 to 2018-19, both years inclusive.

females, before the reform, which increases to 12.8% (13.5%) after the reform.[24] Interestingly, it also shows the fraction of firms where female directors serve as chairs of audit (nomination & remuneration) committee increases from 1.1% (1.3%) to 5.8% (9.5%).

To formally test whether the appointment rates on committees are higher after the reform, we use an Ordinary Least Squares (OLS) regression specification. Table 7 reports the results. The dependent variable in columns 1 and 3 is the fraction of audit committee or nomination & remuneration committee members that are female, while the dependent variable in columns 2 and 4 is an indicator taking the value of one if the chairperson of the audit (nomination & remuneration) committee is a female.[25] As in the baseline specification in Table 4, we exclude the year of the reform (i.e., the financial year 2014-15), include firm fixed effects to control time-invariant firm characteristics as well as firm-level time-varying covariates.

Column 1 (column 3) of Table 7 shows that the fraction of members of the audit (nomination & remuneration) committee who are females is 7.5 (7.5) percentage points higher after the introduction of the gender quota. This effect is economically and statistically significant given the baseline fraction of 3.3% (3.8%) before the reform. Column 2 (column 4) shows that the fraction of firms with female directors serving as chairs of the audit (nomination & remuneration) committee is increasing by 3.4 (5.8) percentage points higher post-reform. However, in column 5 (column 6), we find that these changes do not extend to the highest corporate echelons.[26] These findings are consistent with evidence from the United States that women are more likely to join monitoring committees (Adams and Ferreira, 2009; Field, Souther, and Yore, 2020) and evidence from Norway that gender quotas for directors have little impact on the gender composition of top executives (Bertrand et al., 2019).

5.2 Quality of the marginal director

A natural question then is whether and how the expansion of the female director labor pool affects the quality of the marginal director, and hence firm value. We measure the quality of the marginal director by stock price reactions to firm-specific announcements of director appointments and supplement these with descriptive statistics on the characteristics of the appointed directors (i.e., age, experience, and expertise), measured at the time of appointment.

Table 8 reports the stock price reactions to director appointments to assess the quality of the marginal director. In keeping with prior literature (Rosenstein and Wyatt, 1990; 1997), we focus on firm-

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[24] Both the Companies Act, 2013 and the listing regulations of SEBI, include a mandatory nomination & remuneration committee (NRC) for the appointment of all directors, including independent directors. As a result, most firms have a joint committee covering both nomination and remuneration functions.

[25] Given that the dependent variable is a fraction, we should ideally be using a fractional outcome regression model. However, we use an OLS model to avoid the incidental parameters problem associated with nonlinear fixed-effects estimation in a panel setting (Neyman and Scott, 1948).

[26] In unreported results, we do not find a change in the firm-level fraction of highest paid female executives around the gender quotas.

specific director appointments to compare the quality of the marginal male director to the quality of the marginal female director.[27] To measure the stock price reactions, we access daily returns from Prowess for a 3-trading-day period around firm-specific director appointment announcement dates. We remove firms without trading volume in the estimation window. To calculate the abnormal return, we assume a single-factor model, where beta is estimated using the data from the pre-event window.

Table 8 presents the average stock price reaction to director appointments by gender, appointment type, and whether firms adjusted their board size. Panel A shows that the average stock price reaction to director announcements is negative but statistically insignificant. We find almost identical stock price reactions to the appointment of male and female directors. The average stock price reaction differences across male and female director appointments are statistically insignificant across all director types.

Next, we examine differences in stock price reactions to female directors by their appointment type. We hypothesize that mandated female directors are more likely to lack experience and skills than female directors appointed voluntarily by firms outside the ambit of the gender quota (Boyallian, Dasgupta, and Homroy, 2019). If this is the case, we expect the stock price reactions to the appointment of mandatory directors to be negative and stock price reactions to the appointment of voluntary directors to be positive. Panel B of Table 8 finds evidence consistent with this conjecture: Stock market reactions to voluntary appointments of female directors are positive, while stock price reactions to mandatory appointments to comply with the quota are associated with negative stock returns. However, the difference is statistically insignificant across all director types.

Panel C of Table 8 examines whether the negative stock price reactions to the mandatory appointments of female directors are due to firms simultaneously adjusting their board size to comply with the gender quota. Increasing board size is associated with lower firm value and financial performance (Yermack, 1996). If firms choose to comply with the gender quota by expanding the boards, the stock price reactions might reflect the investor's response to this expansion rather than the appointed director. The average firm expands its board to comply with the gender quota, and investors react negatively to such director appointments. The estimates are statistically significant at the 10 percent level.

In contrast, mandatory appointments in firms that do not adjust the board size are positive and statistically significant and drive the difference in stock price reaction across these two types of firms. This difference is statistically significant across appointment types for the average female and independent directors. Lastly, investors respond positively for firms that reduce their board size, with statistically insignificant estimates.

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[27] This approach is similar to (Rosenstein and Wyatt, 1990; 1997) and has been adopted by Adams, Gray, and Nowland (2012) and Naaraayanan and Nielsen (2021) to study changes in stock prices around mandatory new director announcements in the context of Australia and India, respectively.

To supplement the evidence in Table 8, Figure 5 reports the stock price reactions to director appointments by gender and appointment type around the reform. The top panel of the figure shows that the marginal female director appointed in response to India's gender quota is of a similar quality as the marginal male director. Further, in the bottom panel, we find substantial heterogeneity in stock price reactions to female director appointments at the time of compliance with the quota based on the experience of the incoming director. In particular, we find that stock prices increase by 1.29% if the firm appointed an experienced female director to comply with the gender quota and fall by -0.57% if the firm appointed a female director without experience. This difference of 1.86% is economically large and statistically significant at the 5% level.

Appendix Table A4 compares characteristics, measured at the time of appointment, of the newly appointed directors by financial year. Panels A and B show that the average firm in our sample appointed slightly younger female directors with less prior board experience in response to the reform, and this effect is temporary. By the end of our sample period, newly appointed female directors have similar or longer experience than newly appointed male directors. For example, in the immediate year before the reform, only 14% (17%) of the female (male) directors had board experience (at least one directorship before their current appointment). In contrast, in the year of the reform, this drops to 6% (16%). In contrast, at the end of our sample period in 2019-20, about 22% (13%) of the female (male) directors have board experience. We find similar patterns for other measures of board experience (i.e., boards per director and board tenure).

Additionally, Appendix Table A4 compares director expertise for newly appointed female and male directors as measured by education and specialization. In 2012-13, 47% of female directors had an accounting, finance, or law degree in an average firm, with more than 69% of the directors having a post-graduate degree. At the end of the sample period in 2019-20, these fractions are 56% and 62%, respectively. A similar level and trend are observed for men, suggesting that gender differences in director expertise are small. In Appendix Table A5, we compare female director characteristics by appointment type and find that mandated female directors have significantly less leadership experience, lower education, and less work experience than voluntary female director appointments.

We also examine whether the appointment of directors related to the controlling owner family, indicative of tokenism, drives the expansion of the female director labor pool.[28] The top panel of Appendix Figure A5 plots the average fraction of related male and female directors on the board in percentage by

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[28] The concerns about tokenism are stressed in media reports at the time of compliance in April 2015 (e.g., Business Today, 2015). These reports hypothesized (albeit strongly) that most firms would choose to comply by hiring from within the controlling family or someone related. An alternative interpretation is that women related to the controlling shareholders are the most powerful women.

financial year.[29] The figure shows that the fraction of related directors does not vary significantly across gender around the introduction of the gender quota. Moreover, we do not see significant changes in the number of related directors for both females and males, inconsistent with the notion that firms choose to comply with the gender quota by appointing directors from within the family. In the bottom panel of Appendix Figure A5, we find that the stock market reacts negatively to the appointment of related directors, suggesting that shareholders view these appointments as value-decreasing. Thus, we conclude that the increase in female directors on corporate boards is unlikely to be driven by firms appointing related directors but rather firms tapping into the expanded director pool and hiring more professional and qualified female directors.

In summary, our results are consistent with the view that gender quotas expand the director talent pool. The marginal female director is of similar quality, as measured by education, specialization, and stock price reactions, to the marginal male director. Further, there is a temporary drop in female director quality at the time of compliance with the gender quota, which subsequently reverses as the pool of female directors expands and gains board experience.

5.3 Effect on gender gap in compensation after the reform

If the introduction of the gender quota tables discussion about diversity on corporate boards, we expect to see a reduction in the gender gap in director remuneration after the reform. To estimate the gender gap in director remuneration, we focus the analysis on independent directors to ensure that we capture compensation for serving on the board. We restrict the sample to firms with at least one female director on their board each year to ensure that we compare compensation policies *within* the same firm rather than across firms. This is important because only 41 percent of firms have a female director before the introduction of the gender quota in the financial year 2014-15 (see Table 2).[30] In addition, we drop the appointment year to avoid confounding the gender gap in director remuneration with mechanical effects due to appointment of directors in the middle of the financial year.

In the top panel of Appendix Figure A6, we plot the evolution of compensation in 2015 INR millions by gender for all directors in our sample. Before the reform, there was a sizeable gap in remuneration between male and female independent directors. After the reform, the gender gap in director compensation narrows, and by the end of the sample, the compensation of male and female directors converges. To rule out differences in director quality as a potential explanation for these results, the top panel of Figure 6 plots the level of compensation split by gender for directors appointed before the reform

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[29] "Related" director classification is provided by the vendor. They collect information on whether the director is related to the controlling owner family from various sources including annual reports, media articles, and mandatory disclosures such as related party transactions.
[30] Due to data availability, we observe director remuneration from 2012-13 to 2018-19.

and finds that by the end of the sample period, the gap is non-existent. The bottom panel of Figure 6 shows a similar pattern wherein the gender gap in compensation narrows for directors appointed after the quota.

More formally, to explore the evolution in the gender gap in director remuneration, we obtain residuals from the following regressions:

$$y_{ijt} = \alpha_{jt} + \varepsilon_{it} \tag{1}$$

where y_{ijt} is the logarithm of compensation of director i in firm j in year t, and α_{jt} are firm-year fixed effects. Thus, residuals from Equation (1) capture the fraction of compensation that is unexplained by differences in firm policies within a particular financial year. Directors with a positive residual are paid more than an average independent director of the same firm in a given year, while directors with a negative residual are paid less than the average independent director in the same firm in a given year.

The bottom panel of Appendix Figure A6 uses the residuals from Equation (1) as our dependent variable in a specification where we include an interaction term between an indicator for whether the director is female and indicators for each year from 2012-13 to 2018-19. To estimate the gender gap in compensation, we further include controls for board committee appointments (indicators for chair of the board, and chairpersons or members of the audit and the nomination & remuneration committees), director characteristics (tenure and expertise) as well as firm characteristics (firm size, fraction of independent directors on the board, market-to-book value, ownership of the controlling shareholder, return on assets, stock return, and stock return volatility). Two years before the reform, female independent directors earned 30% less than male independent directors serving the same role on the same firm's board, which declined to 3.3% five years after the reform. The 26.7 percentage points reduction in the gender gap in remuneration is significant, both statistically and economically.

To rule out differences in director quality as an explanation for these results, the top panel of Figure 7 plots the estimated gender gap in director remuneration each year for directors that were appointed before the reform, whereas the bottom panel of Figure 7 plots the estimated gender gap in director remuneration by year for directors appointed after the reform. Consistent with Figure 6, we find in the top panel that the gender gap is quite stark before the introduction of the gender quota. In 2012-13, the gender gap in director remuneration is estimated to be -24%. After the reform, we see that the gender gap in director remuneration narrows significantly. By the end of the sample, the gender gap in remuneration is estimated to be +6%.

Table 9 summarizes the results from Figure 7 in a specification where the dependent variable is the residuals from Equation (1). Our variable of interest includes an indicator for a female director and an interaction term between the indicator for a female director and an indicator for post-reform years. As in Figure 7, the specifications include firm-level (i.e., firm size, fraction of independent directors on the board,

market-to-book value, ownership of the controlling shareholder, return on assets, stock return, and stock return volatility) and director-level controls (i.e., tenure, expertise, board, and committee assignments) as well as year-fixed effects. To ensure that we observe compensation for a full year of service, we exclude directors in the year of their appointment.

Estimates from Table 9 suggest that, on average, females are paid 17 percent less than male directors before the reform, an effect that is statistically significant at the 10 percent level. The interaction between the female director and post-reform indicators is positive and statistically significant. The magnitude of the positive interaction term indicates that the gender gap is eliminated after the reform.

One immediate concern with the specification in column 1 is that we can only test whether the reform narrowed the gender gap for directors appointed before the reform. In column 2, we restrict the sample to directors appointed before the introduction of the gender quota to mitigate such concerns. Again, in this sample, we find that the female directors, after the reform, are paid a small premium relative to male directors of the same firm. Further, in column 3, focusing on directors appointed after the reform, we find that the average gender gap in compensation is 2.4% and statistically insignificant.

We also formally test whether the gender gap in director remuneration at the start of the sample, i.e., 2012-13, is significantly different from the gender gap in director remuneration at the end of the sample, i.e., 2018-19. We report the *p*-value of the *F-test* at the bottom of columns 1 and 2 in Table 9. Across columns 1 and 2, we find that the gender gap in director remuneration is significantly different at the 5% level.

The reduction in the gender gap in compensation might alternatively be driven by general changes in remuneration policies at firms. For instance, firms might have decided to standardize remuneration for directors, thus mechanically reducing the gap in compensation across female and male directors. To examine this possibility, Appendix Figure A7 plots pay dispersion across time. To measure pay dispersion, we calculate the average remuneration for directors based on their pay rank on the board each year. We plot these averages for the lowest, the median, and the highest-paid directors on the board. We note that there is a substantial pay dispersion that increases over time. Thus, reduction in the gender gap in compensation is unlikely to be driven by changes to pay dispersion at firms.[31]

Another possibility is that the gender gap in compensation could result from changes to pay policies at firms due to the introduction of personal liability (Naaraayanan and Nielsen, 2021). Specifically, they find that firms experiencing director turnover in the financial year 2014-15 increase their pay to attract and retain independent directors. To rule out this possibility, Appendix Table A6 splits the sample by whether the firm experienced a turnover in the financial year 2014-15. Columns 1 and 2 focus on all directors, while columns 3 and 4 focus on directors appointed before the reform. Across the columns, we find that

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[31] In unreported tests, we confirm that the compensation rank of female directors improves over time.

the gender gap in compensation reduction is similar across firms that do and do not experience a turnover in the financial year 2014-15. These results mitigate concerns regarding the introduction of personal liability affecting the gender gap in compensation.

Overall, the evidence suggests that labor market opportunities for female directors improved following the introduction of the gender quota, thus narrowing the gender gap in director remuneration.

6. Alternative Explanations

Our main findings suggest that the introduction of gender quota in India tables discussion about board diversity led to the voluntary appointment of female directors on boards. At the same time, strong patriarchal views among incumbent male directors impede the transition to gender-diverse boards. While these results were established using within board variation in patriarchal views among incumbent directors, the changes could alternatively be explained by catering to investors and customers in international markets, pressure from institutional investors, or a general societal trend towards gender equality. Moreover, as noted in the introduction, the gender quota is introduced at an active time for corporate governance reforms and other market developments. In this section, we, therefore, provide evidence that none of these alternative explanations can explain our findings of an increase in voluntary appointments.

6.1 Interaction with international financial markets or international product markets

We consider the alternative explanation that firms voluntarily appoint female directors to cater to investors and customers/suppliers in foreign capital markets and product markets, respectively. In Appendix Table A7, we formally test this possibility by relating voluntary female director appointments to firms' interaction in international capital markets and international product markets. Specifically, we consider whether firms export to foreign markets or whether they raise follow-on public equity or debt in the form of depository receipts or dollar-denominated borrowings in a foreign country.[32] Across the measures, we consistently find that firms' international exposure are unrelated to voluntary appointments both before and after the reform, with the effect being economically and statistically insignificant. Overall, we conclude that catering to foreign investors and foreign customers do not drive the voluntary appointments of female directors.

6.2 Pressure from institutional investors

This subsection considers whether institutional investors pushing for corporate governance changes and increased board diversity explain the baseline increase in female director appointments. Prior literature

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[32] We extract whether the firm is exporting to a foreign destination, issues equity in follow-on public offering, and raises capital from depository receipt issuance from the Prowess database. Information on dollar-denominated commercial borrowings comes from the Reserve Bank of India, which we match to the firms in our sample.

highlights the role of institutional investors in improving corporate governance (Aggarwal, Erel, Ferreira, and Matos, 2011; Bena, Ferreira, Matos, and Pires, 2017; Schmidt and Fahlenbrach, 2017) and in pushing for gender-diverse boards in the United States (Gormley, Gupta, Matsa, Mortal, and Yang, 2021). In Appendix Table A8, we present the regression estimates by splitting the level of institutional ownership at the median and find no differential effect on female director appointment rates across firms with high and low levels of institutional, domestic, and foreign ownership, respectively. Overall, we conclude that pressure from institutional investors does not drive the increase in female director appointments.

6.3 General trends in patriarchal views and attitudes towards women

This subsection considers whether general trends in patriarchal views and attitudes towards women explain female directors' voluntary appointments. In particular, we are interested in understanding whether the reform is part of a general movement towards gender equality that can explain the spike in voluntary appointments on corporate boards. To test this, we use proxies for attitude towards women and female labor market opportunities and interact the variation in their intensities across geographies and industries, with voluntary appointments of female directors. If general trends drive the increase in voluntary appointments, we expect that heterogeneity in firms' exposure to patriarchal views and female opportunities in the labor market to affect the voluntary appointment of female directors.

Appendix Figure A8 uses the regional and industry variation in attitude towards women. In the top panel, we plot the fraction of firms that appoint two or more females for quartiles of a) patriarchal views from the World Value Survey, b) the sex ratio at birth (female relative to male births) from the Population Census, and c) crime against women per capita from the National Crime Records Bureau. Quartile 1 (4) contains firms in environments that are the most (least) hostile towards women. The bottom panel shows the effect for quartiles of female opportunities in the labor market, measured at the industry level. We measure female opportunities in the labor market using a) the fraction of female employees, b) the fraction of female entrepreneurs, and c) the fraction of female directors. Quartile 1 (4) contains firms in industries that give women the least (most) opportunities.

If the general attitude towards women drives the increase in board diversity, we expect larger changes among firms in quartile 4 relative to quartile 1. Contrary to this explanation, we find a substantial increase in female director appointments in all quartiles in the post-reform period, even for firms located in environments that are more hostile towards women and in industries that provide the least opportunities. This suggests that general trends in patriarchal views and attitudes towards women do not drive the baseline increase in female director appointments. Appendix Table A9 confirms that these results hold in regression framework after controlling for time-invariant firm characteristics and time-varying covariates that potentially affect the propensity to appoint female directors. Overall, these findings bolster our

interpretation that the gender quota tables discussion on diversity, leading firms to voluntarily appoint female directors beyond the ambit of the quota.

6.4 Market developments: proxy advisor recommendations and shareholder support

This subsection considers the role of proxy advisor recommendations and shareholder support as an alternative explanation for our findings. Precisely, the reform coincides with an expansion in coverage of Indian firms by proxy advisors catering to mutual funds' need for external advice on corporate governance issues. Thus, one alternative interpretation of the increasing voluntary appointments is that firms respond to proxy advisor recommendations and the increased shareholder support for female candidates in director elections.

To examine this, we use data from Institutional Investor Advisory Services India Limited (IiAS) on director voting recommendations and voting outcomes.[33] IiAS is more supportive of female directors than male directors, with an average of 90% (82%) of their recommendations in support of the female (male) candidate. The difference in the recommendation of 8% in favour of female nominees is consistent with the 1.9% voting support difference in the context of the California gender quota (Gertsberg, Mollerstrom, and Pagel, 2021). Given the more positive support towards female candidates and growing coverage of director elections by IiAS, it is plausible that firms appoint female directors following the support from proxy advisors and shareholders.

More formally, Panel A of Appendix Table A10 shows a small positive effect of IiAS coverage but no impact of IiAS recommendations on voluntary appointments of female directors. In Panel B of Appendix Table A10, we follow the analysis of Aggarwal, Dahiya, and Prabhala (2018) and find no impact of shareholder support on director elections. The limited impact of shareholder support might reflect that the Indian market has a higher proportion of retail investors who lack strong incentives to vote in director elections. Alternatively, this might be because proxy advisory services in India began in 2014-15 and are a relatively new phenomenon. In summary, Appendix Table A10 shows that the coefficient on post-reform across specifications remains stable in magnitude and statistical significance, thus ruling out contemporaneous market developments in the arena of corporate governance as a potential explanation for our findings.

6.5 Introduction of personal liability

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[33] Founded in 2010, IiAS is India's leading corporate governance and proxy advisory firm. ISS entered the Indian market in 2014 and issues recommendations according to its broad voting guidelines. We begin in the financial year 2014-15 because that is the first year in which voting was recorded electronically. Before that, voting in meetings was by way of show of hands and therefore the voting outcomes are unavailable.

This subsection considers the alternative explanation that personal liability for independent directors, introduced alongside the gender quota. Prior research finds that around the introduction of personal liability in India in 2014-15, there was a significant but temporary spike in turnover rates among male independent directors in the year of the reform (Naaraayanan and Nielsen, 2021).[34] In response to the temporary outflow of independent directors in 2014-15, firms might have replaced male directors with female directors.

To address this alternative explanation, we exclude the subsample of firms experiencing independent director resignations in the period before the introduction of the gender quota. Naaraayanan and Nielsen (2021) show that around half of the NSE-listed firms had at least one male independent director resigning from the board before the reform in 2014-15. Column 1 in Appendix Table A11 presents the baseline results from column 1 of Table 3 to facilitate comparison. Column 2 excludes firms with vacancies created by male independent director resignations and finds that the post-reform female director appointment rates are similar to the baseline estimates. Column 3 imposes a less restrictive assumption and excludes firms that experienced vacancies in the year of the gender quota and introduction of personal liability (i.e., the financial year 2014-15). Again, we find quantitatively similar results.

One concern with analyzing appointments is that director vacancies are hardly exogenous and might correlate with board and director characteristics. For example, director resignations might affect the desirability to serve on the board for aspiring directors. If such potential signals differentially impact male and female directors, then these firm-specific events that trigger vacancies might instead explain our results. To address this concern, we analyze appointments among firms where the death of a male director creates vacancies. Column 4 imposes this sample restriction and finds that the results are qualitatively similar. To further alleviate concerns that deaths may not be "sudden," in column 5, we exclude the sample of firms where vacancies emerge due to the death of a director above 75 years.[35] Again, these results rule out the possibility of director replacements driving the observed increase in female director appointments. In summary, we find consistent and robust evidence that director replacements do not explain the increase in voluntary female director appointments on corporate boards.

6.6 Anticipation of revision in gender quota in 2019-20

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[34] In Appendix Figure A9, we confirm that the introduction of personal liability led to a temporary spike in turnover rates among independent directors, with most directors leaving before the expiration of their term. This spike is restricted to only the year of the introduction of the reform, i.e., the financial year 2014-15. Moreover, in Appendix Figure A10, we show that directors vacate their board seats in the middle of their term instead of waiting for the end of their term to leave without fanfare. Lastly, in Appendix Figure A11, we plot the survival estimates for male and female directors. We find that female directors are more likely to stay on the boards when compared to male directors, a pattern that holds even for directors appointed after the introduction of gender quotas.

[35] We find similar results if we use a sample of director deaths before the age of 70.

Lastly, we consider another alternative explanation for the increase in voluntary appointments of female directors: firms anticipate future regulations mandating at least one female independent director among the 500 largest firms by 2019-20. To address this concern, we examine whether boards affected by this regulation differentially change the number of female independent directors around the gender quota. If firms anticipate future regulation, we expect a higher level of female directors among firms that need to comply with the new regulation by April 1, 2019 (i.e., the financial year 2018-19). If the gender quota, on the other hand, tables discussions on board diversity, we expect to find a general increase in the level of female directors across all firms, irrespective of the future mandate.

To examine this possibility, the top panel of Appendix Figure A12 shows that the number of female independent directors does not vary significantly across these firms around the introduction of the gender quota. In Appendix Table A11, we show that the increase in voluntary appointments is similar in magnitude for large and small firms. We conclude that the increase in voluntary appointments on corporate boards is unlikely to be driven by the firm's anticipation of future regulation mandating at least one independent director among the largest 500 firms in 2018-19.

7. Conclusion

This study examines how firms respond to the gender quota in India, the first country with strong patriarchal views to mandate female directors. We find high compliance rates, despite small penalties, and that highly qualified females enter the director labor pool. After the reform, almost half of the firms appoint and retain female directors beyond the ambit of the quota, leading to an increase of 11.6 percentage points in the likelihood of voluntary appointment of female directors after the introduction of the gender quota. The better opportunities for females manifest in a higher likelihood of appointment on important subcommittees and in a reduction in the gender gap in director remuneration from 30% to 3%.

Our results provide new evidence on the role of patriarchal views in shaping gender diversity on corporate boards. Although the reform induces firms with strong patriarchal views to appoint female directors, strong patriarchal views hinder the transition to gender diversity on boards. Despite these adverse effects, highly qualified females enter the director labor pool, leading to a three-fold expansion from 350 unique female directors to more than 1,000. Moreover, the marginal female director is of similar quality as the marginal male director.

These findings collectively advance our understanding of the effect of gender quotas on corporate boards in environments with strong patriarchal views. Our results contrast the evidence from the first wave of gender quotas introduced in developed economies with more egalitarian views, pointing towards substantial costs due to supply constraints in the directors' labor market. Overall, our findings suggest that gender quotas can deepen and diversify director pools in environments with strong patriarchal views and

lower corporate governance standards. To this end, our study provides the first evidence of the effect of gender quota that is informative for policymakers and market participants.

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Figure 1: Patriarchal views and non-compliance around the introduction of the gender quota

The top figure plots the fraction of firms without a female director on their board for each month in the financial years around the compliance date (April 1, 2015) for the gender quota. In the top panel, we classify boards with at least one (all) male Indian director that is educated in a country with weaker (equal to or strong) patriarchal views than India as weak (strong) patriarchal views. In the bottom panel, we classify boards with at least one (all) director(s) of a nationality with weaker (equal to or stronger) patriarchal views than India as weak (strong) patriarchal views. Both classifications are done 12 months before the compliance date. The vertical red lines represent the effective date for firms to comply with the gender quota of having at least one female director and subsequent penalties imposed by the SEBI for noncompliance: Compliance date (April 1, 2015), Penalty of INR 5,000 (June 30, 2015), Penalty of INR 50,000 and additional penalty of INR 1,000 per day (September 30, 2015), and Penalty of INR 142,000 and an additional penalty of INR 5,000 per day (starting from October 1, 2015).
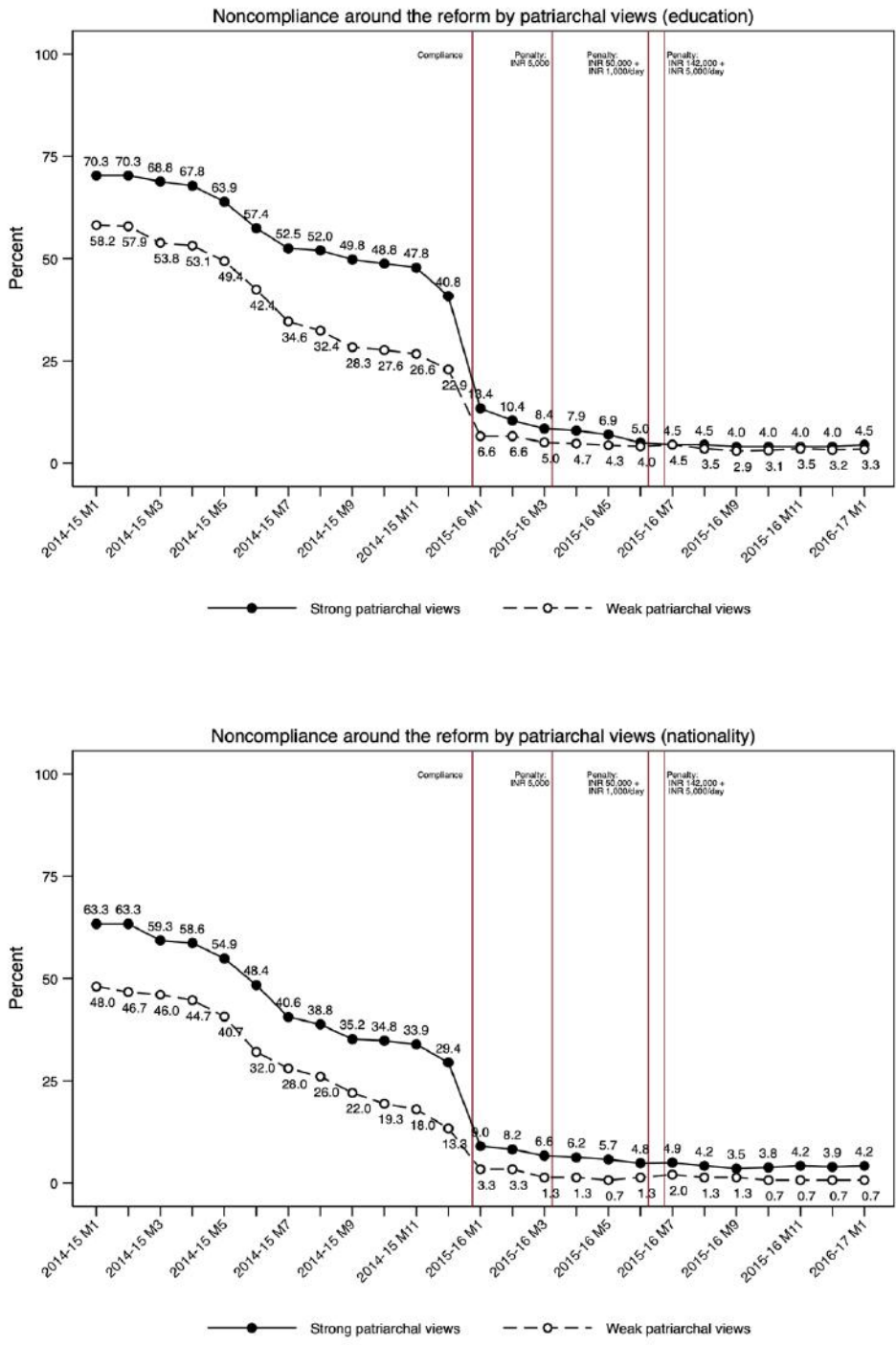
Figure 2: Female director appointments by year

The top figure plots the average fraction of female director appointments in percentage points by financial year. The bottom figure plots the average fraction of female director appointments in percentage points by financial year for inside and independent directors. The white hollow bars in the plot represent inside directors, while the solid black bars represent independent directors. The shaded region represents the year of compliance (excluded from analyses) with the gender quota of having at least one female director.
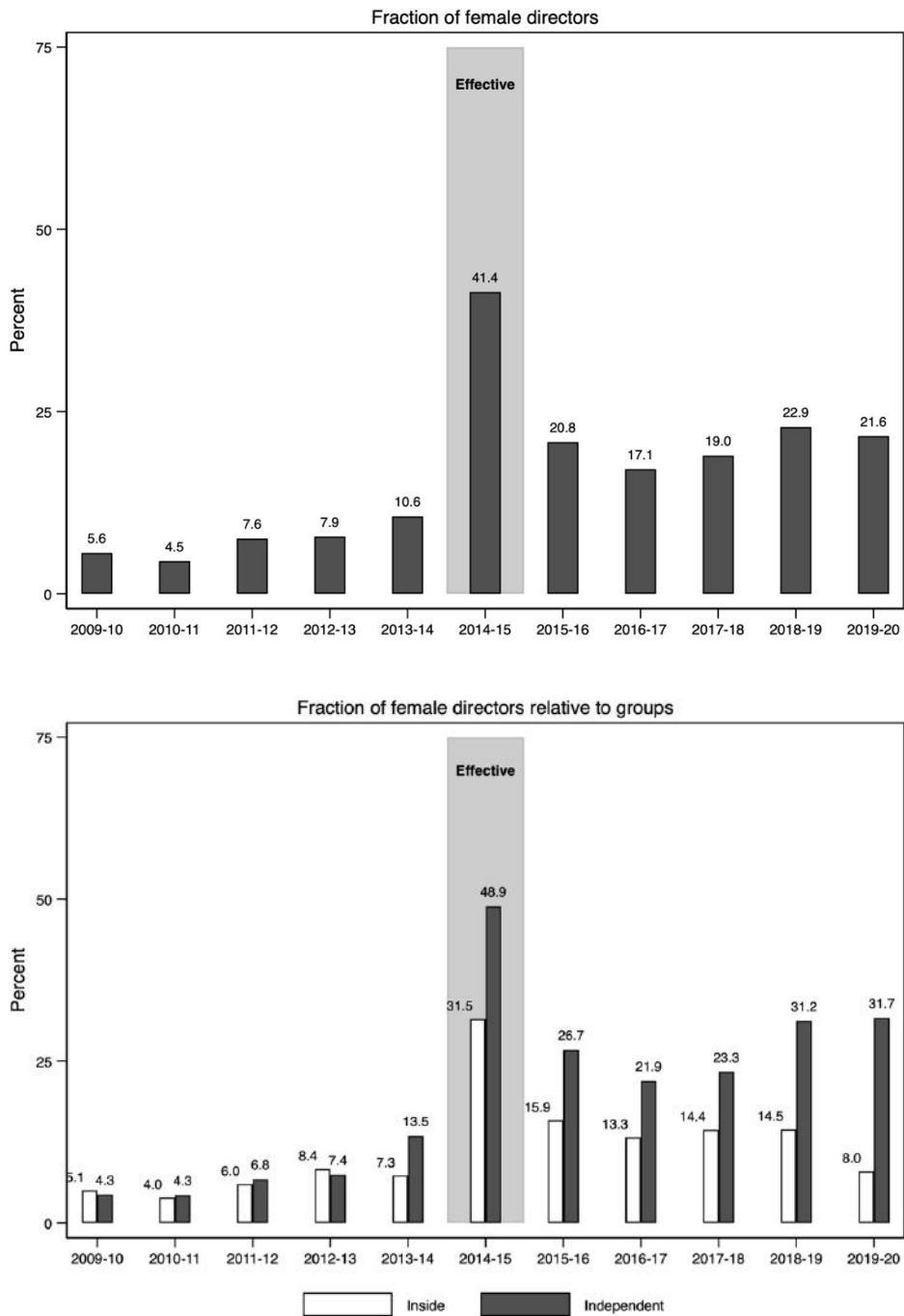
Figure 3: Voluntary female director appointments by year

The top figure plots the average fraction of female turnovers and the average fraction of female appointments by financial year. The difference between the two bars illustrates the gain in female directors net of turnover and replacements. The bottom figure plots the fraction of firms with two (three) or more female directors by financial year. The shaded region represents the year of compliance (excluded from analyses) with the gender quota of having at least one female director.
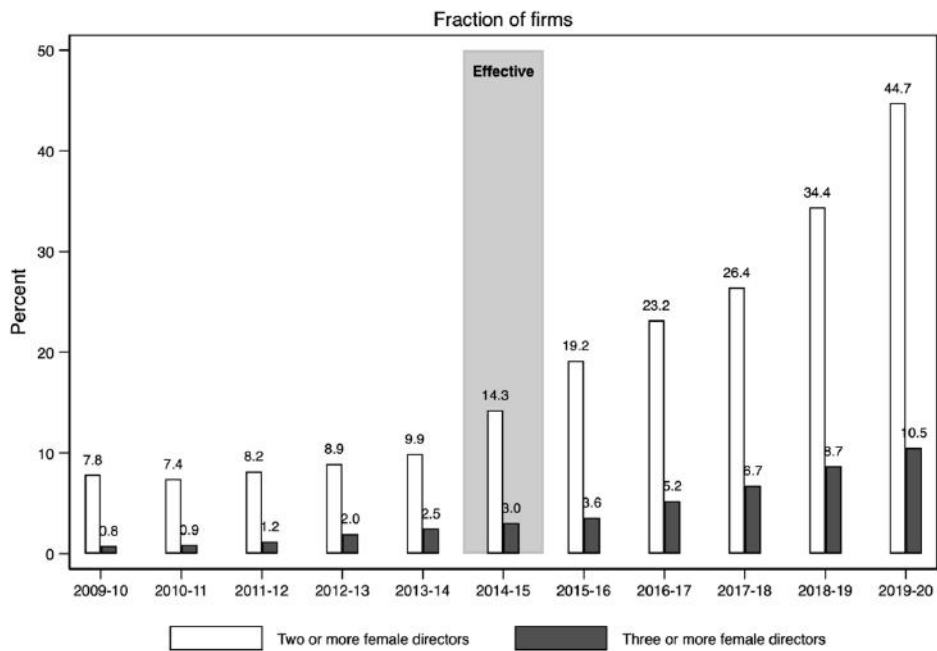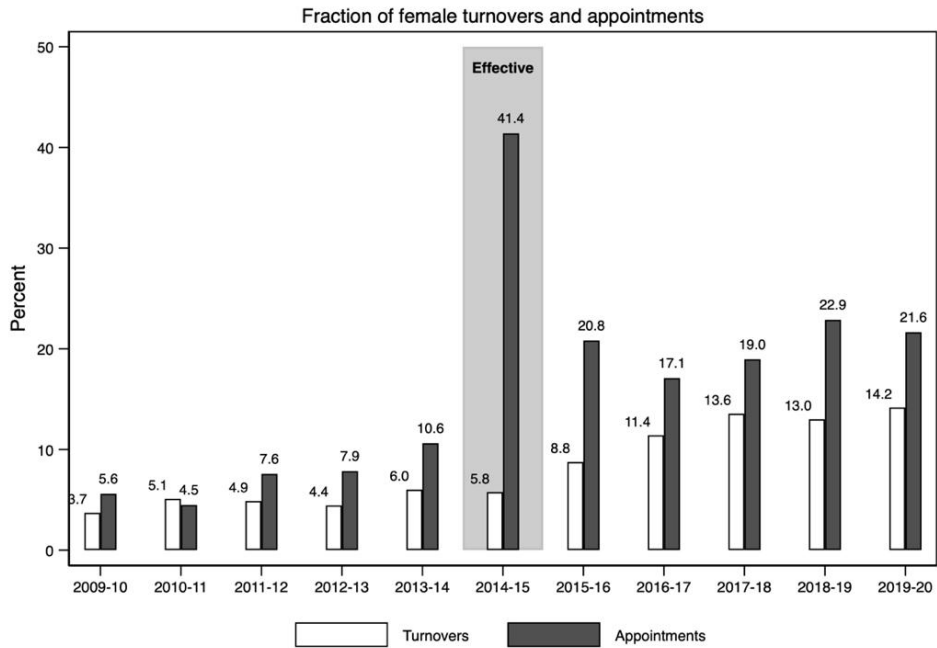
Figure 4: Female representation on important committees by position

The top figure plots the average fraction of audit committee members and chairs that are female in percentage points by financial year. The bottom figure plots the average fraction of nomination & remuneration committee members and chairs that are female in percentage points by financial year. Across both panels, the white hollow bars represent committee members while the solid black bars represent committee chair. The shaded region represents the year of compliance (excluded from analyses) with the gender quota of having at least one female director. Due to data availability, we observe committee assignments from 2012-13 to 2018-19, both years inclusive.
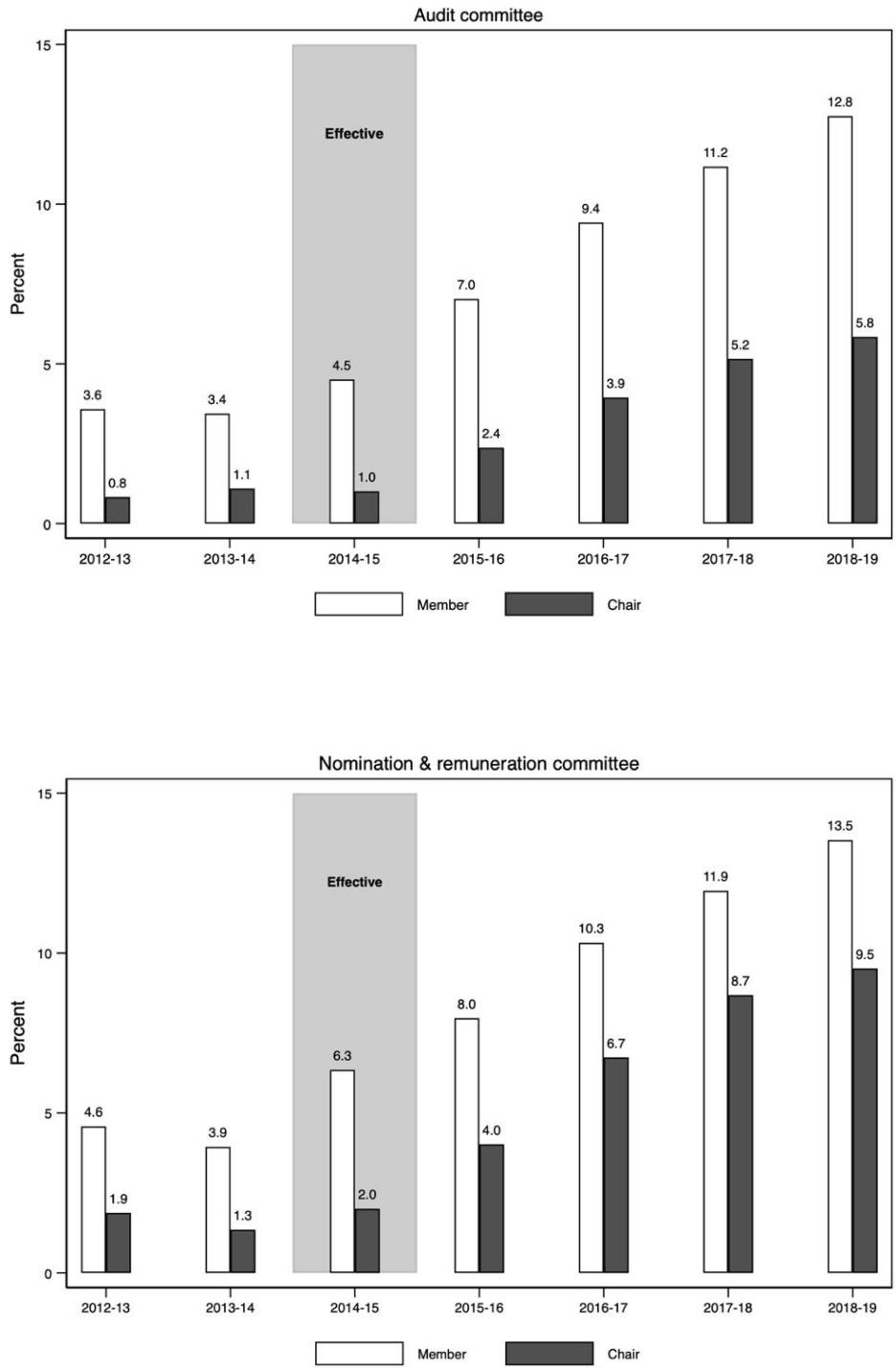
Figure 5: Stock price reactions to director appointments by gender and experience

The top figure plots the average stock price reaction to director appointments by gender around the reform. The white hollow bars in the plot represent male directors, while the solid black bars represent female directors. The bottom figure plots the average stock price reaction to female director appointments by experience. The light grey bars in the plot represent new female directors, while the darker grey bars represent experienced female directors.
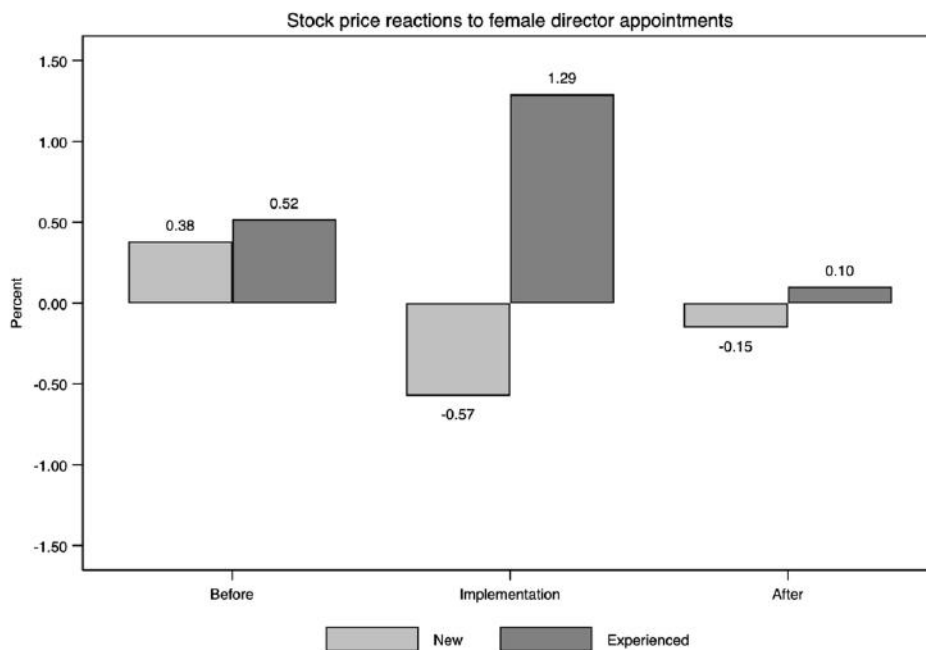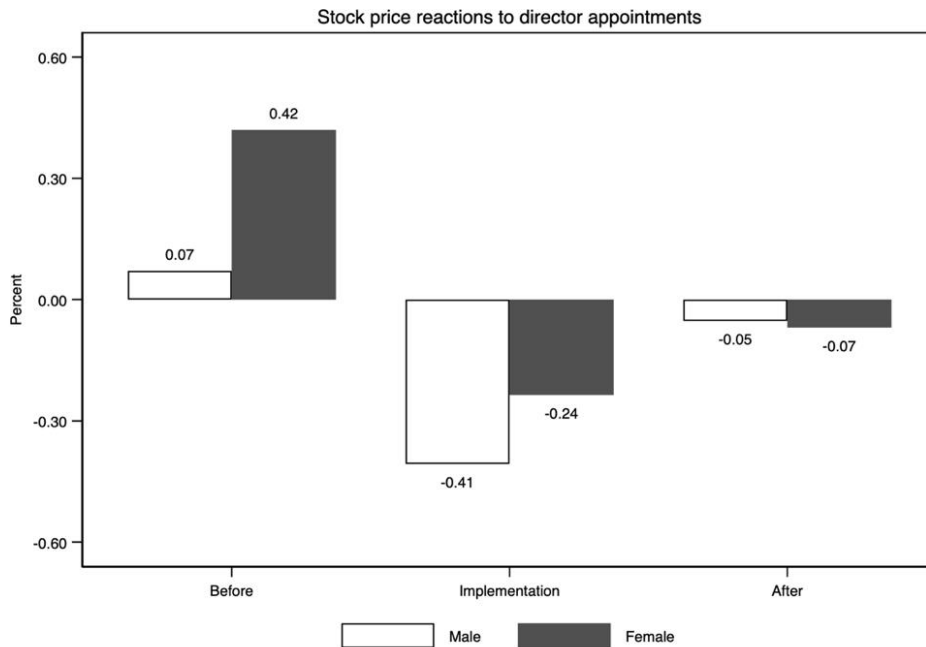
Figure 6: Compensation for female and male independent directors by year

These figures plot the average compensation in 2015 INR millions by financial year. The top (bottom) panel plots the average compensation by financial years for directors appointed before (after) the gender quotas were enacted. We exclude the appointment year to avoid confounding the gender gap in compensation with mechanical effects due to appointment of directors in the middle of the financial year. The sample is restricted to firms with at least one female on their board for the period from 2012-13 to 2018-19. Across the panels, the solid line represents male directors, while the dashed line represents female directors. The vertical red line represents the effective date for firms to comply with the gender quota of having at least one female on their boards. Due to data availability, we observe director remuneration from 2012-13 to 2018-19, both years inclusive. One US$ is equivalent to 62 INR (as of January 2015).
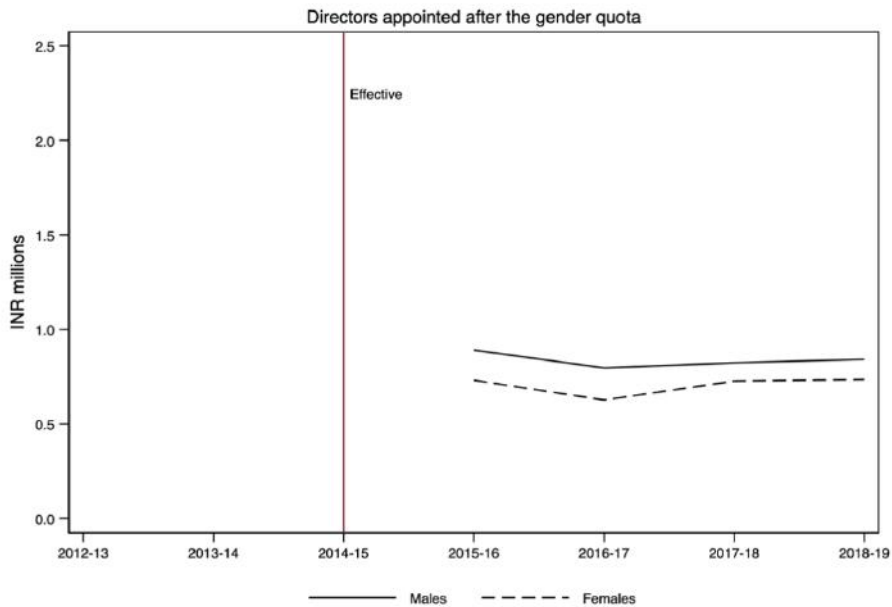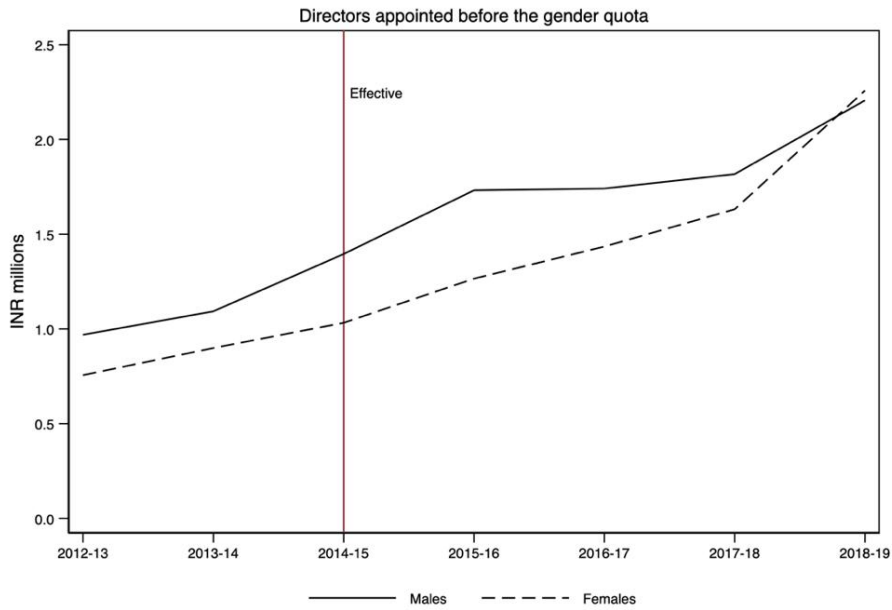
Figure 7: Gender gap in compensation for independent directors by year

These figures plot the estimated coefficients and their corresponding 95% confidence intervals of the gender gap in compensation residuals by financial year. Residuals are obtained from a regression of the natural logarithm of compensation on firm-year fixed effects (see Equation 1). The top panel plots the estimated coefficients on the gender gap for independent directors appointed before the reform, while the bottom panel plots the estimated coefficients for independent directors appointed after the reform. Across both panels, we restrict the sample to firms with at least one female director on the board. We drop the appointment year to avoid confounding the gender gap with mechanical effects due to appointment of directors in the middle of the financial year. The specification includes controls for committee-level and firm-level characteristics (see Table 9 for details). Standard errors are clustered at the firm-level. The vertical red line represents the effective date for firms to comply with the gender quota of having at least one female director. Due to data availability, we observe director remuneration from 2012-13 to 2018-19, both years inclusive.
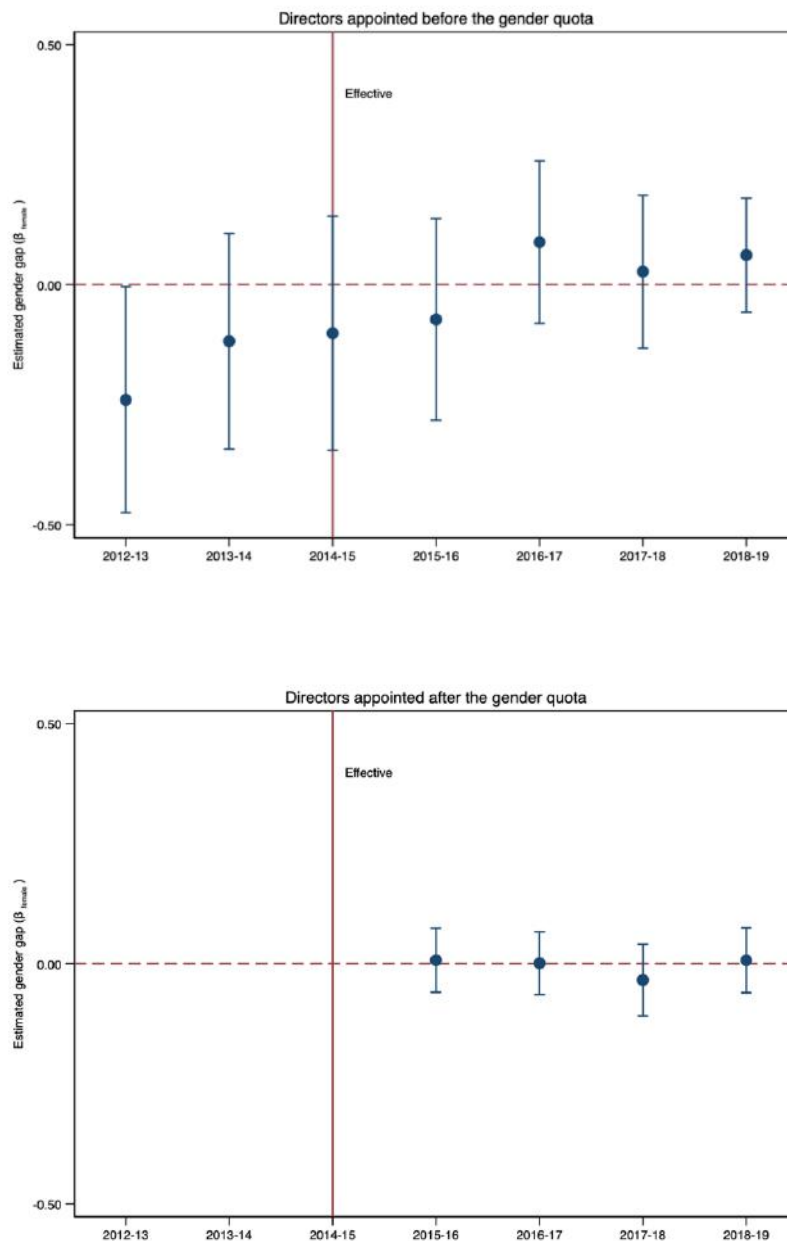
Table 1: Gender quotas on corporate boards around the world

This table reports the chronology of legislation introducing gender quotas on corporate boards around the world. The table includes countries that have introduced regulation through legislation, rather than through recommendations in corporate governance codes. We report the year of compliance, whether the quota is binding, the quota and notes with specific details for the quota. Quotas either require a minimum number of directors of each gender or a minimum fraction of each gender is represented among the board of directors.

Country	Compliance year	Binding	Quota	Notes
Israel	1999	Yes	At least 1 woman	
Norway	2008	Yes	40%	
Kenya	2010	No	33%	
Iceland	2013	Yes	40%	
India	2014-15	Yes	At least 1 woman	
Italy	2015	Yes	33%	
Netherlands	2015	No	30%	Expired in 2016. Continued as soft law
Spain	2015	No	40%	
Germany	2016	Yes	30%	
Belgium	2017	Yes	33%	
France	2017	Yes	40%	
Austria	2018	Yes	30%	Applicable to firms with more than 1,000 employees
Pakistan	2018	Yes	At least 1 woman	
India	2019-20	Yes	At least 1 female independent director	Applicable to Top 500 firms by market capitalization in 2019-20, and to Top 1,000 firms by market capitalization in 2020-21.
Portugal	2020	Yes	33%	
United States				
- California	2020	Yes	At least 1 woman	After 1 year: 2 women on boards with 5 directors. 3 women on boards with 6 or more directors.
- Washington	2022	No	25%	Firms can opt out, but need to send a board diversity discussion and analysis to all shareholders with voting rights.

Table 2: Female directors and size of the director pool by year

We report the number of firms with and without female directors and the size of the director pool by gender of the NSE-listed firms in our sample for the period from 2009-10 to 2019-20. Panel A reports the following: *Number of firms, Number of firms with a female director, Number of firms without a female director, Average number of female directors,* and *Fraction of firms with two or more female directors*. Panel B reports the following: *Number of unique directors, Number of unique female directors, Number of unique male directors, Number of female directors, Number of female independent directors,* and *Number of female inside directors.*

							Financial year					
	All	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Panel A: Number of firms with and without female directors												
Number of firms	10,084	919	919	919	919	919	919	919	919	919	919	894
Number of firms with a female director	7,035	302	319	333	340	378	857	903	905	908	908	882
Number of firms without a female director	3,049	617	600	586	579	541	62	16	14	11	11	12
Average number of female directors	0.9	0.4	0.4	0.5	0.5	0.5	1.1	1.2	1.3	1.3	1.4	1.6
Fraction of firms with two or more female directors	18.5	7.8	7.4	8.2	8.9	9.9	14.3	19.2	23.2	26.4	34.4	44.7
Panel B: Size of the director pool by gender												
Number of unique directors	72,862	6,409	6,504	6,588	6,535	6,589	6,988	6,741	6,704	6,674	6,721	6,409
Number of unique female directors	7,373	316	327	347	351	394	805	876	932	973	1,031	1,021
Number of unique male directors	65,489	6,093	6,177	6,241	6,184	6,195	6,183	5,865	5,772	5,701	5,690	5,388
Number of female directors	9,389	382	396	423	442	495	1,019	1,117	1,172	1,227	1,324	1,392
Number of female independent directors	4,957	77	76	84	164	210	561	640	673	732	816	924
Number of female inside directors	4,116	212	222	222	277	284	456	476	499	495	507	466

Table 3: Patriarchal views and non-compliance in the reform year

This table relates patriarchal views of the board to the likelihood of non-compliance by firms in the 12 months before the compliance date of April 1, 2015. The sample is a cross-section of firms and the unit of analysis is firm-level. In columns 1 and 2, the dependent variable is an indicator for non-compliance one year before the compliance date of April 1, 2015 while in columns 3 and 4 the dependent variable is an indicator for non-compliance by the compliance date of April 1, 2015. *Male controlling shareholders* is an indicator if all controlling shareholders are males. *Fraction of expert directors* is the ratio of expert directors to board size. We classify directors as "Expert" based on their specialization and highest educational degree obtained. Expert directors possess an *accounting, finance & law degree* or are a chartered accountant, CPA, CFA, JD, LLB or LLM qualification, or possess general business degrees and MBAs, or are professors, or hold a *Doctorate* degree. *Foreign director* is an indicator if the firm has at least one foreign director on their board. We measure country-level patriarchal views using answers to the question "*When jobs are scarce, men should have more right to a job than women,*" from the World Value Survey. We then assign values to boards in two ways: First, we assign values to all male directors based on their nationality, *Patriarchal views (nationality)*, and second, we assign values to all male Indian directors based on the country of their educational attainment, *Patriarchal views (education)*. We average these values for each board. All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Fraction of independent directors on the board* is the fraction of the independent directors on the board of the firm. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Ownership of the controlling shareholder* is equity ownership of the controlling shareholder. *Return on assets* is the ratio of profit after tax to book value of assets. S*tock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. All control variables are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. Standard errors are clustered at the firm-level and are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

Non-compliance	One year before compliance date		By compliance date	
	(1)	(2)	(3)	(4)
Male controlling shareholders	0.602***		0.063***	
	(0.031)		(0.012)	
Fraction of expert directors	-0.036	-0.003	-0.202***	-0.199***
	(0.074)	(0.084)	(0.055)	(0.058)
Foreign director	-0.047		-0.020	
	(0.038)		(0.017)	
Patriarchal views (nationality)		0.835**		0.139
		(0.418)		(0.144)
Patriarchal views (education)		0.567***		0.089
		(0.192)		(0.093)
Constant	0.606***	0.317	0.095	0.022
	(0.132)	(0.281)	(0.077)	(0.135)
Controls	Yes	Yes	Yes	Yes
Observations	919	919	919	919
R-squared	0.246	0.064	0.049	0.042

Table 4: Female director appointments after the gender quota

This table presents the effect of the gender quota on the appointment rates of women on boards on NSE-listed firms for the period from 2009-10 to 2019-20. We drop the financial year 2014-15 to prevent attributing the mechanical increase in female director appointments in the year of the reform to the effect of the gender quota. The unit of analysis is a director appointment-firm-year. The dependent variable is an indicator for a female director appointment. Column 1 includes all director appointments while column 2 to 4 focus on voluntary appointments by excluding appointments of female directors to comply with the gender quota. Specifically, we only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. Column 2 focuses on all directors, whereas columns 3 and 4 focuses on voluntary appointments for independent and inside directors, respectively. *Post reform* is an indicator equal to one for financial years after 2014-15 in which the gender quota is effective. All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Fraction of independent directors on the board* is the fraction of the independent directors on the board of the firm. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Ownership of the controlling shareholder* is equity ownership of the controlling shareholder. *Return on assets* is the ratio of profit after tax to book value of assets. *Stock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. All control variables are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include firm fixed effects and standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

	All	Voluntary appointments		
	All	All	Independent	Inside
	(1)	(2)	(3)	(4)
Post reform	0.134***	0.116***	0.167***	0.076***
	(0.011)	(0.008)	(0.016)	(0.011)
Firm size $_{t-1}$	-0.009	0.010*	0.016	0.004
	(0.006)	(0.006)	(0.012)	(0.006)
Fraction of independent directors $_{t-1}$	0.001	-0.029*	-0.037	-0.004
	(0.025)	(0.017)	(0.037)	(0.027)
Market-to-book value $_{t-1}$	0.001	0.005	0.004	0.003
	(0.004)	(0.004)	(0.005)	(0.005)
Ownership of the controlling shareholder $_{t-1}$	0.000	-0.000	-0.001	0.000
	(0.001)	(0.000)	(0.001)	(0.001)
Return on assets $_{t-1}$	-0.047	0.025	-0.017	0.007
	(0.041)	(0.024)	(0.068)	(0.031)
Stock return $_{t-1}$	-0.001	0.002	-0.002	0.002
	(0.006)	(0.004)	(0.010)	(0.007)
Stock return volatility $_{t-1}$	-0.001	0.002	0.006	0.013*
	(0.003)	(0.002)	(0.008)	(0.008)
Firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R-squared	0.128	0.169	0.298	0.257
Observations	8,508	7,809	3,389	3,739

Table 5: Patriarchal views and voluntary female director appointments around the reform

This table relates patriarchal views of the incumbent male board members to appoint female directors voluntarily for the sample of NSE-listed firms for the period from 2009-10 to 2019-20. We drop the financial year 2014-15 to be consistent with our baseline analyses (Table 4). The unit of analysis is a director appointment-firm-year. The dependent variable is an indicator for voluntary appointments of female directors. Specifically, we only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. *Male controlling shareholders* is an indicator if all controlling shareholders are males. *Fraction of expert directors* is the ratio of expert directors to board size. We classify directors as "Expert" based on their specialization and highest educational degree obtained. Expert directors possess an *accounting, finance & law degree* or are a chartered accountant, CPA, CFA, JD, LLB or LLM qualification, or possess general business degrees and MBAs, or are professors, or hold a *Doctorate* degree. *Foreign director* is an indicator if the firm has at least one foreign director on their board. We measure country-level patriarchal views using answers to the question "*When jobs are scarce, men should have more right to a job than women,*" from the World Value Survey. We then assign values to boards in two ways: First, we assign values to all male directors based on their nationality, *Patriarchal views (nationality)*, and second, we assign values to all male Indian directors based on the country of their educational attainment, *Patriarchal views (education)*. We average these values for each board and use the lagged values. *Post reform* is an indicator equal to one for financial years after 2014-2015 in which the gender quota is effective. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include control variables as described in Table 4 notes. Standard errors clustered at the firm-level and are reported in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Post reform	0.153***	0.074***	0.106***	0.328***	0.319***
	(0.017)	(0.022)	(0.006)	(0.092)	(0.098)
Male controlling shareholders	-0.002				-0.004
	(0.004)				(0.005)
Post reform x Male controlling shareholders	-0.048***				-0.045***
	(0.017)				(0.017)
Fraction of expert directors		-0.000			0.007
		(0.006)			(0.007)
Post reform x Fraction of expert director		0.048*			0.032
		(0.028)			(0.029)
Foreign director			-0.007		
			(0.004)		
Post reform x Foreign director			0.032**		
			(0.015)		
Patriarchal views (nationality)				0.044	0.048
				(0.052)	(0.051)
Patriarchal views (education)				0.016	0.024
				(0.024)	(0.024)
Post reform x				-0.388**	-0.368**
Patriarchal views (nationality)				(0.187)	(0.182)
Post-reform x				-0.042	-0.014
Patriarchal views (education)				(0.059)	(0.063)
Constant	-0.000	0.005	0.002	-0.027	-0.029
	(0.017)	(0.016)	(0.018)	(0.031)	(0.032)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	7,809	7,809	7,032	7,028	7,028
R-squared	0.060	0.058	0.051	0.052	0.055

Table 6: Connected directors and voluntary female director appointments

This table examines the role of director networks to appoint female directors voluntarily for the sample of NSE-listed firms for the period from 2009-10 to 2019-20. We drop the financial year 2014-15 to be consistent with our baseline analyses (Table 4). The unit of analysis is firm-year. The dependent variable is a dummy variable taking the value of one if the firm has two or more female directors on their board at the end of each financial year. We consider three measures of director connectedness: a dummy variable indicating whether at least one director on the current board also sits on the board of another firm that has two or more female directors (column 1); the average number of directors on the current board who also sit on the board of another firm that has two or more female directors (column 2); the maximum number of directors on the current board sitting on the board of another firm that has two or more female directors (column 3). *Post reform* is an indicator equal to one for financial years after 2014-2015 in which the gender quota is effective. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include firm and year fixed effects using standard errors clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

Connectedness measure	Atleast one	Average	Maximum
	(1)	(2)	(3)
Connected director	0.028	0.193***	0.022*
	(0.019)	(0.073)	(0.013)
Post reform x Connected director	0.047**	-0.032	0.026**
	(0.023)	(0.065)	(0.013)
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Adjusted R-squared	0.435	0.437	0.437
Observations	9,164	9,164	9,164

Table 7: Female representation on important committees and in top positions

This table presents results examining the labor market effects of the gender quota on important positions held by females on important committees and in top executive positions for the sample of NSE-listed firms for the period from 2012-13 to 2018-19. We drop the financial year 2014-15 to be consistent with our baseline analyses (Table 4). The unit of analysis is a firm-year. In column 1 (column 3), the dependent variable is the fraction of audit committee (nomination & remuneration committee) members that are female. In columns 2 (column 4), the dependent variable is an indicator taking the value of one if the chairperson of the audit committee (nomination & remuneration committee) is a female. In column 5 (column 6), the dependent variable is an indicator taking the value of one if the chairperson of the board (if either the Chief Executive Officer or the Managing Director (CEO/MD)) is a female. *Post reform* is an indicator equal to one for financial years after 2014-2015 in which the gender quota is effective. All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Fraction of independent directors on the board* is the fraction of the independent directors on the board of the firm. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Ownership of the controlling shareholder* is equity ownership of the controlling shareholder. *Return on assets* is the ratio of profit after tax to book value of assets. S*tock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. All control variables are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include firm fixed effects and standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

	Audit committee		Nomination & remuneration committee		Top executive positions	
	Member	Chair	Member	Chair	Chairperson	CEO/MD
	(1)	(2)	(3)	(4)	(5)	(6)
Post reform	0.075***	0.034***	0.075***	0.058***	0.007	0.005
	(0.009)	(0.011)	(0.010)	(0.017)	(0.005)	(0.005)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.629	0.601	0.656	0.651	0.727	0.797
Observations	4,438	4,438	4,159	4,159	6,433	6,433

Table 8: Stock price reactions to director appointments by gender and appointment type

This table reports the average three-day cumulative abnormal returns (CAR) over an event window from one day before to one day after the announcement of a director appointment. The sample includes appointments in NSE-listed firms for the period from 2009-10 to 2019-20. Panel A reports the three-day CARs by gender while Panel B reports the three-day CARs by appointment type for female directors. Voluntary appointments include female director appointments in the post-reform period if the firm already complies with quota requiring one female director. Panel C reports the three-day CARs for mandatory director appointments by whether firms choose to expand their board size or not. Across the three panels, columns 1, 3, and 5 (columns 2, 4, and 6) report the average CARs (N, number of observations) for all directors, independent directors, and inside directors, respectively. The row titled, *Difference,* reports the difference in the average CARs across gender, appointment type, and whether firms expand their board size, respectively. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: By gender

	All		Independent		Inside	
	Average	N	Average	N	Average	N
	(1)	(2)	(3)	(4)	(5)	(6)
Female director	-0.036	1,362	-0.018	869	-0.067	493
	(0.143)		(0.179)		(0.218)	
Male director	-0.032	6,222	-0.250**	2,650	0.129	3,572
	(0.076)		(0.118)		(0.090)	
Difference	-0.004	7,584	0.232	3,519	-0.197	4,065
(Female-Male)	(0.150)		(0.200)		(0.224)	

Panel B: By appointment type for female directors

	All		Independent		Inside	
	Average	N	Average	N	Average	N
	(1)	(2)	(3)	(4)	(5)	(6)
Voluntary	0.113	434	0.054	268	0.209	166
	(0.220)		(0.291)		(0.327)	
Mandatory	-0.106	928	-0.050	601	-0.208	327
	(0.177)		(0.220)		(0.284)	
Difference	0.219	1,362	0.103	869	0.417	493
(Voluntary - Mandatory)	(0.274)		(0.357)		(0.437)	

Panel C: Mandatory appointments by board size for female directors

	All		Independent		Inside	
	Average	N	Average	N	Average	N
	(1)	(2)	(3)	(4)	(5)	(6)
Expands board size	-0.387*	618	-0.333	416	-0.497	202
	(0.218)		(0.257)		(0.395)	
Same board size	0.702*	156	0.955*	101	0.237	55
	(0.418)		(0.540)		(0.651)	
Reduces board size	0.205	154	0.146	84	0.277	70
	(0.429)		(0.677)		(0.527)	
Difference	-1.089**	774	-1.289**	517	-0.734	257
(Expands - Same)	(0.473)		(0.598)		(0.760)	

Table 9: Gender gap in compensation for independent directors around the gender quota

This table reports the changes in the gender gap in compensation residuals around the gender quota for the sample of NSE-listed firms for the period from 2012-13 to 2018-19. The sample is restricted to this period due to data availability on committee positions and director remuneration. The unit of analysis is director-firm-year. The dependent variable is the residuals obtained from a regression of firm-year fixed effects on the natural logarithm of compensation. These residuals capture variation in director compensation *within* the board of a firm in a given financial year. Column 1 reports the results for all directors while column 2 (column 3) reports the results for directors that are appointed before (after) the gender quota. *Female director* is an indicator equal to one for female directors. *Post reform* is an indicator equal to one for financial years after 2014-2015 in which the gender quota is effective. All regressions include committee-level controls for each director. These include: *Chairman* an indicator taking the value of one if the director is the chairperson of the board, *Nomination & remuneration committee member (chair)* an indicator taking the value of one if the director is a member (chair) of the nomination & remuneration committee, *Audit committee member (chair)* an indicator taking the value of one if the director is a member (chair) of the audit committee, and *Committee* an indicator taking the value of one if the director occupies any committee position. All the regressions include the following firm-level control variables: *Firm size* is the log of book value of assets. *Fraction of independent directors on the board* is the fraction of the independent directors on the board of the firm. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Ownership of the controlling shareholder* is equity ownership of the controlling shareholder. *Return on assets* is the ratio of profit after tax to book value of assets. S*tock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. All firm-level control variables are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include year fixed effects and standard errors are clustered at the firm-level. We also report the *p*-value from an *F-test* that tests if the residuals at the end of the sample are statistically different to the residuals at the start of the sample. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

	All directors	Appointed before	Appointed after
	(1)	(2)	(3)
Female director	-0.173*	-0.141	-0.024
	(0.092)	(0.091)	(0.039)
Post reform x Female	0.208**	0.198**	-
	(0.088)	(0.092)	
Committee-level controls	Yes	Yes	Yes
Firm-level controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
F-test: Female*2013 = Female*2019 (*p*-value)	0.05	0.05	-
Adjusted R-squared	0.10	0.096	0.11
Observations	10,363	7,526	2,837

Table 10: Alternative specifications for voluntary appointments

This table presents alternative specifications for voluntary appointment of female directors in the sample of NSE-listed firms for the period from 2009-10 to 2018-19. We drop the financial year 2014-15 to avoid the mechanical relationship between the reform and female director appointments. The unit of analysis is a director appointment-firm-year. The dependent variable is an indicator for voluntary appointments of female directors. Specifically, we only include female director appointments in the post-reform period if the firm already complies with quota requiring one female director. Column 1 presents results from column 2 (column 4) of Table 4 for all directors while column 2 presents results after excluding firms with male director resignations. Column 3 presents results after excluding firms with male director resignations in the financial year 2014-15, while column 4 presents results in the sample of firms which experience the death of a director. In column 5, we focus on the sample of firms which experience the death of a director below the age of 75 years. *Post reform* is an indicator equal to one for financial years after 2014-2015 in which the gender quota is effective. All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Fraction of independent directors on the board* is the fraction of the independent directors on the board of the firm. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Ownership of the controlling shareholder* is equity ownership of the controlling shareholder. *Return on assets* is the ratio of profit after tax to book value of assets. *Stock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. All control variables are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include firm fixed effects and standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

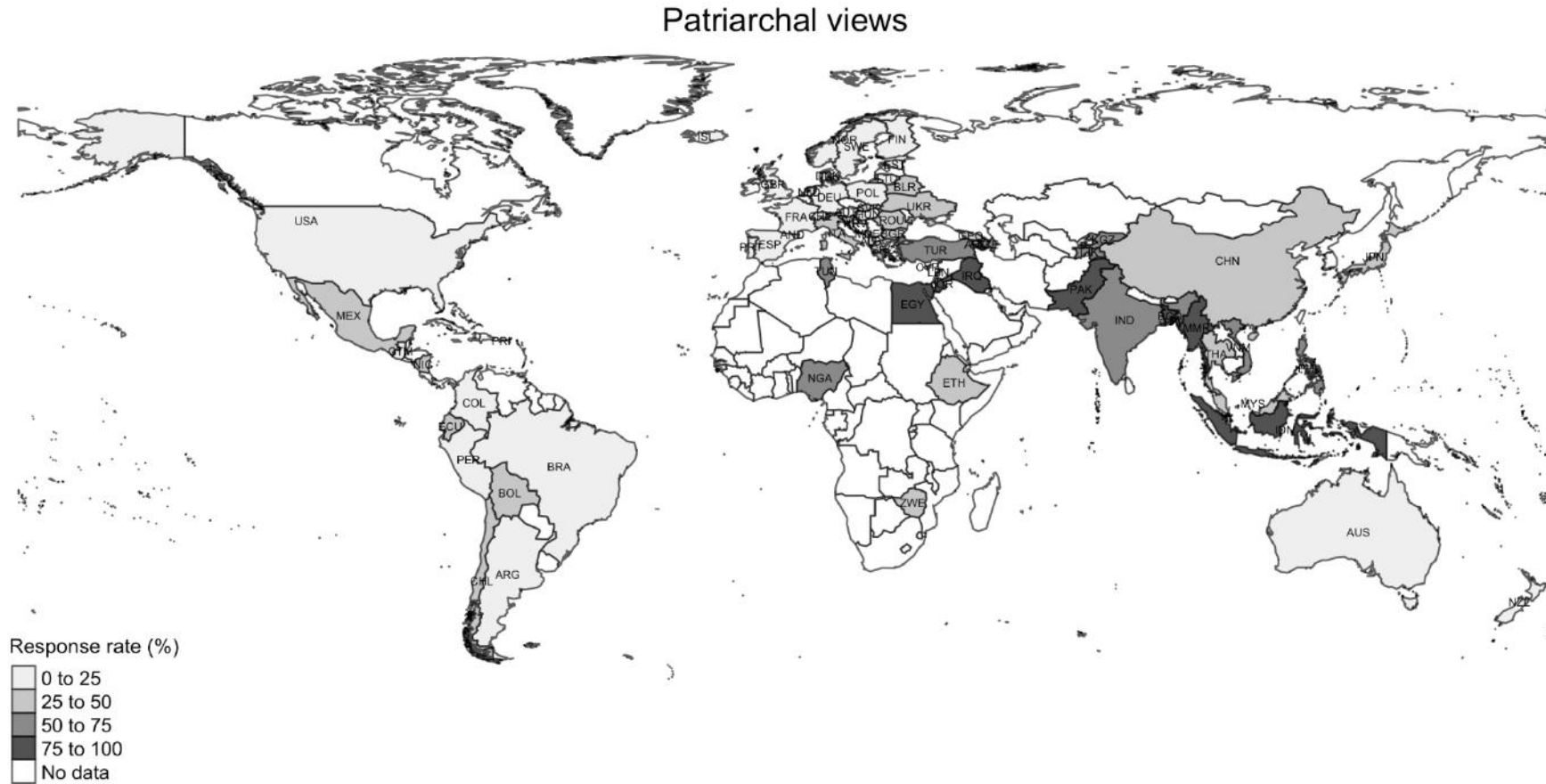|	Baseline	Exclude firms with male independent director resignations	Exclude firms with male independent director resignations in 2014-15	Firms with director deaths	Firms with director deaths below 75 years
	(1)	(2)	(3)	(4)	(5)
Post reform	0.116***	0.121***	0.117***	0.123***	0.107***
	(0.008)	(0.022)	(0.009)	(0.016)	(0.019)
Controls	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.059	0.047	0.058	0.041	0.025
Observations	7,809	1,063	5,363	2,597	1,473

Internet Appendix

"Winds of Change:
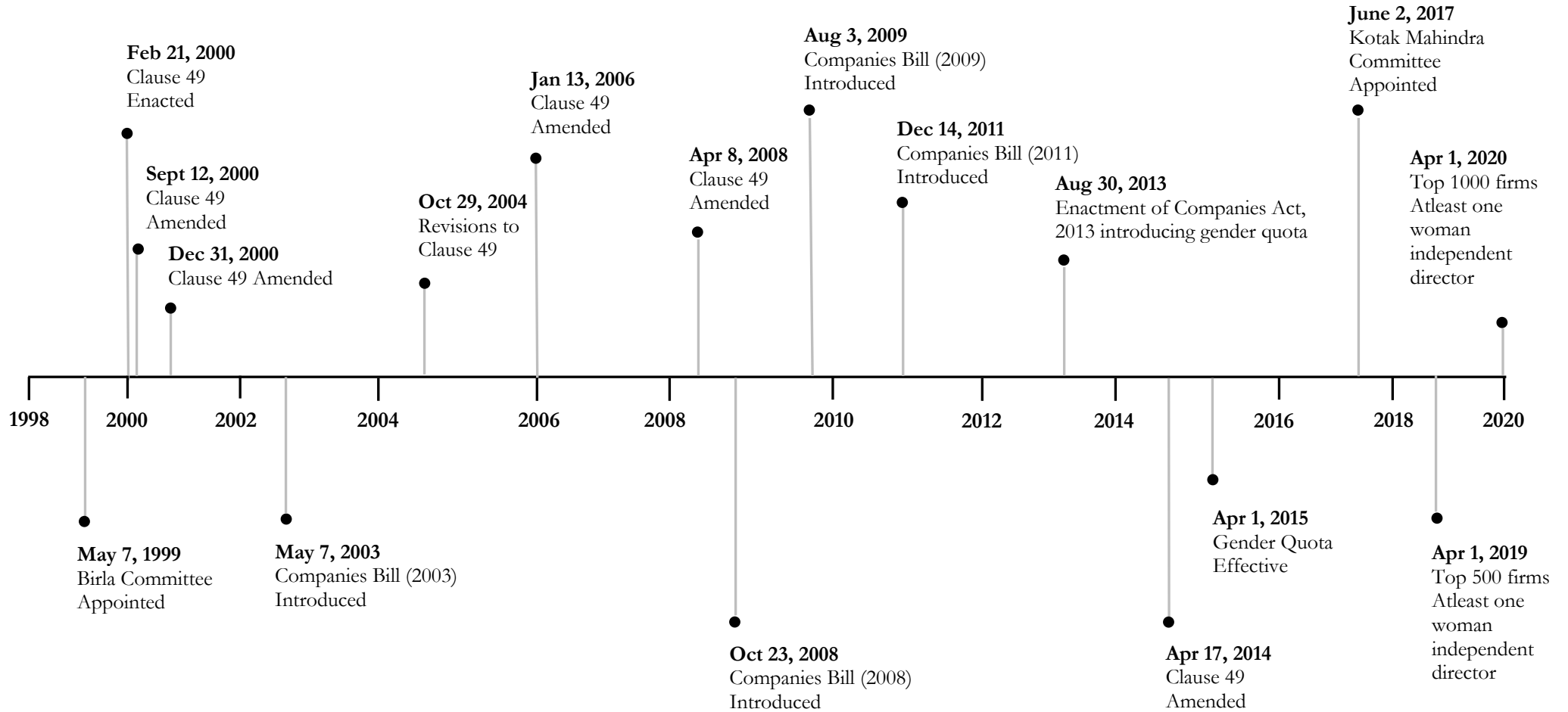## Gender Quota on Boards in the Face of Patriarchy"

S. Lakshmi Naaraayanan and Kasper Meisner Nielsen

Appendix Figure A1: Patriarchal views across countries

The map displays variation in patriarchal views across different countries around the World. We rely on World Value Survey to measure patriarchal views and use the response to the question "*When jobs are scarce, men should have more right to a job than women*". A higher response rate of "Yes" indicates stronger patriarchal views while a lower response rate of "Yes" indicates weaker patriarchal views. Prior research has focused on understanding the effects of gender quotas in developed countries which are characterized by weaker patriarchal views as seen from the heatmap below. These countries include Norway, France, Spain, Italy, and the United States and all of which have more egalitarian and less patriarchal views (0 to 25% range). Different from these studies, we focus on an emerging market, India, and study the long-term effect of introducing gender quota in an environment characterized by stronger patriarchal views (50 to 75% range).

Patriarchal views

Appendix Figure A2: Timeline of corporate governance reforms in India

Feb 21, 2000
Clause 49
Enacted

Sept 12, 2000
Clause 49
Amended

Dec 31, 2000
Clause 49 Amended

Oct 29, 2004
Revisions to
Clause 49

Jan 13, 2006
Clause 49
Amended

Apr 8, 2008
Clause 49
Amended

Aug 3, 2009
Companies Bill (2009)
Introduced

Dec 14, 2011
Companies Bill (2011)
Introduced

Aug 30, 2013
Enactment of Companies Act,
2013 introducing gender quota

June 2, 2017
Kotak Mahindra
Committee
Appointed

Apr 1, 2020
Top 1000 firms
Atleast one
woman
independent
director

1998   2000   2002   2004   2006   2008   2010   2012   2014   2016   2018   2020

May 7, 1999
Birla Committee
Appointed

May 7, 2003
Companies Bill (2003)
Introduced

Oct 23, 2008
Companies Bill (2008)
Introduced

Apr 17, 2014
Clause 49
Amended

Apr 1, 2015
Gender Quota
Effective

Apr 1, 2019
Top 500 firms
Atleast one
woman
independent
director

Appendix Figure A3: Patriarchal views of the board

The top figure plots the average fraction of male foreign directors and their patriarchal views based on nationality in percentage points by financial year. The bottom figure plots the average fraction of male Indian directors educated abroad and their patriarchal views based on the geography of educational attainment in percentage points by financial year. We measure country-level patriarchal views using answers to the question "*When jobs are scarce, men should have more right to a job than women*," from the World Value Survey. We then assign values to boards in two ways: First, we assign values to all male directors based on their nationality, Patriarchal views (nationality), and second, we assign values to all male Indian directors based on the country of their educational attainment, Patriarchal views (education). We average these values for each board. Across both panels, the white hollow bars represent fraction of firms, while the solid black bars average value of patriarchal views. The shaded region represents the year of compliance (excluded from analyses) with the gender quota of having at least one female director.
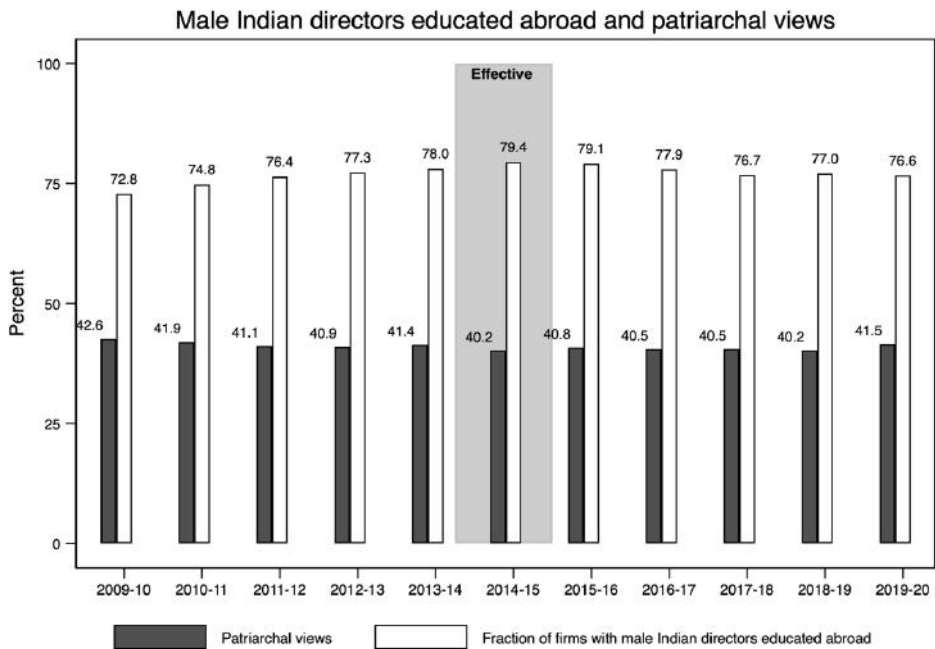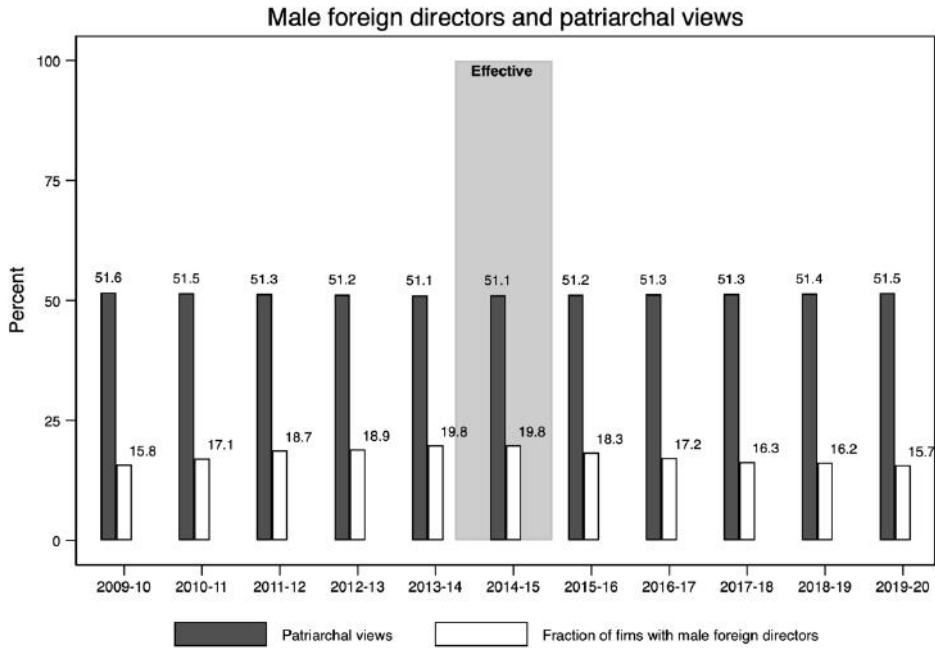
Appendix Figure A4: Director busyness by gender

The figure plots the fraction of busy directors in percentage by gender each financial year. We define a director to be busy if they hold three or more directorships in a particular financial year. The shaded region represents the year of compliance (excluded from analyses) with the gender quota of having at least one female director.
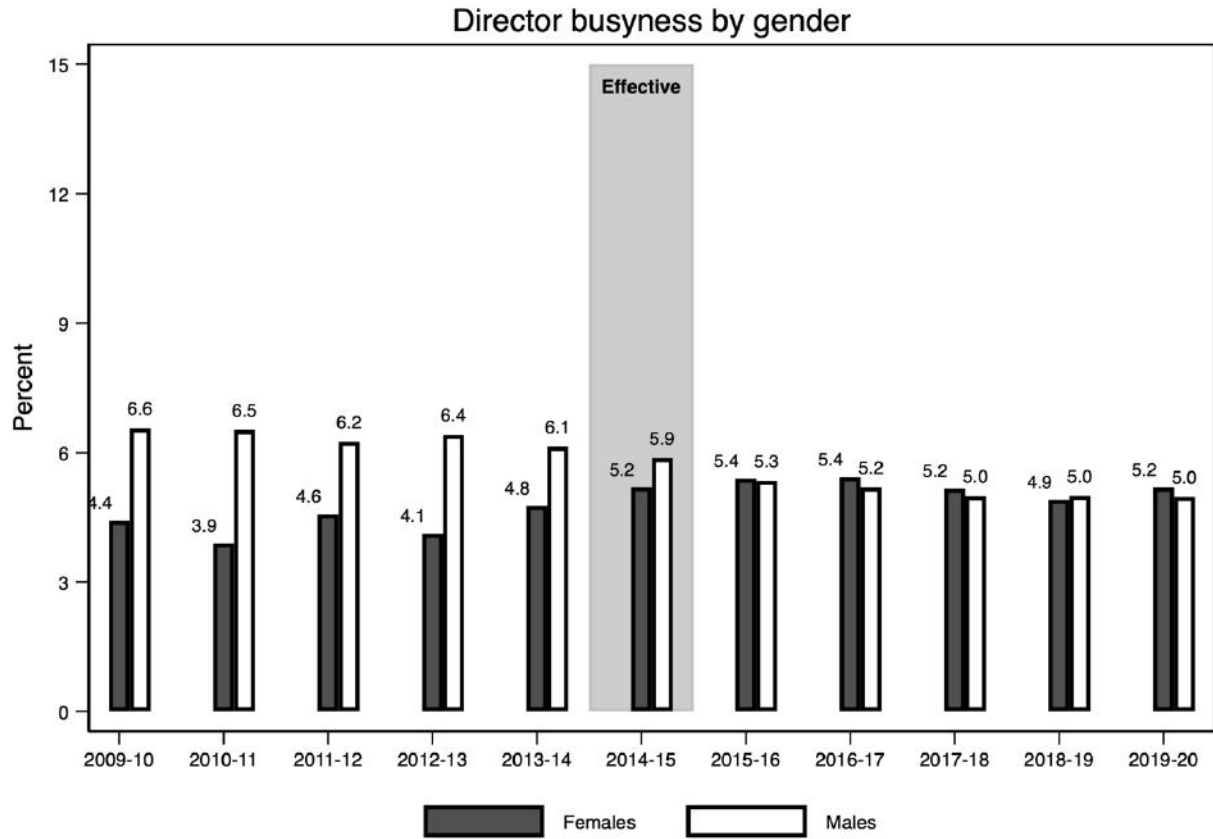
Appendix Figure A5: Related director appointments

The top figure plots the average fraction of related male and female directors on the board in percentage points by financial year. The shaded region represents the year of compliance (excluded from analyses) with the gender quota of having at least one female on their boards. The bottom figure plots the stock price reactions to related director appointments in percentage around the reform split by the gender of the director. The white hollow bars in the plot represent male directors, while the solid black bars represent female directors.
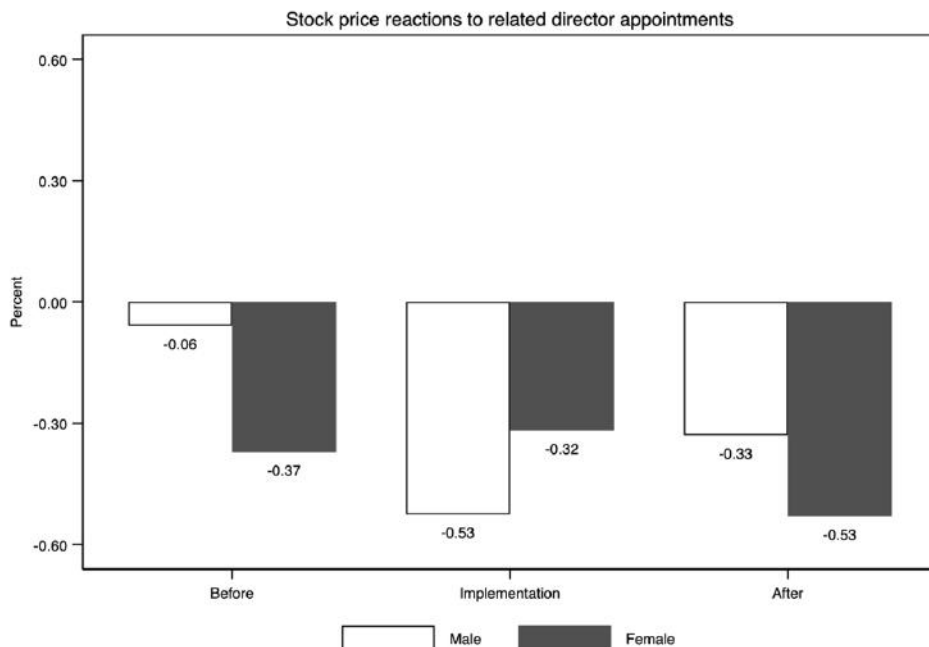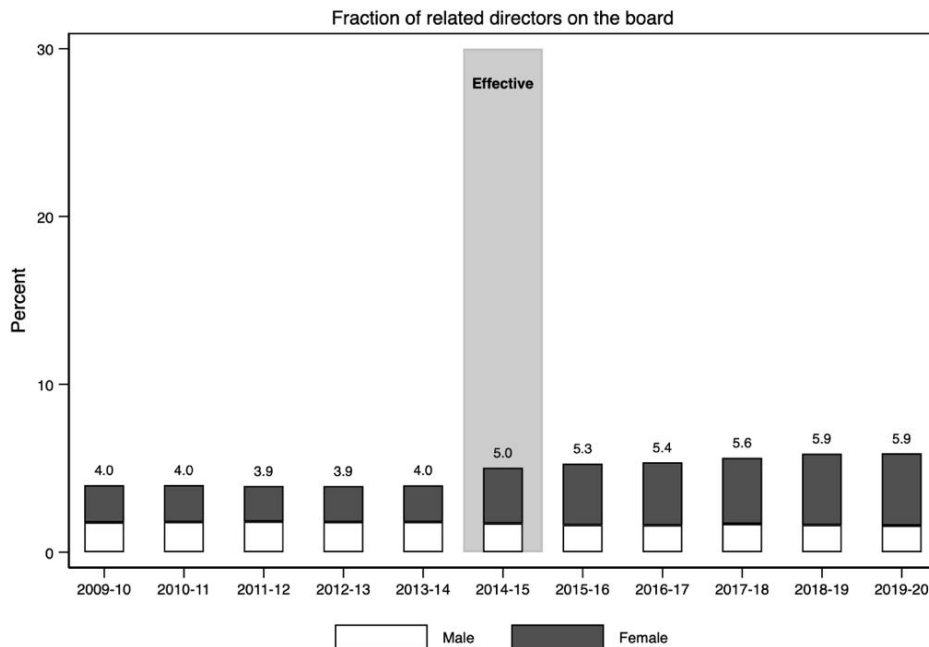
Appendix Figure A6: Gender gap in compensation for independent directors by year

These figures plot the level of compensation gap and the estimated coefficients and their corresponding 95% confidence intervals of the gender gap in compensation residuals by financial year. Residuals are obtained from a firm-year fixed effects where the dependent variable is the natural logarithm of compensation. The top panel plots the level of compensation by gender for all independent directors, while the bottom panel plots the yearly estimated coefficients for all independent directors. Across both panels, we restrict the sample to firms with at least one female director on the board. We drop the appointment year to avoid confounding the gender gap in compensation with mechanical effects due to appointment of directors in the middle of the financial year. The specification in the bottom panel includes controls for committee-level and firm-level characteristics (see Table 9 for details). Standard errors are clustered at the firm-level. The vertical red line represents the effective date for firms to comply with the gender quota of having at least one female director. Due to data availability, we observe director remuneration from 2012-13 to 2018-19, both years inclusive. One US$ is equivalent to 62 INR (as of January 2015).

56
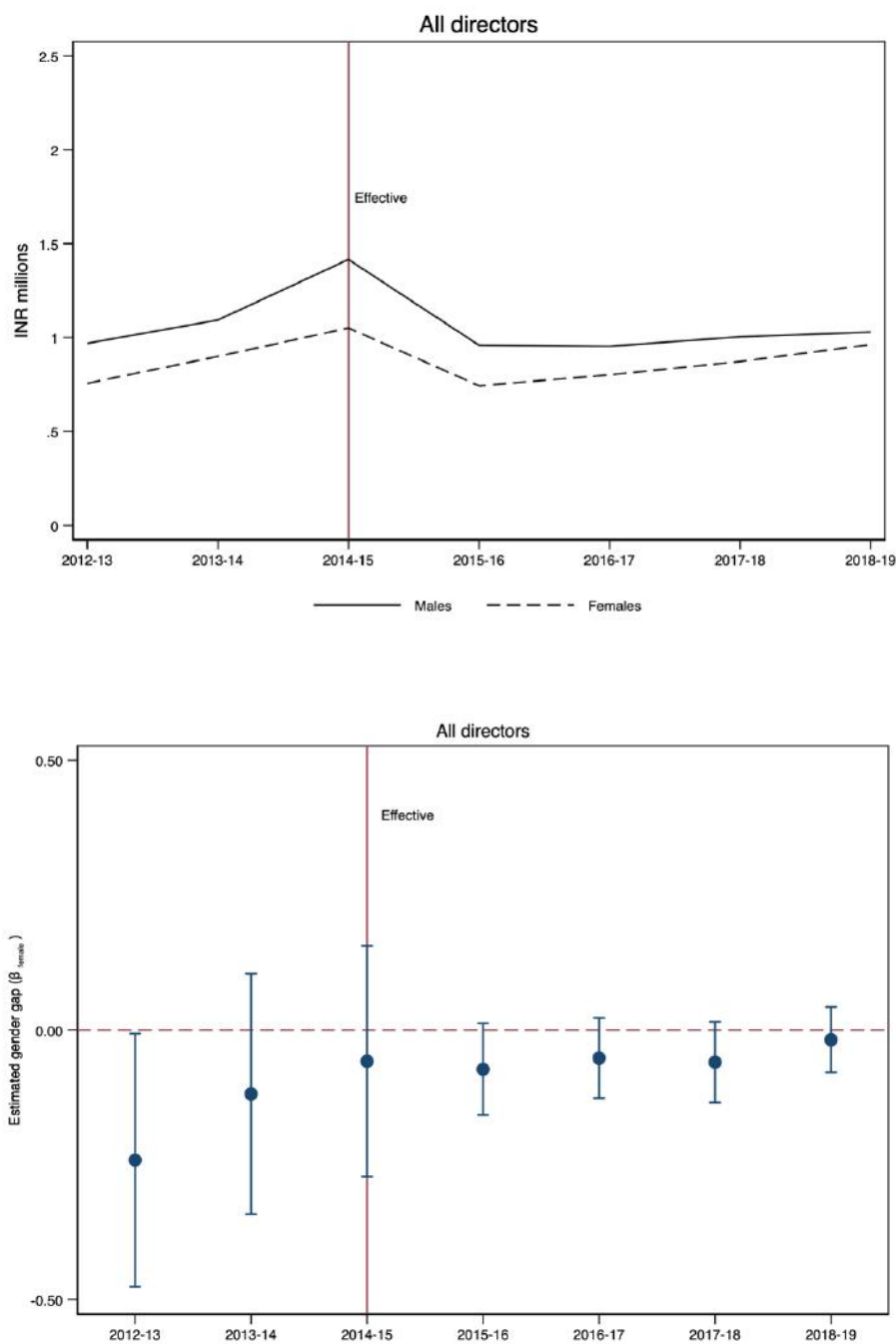
Appendix Figure A7: Pay dispersion within board over time

These figures plots the evolution of pay dispersion for directors by financial year. Each financial year, we compute the average level of compensation for the lowest paid director (shortdash dotted line), for the median director (solid line), and for the highest paid director (dashed line) within the firm. We restrict the sample to firms with at least one female director on the board. We drop the appointment year to avoid confounding the gender gap in compensation with mechanical effects due to appointment of directors in the middle of the financial year. The vertical red line represents the effective date for firms to comply with the gender quota of having at least one female director. Due to data availability, we observe director remuneration from 2012-13 to 2018-19, both years inclusive. One US$ is equivalent to 62 INR (as of January 2015).
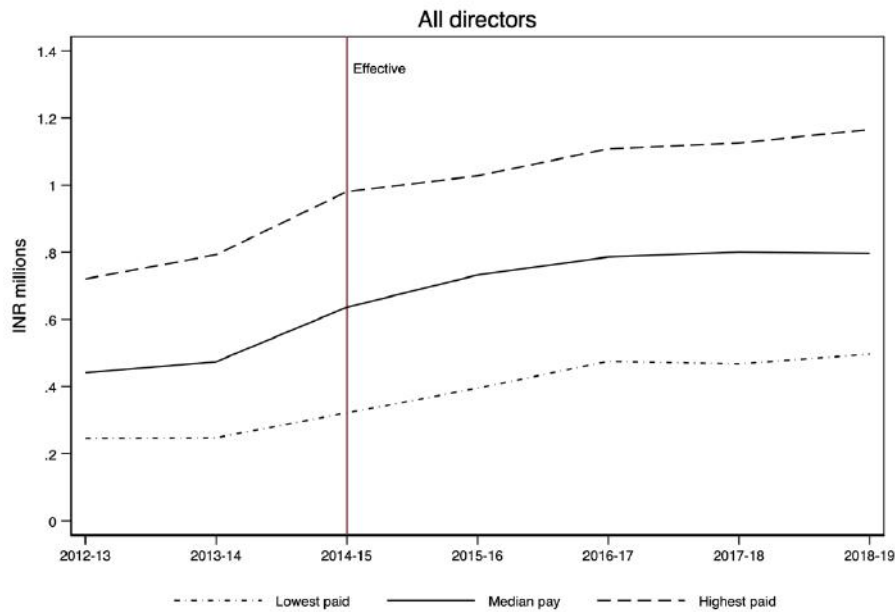
Appendix Figure A8: Fraction of firms with two or more female directors by patriarchal views

All figures plot the average fraction of firms with two or more female directors before and after the introduction of the gender quota. Panel A shows averages across quartiles of attitudes towards women, whereas Panel B shows averages across quartiles of female opportunities in the labor market. To measure general attitudes towards women, we gauge patriarchal views from the question "*When jobs are scarce, men should have more right to a job than women,*" of the World Value Survey, the sex ratio at birth (female relative to male births) from the population Census, and crime against females (per capita) from the National Crime Records Bureau. All three measures are based on the headquarter state of the firm, and quartile 1 (4) contains firms in environments that are the most (least) hostile toward women. To measure female opportunities in the labor market, we use the fraction of female employees in the industry, the fraction of female entrepreneurs in the industry, and the fraction of female directors in the industry (excluding the firm). All three measures are based on the primary industry of the firm, and quartile 1 (4) contains firms in environments that give the least (most) opportunities to women.

(a) Attitude towards women
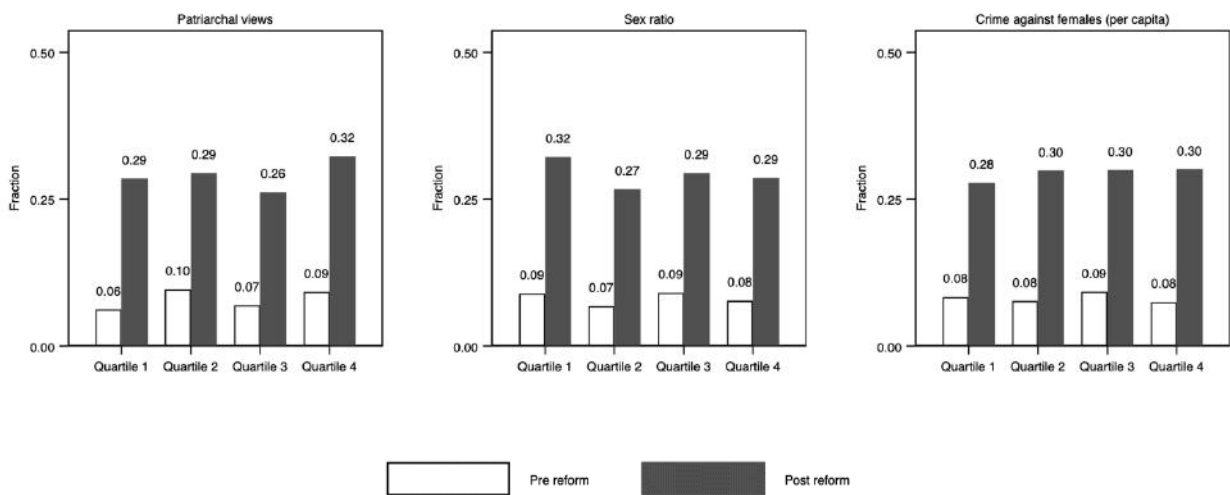
(b) Opportunities in the labor market
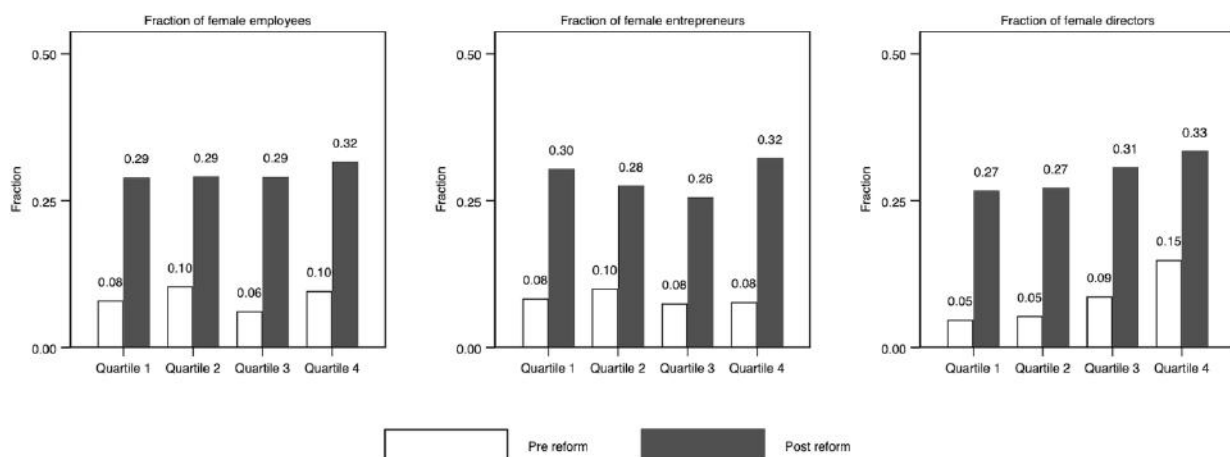
Appendix Figure A9: Turnover and resignations around the reform

The top figure plots the average turnover rates in percentage by financial year for inside and independent directors. The bottom figure plots the average resignation rates in percentage by financial year for inside and independent directors. The white hollow bars in the plot represent inside directors while black solid bars represent independent directors.
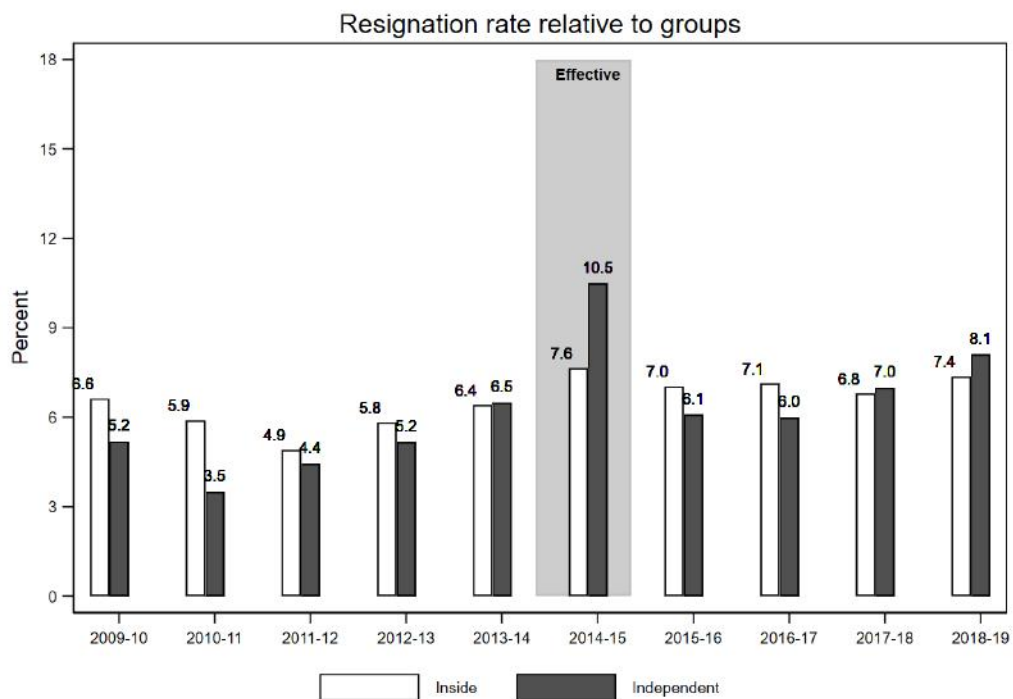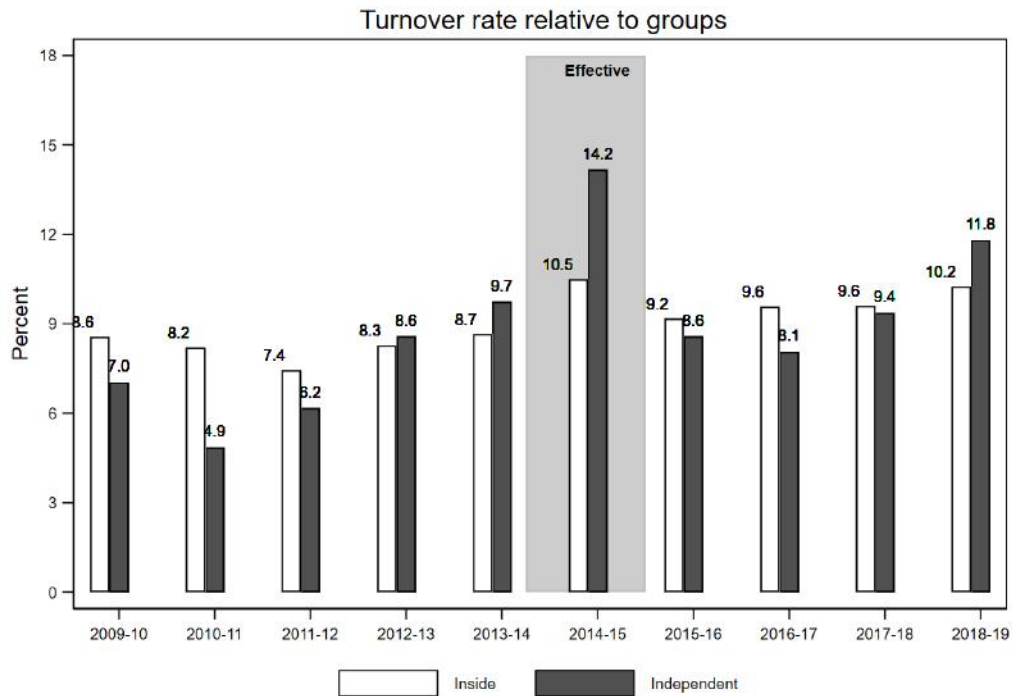
Appendix Figure A10: Turnover and resignation by term expiration around the reform

The top figure plots the average turnover rates in percentage by financial year for independent directors split by when they vacated their board seat relative to the expiration date. The bottom figure plots the average resignation rates in percentage by financial year for independent directors split by when they vacated their board seat relative to the expiration date. We classify independent director leaving in the middle of their term (i.e., within 0 to 3 years) as early departures while independent directors leaving in the last year of their term are defined as late departures.
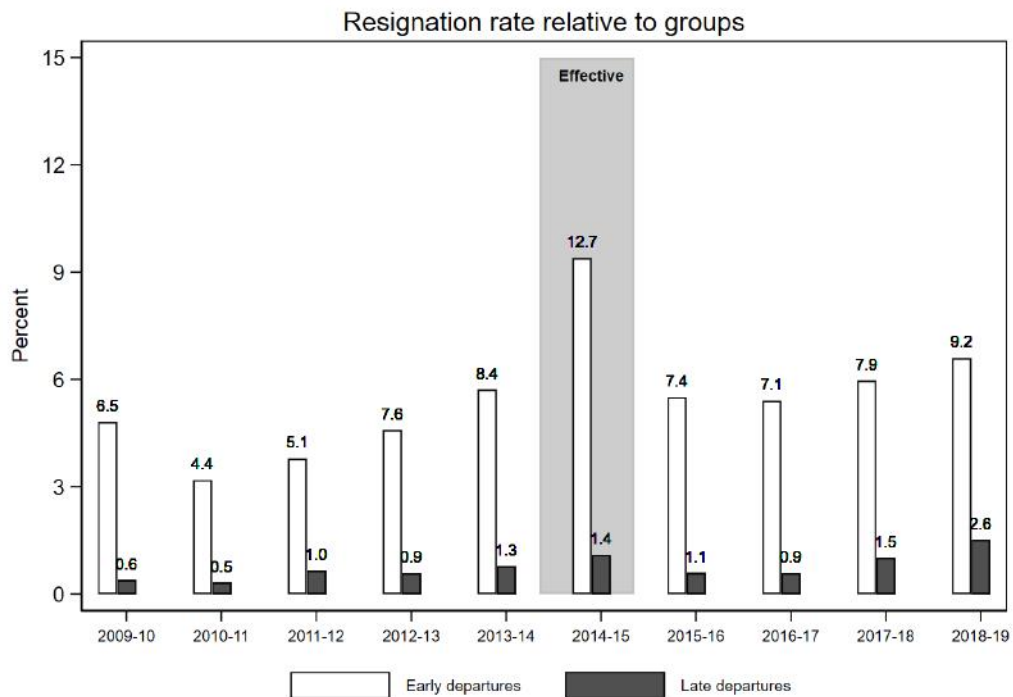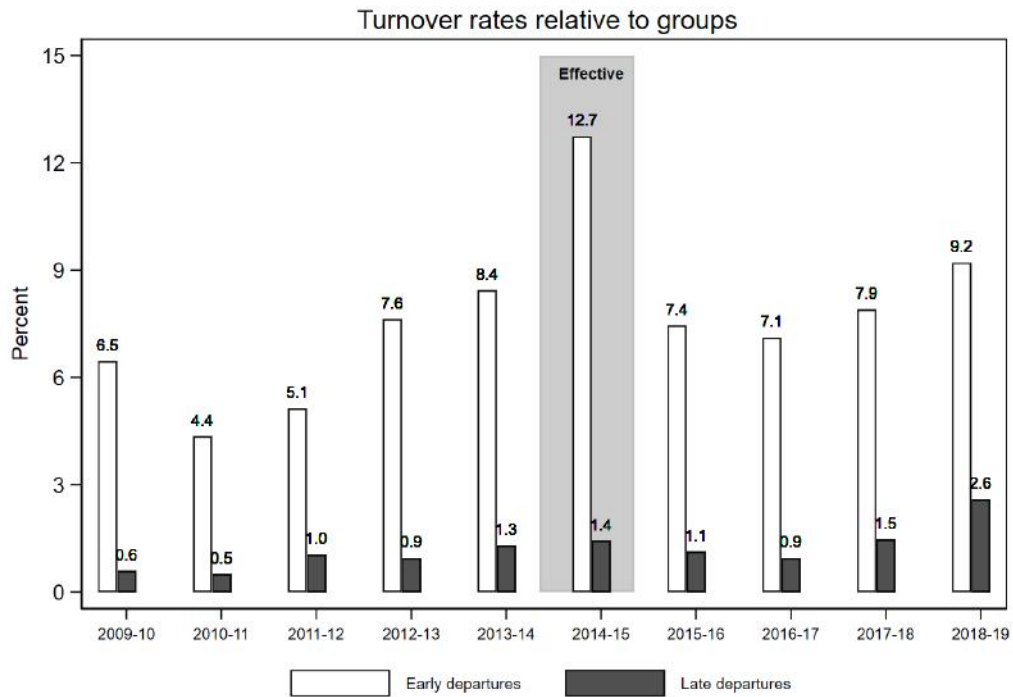
Appendix Figure A11: Time taken to vacate the boards by gender

The figures plot the Kaplan-Meier survival estimates to the time taken to vacate the board split by the gender of the director. The top figure plots the survival estimates for all directors while the bottom panel plots the survival estimates for the set of directors appointed on the boards after the introduction of the gender quotas. Specifically, we compare male directors to female directors who are appointed voluntarily. The sample is restricted to directors who are appointed at or after the start of the sample period in the financial year 2009-10. Across the panels, the solid line represents male directors, while the dashed line represents female directors.
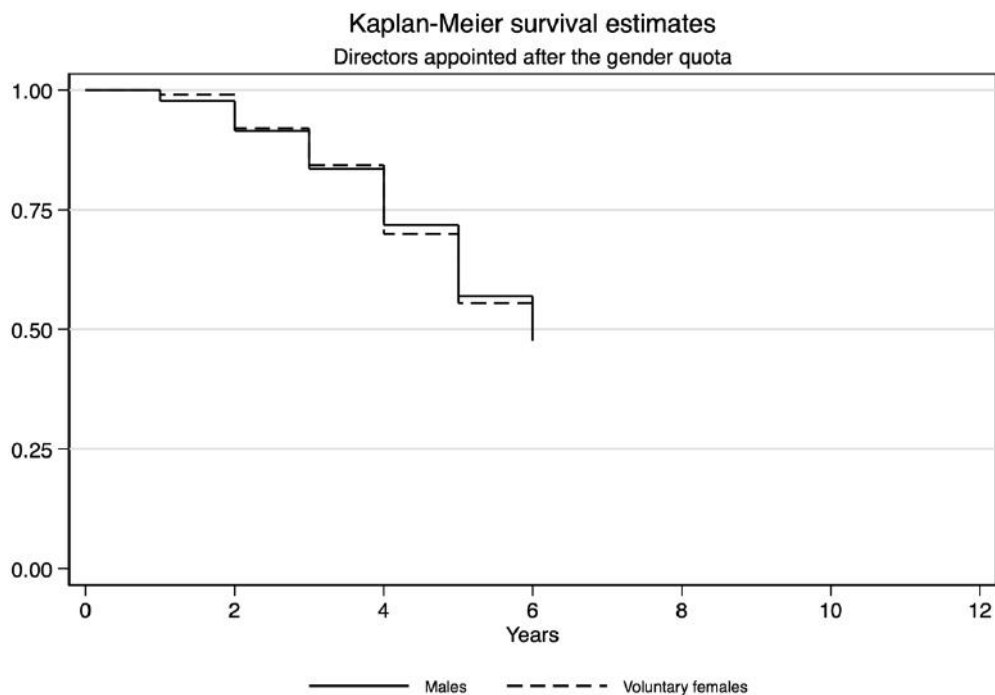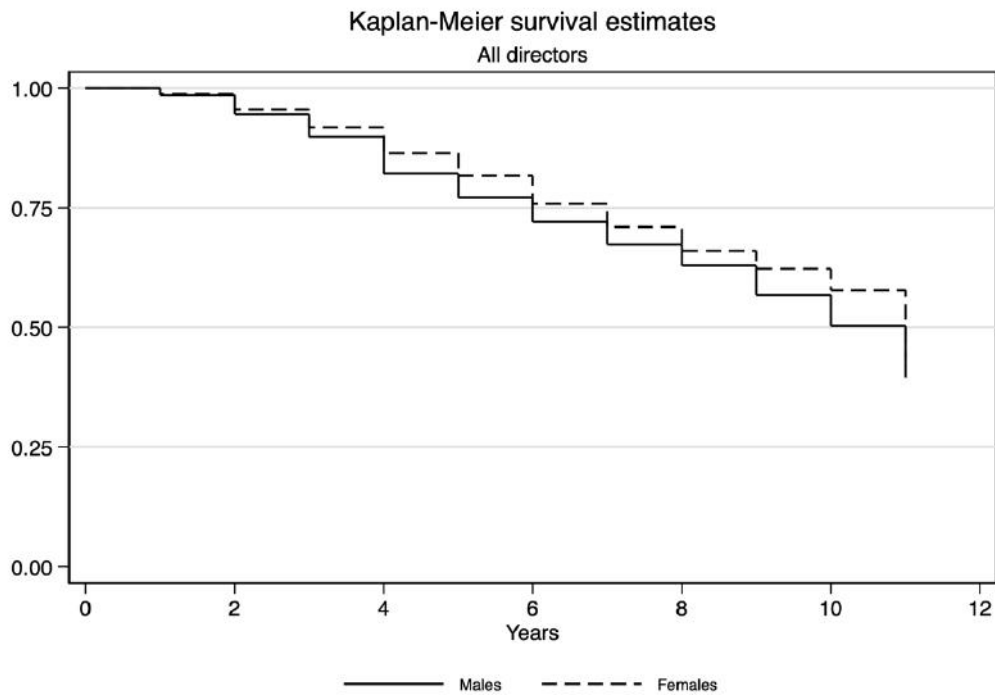
Appendix Figure A12: Anticipation of future regulations

The top figure plots the average number of female independent directors by financial year. The bottom figure plots the average number of female inside directors by financial year. In both panels, the white hollow bars represent firms that were outside the top 500 firms by market capitalization, while the solid black bars represent firms in top 500. The solid red lines represent the effective date for firms to comply with the gender quota, SEBI's introduction of new regulation requiring firms to have at least one female independent director on their boards, and effective date for the top 500 firms to comply with this new regulation, respectively.
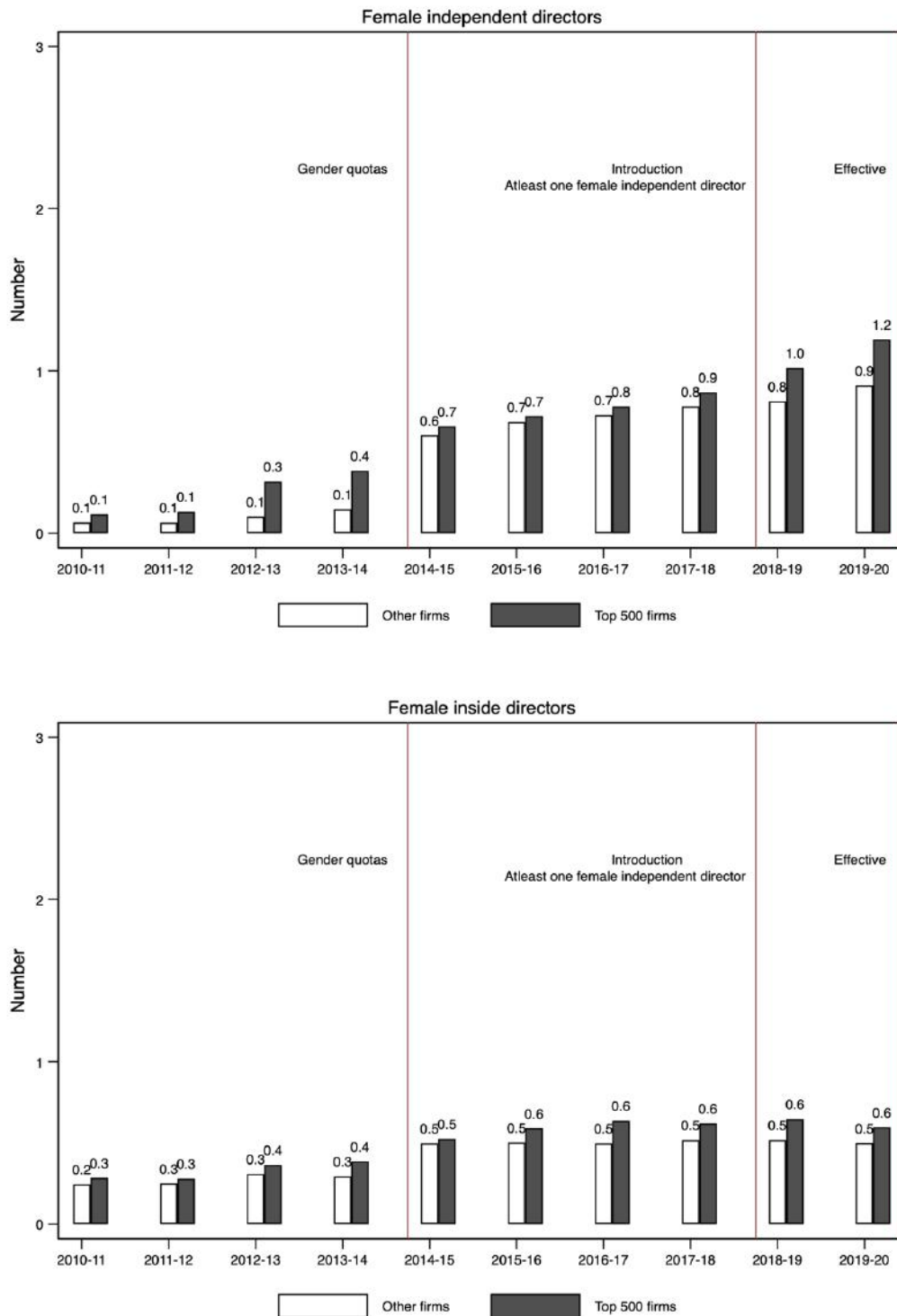
Appendix Table A1: Stock price reactions to the events around the introduction of gender quota

This table shows stock price reactions to the events around the introduction of gender quota through the enactment of the Companies Act, 2013. Specifically, it reports the mean cumulative abnormal returns (CAR) using an event window from one day before to one day after the announcement. Panel A reports the three-day CARs around the announcement of the requirement of one woman director in Companies Bill, 2011. Panel B reports the three-day CARs around the introduction of Companies Act, 2013 while panel C reports the three-day CARs around the SEBI circular on extension of compliance date. We adopt the portfolio time-series approach outlined in Eckbo, Nygaard, and Thorburn(2020) to account for the return co-movement in time regardless of the differential firm-level impact of news announcements. Across the panels, column 1 reports the average three-day CAR for all firms and column 2 (column 3) report the average three-day CAR for firms who had at least one (or no) female director on their board at the time of the respective announcements. The column titled, *Difference,* reports the difference in the average CARs for these two types of firms. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Announcement *Event date: 14 December, 2011*		All (1)	Female (2)	No female (3)	Difference (3) - (2)
		-2.226**	-1.925**	-2.357**	-0.432
		(0.916)	(0.708)	(1.031)	(1.251)
	N	1,029	364	665	1,029

Panel B: Introduction *Event date: 30 August, 2013*		All (1)	Female (2)	No female (3)	Difference (3) - (2)
		-1.784*	-1.449	-2.012**	-0.563
		(1.074)	(1.292)	(0.933)	(1.594)
	N	943	380	563	943

Panel C: SEBI circular on extension *Event date: 15 September, 2014*		All (1)	Female (2)	No female (3)	Difference (3) - (2)
		-1.239	-1.323	-1.148	-0.175
		(3.210)	(3.239)	(3.182)	(4.541)
	N	1,024	580	444	1,024

Appendix Table A2: How firms without a female director 12 months before the compliance date complied with the gender quota

This table examines how firms without a female director 12 months before the compliance date of April 1, 2015 complied with the gender quota. The sample consists of the 496 firms that did not have a female director 12 months before the compliance date of April 1, 2015. The unit of analysis is firm level. The sample is restricted to firms that, one year before the compliance date of April 1, 2015, did not have a female director but had at least one female director on their boards by the compliance date of April 1, 2015. In columns 1 and 2, the dependent variable is an indicator for appointment of a female inside or promoter director. In columns 3 and 4, the dependent variable is an indicator for appointment of a related female director. In columns 5 and 6, the dependent variable is an indicator for expanding the board size to accommodate the appointment of a female director. *Fraction of expert directors* is the ratio of expert directors to board size. We classify directors as "Expert" based on their specialization and highest educational degree obtained. Expert directors possess an *accounting, finance & law degree* or are a chartered accountant, CPA, CFA, JD, LLB or LLM qualification, or possess general business degrees and MBAs, or are professors, or hold a *Doctorate* degree. *Foreign director* is an indicator for directors of foreign nationality. *Patriarchal views (nationality)* measure the average patriarchal views of male directors based on their nationality. *Patriarchal views (education)* measure the average patriarchal views of male Indian directors based on their country of education. Section 1.2 provides details about how we measure patriarchal views using the World Value Survey. All the regressions include control variables as described in Table 4 notes. We use ordinary least squares (OLS) regression specification to estimate the coefficients. Standard errors clustered at the firm-level and are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent variable	Female inside/promoter director		Related female director		Expands board size	
	(1)	(2)	(3)	(4)	(5)	(6)
Fraction of expert directors	0.004	-0.024	0.045	0.026	-0.035	0.062
	(0.109)	(0.115)	(0.090)	(0.093)	(0.099)	(0.103)
Foreign director	-0.093*		-0.108**		-0.031	
	(0.055)		(0.046)		(0.055)	
Patriarchal views (nationality)		-0.729		0.880*		0.797
		(0.724)		(0.524)		(0.708)
Patriarchal views (education)		0.189		0.030		0.512**
		(0.249)		(0.215)		(0.250)
Constant	0.356***	0.655*	0.213***	-0.257	0.750***	0.044
	(0.084)	(0.397)	(0.069)	(0.292)	(0.077)	(0.382)
Observations	496	496	496	496	496	496
R-squared	0.006	0.003	0.009	0.004	0.001	0.014

Appendix Table A3: Gender quota in other countries and voluntary female appointments

This table relates introduction of gender quotas in the home country of foreign directors or in the country of educational attainment to changes in voluntary female director appointments for the period from 2009-10 to 2019-20. The unit of analysis is a director appointment-firm-year. We drop the financial year 2014-15 to avoid the mechanical relationship between the reform and female director appointments. The dependent variable is an indicator for voluntary female director appointment, which excludes any appointment of female directors to comply with the gender quota. Specifically, we only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. Column 1 focuses on countries of foreign directors whereas column 2 focuses on country of the educational attainment of Indian directors. All the regressions include control variables as described in Table 4 notes. *Post reform* is an indicator equal to one for financial years 2014-15 and after as the gender quota became effective in the financial year 2014-2015. All controls are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. Standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

Has/Introduced Gender Quota	Nationality (1)	Education (2)
Post reform	0.111***	0.110***
	(0.006)	(0.006)
Measure	-0.015***	-0.010***
	(0.004)	(0.003)
Post reform x Measure	0.033	0.017
	(0.028)	(0.015)
Constant	0.001	0.001
	(0.018)	(0.018)
Controls	Yes	Yes
Observations	7,032	7,032
R-squared	0.050	0.050

Appendix Table A4: Characteristics of the appointed directors at the time of appointment by gender and year

We report characteristics, measured at the time of appointment, for the directors appointed to the sample of NSE-listed firms from 2009-10 to 2019-20. Panel A reports director characteristics, measured at the time of appointment, for female appointees while panel B reports director characteristics, measured at the time of appointment, for male appointees by financial year. Across both panels, we report the following director characteristics (measured at the time of the appointment): *Age* (in years), *Boards per director* (average number of directorships on other boards prior to appointment), *At least one directorship* (fraction with at least one directorship prior to appointment) and *Board tenure* (measured as total tenure across all other boards prior to appointment). Further, we classify directors as: *New director* (an appointee who appears for the first time as a director), *Independent director* (average number of independent directorships prior to the appointment), *Related director* (indicator for an appointee who is related to the controlling shareholder). We also measure expertise for each director in two ways. Under *Specialization*, we classify each director based on his educational qualification as well as his occupation. We create an indicator for directors who possess an *accounting, finance & law degree* or is a chartered accountant, CPA, CFA, JD, LLB or LLM. *Business management & MBA* is an indicator for general business degrees and MBAs. *Academics* is an indicator for professors. Under *Highest degree attained,* for each director we extract their highest educational qualification and classify them into *"Graduate or below", "Post-graduate"*, and *"Doctorate"*. The shaded region represents the year of compliance (excluded from analyses) with the gender quota of having at least one female on their boards.

		Financial year										
	All	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Overall (#)	9,897	822	758	832	802	857	1,389	831	772	823	962	1,049
Female (#)	1,780	46	34	63	63	91	575	173	132	156	220	227
Male (#)	8,117	776	724	769	739	766	814	658	640	667	742	822
Panel A: Female directors – Characteristics measured at the time of appointment												
Age (years)	52.5	51.9	51.1	53.6	50.9	54.8	51.4	51.8	53.0	51.9	53.0	55.8
Boards per director (#)	0.19	0.43	0.32	0.35	0.16	0.33	0.08	0.14	0.11	0.14	0.26	0.37
At least one directorship (%)	0.12	0.26	0.12	0.17	0.14	0.14	0.06	0.09	0.10	0.10	0.19	0.22
Board tenure (years)	0.74	1.65	0.43	1.41	0.83	1.24	0.35	0.34	0.53	0.38	1.04	1.55
New director (%)	0.74	0.72	0.79	0.70	0.78	0.68	0.84	0.75	0.74	0.74	0.66	0.59
Independent director (%)	0.61	0.50	0.53	0.35	0.45	0.58	0.64	0.57	0.47	0.63	0.64	0.78
Related director (%)	0.23	0.39	0.26	0.18	0.27	0.19	0.23	0.24	0.28	0.22	0.21	0.16
Specialization												
Accounting, finance, & law	0.49	0.43	0.71	0.44	0.44	0.47	0.49	0.55	0.48	0.37	0.50	0.56
Academics	0.28	0.13	0.41	0.29	0.32	0.33	0.26	0.25	0.24	0.27	0.30	0.34
Business & MBA	0.61	0.48	0.68	0.62	0.70	0.57	0.59	0.58	0.55	0.58	0.60	0.71
Highest degree attained												
Graduate or below	-	-	-	-	-	-	-	0.01	0.01	0.01	-	-
Post-graduate	0.62	0.55	0.63	0.65	0.67	0.69	0.57	0.58	0.73	0.61	0.65	0.63
Doctorate	0.10	0.14	0.09	0.09	0.13	0.14	0.11	0.12	0.04	0.08	0.08	0.10
Panel B: Male directors – Characteristics measured at the time of appointment												
Age (years)	56.4	55.9	55.4	54.8	55.8	56.4	56.6	57.1	56.4	57.2	57.6	58.7
Boards per director (#)	0.35	0.74	0.45	0.43	0.43	0.33	0.29	0.24	0.21	0.22	0.24	0.23
At least one directorship (%)	0.18	0.34	0.23	0.22	0.19	0.17	0.16	0.14	0.13	0.13	0.15	0.13
Board tenure (years)	1.29	1.68	1.29	1.29	1.42	1.10	1.38	1.22	1.14	1.16	1.24	1.18
New director (%)	0.68	0.62	0.69	0.67	0.67	0.68	0.69	0.70	0.70	0.71	0.65	0.68
Independent director (%)	0.41	0.48	0.45	0.38	0.39	0.48	0.41	0.35	0.36	0.43	0.38	0.43
Specialization												
Accounting, finance, & law	0.49	0.47	0.47	0.48	0.47	0.46	0.45	0.51	0.51	0.50	0.55	0.52
Academics	0.24	0.25	0.23	0.23	0.22	0.20	0.21	0.25	0.22	0.27	0.30	0.27
Business & MBA	0.59	0.53	0.54	0.60	0.56	0.50	0.55	0.64	0.60	0.64	0.68	0.64
Highest degree attained												
Graduate or below	-	0.01	-	-	-	-	0.01	-	-	-	-	-
Post-graduate	0.62	0.54	0.60	0.59	0.67	0.62	0.63	0.66	0.63	0.62	0.65	0.59
Doctorate	0.08	0.10	0.09	0.10	0.09	0.10	0.10	0.07	0.07	0.09	0.06	0.06

Appendix Table A5: Female director characteristics by appointment type

We report characteristics, measured at the time of appointment, for the sample of directors appointed to NSE-listed firms from 2009-10 to 2019-20. We split the appointment type by whether it is voluntary or mandatory. Mandatory female director appointment includes any appointment of female directors to comply with the gender quota. Voluntary female director appointments only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. We report the following director characteristics (measured at the time of the appointment): *Age* (in years), *Boards per director* (average number of directorships on other boards prior to appointment), *At least one directorship* (fraction with at least one directorship prior to appointment) and *Board tenure* (measured as total tenure across all other boards prior to appointment). Further, we classify directors as: *New director* (an appointee who appears for the first time as a director), *Independent director* (average number of independent directorships prior to the appointment), *Related director* (indicator for an appointee who is related to the controlling shareholder). We also measure expertise for each director in two ways. Under *Specialization*, we classify each director based on his educational qualification as well as his occupation. We create an indicator for directors who possess an *accounting, finance & law degree* or is a chartered accountant, CPA, CFA, JD, LLB or LLM. *Business management & MBA* is an indicator for general business degrees and MBAs. *Academics* is an indicator for professors. Under *Highest degree,* for each director we extract their highest educational qualification and classify them into *"Graduate or below", "Post-graduate"*, and *"Doctorate"*. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	All	Appointment type		Difference	t-Stat.
		Voluntary	Mandatory		
		(1)	(2)	(2) - (1)	
Number of director-years	1,780	526	1,254		
Age (years)	52.5	53.8	52.0	-1.80	-2.52**
Boards per director (#)	0.19	0.27	0.16	-0.11	-3.50***
At least one directorship (%)	0.12	0.17	0.11	-0.06	-3.64***
Board tenure (years)	0.74	1.06	0.60	-0.46	-3.01***
New director (%)	0.74	0.67	0.77	0.10	4.50***
Independent director (%)	0.66	0.63	0.68	0.05	1.84*
Related director (%)	0.20	0.22	0.20	-0.02	-1.20
Specialization					
Accounting, finance & law	0.49	0.53	0.48	-0.05	-1.86*
Business & MBA	0.28	0.29	0.27	-0.02	-4.32***
Academics	0.61	0.68	0.57	-0.11	-0.71
Highest degree attained					
Graduate or below	0.00	0.00	0.00	0.00	-0.07
Post-graduate	0.62	0.68	0.60	-0.08	-3.10***
Doctorate	0.10	0.07	0.11	0.04	2.33**

Appendix Table A6: Gender gap in compensation by firms experiencing director turnover in FY 2014-15

This table reports the changes in the gender gap in compensation residuals around the gender quota split by whether the firm experienced a turnover in the financial year 2014-15. The sample consists of NSE-listed firms for the period from 2012-13 to 2018-19. The sample is restricted to this period due to data availability on committee positions and director remuneration. The unit of analysis is director-firm-year. The dependent variable is the residuals obtained from a regression of firm-year fixed effects on the natural logarithm of compensation. These residuals capture variation in director compensation *within* the board of a firm in a given financial year. Columns 1 and 2 reports the results for all directors while columns 3 and 4 reports the results for directors that are appointed before the gender quota. Column 1 (column 3) focuses on firms that experienced a director turnover in the financial year 2014-15 while column 2 (column 4) focuses on firms that did not experience a director turnover in the financial year 2014-15. *Female director* is an indicator equal to one for female directors. *Post reform* is an indicator equal to one for financial years after 2014-2015 in which the gender quota is effective. All regressions include committee-level controls for each director. These include: *Chairman* an indicator taking the value of one if the director is the chairperson of the board, *Nomination & remuneration committee member (chair)* an indicator taking the value of one if the director is a member (chair) of the nomination & remuneration committee, *Audit committee member (chair)* an indicator taking the value of one if the director is a member (chair) of the audit committee, and *Committee* an indicator taking the value of one if the director occupies any committee position. All the regressions include the following firm-level control variables: *Firm size* is the log of book value of assets. *Fraction of independent directors on the board* is the fraction of the independent directors on the board of the firm. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Ownership of the controlling shareholder* is equity ownership of the controlling shareholder. *Return on assets* is the ratio of profit after tax to book value of assets. *Stock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. All firm-level control variables are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include year fixed effects and standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

	All directors		Appointed before	
	Turnover in 2014-15	No turnover in 2014-15	Turnover in 2014-15	No turnover in 2014-15
	(1)	(2)	(3)	(4)
Female director	-0.189	-0.167	-0.159	-0.137
	(0.134)	(0.119)	(0.133)	(0.118)
Post reform x Female	0.173	0.224*	0.192*	0.192
	(0.117)	(0.119)	(0.105)	(0.126)
Committee-level controls	Yes	Yes	Yes	Yes
Firm-level controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted-R^2	0.14	0.089	0.14	0.083
Observations	3,635	6,728	2,485	5,041

Appendix Table A7: Foreign markets and voluntary appointments of female directors

This table relates changes in voluntary female director appointments around the gender quota reform by whether firms face international product markets and capital markets, for the period from 2009-10 to 2019-20. The unit of analysis is a director appointment-firm-year. We drop the financial year 2014-15 to avoid the mechanical relationship between the reform and female director appointments. The dependent variable is an indicator for voluntary female director appointment, which excludes any appointment of female directors to comply with the gender quota. Specifically, we only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. Column 1 focuses on firms that export a positive fraction of their sales, while column 2 focuses on firms that issue follow-on public equity. Column 3 focuses on firms issuing global depository receipts in international capital markets while column 4 focuses on firms borrowing debt from international capital markets. *Post reform* is an indicator equal to one for financial years 2014-15 and after as the gender quota became effective in the financial year 2014-2015. All the regressions include the following control variables: All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Return on assets* is the ratio of profit after tax to book value of assets. *Stock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. In addition, we also include the *Ownership of the controlling shareholder* as a control variable. All controls are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. Standard errors are clustered at the firm-level and reported in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

Measure	Exporting firms	Follow-on public offering	Global depository receipts	External borrowings
	(1)	(2)	(3)	(4)
Post reform	0.118***	0.116***	0.114***	0.115***
	(0.006)	(0.006)	(0.006)	(0.006)
Measure	0.000	0.009	-0.006***	0.003
	(0.000)	(0.014)	(0.001)	(0.004)
Post reform x Measure	-0.001***	-0.036	0.036	-0.002
	(0.000)	(0.023)	(0.025)	(0.012)
Constant	0.006***	0.006***	0.006***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Controls	Yes	Yes	Yes	Yes
Observations	7,809	7,809	7,809	7,809
R-squared	0.057	0.055	0.055	0.054

Appendix Table A8: Institutional ownership and voluntary appointments of female directors

This table examine changes in voluntary female director appointment rates by the level of institutional ownership around the gender quota for the sample of NSE-listed firms for the period from 2009-10 to 2019-20. We drop the financial year 2014-15 to prevent attributing the mechanical increase in female director appointments in the year of the reform to the effect of the gender quota. The unit of analysis is a director appointment-firm-year. The dependent variable is an indicator for voluntary female director appointment, which excludes any appointment of female directors to comply with the gender quota. Specifically, we only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. Column 1 presents results from column 2 of Table 4 for all directors while column 2 presents the results for all institutions. Column 3 (column 4) focuses on domestic (foreign) ownership share. *Post reform* is an indicator equal to one for financial years 2014-15 and after as the gender quota became effective in the financial year 2014-2015. *High ownership share* is an indicator equal to one if the firm's domestic (foreign) ownership share are above the median in the previous financial year. All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Return on assets* is the ratio of profit after tax to book value of assets. *Stock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. In addition, we also include the *Ownership* of the controlling shareholder as a control variable. All controls are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include firm fixed effects and standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

	Baseline	All Institutions	Domestic Institutions	Foreign Institutions
	(1)	(2)	(3)	(4)
Post reform	0.116***	0.106***	0.107***	0.111***
	(0.008)	(0.013)	(0.014)	(0.012)
High ownership share	-	0.016	0.015	-0.010
		(0.012)	(0.012)	(0.009)
Post reform x High ownership share	-	0.012	0.011	0.008
		(0.015)	(0.016)	(0.015)
Controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R-squared	0.059	0.059	0.059	0.059
Observations	7,809	7,809	7,809	7,809

Appendix Table A9: Patriarchal views and voluntary appointments of female directors

This table examines changes in voluntary female director appointments around the gender quota reform by varying levels of attitude towards women and opportunities in the labor market, for the period from 2009-10 to 2019-20. The unit of analysis is a director appointment-firm-year. We drop the financial year 2014-15 to avoid the mechanical relationship between the reform and voluntary female director appointments. The dependent variable is an indicator for voluntary female director appointment, which excludes any appointment of female directors to comply with the gender quota. Specifically, we only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. Columns (1) through (3) measures patriarchal views across quartiles of attitudes towards women, whereas columns (4) through (6) measures patriarchal views across quartiles of female opportunities in the labor market. To measure general attitudes towards women we use the question "*When jobs are scarce, men should have more right to a job than women,*" from the World Value Survey, the sex ratio at birth from the population Census, and crime against females (per capital). All three measures are based on the headquarter state of the firm, and quartile 1 (4) contains firms in environments that are the most (least) hostile toward women. To measure female opportunities in the labor market, we use the female share of employment in the industry, the female share of entrepreneurs in the industry and the female share of directors in the industry (excluding the firm). All three measures are based on the primary industry of the firm, and quartile 1 (4) contains firms in environments that give the least (most) opportunities to women. *Post reform* is an indicator equal to one for financial years 2014-15 and after as the gender quota became effective in the financial year 2014-2015. All the regressions include the following control variables: All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Return on assets* is the ratio of profit after tax to book value of assets. *Stock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. In addition, we also include the *Ownership of the controlling shareholder* as a control variable. All controls are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include firm fixed effects and standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

	Attitude towards women			Opportunities in the labor market		
	Patriarchal views	Sex ratio	Crime against females (per capita)	Fraction of female employees	Fraction of female entrepreneurs	Fraction of female directors
	(1)	(2)	(3)	(4)	(5)	(6)
Post reform x Quartile 1	0.107***	0.099***	0.107***	0.108***	0.110***	0.113***
	(0.018)	(0.014)	(0.014)	(0.017)	(0.018)	(0.014)
Post reform x Quartile 2	0.138***	0.113***	0.119***	0.077***	0.050***	0.122***
	(0.013)	(0.019)	(0.020)	(0.016)	(0.018)	(0.015)
Post reform x Quartile 3	0.100***	0.132***	0.130***	0.121***	0.074***	0.133***
	(0.014)	(0.012)	(0.012)	(0.019)	(0.012)	(0.014)
Post reform x Quartile 4	0.108***	0.106***	0.101***	0.080***	0.135***	0.095***
	(0.012)	(0.013)	(0.012)	(0.015)	(0.018)	(0.013)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.170	0.169	0.169	0.159	0.160	0.169
Observations	7,809	7,809	7,809	7,809	7,809	7,809

Appendix Table A10: Market developments and voluntary appointment of female directors

This table reports results examining the impact of market developments on voluntary female director appointments for the sample of NSE-listed firms for the period from 2009-10 to 2018-19. We drop the financial year 2014-15 to avoid the mechanical relationship between the reform and voluntary female director appointments. The unit of analysis is a director appointment-firm-year. The dependent variable is an indicator for voluntary female director appointment, which excludes any appointment of female directors to comply with the gender quota. Specifically, we only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. Panel A reports the results examining the effect of IiAS recommendations on female director appointments, while panel B reports the results examining the impact of shareholder support on female director appointments. *Post reform* is an indicator equal to one for financial years after 2014-2015 in which the gender quota is effective. *IiAS coverage* is an indicator for whether the firm was covered by IiAS, while *IiAS recommends for* is an indicator variable for whether IiAS recommends shareholders to vote against the re-election of a director. *Votes for* is the fraction of votes cast that are against the re-election of a director. All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Fraction of independent directors on the board* is the fraction of the independent directors on the board of the firm. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Ownership of the controlling shareholder* is equity ownership of the controlling shareholder. *Return on assets* is the ratio of profit after tax to book value of assets. *Stock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. All control variables are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include firm fixed effects and standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

	Panel A: Proxy advisor (IiAS) voting recommendations			
	(1)	(2)	(3)	(4)
Post reform	0.107***	0.097***	0.106***	0.097***
	(0.009)	(0.010)	(0.009)	(0.010)
IiAS coverage	-	0.024*	-	0.024
		(0.014)		(0.015)
IiAS recommends "for"	-	-	0.007	-0.001
			(0.018)	(0.020)
Controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R-squared	0.063	0.063	0.063	0.063
Observations	6,848	6,848	6,848	6,848

	Panel B: Shareholder support for director appointments			
	(1)	(2)	(3)	(4)
Post reform	0.106***	0.101***	0.107***	0.101***
	(0.009)	(0.010)	(0.009)	(0.010)
Votes for (%)	-0.000	0.000	-	-
	(0.000)	(0.000)		
Firm-level average votes for (%)	-	-0.001	-	-0.001
		(0.001)		(0.001)
Excess votes for (%)	-	-	0.000	0.000
			(0.000)	(0.001)
IiAS recommends for	-	-	-	0.000
				(0.034)
Controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R-squared	0.063	0.063	0.063	0.063
Observations	6,848	6,848	6,848	6,848

Appendix Table A11: Anticipation of future regulation and voluntary female appointments

This table reports the results examining changes in appointment rates of women on boards by firm size around the regulation requiring firms to have atleast one female independent director, for the sample of NSE-listed firms for the period from 2009-10 to 2019-20. We drop the financial year 2014-15 15 to avoid the mechanical relationship between the reform and voluntary female director appointments. The unit of analysis is a director appointment-firm-year. The dependent variable is an indicator for voluntary female director appointment, which excludes any appointment of female directors to comply with the gender quota. Specifically, we only include female director appointments in the post-reform period if the firm already complies with the quota requiring one female director. Column presents baseline results from column 2 of Table 4. Column 2 reports the estimates for the top 500 firms (by market capitalization) while column 3 reports the estimates for remaining firms in our sample. *Post reform* is an indicator equal to one for financial years 2014-15 and after as the gender quota became effective in the financial year 2014-2015. All the regressions include the following control variables: *Firm size* is the log of book value of assets. *Market-to-book value* is the market-to-book ratio of assets, defined as market value of equity plus book value of debt over book value of assets. *Return on assets* is the ratio of profit after tax to book value of assets. *Stock return* is the annualized return and *Stock return volatility* is the annualized standard deviation of the firm's daily stock returns during the year. In addition, we also include the *Ownership of the controlling shareholder* as a control variable. All controls are lagged by one year. We use ordinary least squares (OLS) regression specification to estimate the coefficients. All regressions include firm fixed effects and standard errors are clustered at the firm-level. Standard errors are in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% level, respectively.

| | Baseline | Large firms | Small firms |
	(1)	(2)	(3)
Post reform	0.116***	0.113***	0.114***
	(0.008)	(0.010)	(0.018)
Controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Adjusted R-squared	0.169	0.183	0.289
Observations	7,809	5,409	2,400