# Gender Quotas and Support for Women in Board Elections

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**Abstract**

We study shareholder support for corporate board nominees before and after the 2018 California gender quota. Pre-quota, new female nominees received greater support than new male nominees, consistent with women being held to a higher standard. Post-quota, as the number of women increased, support for new (mandated) female nominees decreased to the same level of, but not lower than, the support that new male nominees enjoy. Still, share prices reacted negatively to the quota. We show that this reaction was concentrated in a small number of firms with entrenched boards that (predictably so) failed to turn over their least-supported male directors when adding women to comply with the quota.

**Keywords:** Board of directors, Gender quota, Regulation, Corporate Governance
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# 1 Introduction

In September 2018, California (CA) passed a gender quota for corporate boards (Senate Bill 826). The quota required all publicly held firms headquartered in the state to have at least one appointed female director by the end of 2019. It further mandated that boards with five (six or more) members have two (three) female board members by the end of 2021. The stock market reacted negatively to the quota (as documented by Hwang, Shivdasani, and Simintzi, 2018; Greene, Intintoli, and Kahle, 2020). This reaction has been interpreted as shareholders opposing the mandated addition of new female directors, possibly due to scarcity of qualified female candidates.

However, recent evidence casts doubt on whether a lack of qualified women is the actual reason for the negative announcement returns. Bertrand et al. (2019) show in the setting of the Norwegian board quota that the female director pool was able to broaden without compromising quality. Within the context of the CA quota, Hwang, Shivdasani, and Simintzi (2018) and Greene, Intintoli, and Kahle (2021) analyze the characteristics of quota-mandated female directors and provide inconclusive results as to whether quality differences can explain the negative stock price reaction.

But stock prices do not provide information on shareholders' attitudes towards individual director nominees—something that is needed in order to get to the bottom of the question of how shareholders judge the quality of female directors appointed before and after the quota. To provide such a measure, we hand-collect data on shareholder voting results from annual shareholder meetings for the approximately 600 firms subject to the CA quota. By combining the share price reaction with how shareholders vote, we provide a more holistic perspective from which to analyze shareholders' attitudes.

In sum, we provide evidence that shareholders are able to recruit female directors shareholders approve of. We also show that the negative share price reaction is concentrated in a small number of firms with entrenched boards that (predictably with common measures of corporate governance quality at the time of the quota announcement) failed to turn over relatively unpopular male directors when they added women to the board in order to comply with quota.

We start our analysis by showing that, pre-quota, new female nominees receive greater shareholder support than new male nominees. This finding is consistent with women facing a higher bar than men to be nominated for board positions before the quota. Post-quota, the number of female appointees greatly increase, and we show that the shareholder support for new female nominees decreases. Importantly, however, the shareholder support for new female nominees never decreases below that of the support for new male nominees. Thus, we see no evidence that shareholders support quota-mandated female nominees less than they support new male nominees. This, in turn, suggests that there is a sufficient supply of female candidates that shareholders approve of to fill board seats within the context of the CA quota, and that firms nominate these women.

So why do share prices react negatively on the day of the quota? The quota is a shock to the board composition of affected companies in ways that go beyond having to identify, and appoint, qualified women. Firms with no women on boards are forced to decide whether they respond to the quota mandate by ignoring it, expanding the board by adding a woman, or by replacing an existing board member with a new female member. An extant literature documents that boards do not always select a composition of members that maximizes firm value, for example, due to conflicts of interest between shareholders and the board (c.f., Berle and Means, 1932; Hermalin and Weisbach, 1998; Bebchuk and Cohen, 2005; Erel et al., 2021. Therefore, we propose a new explanation for the negative share price reaction to the CA quota: the possibility that boards fail to conduct the restructuring of the board optimally.

In order to test this explanation, we split firms into four mutually exclusive and exhaustive categories of the actions that they could take when they are affected by the quota: 1) do nothing, 2) add women without turning over men (expand the board), 3) replace the least popular male directors with female directors, or 4) replace more popular male directors with female directors. We show that stock prices reacted negatively to the announcement of the quota only for companies that retained the least or second-least supported male directors and replaced more popular male directors when adding a woman to the board. Additionally, we show that the predictable probability of sub-optimal turnover—predictable by firm characteristics known at the time of the quota—drives the negative reaction. The predicting

firm characteristics are common measures that proxy board entrenchment (e.g., plurality voting rules) that enable weak directors to stay on boards.

In our voting analyses, we include election fixed effects in order to compare female and male, as well as incumbent and new, nominees within the same election. We also analyze the subset of non-classified boards and firms that are not traded on major exchanges, as well as control for the recommendations of the Institutional Shareholder Services (ISS, a shareholder advisory firm). In addition we document that our voting results are not driven by certain nominee characteristics, such as committee membership or director independence. In the stock price analyses, we control for board characteristics associated with corporate governance quality at the time of the quota announcement. Similar to the voting analysis, we also separately analyze the subset of non-classified boards and control for firm size. We make sure that our results are not driven by instances where a committee chair is turned over, or when directors depart for reasons unrelated to the quota (e.g. due to director deaths, health reasons, required retirement age, or as a result of mergers or restructurings). We also show that the decline in firm value of the firms who fail to replace their least or second-least popular male directors persist at least one year after the quota announcement.

Taken together, our analysis provides two pieces of evidence that are jointly derived from shareholder behavior in pricing a firm's stock and voting for director nominees at elections: i) a high level of shareholder support for new (quota-mandated) female nominees; and ii) a negative stock price reaction in response to the quota for firms who fail to turn over the least or second-least supported male directors when adding women to comply with the regulation. Jointly, these findings lend support to the conclusion that the quota destroys value for firms, but not because of the women newly appointed to directorships. Instead our results provide an important reminder that when a share price reacts to a new regulation, this likely reflects a number of shareholder concerns: direct considerations with regards to the regulation itself, and indirect considerations related to firms' expected behaviors in response to the regulation. This subtlety is often overlooked in existing debates about new policies.

Our work contributes to the vibrant literature seeking to understand the consequences of gender quotas for boards of directors. While the evidence on the via-

bility and benefits of gender board quotas remain mixed (c.f. Adams and Ferreira, 2009; Gul, Srinidhi, and Ng, 2011; Adams and Funk, 2012; Kim and Starks, 2015; Bernile, Bhagwat, and Yonker, 2018; Naaraayanan and Meisner Nielsen, 2020), quotas constitute an increasingly popular, but highly debated, policy tool (Smith, 2018). The fact that the CA quota studied here is currently the subject of repeal hearings further accentuates the need for more in-depth knowledge about the effect of quotas in general, and the CA quota in particular.

The most well studied corporate board quota has, at least until now, been the Norwegian one. In 2003, Norway became the first country in the world to introduce a board quota. In an early study on its effects Ahern and Dittmar (2012) argue that its passage was followed by a negative stock market reaction and a subsequent decline in firm value and accounting performance. Matsa and Miller (2013) reach similar conclusions regarding firm profits using a matched sample of Swedish firms as a control group, as do Yang et al. (2019) with a related empirical design. With respect to the qualifications of quota-mandated female directors, Ahern and Dittmar (2012) find that the women who joined Norwegian boards post-quota were less experienced than incumbent male directors.[1]

An empirical challenge when investigating the Norwegian quota is uncertainty about the event date. A more recent study by Eckbo, Nygaard, and Thorburn (2020) consider various event dates and fail to find any significant (positive or negative) effects on firm value and operating performance in response to the quota. This finding is, in turn, in line with the evidence provided by Bertrand et al. (2019) who show that the women added to boards in Norway as a result of the mandate were as qualified as their male counterparts and as qualified as the incumbent female board members. The 2018 CA quota, on the other hand, has a more precise event date, and firms were left with a relatively short time to comply with the law after its passing. In addition, the enactment of the CA quota represents a first opportunity to study shareholder attitudes to mandated quotas in the US. As discussed above, the CA quota has already been studied, and significant negative announcement returns, ranging from -1.2 to -2.2 percent, have been documented (Hwang, Shivdasani, and Simintzi (2018) and Von Meyerinck et al. (2019) and

[1] A number of recent studies analyze gender quotas in European countries. E.g. Ferrari et al. (2022) find no negative quota announcement returns for the case of Italy.

Greene, Intintoli, and Kahle (2020)). The exact impact on returns have been found to depend on the extent of compliance, among other things—for example, firms who were already in compliance with the quota at enactment, experienced no adverse effect on returns. To our knowledge there is no work that provide our added perspective of analyzing shareholder votes in addition to announcement returns, however.

The paper is organized as follows. Section 2 presents our conceptual framework. Section 3 provides background information on the CA gender quota and the director election process. Section 4 describes the data, and Section 5 presents our empirical strategy. Thereafter, Section 6 discusses the results. Section 7 outlines policy implications in light of the recent quota repeal, and Section 8 concludes.

# 2 Conceptual Framework

A quota imposes a constraint on board composition in terms of the number of female directors. Assuming that nominees are selected according to their expected shareholder support (reflecting shareholder preferences), such a constraint implies that firms must dip further down in the distribution of shareholder support for female nominees. Thus, as firms are mandated to increase the number of women on boards, we would expect a decline in shareholder support for female relative to male nominees.

The standard narrative used to explain the negative stock price reaction to gender quotas is that new female nominees are less preferred by shareholders than the men they replace, presumably because the former are of lower quality. This occurs if, prior to the quota, the board holds men and women to the same standard so they enjoy the same shareholder support. Then, optimality implies the marginal support for men equals the marginal support for women. If this is true, then the quota requires that firms choose women with less support than the men they replace, and we would expect a negative stock price reaction.

Proponents of the quota argue that women and men are, however, not held to the same standards. If women are held to a higher standard, then the marginal support for women would be higher than the marginal support for men before the

quota.[2] Support for women will fall due to the quota, but the marginal support for women can remain at or above the marginal support for men. In this case, we expect a positive, or at least zero, stock price reaction as worse men are replaced with better women. If the quota is set too high, the marginal support for women could fall below the marginal support for men. In this case we would also expect a negative stock price reaction.

Now, suppose that there are enough qualified women that shareholders approve of. In that case, firms can make other errors that can explain a negative stock price reaction to the quota. More specifically, when facing a female board quota, affected firms can do four things: 1) do nothing (and pay the fine), 2) add women without replacing men (expand the board), 3) replace their least-supported directors with new women, or 4) replace more popular male directors with new women. If firms fall in action categories 1) or 4), we would expect a negative stock price reaction.

# 3 Institutional Setting

## 3.1 The Quota: CA Senate Bill No. 826

The CA gender quota for corporate boards was announced and went into effect on September 30, 2018. As in Hwang, Shivdasani, and Simintzi (2018), Von Meyerinck et al. (2019), and Greene, Intintoli, and Kahle (2020), we define this as our event date.

The regulation applies to all publicly held domestic and foreign firms headquartered in the state (i.e., with a principal executive office as identified in the firm's 10-K filing), corresponding to 12% of all US firms. The quota required firms to have at least one appointed female director by the end of 2019. Further, boards with five (six or more) members must have two (three) appointed female board members by the end of 2021. In our sample, an average board consists of eight members, and is thus subject to a 12.5% quota by the end of 2019, and a 37.5%

[2] Erel et al. (2021) provide evidence that boards select nominees based on characteristics that do not lead to higher shareholder support. In fact, director experience, one of the most common characteristics cited as a director qualification, is even negatively related to shareholder support. If boards use experience, for example, in choosing nominees, this is equivalent to setting a relatively high bar for women who, through history, have had fewer directorships than men.

quota by the end of 2021. The CA quota marks the first binding board quota in the US, and noncompliance comes at a cost of $100,000 for the first violation and $300,000 for subsequent violations. This fine is small relative to the size of the firms it affects (Fried, 2021).[3] Nonetheless, to date, virtually all firms complied with the requirement to have at least one female director on their boards.[4]

As argued by the literature, the CA quota offers a good setting for an event study because it was unexpected (Hwang, Shivdasani, and Simintzi, 2018; Von Meyerinck et al., 2019; Greene, Intintoli, and Kahle, 2020). It was unclear whether the bill would become law, as Governor Jerry Brown did not make any public statements on his position before enacting it on Sunday, September 30, 2018 (Jorge L. Ortiz, 2018). After the passing of the law, firms had 15 months to prepare for compliance. This setup ensures both a more specific event time and a shorter preparation time than, for example, the Norwegian gender quota for corporate boards.

## 3.2 Director Elections

We use shareholder votes for directors during the annual election to measure shareholders' attitudes toward individual directors. The current board nominates a slate of candidates for an election, typically one candidate per available seat (uncontested). All nominees are previously selected and appointed to their positions by the board and shall serve on the board in the upcoming year. Firms send information about the date and place of the annual meeting, instructions on how to vote, and a list of the items that shareholders can vote on typically one month ahead of the annual meeting ('proxy materials'). The proxy materials include information on current directors and nominees for the upcoming year (including name, age,

[3] In our sample, the median firm has a market capitalization of $1.5 billion meaning that the initial fine of $100,000 represents less than 0.001% of firm value. The size of these fines may put a bound on how much a firm would incur in search costs or other costs associated with finding or appointing a female director. For instance, a firm with a 10% discount rate would be indifferent between paying a perpetual fine with present value of $3 million and incurring $3 million in search costs for a female director. On the other hand, there may also be other costs, for example reputational, arising from not complying with the law. Since most firms in our sample comply with the quota, we know that their cost of finding and appointing a woman is less than the expected value of penalties.

[4] Firms comply with the law by filing a report through the website of the CA Secretary of State.

tenure, and bio). After the elections conclude at the annual meeting, the nominees are officially elected to the board. While changes to board composition can be made throughout the year, appointments of new directors and turnovers of existing ones are typically made in preparation of the annual shareholder meeting so the proxy materials present the board members for the upcoming year. Most companies hold their annual meetings during the 'proxy season' from April to June.[5] This implies that firms need to make changes to their boards by their first post-quota meetings, which will be the 2019 proxy season for most firms, in order to achieve compliance with the first quota requirement (at least one female director by the end of 2019).

Extant literature uses shareholder votes as a measure of individual director performance (Fischer et al., 2009; Aggarwal, Dahiya, and Prabhala, 2019; Erel et al., 2021). Institutional investors report that voting is one of the most important ways they engage with the board (McCahery, Sautner, and Starks, 2016). Shareholder support for directors summarizes the complex and time-varying set of attitudes that shareholders have for an individual director as well as that director's fit to the board (Bolton et al., 2020; Erel et al., 2021).

Voting rules make it unlikely that an individual candidate is precluded from serving on the board based on low shareholder support (Bebchuk, 2007). For example, for a board with plurality voting running an uncontested election, a director is elected if they receive even a single vote.[6] However, low shareholder support does lead to more effort as well as committee re-assignments and director departures over the medium to long-term (Cai, Garner, and Walkling, 2009; Iliev et al., 2015; Fischer et al., 2009; Aggarwal, Erel, and Starks, 2016; Fos, Li, and Tsoutsoura, 2018; Erel et al., 2021).[7] This serves to maintain continuity of management as the

[5] In our sample, about 70% of firms hold their meeting during that time period.

[6] The voting rules can be broadly divided into plurality and majority voting rules (but companies can formulate corporate bylaws which introduce modifications). Under the plurality voting rule, the N nominees for N board seats with the most votes win the election, but since the number of board seats generally equals the number of nominees, one vote is enough for the nominee to be elected. Under the majority rule, a nominee needs 50% of the votes. In practice, it is extremely rare that this threshold is not met. Overall, in our sample there are 69 cases where a nominee received less than 50% support. Only 7 of those cases involved female nominees.

[7] Aggarwal, Dahiya, and Prabhala (2019) find that deviating from the average level of support of 94% by 10% (to 84%) increases the probability to be turned over by 24%. A 10% deviation equals a one standard deviation of support in our sample. Strong dissent is viewed as support levels below 90% (Erel et al., 2021). In our sample, the least or second-least supported directors

board identifies suitable replacements (Aggarwal, Dahiya, and Prabhala, 2019). In summary, shareholder votes serve as a signal that the board uses to search for replacement directors rather than a hurdle that prevents an individual from serving on a board.

The idea that votes serve as a signal rather than a hurdle is important in our setting. A new female nominee will almost always serve on the board even if shareholders express dissent. However, boards do not ignore weak support for a director. So a poorly-fitting female director mandated by the quota will tend to face reassignment or may have to leave sooner if shareholders do not support her, but she will first serve and the firm will meet the quota requirements until a suitable replacement is found.

Some readers may argue that shareholders do not vote against a female nominee because voting against would make the female nominee feel unwelcome and risk losing her as a board member. In that case, support for female nominees is artificially inflated relative to their merits as a director. However, as we will discuss later, incumbent female nominees do not experience an increase in support post quota. In addition, we show using results from Erel et al. (2021) that expected support for new female nominees was not lower based on the characteristics of post-quota female nominees.

# 4 Data

Our sample is composed of all firms affected by the CA quota. We construct our dataset from the filings submitted by companies to the US Securities and Exchange Commission (SEC). These filings are available through the SEC's Electronic Data Gathering, Analysis, and Retrieval system (EDGAR), and all companies with publicly traded securities that are subject to Section 12 or Section 15(d), are required to file with the SEC. This sample is referred to in the CA Senate Bill 826 text as "publicly held domestic or foreign corporation whose principal executive offices, according to the corporation's SEC 10-K form, are located in CA" (Secretary of

have, on average, 90% support.

State California, 2018).[8,9]

For board election outcomes, we hand-collect information from Form 8-K. If there was a vote on the board of directors, the results are reported in the 8-K under Item 5.07, which states the name of each director elected at the meeting, the number of votes cast for, against, and withheld, and the number of abstentions and broker non-votes. This form must be filed by firms within four business days of the election. On EDGAR, we search for firms headquartered in CA both before and after the passage of the quota and that have director election results (Item 5.07) both pre- and post-quota. We thus require firms to remain in business for at least one year in order to have director election results available in both the pre- and post-quota period. We let the data start in 2016 to ensure we have sufficient coverage of elections before the passage of the quota and collect all election data until the end of 2020.

We exclude firms that are subsidiaries of other companies or that were acquired or delisted during the sample period. Likewise, we exclude nine elections that were proxy contests, as these elections are likely to have different dynamics.

Our final sample consists of 585 firms. It is larger than the samples used in Hwang, Shivdasani, and Simintzi (2018) and Von Meyerinck et al. (2019), and comparable to the sample size in Greene, Intintoli, and Kahle (2020). Our sample is larger due to the fact that we hand-collected data and included firms with publicly traded equity that are not part of the Russell 3000 or the S&P 1500.

For every election, we use the matching Form DEF14A (Definitive Proxy Statement), which contains information on the voting procedure and the backgrounds of the directors who are nominated to serve on the board for the next fiscal year. This form must be filed in advance of the shareholder meeting if shareholder votes are solicited. For every nominee in every election, we collect information on gen-

[8]The bill further refers to a public corporation as a corporation with outstanding shares listed on major US stock exchanges without specifying the exchanges. In our sample, we include all firms with public equity outstanding. If any firm that is not mandated to comply should accidentally have been included, this would bias our results towards zero. In addition, we observe that firms who are not part of large stock indices also adjust their board compositions to comply with the quota. Moreover, we conduct a robustness check to ensure that our results are robust for the exclusion of the firms whose equity is not listed on the major exchanges.

[9]There are five firms that moved their principal executive offices out of California throughout the sample period (2019 and 2020). We exclude these firms as of the time of moving. Our results are robust to excluding these firms from our analysis entirely.

der, age, tenure, and independence, as reported in the form.[10] Nominee gender is identified from the nominee biographies in the DEF14A filings, which use gendered pronouns. We use other sources (e.g. LinkedIn) to identify nominee gender when biographies are ambiguous.

Our data set includes the set of directors suggested by the firm for the upcoming fiscal year, which represents the board composition shareholders vote over at the shareholder meeting. We exclude directors who are listed as nominees in the DEF14A, but drop out before the election takes place.

There is a distinction between classified (i.e., staggered) and non-classified boards. In firms with classified boards, not all directors who will be on the board in the upcoming year stand for election. Classified boards have been found to be associated with worse corporate governance (Bebchuk and Cohen, 2005). Therefore, we make sure our results also hold in the sub-sample of non-classified boards (see Table A2 in the Appendix). Form DEF14 provides director information for both nominees and continuing directors.

Finally, we obtain announcements of director appointments and departures from 8-K filings (Item 5.02). This allows us to track changes in board composition between the last pre-quota election and the first post-quota election. Thus, we can infer the exact board composition at the time of the quota announcement, as well as and subsequent changes to this composition.

## 4.1 Shareholder Support for Nominees

We define our main variable of interest, *Support*, as the fraction of supporting votes received by a nominee who stands for election for the board of directors at a firm's annual meeting. We differentiate between the supporting voting category "for" (which is the same across all firms) and the non-supporting categories (where nomenclature varies across firms and includes "against," "withhold," "abstain," "withhold/against," "abstain/against"). *Support* is measured as the ratio of supporting votes to the sum of all votes. This is in line with the definition used in the literature on director elections (Cai, Garner, and Walkling, 2009; Fischer

[10] We encountered typos in reported director age. For consistency and because this is the information shareholders receive, we abstain from correcting these errors in the data. Doing so does not affect any of our results.

et al., 2009; Iliev et al., 2015; Aggarwal, Dahiya, and Prabhala, 2019) and with the approach adopted by the shareholder advisory firm Institutional Shareholder Services (ISS).[11] We also follow the standard of this literature and exclude broker non-votes.[12] Typically, these votes are not considered "votes cast" under state law.[13] For ease of interpretation, we use a standardized version of our *Support* measure throughout our analyses. This means that we subtract the sample mean from *Support* and subsequently divide it by the sample standard deviation (9%). As such, differences in support are expressed as a fraction (percentage) of the sample standard deviation of support unless otherwise stated.

## 4.2 Descriptive Statistics

Our sample consists of 585 distinct firms which held a cumulative total of 2,744 elections over the 60 month-year periods from January 2016 to December 2020. Table 1 shows descriptive statistics and provides an overview of the overall board characteristics associated with an election, which is our level of analysis. The total number of observations is greater (21,206) than our nominee sample (15,257), as the former also covers continuing directors at classified boards. In classified boards (43.1 percent of the boards in our sample) not all board members are voted on each year. In our nominee sample, each observation represents a nominee who will be voted on in a given election. The average (median) raw support is 94.0% (97.8%). However, there is variation: the standard deviation equals 9.1% and, as discussed above, deviations in support have been documented to be meaningful for the nominees (Aggarwal, Dahiya, and Prabhala, 2019; Erel et al., 2021).

Table 2 splits our nominee sample by gender and the pre and post quota an-

[11] Cai, Garner, and Walkling (2009) measure support as the number of "for" votes divided by the sum of "for" and "withhold" votes. They ignore other voting categories because the ISS Voting Analytics database only reports these two categories. They also construct a measure called "excess votes" which is the difference between "for" votes for the focal nominee and the average votes for all nominees up for election at the same shareholder meeting. We use election fixed effects throughout our analysis which capture the control measures in Cai, Garner, and Walkling (2009).

[12] These are votes held by beneficiaries through brokers or other third parties and for which the beneficiaries did not provide any instructions on how to vote.

[13] Furthermore, Cai, Garner, and Walkling (2009) show that broker non-votes have no impact on director election outcomes.

nouncement period. Overall, 17.7% of nominees are female. On average, female nominees receive more support from shareholders than male nominees before and after the quota announcement. Before the quota, female nominees receive, on average, 1.5% (16.5% of a standard deviation) more support than male nominees. After the quota, this spread increases to 2.5% (27.5% of a standard deviation) due to a decline in support for male nominees. A 2.5% difference is support is meaningful. Based on the results of Aggarwal, Dahiya, and Prabhala (2019), this difference in support would result in a 6% lower turnover risk for the average female director than for the average male director. It also noticeable that the fraction of new nominees is nearly three times as high for women as for men after the quota announcement. This reflects the fact that a large number of women were added to boards recently. The share of new nominees among men declines after the quota and average nominee tenure increases.

Figure 1 shows the average share of female board directors in CA for firms impacted by the quota. It shows that the share of women on boards is increasing over the course of our sample period. It further shows a clear structural break after the quota was introduced in 2018. While the average share of women on boards was 12.9% in 2016, it was 15.9% in 2018, and 19.2% (23.4%) in 2019 (2020). In Figure 2, we also see a strong increase in newly-appointed female directors. In 2019 and 2020, more new female than male nominees were standing for election. Together, these figures indicate that the quota had the intended effect of increasing female board representation.

We do not observe increases in the number of directorships per director ("busyness") after the quota.[14] This means that pre-quota female incumbent directors do not simply increase their number of board seats post-quota. This is supported by a recent study that shows that the quota-mandated female directors come from outside of the current director network (Greene, Intintoli, and Kahle, 2021). Moreover, we observe that the median board size remained constant (at eight) after the quota until the end of 2019, and increased by one in 2020. This suggests that boards, on average, did not simply grew by adding women to meet the quota requirements.

[14]Both male and female directors slightly decrease the number of seats on different boards after the quota. There is a larger decrease in busyness for female directors. The median number of board seats is one per director.

# 5 Empirical Strategy

## 5.1 Analysis of Shareholder Support

We analyze the effect of the 2018 CA quota on female board nominee support using a difference-in-difference analysis in event time. The aim is to estimate the effect of the quota on shareholder support for new female nominees relative to new male nominees before and after the quota. Therefore, we specifically differentiate between new and incumbent nominees. We use the following main specification:

$$\begin{aligned} Support_{i,ct} = \alpha_{ct} + \beta_1 New_{i,ct} + \beta_2 Female_{i,ct} + \beta_3 Post_{i,ct} \times New_{i,ct} \\ + \beta_4 Post_{i,ct} \times Female_{ict} + \beta_5 New_{i,ct} \times Female_{i,ct} \\ + \beta_6 Post_{i,ct} \times New_{i,ct} \times Female_{i,ct} + \epsilon_{i,ct} \end{aligned} \tag{1}$$

where $Support_{i,ct}$ is the (standardized) ratio of supporting votes to the sum of all votes for an individual nominee $i$ in election $c$ that takes place in year $t$. The nominee can be either a new or incumbent candidate ($New_{i,ct}$) and they can either be female or male ($Female_{i,ct}$). We define a nominee as new if they stand for election for the first time and were appointed to the board within one year of the election meeting. $\alpha_{ct}$ are election fixed effects and $Post_{i,ct}$ is an indicator of the observation being pre- versus post-the 2018 quota, i.e., $Post_{i,ct}$ takes a value of one if the election took place after September 30, 2018 and zero otherwise.[15] We use heteroskedasticity-robust (White) standard errors throughout the analysis.[16]

Note that since we have three indicator variables, we have six categories: $Post$, $Female$, and $New$. Therefore, in Specification (1), $Pre$, $Male$, and $Incumbent$ are the omitted categories. $Female_{i,ct}$ thus measures the difference between an incumbent male nominee pre-quota and an incumbent female nominee pre-quota.

We are interested in the interaction effects between $Post_{ict}$ and $Female_{i,ct}$ ($\beta_4$) as well as $Post_{i,ct}$, $Female_{i,ct}$ and $New_{i,ct}$ ($\beta_6$). These indicate whether the support for female nominees changes post-quota relative to the support for male nominees

[15] $Post_{i,ct}$ is not included as a variable in the regression on its own as it is absorbed by the election fixed effects.

[16] Our standard errors are robust to clustering at the firm, election, or director levels instead.

and whether this change differs between new and incumbent nominees.

We are specifically interested in directly comparing new female and male directors. Therefore, we reformulate the above regression and make $New \times Male$ the baseline group instead. We thus run the following regression:

$$\begin{aligned} Support_{i,ct} = \alpha_{ct} + \gamma_1 Pre_{i,ct} \times Inc_{i,ct} + \gamma_2 Post_{i,ct} \times Inc_{i,ct} \\ + \gamma_3 Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct} \\ + \gamma_4 Post_{i,ct} \times Female_{i,ct} \times New_{i,ct} \\ + \gamma_5 Pre_{i,ct} \times Female_{i,ct} \times Inc_{i,ct} \\ + \gamma_6 Post_{i,ct} \times Female_{i,ct} \times Inc_{i,ct} + \epsilon_{i,ct} \end{aligned} \tag{2}$$

where, $Inc_{i,ct} = 1 - New_{i,ct}$. In this specification, $Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ ($\gamma_3$) tests whether new men and new women are equal in the pre-quota period, while $Post_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ ($\gamma_4$) tests whether new men and new women are equal in the post-quota period. Note that, these two regression specifications are effectively the same and the coefficient estimates of Specification (2) can be obtained from Specification (1) and vice versa.[17]

We use election fixed effects throughout our analysis to control for any omitted characteristics at the election level, including firm characteristics (even if affected by the quota) such as board composition, firm performance, differences in voting rules, or the degree of shareholder participation. We thus pick up differences in voting outcomes for incumbent and new as well as male and female nominees within the same election.[18]

[17] In Table 3 the coefficients in the lower panel (implied differences between female and male nominees) correspond to Specification (2) and the coefficients in the upper panel correspond to Specification (1). In Column (1), the coefficient on *New nominee post: female-male* ($\gamma_4$) (0.026) can be obtained from the coefficients in the upper panel in the following way: the sum of the coefficients $\beta_1$ to $\beta_6$ (0.389) is the difference in the support between incumbent male nominees pre-quota and new female nominees post-quota. The sum of the coefficients $\beta_1$ and $\beta_3$ (0.363) is the difference in support between incumbent male nominees pre-quota and new male nominees post-quota. Thus, the difference in support between new female and new male nominees post-quota is 0.389-0.363=0.026.

[18] Note, that firms that are not compliant with the quota prior to its announcement cannot have support for female directors before the quota. Therefore, we cannot compare new women pre to new women post quota in non-compliant (violator) firms.

To address potential concerns that shareholders supported certain nominees in anticipation of the CA quota, we verify in Figure 3 that the support for new and incumbent male and female nominees does not diverge before the event (we will provide an additional discussion of these figures in Section 6.1.1).

# 6 Results

## 6.1 Support for Nominees in Elections for the Board of Directors

We now look at support for nominees to test the first potential explanation for the observed negative stock price reaction to the quota: boards are unable to recruit female directors that shareholders approve of when complying with the mandate. If this is the case, we expect post-quota support for new female nominees to be below the post-quota support for new male nominees.

### 6.1.1 Univariate Analysis

We first look at simple raw-data averages. Figure 3 shows the average (standardized) support for new female, new male, incumbent female and incumbent male nominees before and after the announcement of the quota. In the raw data, we already see four main patterns that we will confirm in our multivariate analysis. First, we see that new nominees generally enjoy stronger support than incumbent nominees.[19] Additionally, consistent with women being held to a higher standard in the selection process, the figure shows that new female nominees receive greater support from shareholders than new male nominees pre-quota. Second, after the quota announcement, the level of support for new female nominees decreases and converges to the level of support for new male nominees. Third, Figure 3 also reveals a pronounced decrease in support for incumbent male nominees post-quota. Fourth, Figure 3 shows that the support for incumbent female nominees remains flat after the quota. This suggests that shareholders do not simply vote for women

[19] This is consistent with the idea that new directors are more likely to be independent and, thus, better monitors. For instance, Ertimur, Ferri, and Oesch (2018) show that ISS is less likely to issue "withhold" recommendations for new directors.

due to the quota. If shareholders would try to hold on to their existing female directors we would expect to see an increase in the support for female incumbent nominees.

### 6.1.2 Multivariate Analysis

Table 3 analyzes post-quota support for the four nominee groups in a multivariate setting including election fixed effects, i.e., Specification (1). The results are consistent with the univariate analysis in Figure 3. Column (1) considers the full sample of nominees where incumbent male nominees pre-quota are the omitted category. Column (2) focuses on new nominees and includes only elections with at least one new female nominee and one new male nominee in the same election; here new male nominees pre-quota are the omitted category. Column (3) considers incumbent nominees separately in the subset of elections with at least one incumbent female and one incumbent male nominee; here incumbent male nominees pre-quota are the omitted category. For ease of interpretation, we also provide the calculated implied differences between female and male nominees from the three regressions in the bottom part of the table. As discussed, these can be obtained through calculations, or through running Specification (2).

**Support for New Female Nominees Post Quota** In Column (1) in Table 3, we see that the coefficient on the triple interaction of being a new female nominee post-quota is negative ($\beta_6$ in Specification (1)). This implies that support for new female nominees post quota was 13% of one standard deviation of support lower than what would have been predicted for a new female nominee after the quota. In other words, after the introduction of the quota, shareholder support for new female nominees fell more than for their male counterparts, or for incumbent female nominees.

**Support for New Female Versus New Male Nominees** At the same time, the coefficient on the implied differences for new female and new male nominees show that, before the quota, new female nominees' support was 7.9% of one standard deviation of support higher than new male nominees' support (Column (1), coefficient $\gamma_3$ in Specification (2)). For the sub-sample of elections where both a

new female and a new male nominee were on the ballot (Column (2)), new female nominees had 12.1% of one standard deviation more support than their new male counterparts (coefficient $\gamma_3$ in Specification (2)). This is consistent with the notion that women had to clear a higher bar to become nominees than men pre-quota.

After the quota, support for new female nominees fell. When we look at the results of Specification (1) in Column (2), new female nominees lost 4.1% of a standard deviation of support. However, looking at the implied differences in Column (2), we can see that new women remain (marginally) statistically significantly more supported than new male nominees by 8% of a standard deviation (coefficient $\gamma_4$ in Specification (2)). Thus, despite a fall in support for new female nominees after the quota relative to before, support for new female nominees still remains at a high level, and we can conclude with statistical confidence that they are not less supported than new male nominees.

We also investigate whether there is evidence of inflated shareholder support for quota-mandated female nominees. Erel et al. (2021) identify characteristics that predict support. Importantly, they conduct their analysis outside the quota period. We use their results to predict support using nominee characteristics. We show that the predicted support is not lower for new women than new men after the quota. This implies that the level of support we see post-quota is consistent with the characteristics of the female directors and not just inflated demand for women by shareholders. Details can be found in Appendix C.

**Support for Incumbent Female Versus Incumbent Male Nominees** Column (1) in Table 3 shows that incumbent female and male nominees were indistinguishable in terms of support before the introduction of the quota. However, after the quota, incumbent female nominees received 10.2% of one standard deviation more support than incumbent male nominees (see the implied differences in Column (1)). This difference in support is statistically significant and arises due to a decrease in the popularity of male incumbent nominees. This evidence is substantiated in Column (3), where we only consider elections where both incumbent female and male nominees are voted on.

In addition, in Table A1, we look at the support for the same nominee within the same firm before and after the quota. In order to account for election-level

effects, we subtract the average support for the nominees in an election from the focal nominee's support in that election (*excess support*). The results show that the incumbent female nominees do not receive more support than male nominees before the quota. Additionally, the support for incumbent female nominees does not increase after the quota. This suggests that shareholders do not simply vote for women because of the quota. Given that the quota improves outside options for women, if only the concern about compliance with the regulation would drive shareholders' voting decisions, one would expect an increase in support for incumbent female nominees post quota in order to keep them on the board. Incumbent men, on the other hand, lose a substantial amount of support in the post period.

**Robustness** Our results become stronger in the sub-sample of elections of non-classified boards (Table A2 in the Appendix). In non-classified boards, every director stands for election every year as opposed to just a part of the slate of directors, meaning that all directors on the current board can be compared to each other.

Our results also hold when we exclude firms that are not traded on major stock exchanges (Table A3 in the Appendix).

Additionally, we can control for the voting recommendation issued by the ISS and our results remain qualitatively similar (Table A4 in the Appendix).[20] The coefficient on new female nominees post-quota becomes somewhat more significant and larger (Column (1)) which causes the implied difference between post new women and men to lose statistical significance (implied differences, Column (2)), but it remains positive and of similar magnitude. Therefore, there is no evidence of shareholder opposition to female nominees post-quota and we can rule out that new female nominees are 1.7% (6.3%-2*4%) less supported than new male nominees with statistical confidence. When we control for the ISS recommendations and restrict our analysis to elections of non-classified boards (Table A5 in the Appendix), the results are strong and consistent with the pattern we observe in our main analysis in Table 3.

[20] ISS voting recommendations are available for 96.4% of our sample firms. There is no clarity to what extent shareholders follow ISS' advice and to what extent ISS follows shareholder preferences when making a voting recommendation. For instance, Aggarwal, Erel, and Starks (2016) show that shareholders are less likely to follow ISS recommendations and form their own opinion.

Lastly, for the sub-sample of new nominees, we check whether the difference in support between new female and male nominee is driven by whether they are independent nominees and which committees they are assigned to. We include controls for being part of the audit or compensation committee as these committee memberships have been found to influence support (Erel et al., 2021). We also control for whether the nominee has been appointed to the board before the election (within one year) as opposed to the time of the election. The results in Table A7 in the Appendix show that new female nominees are not less supported than new male nominees post-quota.

## 6.2 What do Stock Prices React to? Stock Price Reactions and Board Restructuring Decisions

In the preceding analysis, we showed that new female nominees do not receive less support than new male nominees after the introduction of the quota. This result suggests that the negative stock price reaction to the quota is not driven by shareholder concerns about a lack of qualified female directors.

However, the effect of the quota goes beyond requiring firms to identify a suitable female nominee. By forcing a board characteristic (gender), the quota represents a shock to board composition for firms that are not compliant with the quota at the time of announcement. Firms with no women on boards are forced to decide whether they respond to the requirement by ignoring the quota (not comply), expand the board by adding a woman, or by replacing an existing board member with a new woman. Therefore, we now turn to a new explanation for the negative share price reaction to the CA quota: the possibility that boards fail to conduct the restructuring of the board optimally. In particular, we test whether boards fail to turn over the least-supported incumbent male directors when they add female directors to comply with the quota. A value-neutral substitution is available if the proposed female director is as supported as the least-supported incumbent male director. If the board recruits such a female candidate but turns over a director other than the least-supported male director, the result is a value decreasing substitution.

Figure 3 and Tables 3 and A1 show that incumbent men become less supported

after the quota. This is a first indication that some boards may indeed have failed to replace their least-supported male directors. We thus propose that the share price reaction to the quota reflects shareholders' expectations about the likelihood of sub-optimal turnover decisions.

Why would boards conduct the turnover sub-optimally? The board itself is in charge of selecting nominees and has significant power over board composition. Evidence of divergence between the interests of shareholders and directors is widely documented in the literature (e.g., Berle and Means (1932), Hermalin and Weisbach (1998), Bebchuk and Cohen (2005), Adams, Hermalin, and Weisbach (2010), and Coles, Daniel, and Naveen (2014)). Erel et al. (2021) suggest that firms with weak corporate governance structures hire predictably poor directors. Hence, it is likely that badly governed firms also facilitate weak directors to keep their positions on the boards. In fact, in our context, the quota incentivizes weak male directors to hold on to their board positions, as their outside options have deteriorated. Additionally, incumbent directors may prefer to retain poorer performing peers to compare more favorably to them (Erel et al., 2021). In practice, shareholders' dissatisfaction with the board's selection process manifests itself in their employment of proxy advisory firms (e.g., ISS) who provide voting recommendations for each individual director, shareholders' growing influence in the nominating process (e.g. proxy contests and suggestion of own candidates) and SEC rules that increasingly facilitate shareholder activism (Holly, Grapsas, and Holland, 2019).

### 6.2.1 Announcement Returns to the 2018 CA Quota

Studies have shown that the stock market reacted negatively to the announcement of the CA quota. The negative announcement returns were concentrated in firms which were not compliant with the quota requirement at the time of announcement (Hwang, Shivdasani, and Simintzi, 2018; Von Meyerinck et al., 2019; Greene, Intintoli, and Kahle, 2020). We first verify that this holds for our sample.

We obtained data on raw and excess returns from The Center for Research in Security Prices (CRSP) database for most of our firms. However, given that our sample also contains small firms whose equities trade on Over-the-Counter (OTC)

exchanges, we collect stock returns for 31 firms from Yahoo Finance.[21] Each firm must have at least 30 days of returns for the estimation. There are 31 firms in our sample that do not satisfy this requirement. We use October 1, 2018 as our event date (as September 30, 2018 is a Sunday), and our estimation window spans 255 trading days prior to the event and six days after. We exclude 30 firms that experienced other material events at the time of the quota announcement, as those events could have affected shareholder reactions to the quota announcement.[22] As a result, the average return is based on a sample of 524 firms.[23]

Table 4 shows that our average abnormal return is -1.06% on the event date, and -1.12% if we exclude the 30 firms that are traded on OTC exchanges.

Next, we verify that firms which are not compliant with the quota requirement at the time of announcement drive the negative stock price reaction. We regress the firm's abnormal announcement return on a dummy (*Violation19*) that is equal to one if a firm, at the time of the quota announcement, was in violation of the first quota requirement (which requires at least one female director by the end of 2019). We also consider a discrete variable (*Shortfall21*) that can take integer values from zero to three, and represents the number of female directors a board needs to add in order to be compliant with the 2021 requirement (two female directors for board sizes of five; and three female directors for larger boards). The group of firms requiring three women until the end of 2021 for compliance is a sub-group of *Violation19* representing large all-male boards. Firms in the *Shortfall21* group who were missing one or two female directors to be compliant with the 2021 requirement may or may not have complied with the 2019 quota requirement at the time of the announcement.[24] The group of most concern to shareholders are firms which were not compliant with the approaching 2019 quota requirement at the time of the announcement.

[21] We verify that these firms are not driving our results.

[22] Based on 8-K filings, we consider material events as earnings announcements, announcements of de-listings from exchanges and mergers. We exclude these events if they take place within (+/-) three days of October 1, 2018.

[23] These firms cover 89.3% of our observations in the nominee sample. We verify that our main results are robust to the exclusion of the firms for which no stock price information is available, see Table A6 in the Appendix.

[24] There are 163 firms classified as *Violation19*; 162 firms classified as Shortfall21=1, 188 firms classified as Shortfall21=2, 106 firms classified as Shortfall21=3.

We follow previous literature and control for board characteristics associated with corporate governance quality, including board size, the average tenure of directors, the share of independent directors, and whether it is a classified (i.e., staggered) board. These characteristics are based on board composition at the time of the quota announcement. Table 5 presents the regression results and shows negative returns for each group of violators.

### 6.2.2 Are Announcement Returns Related to how Firms Adjust Board Composition in Response to the Quota?

Next, we analyze whether shareholders react differently to the quota announcement depending on their anticipation of how firms will change their boards to comply with the quota. We use two different models of shareholder expectations. The first model is a perfect-foresight model in which we use the actual outcome of restructuring as shareholders' expectation. For the second model, we fit the probabilities of the restructuring outcome based on observable firm and board characteristics and use these as shareholder expectations.

If the negative stock price reaction is related to the anticipation of the addition of a quota-mandated female director, we expect to see a negative stock price reaction whenever a female director is added to the board after the quota announcement. However, if the stock price reaction is related to the anticipation of a sub-optimal turnover of an existing male director when a woman is added to the board, we expect to see a negative stock price in the group of firms where a popular director rather than a director with low support is turned over after the quota announcement.

We focus on the group of firms which have no women on their boards at the time when the quota is announced (*Violation19*).[25] These firms are under pres-

[25] We do not analyze board composition changes of firms that are already compliant with the 2019 quota requirement at the time of the quota announcement (non-violators). The decisions with respect to board composition of non-violators and violators are inherently incomparable because the quota forces the violators to choose an action (even if it's ignoring the quota and keeping the board the same) while for the non-violators, it's part of their day-to-day business and unlikely a reaction to the quota announcement. In a previous version of the paper, we found that announcement returns of violator firms who turned over the least-supported male director and added a female director after the quota announcement don't differ from the announcement returns of non-violator firms who also turn over a least-supported director after the quota

sure to respond to the approaching 2019 quota requirement which mandates one female director on boards. Moreover, we focus on board composition adjustments executed by the time of the first post-quota elections.[26] This ensures that changes to board compositions are likely in response to the quota rather than other corporate events. Since annual shareholder meetings are typically held from April to June ('proxy season'), for most firms their first post-quota election (April to June 2019) represents the main opportunity to make changes to board composition in time to be compliant with 2019 quota requirement. It also ensures that the proxy materials received by shareholders list director nominees chosen only a few months after the quota announcement.

We classify firms into four mutually exclusive and exhaustive categories: 1) those who do not add a woman to the board (*Do Nothing*), 2) those who add a woman and do not turn over a man (*Add Woman*), 3) those who add a woman and turn over the least or second-least supported male director (*Add Woman & LS turned over*), and 4) those that add a woman and turn over a more popular director (*Add Woman & LS not turned over*).

We identify the least or second-least supported directors based on shareholder votes in the firm's last pre-quota election. We look at the two least-supported male directors instead of just one to account for situations where, despite low support, a director is critical to the board (e.g., an insider) or the low support is due to some special circumstances (e.g., an unfavorable corporate policy in that year) that are unobserved to the researcher. We can also focus on the least-supported director only and we find similar results using either definition. Moreover, we exclude turnovers that are unlikely the result of adjustment efforts to meet the quota requirement including turnovers of female directors, lead directors (chairs), or CEOs, as well as turnovers due to changes of control, restrictions on age limits, or the passing of a director. Finally, we exclude elections with equal support for

announcement.

[26] In Table A8, we explore announcement returns of different sub-samples of firms that need to add female directors to be compliant with the 2021 requirement based on how they adjust board composition after the quota. Consistent with our main result, we only find negative announcement returns among firms who require three female directors for compliance (a subgroup of *Violation19*) and who add a woman and don't turn over the least or second-least supported director after the quota.

all directors.[27]

We report summary statistics for turned-over directors in Table A9 in the Appendix. Strong dissent is typically viewed as support levels below 90% (Erel et al., 2021) which is consistent with the level of support that the least- or second-least supported directors receive in our sample. In this table, we can also see that when firms have more popular directors replaced than the least or second-least supported directors, the least or second-least supported directors received 4.9% (53.8% of a standard deviation) less support than the average director within the same pre-quota election (*Excess support*). Based on the results in Aggarwal, Dahiya, and Prabhala (2019) a director with this deviation in support would typically face a 12% higher likelihood of being turned over. Therefore this difference is treated seriously by firms.

To determine whether announcement returns are related to firms' restructuring decisions, we run regress announcement returns on indicator variables that identify the type of adjustment each firm made to its board (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, or *Add Woman & LS not turned over*) in the time period after the quota announcement and until after the first post-quota election for the group of firms that violate the 2019 quota requirement at the time of the quota announcement. The reference group is *Do Nothing* and is captured by the constant. We report summary statistics for each group in Table 6 which show substantial negative announcement returns (-4.6%) in the small group of firms that don't replace the least or second-least supported director when they added a female director (*Add Woman & LS not turned over*). While this is a small group of firms their combined market capitalization is at least $4.2 billion.[28]

The results of the regression are presented in Table 7 and show that the only

[27] A ranking for every director in their last pre-quota election is determined by calculating their *Excess Support* that is defined as the nominee's support in the election minus the average for all other nominees in that election. For classified boards, this choice is important; for non-classified boards, excess support and raw support give the same ranking. When there were only two directors up for election, we categorized it as *Least- or second-least supported replaced* only if the least-supported director was turned over. When a director was not standing for election in the immediate pre-quota election (this can occur in classified boards), their ranking is calculated using the last election where they were a nominee during the pre-quota sample period.

[28] We don't have information on the market capitalizations of two firms as they are traded on OTC exchanges.

group that exhibits negative quota announcement returns are firms that did not turn over the least or second-least supported directors when they added a female director to the board after the quota announcement (*Add Woman & LS not turned over*). Neither firms that don't add a woman, nor firms that expand their boards with a female director or replace an unpopular male director with a female director have returns that are statistically significantly different from zero. Additionally, the coefficients are tightly estimated and we can rule out that any of the three groups' coefficients reaches the point estimate of the group *Add Woman & LS not turned over* (-3.3%) with statistical confidence.

### 6.2.3 Are Shareholders Able to Predict how Firms Adjust Board Composition in Response to the Quota?

Our analysis so far assumes that shareholders have perfect foresight about how firms will change their boards in response to the quota. However, one may wonder whether shareholders rather form expectations about how firms will behave based on information they have about the firm at the time of the quota announcement. Therefore, we next analyze whether shareholders' predictions about how boards will respond to the quota are related to the quota announcement returns.

We estimate a multinomial logit model to obtain the predicted probability associated with how a firm will restructure its board in response to the quota (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, or *Add Woman & LS not turned over*) by the time of the first post-quota election based on a number of firm and director characteristics observable at the time of the quota announcement.

We select determinants that specifically have the purpose to either help or prevent weak directors to remain on the board.[29] First, we include an indicator for whether a firm has a plurality (as opposed to majority) voting rule in place for director elections. While under the majority voting rule a minimum number of votes is required to be elected to the board, under the plurality voting rule no such threshold exists (one vote is enough for the nominee to be elected if the number of nominees equals the number of board seats). Because weaker directors

[29] Note that, the literature on board entrenchment so far has focused primarily on provisions that help protect the board as a whole from being replaced (i.e. through a hostile takeovers). Our focus on entrenchment of individual weak directors is novel and not well-studied.

face the risk of not being re-elected to the board only under the majority voting rule, a plurality voting rule protects the weakest directors and limits shareholder power in the turnover process (Bebchuk, Cohen, and Ferrell, 2009).[30] We also include the Coles, Daniel, and Naveen (2014) co-opted board measure which counts how many directors were hired after the CEO. We use an indicator that is equal to one if a board is more co-opted than the sample average. We don't make a prediction about how board co-option affects turnovers. While a more co-opted board may be generally inclined to protect its members, if the least or second-least supported director was hired before the CEO the protection may not extent to that director. We also include an indicator if ISS issued an against recommendation for the least or second-least supported board directors. Moreover, we control for whether a board is classified. The staggered election process protects all directors from being removed from the board at the same time, but also make it more difficult to identify which director is the least-supported one.[31] Lastly, we include the remaining corporate governance characteristics used throughout the analysis (see the control variables in Table 5). Table A10 in the Appendix presents the coefficients from the multinomial logit regression.

Next, we extract the predicted probabilities for each board restructuring type for each firm from the multinomial logit regression and include them separately in place of the actual response variables (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, or *Add Woman & LS not turned over*).[32] Table 8 presents the results and shows that only when, at the time of the quota announcement, shareholders assign a high probability that a board will not turn over the least-supported

[30] Among firms that violate the quota at announcement, 79.1% have a plurality voting rule. This is the case for 60.9% of firms that don't violate the quota at announcement. Among violator firms that turn over the least or second-least supported director 60.0% use plurality voting. Among violator firms that don't turn over the least supported director 91.7% use plurality voting.

[31] We also included an indicator whether the least or second-least supported director is a chair of an important committee (audit, compensation, nominating). This characteristic does not have any predictive power over which director will turn over. While our results remain robust for the inclusion of this variable we exclude it from our specification for the sake of parsimony.

[32] We take into account that the probability to restructure the board in a certain way (Table A10) is estimated with error which subsequently affects standard errors in Table 8. We perform a robustness check where we we bootstrap standard errors by running the specifications in Tables A10 and 8 on 1,000 random draws of our sample. The results are reported in Table A11 in the Appendix.

directors when adding women to the board after the quota announcement share prices react negatively.[33] Importantly, these results are consistent with how quota announcement returns are related to firms' actual behaviors (Table 7). The consistency between the two types of analyses also suggests that investors can, on average, predict how boards will respond to the quota using observable firm characteristics at the time of the quota announcement.[34]

Shareholders form expectations at the time of the quota announcement about how a firm will respond to the quota and whether a firm will replace the least-supported incumbent directors. Of course, they can make mistakes. If the market initially reacted negatively to the quota announcement due to the expectation that unpopular directors will be retained, the market should revise this prediction error and react positively when a firm (surprisingly) turns out to remove the least or second-least supported directors after the quota announcement. In our final test, we relate the predicted probabilities and residuals (errors) associated with the turnover of the least or second-least supported directors obtained from the multinomial regression above to the announcement returns of the directors' departures. We also create a dummy variable which identifies whether a firm is in the top quartile (base category), bottom quartile, or median (25th to 75th percentile) in the distribution of quota announcement returns. We interact this dummy variable with the predicted turnover probabilities and residuals. We only focus on firms that turn over a director when adding a female director to comply with the quota after its announcement. If our prediction model is a good approximation of how shareholders form expectations about whether a firm turns over one of the least-supported directors, we should see that a higher prediction error (but not the predicted probability) is associated with a correction in returns for firms where the market reacted particularly negatively to the quota announcement (due to the anticipation of sub-optimal turnovers). Our result in Table 9 shows support that this is indeed the case: firms that experienced very negative quota announcement returns and have large prediction errors associated with the probability that the least or second-least supported directors will be turned over have positive returns

[33] For instance, for a firm where shareholders assign a 50% probability to belong to the group *Add Woman & LS not turned over*, average announcement returns will be -6.9% (13.7%*0.5).

[34] This regression specification does not include any control variables as these were already used as predictors in the multinomial logit regression in Table A10.

upon the announcement that the least or second-least director departs from the board.

In summary, we thus show that the negative announcement returns are driven by firms who failed to turn over the least-supported male directors when they added female directors to the board to comply with the quota. This result supports the conjecture that shareholders negatively respond to anticipated sub-optimal turnover decisions of existing male directors, rather than reflecting shareholder opposition towards mandated female directors.

**Robustness** As the first robustness check, we repeat the analysis changing the definition of least-supported directors to only the least-supported (rather than least or second-least supported) directors. Our results are robust to this specification and are reported in Table A12 in the Appendix.

Moreover, we conduct our analysis using May 2019 (the end of the proxy season) as a cut-off point until which we consider turnover of male directors and additions of female directors. This way, we use the same time period as a benchmark for all firms. The results are robust to this specification and are reported in Table A13 in the Appendix.

We also verify that our results are the same for the sub-sample of firms with non-classified boards and firms that are traded on major stock exchanges (see Tables A14 and A15 in the Appendix).

As an additional robustness check, we control for industry effects using Fama-French 12 industry portfolio returns on the day of the quota announcement as well as the firm's market capitalization at the time of the quota announcement.[35] Table A16 in the Appendix reports the results and shows that they remain qualitatively the same.

Lastly, Ertimur, Ferri, and Oesch (2018) provide evidence that shareholders vote against committee chairs to address specific issues, but do not want to see these committee chairs leave the board. In Appendix B, we provide an analysis showing that our results are not sensitive to the departure of committee chairs. In Appendix B, we also explore the possibility that there is a difference in the types

[35] We obtain these data from Compustat. It was not available for three firms in our sample. Our results remain robust if we use SIC two-digit industry fixed effects instead.

of female directors between firms who turn over and those who do not turn over the least or second-least supported directors. We also check whether the least or second-least supported director has a critical skill the newly added female nominee lacks forcing firms to turn over a higher support director instead. None of these explanations seem to be applicable.

### 6.2.4 Are there Long-run Implications for Firm Value Associated with Suboptimal Replacements?

So far, our analysis focused on explaining the negative stock price reaction around the announcement day of the quota. While a relatively short time period has passed since the introduction of the quota, one may wonder to what extent suboptimal replacements of male incumbent directors in response to the quota have real effects that are reflected in different measures of longer-run firm performance. Therefore, we next analyse long-run indicators of firm performance similar to those employed in Ahern and Dittmar (2012) who analyse firm outcomes eight years around the introduction of the Norwegian gender quota for corporate boards.

In our analysis, we compare how violator firms differ from non-violator firms from one year before (2017) to two years after the quota announcement (2020) depending on how they restructured the board by their first post-quota election. Table A17 in the Appendix presents the results from a firm fixed effects regression where 2017 is the base year.[36] First, we want to understand whether the decrease in firm value around the quota announcement was just a short-lived valuation effect limited to the day of the event. For instance, it could be the case that shareholders initially overreact to the quota announcement. In Panel A, we consider Tobin's Q as a measure of market value which is computed as the sum of total assets and market equity less common book equity divided by total assets. The results show that only the group of violator firms who don't turn over the least or second-least supported male incumbent director when adding a woman to the board experience a decline in market value in the year of the quota announcement (2018) which persists (and further deteriorates) at least one year after the quota announcement. We next consider accounting measures related to firm performance and costs (Panel

[36] Data was not available from the financial databases Computstat and Orbis for two sample firms (non-violators) for the full set of years.

B) and firm policy (Panel C). Our results don't show any evidence of worse profitability (ROA, Asset turnover) among violator firms who suboptimally replace male directors over the time period. With respect to firm policy, there is some indication that these firms reduce cash holdings and invest less in R&D.

The overall absence of clear patterns in performance and policy differences may be due to the relatively short time period that has passed since the implementation of the quota, the noisiness of longer-run accounting measures, or the small set of firms we are able to analyze within the context of this quota. Nevertheless, our results show that the negative effect on firm value for firms who didn't turn over the least or second-least supported male director in their first post-quota election persists beyond the day of the quota announcement. Importantly, firms that violate the quota at the time of announcement that don't respond to the quota, expand their boards with a women, or remove one of the least-supported male directors when adding women don't experience a decline in firm value in the years after the quota announcement.

## 6.3 Alternative Explanations for our Findings

Our analysis provides evidence that shareholders do not oppose quota-mandated female nominees. The high support for new female nominees post-quota is in line with there being a sufficient supply of female directors shareholders approve of to fill board seats mandated by the quota, and firms actually being able to recruit these women. Alternative explanations for our findings must jointly explain three pieces of evidence: 1) shareholders do not support quota-mandated female nominees less than new male nominees, 2) share prices fall, and 3) those share price declines are concentrated in firms that do not turn over their least or second-least supported male directors.

What if shareholder support for female nominees was positively impacted by recent shifts in general attitudes toward women or initiatives of institutional investors? In this case, we would not expect a negative share price reaction to the announcement of the quota. Moreover, we would not know why the negative share price reaction is related to turnover decisions made after the quota. In Appendix C, we provide a number of robustness checks to explore alternative drivers for share-

holder support for new female nominees. We show that support for new female nominees should not have been lower based on their observable characteristics. We further explore the general trend in voting behavior in all US states. Finally, we specifically look at the voting behavior of institutional investors and provide evidence that our results also hold for the subset of shareholders who do not have a built-in preference for women (or diversity).

# 7 Policy Implications - The Repeal of the CA Board Quota

On May 16, 2022, the CA gender quota was ruled unconstitutional by a Los Angeles County Superior Court judge based on the equal protection clause of the CA constitution. The constitutionality of the law was challenged by the conservative legal rights group Judicial Watch. As of this writing the CA Secretary of State has not made a statement about how it will proceed.[37]

Among the arguments against the gender quota brought forward by the plaintiff were insufficient evidence on 1) the presence of gender discrimination in the director selection process, and regarding 2) a positive effect of gender diversity on firm value (*Crest v. Padilla* 2022). Moreover, methodological limitations related to the analysis of aggregate stock price announcement returns in the academic gender quota literature were stressed in the plaintiff's testimony.[38]

Our study is highly relevant to the debate on the future viability of the gender quota as it provides new evidence using data on shareholder votes as a complement to the analysis of aggregate stock prices. The fact that pre-quota shareholders supported female nominees more than male nominees is evidence that the board of directors applies different criteria for the selection of women and men. Our results also suggest the presence of inefficiencies in the director nomination and turnover process whereby the board of directors does not act in line with shareholder interest

[37]It is not uncommon for first generation laws to be repealed with future amended versions to be adopted. See, for instance, Anjier (1990) for the history of anti-takeover statutes in the US. While the first generation of these laws was repealed, the laws were adopted in their second generation.

[38]The full testimony can be viewed here: https://www.judicialwatch.org/documents/tags/ca-boards-2022/.

by appointing too few women and holding on for too long to less-supported male directors.

**Are the Quota Repeal Announcement Returns consistent with Shareholders Opposing Quota-mandated Women?** At this point it is too early for rigorous analysis of how boards will restructure in response to the repeal. Adjustments to board composition will likely be visible by the of the next proxy season (May 2023). However, we provide a preliminary analysis on the market's reaction to the repeal announcement for our sample firms.[39] The analysis is described in Appendix D and shows a positive announcement return to the quota repeal. The size of the positive announcement return is, however, smaller than the abnormal negative return at quota announcement. This could be explained by certain firms revealing their inability to deal with the regulation optimally. Overall, the observed patterns in the announcement returns to the repeal are consistent with our findings that shareholders do not oppose female directors. For example, the abnormal positive return was not higher for firms which, at the time of appeal, were non-compliant with the quota. The results related to the repeal should, however, be regarded as highly preliminary at this point.

# 8 Conclusion

In this study, we analyze shareholder attitudes towards quota-mandated female board nominees by jointly considering shareholders' behaviors when pricing the stock and when voting for individual directors of the board using hand-collected longitudinal data. We provide evidence for a new explanation for the negative stock price reaction to the quota announcement. Boards are able to recruit female directors that shareholders approve of. However, some firms do not handle the

[39]Note that the event itself is subject to some confounding factors. First, a month earlier (April 1, 2022) the same plaintiff (Judicial Watch) caused the repeal of the CA Diversity law. The law required publicly traded companies headquartered in CA to have at least one board member who is Black, Latino, Asian, LGBTQ+, or from another underrepresented community by the end of 2021. This repeal may have led shareholders expect that the gender mandate would be repealed as well. Second, in 2021 Nasdaq put in place a listing requirement (explain-or-comply) for firms to have one (two) diverse board member(s) by August 2023 (2025).

turnover process optimally and fail to remove the least-supported male directors when they add women to the boards to comply with the quota.

We start by analyzing whether boards are able to recruit female board members shareholders approve of. Our results show that, before the quota, shareholder support for new female nominees was greater than it was for new male nominees. This is consistent with the presence of a higher bar for female board candidates prior to the quota. After the quota, support for new female nominees fell, but not below the level of support for new male nominees. Within the context of the CA quota, firms hence recruit women that shareholders approve of, and we therefore argue that shareholders do not oppose the quota-mandated female nominees per se.

Thereafter, we analyze whether stock price reactions are related to the board restructuring choices affected firms make in response to the quota. We show that the firms who experienced a negative stock price reaction are a small set of firms who did not make value-maximizing decisions when restructuring the board: when complying with the new legislation, these firms did not replace the least or second-least supported male directors but instead turned over more popular directors. We argue that shareholders anticipate when firms are subject to entrenched board dynamics that allow unpopular male directors to remain on boards while highly-supported male directors leave. We provide additional evidence that shareholders are able to predict which boards are entrenched with common information about corporate governance quality at the time of the quota announcement.

Our study is highly relevant because first generation laws are often repealed and then replaced with future amended versions and the CA gender quota was repealed in May 2022. The plaintiff in their testimony stressed methodological limitations related to the analysis of aggregate stock price announcement returns in the academic gender quota literature. Our findings challenge the existing narrative of an insufficient supply of female directors shareholders approve of. Our results are also informative about the effects of affirmative action (AA) initiatives more generally. We argue that, in the case of the CA board quota, it was possible to implement the quota in a value-neutral way for shareholders if the replacement of board members was done appropriately. Adverse effects of AA policies could be driven by internal organizational opposition and entrenched institutional dynamics

rather than by a lack of supply of qualified minority candidates.

# References


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

Adams, Renée B, and Patricia Funk. 2012. "Beyond the glass ceiling: Does gender matter?" *Management Science* 58 (2): 219–235.

Adams, Renée B, Benjamin E Hermalin, and Michael S Weisbach. 2010. "The role of boards of directors in corporate governance: A conceptual framework and survey." *Journal of Economic Literature* 48 (1): 58–107.

Aggarwal, Reena, Sandeep Dahiya, and Nagpurnanand R Prabhala. 2019. "The power of shareholder votes: Evidence from uncontested director elections." *Journal of Financial Economics* 133 (1): 134–153.

Aggarwal, Reena, Isil Erel, and Laura T Starks. 2016. "Influence of public opinion on investor voting and proxy advisors." *Working Paper:* 03–12.

Ahern, Kenneth R, and Amy K Dittmar. 2012. "The changing of the boards: The impact on firm valuation of mandated female board representation." *The Quarterly Journal of Economics* 127 (1): 137–197.

Anjier, John C. 1990. "Anti-Takeover Statutes, Shareholders, Stakeholders and Risk." *La. L. Rev.* 51:561.

Bebchuk, Lucian A. 2007. "The myth of the shareholder franchise." *Virginia Law Review:* 675–732.

Bebchuk, Lucian A, and Alma Cohen. 2005. "The costs of entrenched boards." *Journal of Financial Economics* 78 (2): 409–433.

Bebchuk, Lucian, Alma Cohen, and Allen Ferrell. 2009. "What matters in corporate governance?" *The Review of Financial Studies* 22 (2): 783–827.

Berle, A., and Gardiner Means. 1932. *The modern corporation and private property.* New York: Commerce Clearing House.

Bernile, Gennaro, Vineet Bhagwat, and Scott Yonker. 2018. "Board diversity, firm risk, and corporate policies." *Journal of financial economics* 127 (3): 588–612.

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

Bolton, Patrick, Tao Li, Enrichetta Ravina, and Howard Rosenthal. 2020. "Investor ideology." *Journal of Financial Economics.*

Bubb, Ryan, and Emiliano Catan. 2018. "The party structure of mutual funds." *Working Paper.*

Cai, Jie, Jacqueline L Garner, and Ralph A Walkling. 2009. "Electing directors." *The Journal of Finance* 64 (5): 2389–2421.

Coles, Jeffrey L, Naveen D Daniel, and Lalitha Naveen. 2014. "Co-opted boards." *The Review of Financial Studies* 27 (6): 1751–1796.

Eckbo, B Espen, Knut Nygaard, and Karin S Thorburn. 2020. "Valuation effects of Norway's board gender-quota law revisited." *Working Paper,* no. 463.

Erel, Isil, Léa H Stern, Chenhao Tan, and Michael S Weisbach. 2021. "Selecting directors using machine learning." *The Review of Financial Studies* 34 (7): 3226–3264.

Ertimur, Yonca, Fabrizio Ferri, and David Oesch. 2018. "Understanding uncontested director elections." *Management Science* 64 (7): 3400–3420.

Ferrari, Giulia, Valeria Ferraro, Paola Profeta, and Chiara Pronzato. 2022. "Do board gender quotas matter? Selection, performance, and stock market effects." *Management Science* 68 (8): 5618–5643.
Fischer, Paul E, Jeffrey D Gramlich, Brian P Miller, and Hal D White. 2009. "Investor perceptions of board performance: Evidence from uncontested director elections." *Journal of Accounting and Economics* 48 (2-3): 172–189.
Fos, Vyacheslav, Kai Li, and Margarita Tsoutsoura. 2018. "Do director elections matter?" *The Review of Financial Studies* 31 (4): 1499–1531.
Fried, Jesse M. 2021. "Will Nasdaq's Diversity Rules Harm Investors?" https://corpgov.law.harvard.edu/2021/04/08/will-nasdaqs-diversity-rules-harm-investors/.
Gormley, Todd A, Vishal K Gupta, David A Matsa, Sandra Mortal, and Lukai Yang. 2020. "The Big Three and Board Gender Diversity: The Effectiveness of Shareholder Voice." *Available at SSRN 3724653*.
Greene, Daniel, Vincent J Intintoli, and Kathleen M Kahle. 2020. "Do board gender quotas affect firm value? Evidence from California Senate Bill No. 826." *Journal of Corporate Finance* 60:101526.
———. 2021. "How Deep Is the Labor Market for Female Directors? Evidence from Mandated Director Appointments." *Working Paper*.
Gul, Ferdinand A, Bin Srinidhi, and Anthony C Ng. 2011. "Does board gender diversity improve the informativeness of stock prices?" *Journal of Accounting and Economics* 51 (3): 314–338.
Hermalin, Benjamin E, and Michael S Weisbach. 1988. "The determinants of board composition." *The RAND Journal of Economics:* 589–606.
———. 1998. "Endogenously chosen boards of directors and their monitoring of the CEO." *American Economic Review:* 96–118.
Holly, Gregory J., Rebecca Grapsas, and Calire Holland. 2019. "The Latest on Proxy Access." https://corpgov.law.harvard.edu/2019/02/01/the-latest-on-proxy-access/.
Hwang, Sunwoo, Anil Shivdasani, and Elena Simintzi. 2018. "Mandating women on boards: Evidence from the United States." *Working Paper*.
Iliev, Peter, Karl V Lins, Darius P Miller, and Lukas Roth. 2015. "Shareholder voting and corporate governance around the world." *The Review of Financial Studies* 28 (8): 2167–2202.
Jorge L. Ortiz. 2018. "Gender quotas: California ponders breakthrough bill to boost female executives." https://www.usatoday.com/story/news/2018/09/18/gender-quotas-california-corporate-boards/1339531002/.
Kim, Daehyun, and Laura T Starks. 2015. "Board heterogeneity of expertise and firm performance." *Working Paper*.
Matsa, David A, and Amalia R Miller. 2013. "A female style in corporate leadership? Evidence from quotas." *American Economic Journal: Applied Economics* 5 (3): 136–69.
Matvos, Gregor, and Michael Ostrovsky. 2010. "Heterogeneity and peer effects in mutual fund proxy voting." *Journal of Financial Economics* 98 (1): 90–112.
McCahery, Joseph A, Zacharias Sautner, and Laura T Starks. 2016. "Behind the scenes: The corporate governance preferences of institutional investors." *The Journal of Finance* 71 (6): 2905–2932.
Moskalev, Alexandr. 2019. "Funds of a feather: Influencing corporate elections by voting together." *Working Paper*.

Mullainathan, Sendhil, and Jann Spiess. 2017. "Machine learning: an applied econometric approach." *Journal of Economic Perspectives* 31 (2): 87–106.
Naaraayanan, Lakshmi S, and Kasper Meisner Nielsen. 2020. "Winds of Change: Gender Quota on Boards in the face of Patriarchy." *Working Paper.*
Crest v. Padilla, No. 19STCV27561 (Superior Court of the State of California 2022).
Schwartz-Ziv, Miriam, and Russ Wermers. 2020. "Do Institutional Investors Monitor their Large-Scale vs. Small-Scale Investments Differently? Evidence from the Say-On-Pay Vote." *Working Paper.*
Secretary of State California. 2018. "Senate Bill 826." https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB826.
Smith, Nina. 2018. "Gender quotas on boards of directors." *IZA World of Labor.*
Von Meyerinck, Felix, Alexandra Niessen-Ruenzi, Markus Schmid, and Steven Davidoff Solomon. 2019. "As California goes, so goes the nation? Board gender quotas and the legislation of non-economic values." *Working Paper.*
Yang, Philip, Jan Riepe, Katharina Moser, Kerstin Pull, and Siri Terjesen. 2019. "Women directors, firm performance, and firm risk: A causal perspective." *The Leadership Quarterly* 30 (5): 101297.

# Figures and Tables

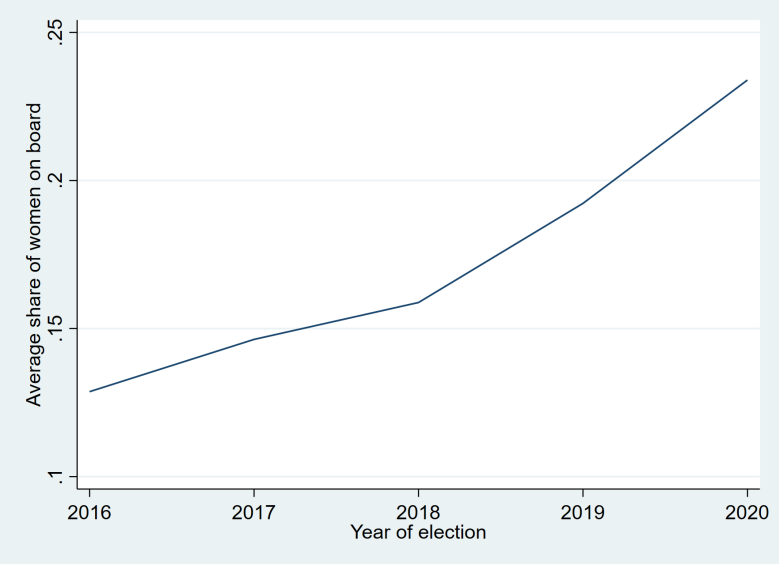


**Figure 1:** The share of female board nominees/members over time. Based on the full board sample (N=21,206). The full board sample is larger because in classified (staggered) boards not all board members are up for election every year.

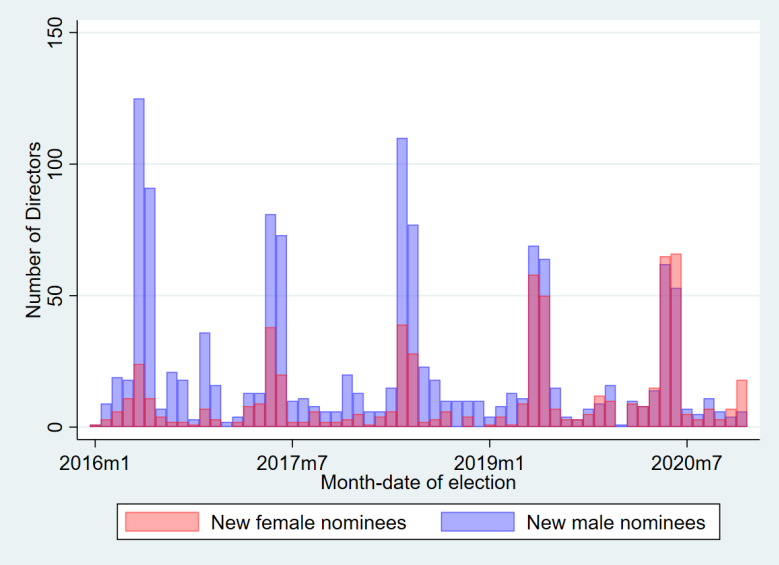


**Figure 2:** Number of new female and new male board nominees over our sample period. New nominees are nominees who stand for election for the first time and were appointed to a board within one year of the meeting where the election took place.

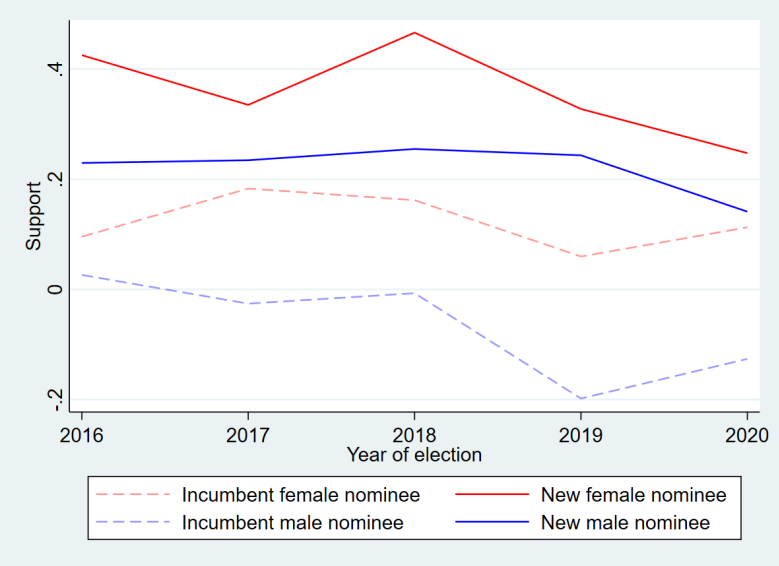


**Figure 3:** Support for new and incumbent female and male nominees. Average yearly support for incumbent and new, male and female nominees standing for election. Support is defined as the ratio of "for" votes to the sum of "for," "abstain," "against," and "withhold" votes. It is standardized by subtracting the sample average and subsequently dividing by the sample standard deviation. New nominees are nominees who stand for election for the first time and were appointed to a board within one year of the meeting where the election took place.

**Table 1:** Descriptive Statistics of Main Variables Per Board - Full Board Sample

| | N | mean | sd | p25 | p50 | p75 |
|---|---|---|---|---|---|---|
| Support (raw) | 15,257 | 0.940 | 0.091 | 0.934 | 0.978 | 0.992 |
| Support (standardized) | 15,257 | 0 | 1 | -0.070 | 0.412 | 0.568 |
| Share of female board members | 21,206 | 0.173 | 0.123 | 0.111 | 0.167 | 0.250 |
| Number of female board members | 21,206 | 1.499 | 1.152 | 1 | 1 | 2 |
| Director age | 21,206 | 61.116 | 9.594 | 55 | 61 | 68 |
| Director tenure | 21,206 | 7.919 | 7.493 | 2 | 6 | 11 |
| Board size | 21,206 | 8.261 | 2.043 | 7 | 8 | 9 |
| Independent | 21,206 | 0.755 | 0.430 | 1 | 1 | 1 |
| Classified board | 21,206 | 0.431 | 0.495 | 0 | 0 | 1 |

This table reports descriptive statistics for the full board of directors as well as the nominee sample that is used for our main analysis. The full board sample is larger because in classified (staggered) boards not all board members are up for election every year. Raw *Support* is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. Standardized *Support* is the z-score of raw *Support* which is calculated as raw *Support* minus its sample average and subsequently dividing by the sample standard deviation.

**Table 2:** Descriptive Statistics of Main Variables - Nominees

Panel A: Female Nominees

| | Pre | | | | | | Post | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | mean | sd | p25 | p50 | p75 | N | mean | sd | p25 | p50 | p75 |
| Support (raw) | 1,260 | 0.958 | 0.072 | 0.957 | 0.986 | 0.994 | 1,444 | 0.954 | 0.081 | 0.957 | 0.985 | 0.994 |
| Support (standardized) | 1,260 | 0.198 | 0.796 | 0.188 | 0.502 | 0.596 | 1,444 | 0.148 | 0.893 | 0.189 | 0.495 | 0.594 |
| Director age | 1,260 | 58.875 | 8.131 | 54 | 59 | 64 | 1,444 | 59.301 | 7.978 | 54 | 60 | 64 |
| Director tenure | 1,260 | 5.564 | 5.91 | 2 | 4 | 8 | 1,444 | 4.751 | 5.602 | 1 | 3 | 6 |
| Independent | 1,260 | 0.835 | 0.371 | 1 | 1 | 1 | 1,444 | 0.864 | 0.343 | 1 | 1 | 1 |
| New nominee | 1,260 | 0.204 | 0.403 | 0 | 0 | 0 | 1,444 | 0.262 | 0.44 | 0 | 0 | 1 |

Panel B: Male Nominees

| | Pre | | | | | | Post | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | mean | sd | p25 | p50 | p75 | N | mean | sd | p25 | p50 | p75 |
| Support (raw) | 7,222 | 0.943 | 0.087 | 0.937 | 0.978 | 0.992 | 5,331 | 0.929 | 0.1 | 0.914 | 0.971 | 0.99 |
| Support (standardized) | 7,222 | 0.028 | 0.961 | -0.034 | 0.42 | 0.569 | 5,331 | -0.124 | 1.102 | -0.283 | 0.335 | 0.543 |
| Director age | 7,222 | 61.689 | 9.725 | 55 | 62 | 69 | 5,331 | 62.409 | 9.772 | 56 | 63 | 70 |
| Director tenure | 7,222 | 8.547 | 7.809 | 3 | 6 | 12 | 5,331 | 8.974 | 8.105 | 3 | 6 | 13 |
| Independent | 7,222 | 0.722 | 0.448 | 0 | 1 | 1 | 5,331 | 0.738 | 0.44 | 0 | 1 | 1 |
| New nominee | 7,222 | 0.122 | 0.327 | 0 | 0 | 0 | 5,331 | 0.085 | 0.279 | 0 | 0 | 0 |

This table reports descriptive statistics for the nominee sample that is used for our main analysis split by nominee gender pre and post quota announcement (October 1, 2018). The full board sample is larger because in classified (staggered) boards not all board members are up for election every year. Raw *Support* is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. Standardized *Support* is the z-score of raw *Support* which is calculated as raw *Support* minus its sample average and subsequently dividing by the sample standard deviation.

**Table 3:** Support for Female Nominees: Pre- versus Post-Quota for New and Incumbent Nominees

| | Support | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Pooled | New nominees | Incumbent nominees |
| Female nominee | 0.024 | 0.121* | 0.026 |
| | (0.022) | (0.069) | (0.023) |
| Post x Female nominee | 0.077** | -0.041 | 0.069** |
| | (0.031) | (0.083) | (0.031) |
| New nominee | 0.240*** | | |
| | (0.030) | | |
| Female nominee x New nominee | 0.054 | | |
| | (0.052) | | |
| Post x New nominee | 0.123** | | |
| | (0.050) | | |
| Post x Female nominee x New nominee | -0.130* | | |
| | (0.075) | | |
| Election FEs | Yes | Yes | Yes |
| R-squared | 0.680 | 0.626 | 0.672 |
| Observations | 15,257 | 578 | 9,679 |
| **Implied differences between female and male nominees** | | | |
| | Pooled | New nominees | Incumbent nominees |
| Incumbent nominee pre: female - male | 0.024 | | 0.026 |
| | (0.022) | | (0.023) |
| Incumbent nominee post: female - male | 0.102*** | | 0.095*** |
| | (0.022) | | (0.022) |
| New nominee pre: female - male | 0.079* | 0.121* | |
| | (0.047) | (0.069) | |
| New nominee post: female - male | 0.026 | 0.080* | |
| | (0.048) | (0.046) | |

The dependent variable (*Support*) in all regressions is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). The unit of analysis is an election. *Female nominee* takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a focal nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. We use election fixed effects in all regressions. Column (1) includes the full sample of nominees. Column (2) includes the sub-sample of new nominees and thus the subsample of elections where at least one new female and one new male nominee are up for votes. Column (3) includes the sub-sample of incumbent nominees and thus the subsample of elections where at least one incumbent female and one incumbent male nominee are up for votes. The top part of the table presents results from Specification (1). The bottom part of the table presents results from Specification (2). The implied differences between female and male nominees shown in the bottom part of the table for new and incumbent female nominees relative to new and incumbent male nominees respectively can also be calculated from the point estimates in the regression Specification (1) shown in the top part of the table. For example, the coefficient $\gamma_3$ in Specification (2) of $Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ equals $\beta_2 + \beta_5$, i.e., the coefficients on $Female_{i,ct}$ plus $Female_{i,ct} \times New_{i,ct}$, in Specification (1). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table 4:** Average Raw and Announcement Returns for Sample Firms on Quota Announcement Day

| | Number of firms | Mean | Median | t-test |
|---|---|---|---|---|
| Announcement return | 524 | -1.06% | -1.05% | *** |
| Announcement return (excluding 30 firms traded on OTC) | 494 | -1.12% | -1.09% | *** |
| Raw return | 524 | -0.84% | -0.83% | *** |
| Raw return (excluding 30 firms traded on OTC) | 494 | -0.99% | -0.87% | *** |

This table reports the mean and median raw and announcement returns on the quota announcement day (October 1, 2018) for the sample firms. Of the 524 firms, 30 are traded on OTC exchanges. We include all firms headquartered in CA for which we could collect stock return data but exclude 31 firms for which no time series of stock prices was available and 30 firms who had material events at the time of the quota announcement. The announcement return is calculated based on predicted returns from a market model using a 255 day event window prior to the event and weights firms by their market values. The estimation window ends 6 days before the event. The t-test indicates whether the mean raw and announcement return is different from zero. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 5:** Which Firms Drive the Stock Price Reactions?

| | Announcement Returns | |
|---|---|---|
| | (1) | (2) |
| Violation19 | -0.008* | |
| | (0.004) | |
| Shortfall21: 1 Female director | | -0.011* |
| | | (0.006) |
| Shortfall21: 2 Female directors | | -0.014** |
| | | (0.006) |
| Shortfall21: 3 Female directors | | -0.026*** |
| | | (0.007) |
| Board size | -0.002** | -0.002** |
| | (0.001) | (0.001) |
| Independent | -0.011 | -0.015 |
| | (0.010) | (0.010) |
| Tenure | 0.000 | 0.001* |
| | (0.000) | (0.000) |
| Classified board | -0.009*** | -0.008*** |
| | (0.003) | (0.003) |
| Constant | 0.015 | 0.028 |
| | (0.015) | (0.017) |
| Observations | 524 | 524 |
| R-squared | 0.036 | 0.070 |

The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. *Violation19* is a dummy that takes a value of one if a board has zero female directors at the time of the quota announcement and zero otherwise. *Shortfall21* is equal to the board's number of female directors missing to comply with the 2021 quota requirement based on its gender composition at the time of the announcement of the quota and can range from zero to three with zero as the base category. The control variables are defined at the firm level at the time of the announcement of the quota. Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table 6:** Descriptive Statistics at the Firm Level by Post-Quota Board Composition Adjustment and Pre-Quota Board Characteristics

| | Do Nothing | | | Add Woman | | | Add Woman & LS turned over | | | Add Woman & LS not turned over | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Violation19=1 | N | mean | sd | N | mean | sd | N | mean | sd | N | mean | sd |
| Announcement return | 104 | -0.008 | 0.042 | 32 | -0.014 | 0.026 | 15 | -0.015 | 0.04 | 12 | -0.046 | 0.041 |
| Board size | 104 | 5.942 | 1.659 | 32 | 6.031 | 1.121 | 15 | 7.267 | 1.28 | 12 | 6.917 | 0.9 |
| Independent | 104 | 0.684 | 0.185 | 32 | 0.72 | 0.151 | 15 | 0.767 | 0.147 | 12 | 0.757 | 0.125 |
| Director tenure | 104 | 7.453 | 5.335 | 32 | 7.123 | 4.789 | 15 | 8.626 | 4.297 | 12 | 7.073 | 4.321 |
| Classified board | 104 | 0.317 | 0.468 | 32 | 0.625 | 0.492 | 15 | 0.667 | 0.488 | 12 | 0.333 | 0.492 |

This table reports descriptive statistics for board characteristics at the time of the announcement of the quota (September 30, 2018) for the sub-sample of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). The firms are split based on how they adjust board composition between the quota announcement and the time of the first post-quota election. *Do Nothing* are firms that don't add a woman to the board. *Add Woman* are firms that add a woman to the board without turning over an incumbent male director (*Add Woman*). *Add Woman & LS turned over* are firms that add a woman to the board and turn over an incumbent male director who is the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* are firms that add a woman to the board and turn over an incumbent male director who is not the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement (when a director did not stand for election in the last pre-quota election, their ranking is calculated based on the last election where they were a nominee). This measure excludes female directors, CEO and board chairs that were turned over before the first pre-quota election. It also excludes turnovers that are unlikely to be related to the quota (as a result of mergers and restructurings, director deaths, health reason, or requirements on retirement age). *Announcement Returns* is the market model adjusted stock return on October 1, 2018.

**Table 7:** Do Shareholders React to how Firms Adjust Board Composition after the Quota?

| | Announcement Returns |
|---|---|
| Add Woman | -0.003 |
| | (0.006) |
| Add Woman & LS turned over | -0.001 |
| | (0.011) |
| Add Woman & LS not turned over | -0.033*** |
| | (0.012) |
| Constant | 0.012 |
| | (0.015) |
| Board controls | Yes |
| Observations | 163 |
| R-squared | 0.109 |

The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). *Do Nothing* is the reference group (captured by the constant) and is a dummy that takes a value of one for firms that don't add a woman to the board by their first post-quota election. *Add Woman* is a dummy that takes a value of one for firms that add a woman to the board without turning over an incumbent male director by their first post-quota election. *Add Woman & LS turned over* is a dummy that takes a value of one for firms that add a woman to the board and turn over an incumbent male director who is the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is a dummy that takes a value of one for firms that add a woman to the board and don't turn over an incumbent male director who is the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement (when a director did not stand for election in the last pre-quota election, their ranking is calculated based on the last election where they were a nominee). This measure excludes female directors, CEO and board chairs that were turned over before the first pre-quota election. It also excludes turnovers that are unlikely to be related to the quota (as a result of mergers and restructurings, director deaths, health reason, or requirements on retirement age). All specifications include the control variables listed in Table 6 defined at the firm level at the time of the quota announcement. Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table 8:** Do Stock Prices React to how Shareholders Expect Firms to Adjust Board Composition after the Quota?

| | Announcement Returns |
|---|---|
| Pr(Add Woman) | -0.022 |
| | (0.025) |
| Pr(Add Woman & LS turned over) | -0.012 |
| | (0.026) |
| Pr(Add Woman & LS not turned over) | -0.137*** |
| | (0.044) |
| Constant | 0.003 |
| | (0.009) |
| Observations | 163 |
| R-squared | 0.043 |

The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). All independent variables are the predicted probabilities for each outcome (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, *Add Woman & LS not turned over*) extracted from the multinomial logit model reported in Table A10 in the Appendix. *Pr(Do Nothing)* is the reference group (captured by the constant) and is the predicted value for a firm to not add a woman to the board by their first post-quota election. *Pr(Add Woman)* is the predicted value for a firm to add a woman without turning over an existing male director by their first post-quota election. *Pr(Add Woman & LS turned over)* is the predicted value for a firm to add a woman and turn over an incumbent male director who is the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement (when a director did not stand for election in the last pre-quota election, their ranking is calculated based on the last election where they were a nominee). *Pr(Add Woman & LS not turned over)* is the predicted value for a firm to add a woman and not turn over an incumbent male director who is the least or second-least (Column (1)) or least (Column (2)) supported one based on shareholder votes (*Support*) in the last election before the quota announcement. Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table 9:** Do Shareholders Correct Prediction Errors when the Least Supported Directors Leaves?

| | Announcement return |
|---|---|
| Error(Add Woman & LS turned over) | -0.038 |
| | (0.155) |
| Median quota AR | -0.012 |
| | (0.131) |
| Bottom quartile quota AR | 0.072 |
| | (0.192) |
| Median quota AR x Error(Add Woman & LS turned over) | 0.049 |
| | (0.158) |
| Bottom quartile quota AR x Error(Add Woman & LS turned over) | 0.416* |
| | (0.215) |
| Pr(Add Woman & LS turned over) | -0.005 |
| | (0.148) |
| Median quota AR x Pr(Add Woman & LS turned over) | 0.076 |
| | (0.188) |
| Bottom quartile quota AR x Pr(Add Woman & LS turned over) | 0.093 |
| | (0.256) |
| Board Controls | Yes |
| R-squared | 0.587 |
| Observations | 25 |

The dependent variable is *Announcement Returns*, which is the market model adjusted stock return three days around the departure date a director (per SEC filing). The sample consists of firms that had zero female directors at the time of the quota announcement (September 30, 2018) and add a female director by time of the first election after the quota and where a male incumbent director departs from the board by the time of the first post-quota election. Two sample firms were excluded as there where no announcements filed for the departures of the directors. *Pr(Add Woman & LS turned over)* is the predicted probability extracted from the multinomial logit regression in Table A10 for a firm to add a woman to the board and turn over an incumbent male director who is the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement. *Error(Add Woman & LS turned over)* is the associated residual with *Pr(Add Woman & LS turned over)* based on the multinomial logit regression in Table A10. *Median quota AR* is a dummy that equals one if the firm's quota announcement return was between the 25th and 75th percentile in the distribution of announcement returns of all firms and zero otherwise. *Bottom quartile quota AR* is a dummy that equals one if a firm's quota announcement return was below the 25th percentile in the distribution of announcement returns of all firms and zero otherwise. All specifications include control variables listed in Table 6 defined at the firm level at the time of the quota announcement. Standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

# A Internet Appendix – For Online Publication Only

**Table A1:** Support for female nominees: pre versus post quota - within nominee comparison

| Excess support | N | Pre | Post | Difference (Post-Pre) |
|---|---|---|---|---|
| Female Nominee | 1,150 | 0.005 | 0.000 | -0.004 |
| Male Nominee | 5,979 | 0.002 | -0.007 | -0.009*** |
| Difference (Female-Male) | | 0.003 | 0.007*** | |

This table provides average excess support within nominee before (pre) and after (post) the quota for female and male nominees. *Excess Support* is defined as the individual nominee's support in an election minus the average for all other nominees in that election. Includes only nominees who stand for election in the pre- and post period. The last column presents the results of a simple differences-in-means t-test. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A2:** Support for Female Nominees: Pre- versus Post-Quota for New and Incumbent Nominees – Non-Classified Boards

| | Support | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Pooled | New nominees | Incumbent nominees |
| Female nominee | 0.040* | 0.156** | 0.040* |
| | (0.024) | (0.077) | (0.024) |
| Post x Female nominee | 0.081** | -0.051 | 0.073** |
| | (0.032) | (0.090) | (0.032) |
| New nominee | 0.202*** | | |
| | (0.033) | | |
| Female nominee x New nominee | 0.100* | | |
| | (0.058) | | |
| Post x New nominee | 0.101* | | |
| | (0.054) | | |
| Post x Female nominee x New nominee | -0.204** | | |
| | (0.081) | | |
| Election FEs | Yes | Yes | Yes |
| R-squared | 0.631 | 0.637 | 0.581 |
| Observations | 12,053 | 478 | 7,579 |
| **Implied differences between female and male nominees** | | | |
| | Pooled | New nominees | Incumbent nominees |
| Incumbent nominee pre: female - male | 0.040* | | 0.040* |
| | (0.024) | | (0.024) |
| Incumbent nominee post: female - male | 0.121*** | | 0.113*** |
| | (0.022) | | (0.022) |
| New nominee pre: female - male | 0.140*** | 0.156** | |
| | (0.052) | (0.077) | |
| New nominee post: female - male | 0.017 | 0.105** | |
| | (0.051) | (0.046) | |

Corresponds to the estimation results of Specifications 1 and 2 reported in Table 3 for the sub-sample of non-classified boards only. The dependent variable (*Support*) is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). The unit of analysis is an election. *Female nominee* takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. We use election fixed effects in all regressions. Column (1) includes the full sample of nominees. Column (2) includes the sub-sample of new nominees. Column (3) includes the sub-sample of incumbent nominees. The top part of the table presents results from Specification (1). The bottom part of the table presents results from Specification (2). The implied differences between female and male nominees shown in the bottom part of the table for new and incumbent female nominees relative to new and incumbent male nominees respectively can also be calculated from the point estimates in the regression Specification (1) shown in the top part of the table. For example, the coefficient $\gamma_3$ in Specification (2) of $Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ equals $\beta_2 + \beta_5$, i.e., the coefficients on $Female_{i,ct}$ plus $Female_{i,ct} \times New_{i,ct}$, in Specification (1). $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A3:** Support for Female Nominees: Pre- versus Post-Quota for New and Incumbent Nominees – Firms Whose Equity is Traded on a Major Stock Exchange

| | Support | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Pooled | New nominees | Incumbent nominees |
| Female nominee | 0.026 | 0.132* | 0.029 |
| | (0.024) | (0.075) | (0.025) |
| Post x Female nominee | 0.074** | -0.083 | 0.065* |
| | (0.034) | (0.086) | (0.034) |
| New nominee | 0.253*** | | |
| | (0.033) | | |
| Female nominee x New nominee | 0.065 | | |
| | (0.057) | | |
| Post x New nominee | 0.135** | | |
| | (0.053) | | |
| Post x Female nominee x New nominee | -0.142* | | |
| | (0.079) | | |
| Election FEs | Yes | Yes | Yes |
| R-squared | 0.679 | 0.603 | 0.673 |
| Observations | 13,629 | 534 | 8,789 |
| **Implied differences between female and male nominees** | | | |
| | Pooled | New nominees | Incumbent nominees |
| Incumbent nominee pre: female - male | 0.026 | | 0.029 |
| | (0.024) | | (0.025) |
| Incumbent nominee post: female - male | 0.100*** | | 0.094*** |
| | (0.023) | | (0.023) |
| New nominee pre: female - male | 0.091* | 0.132* | |
| | (0.051) | (0.075) | |
| New nominee post: female - male | 0.023 | 0.049 | |
| | (0.049) | (0.042) | |

Corresponds to the estimation results of Specifications 1 and 2 reported in Table 3 for the sub-sample of 524 firms whose equity is traded on one of the major exchanges (see Table 4 for details). The dependent variable (*Support*) is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). The unit of analysis is an election. *Female nominee* takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. We use election fixed effects in all regressions. Column (1) includes the full sample of nominees. Column (2) includes the sub-sample of new nominees. Column (3) includes the sub-sample of incumbent nominees. The top part of the table presents results from Specification (1). The bottom part of the table presents results from Specification (2). The implied differences between female and male nominees shown in the bottom part of the table for new and incumbent female nominees relative to new and incumbent male nominees respectively can also be calculated from the point estimates in the regression Specification (1) shown in the top part of the table. For example, the coefficient $\gamma_3$ in Specification (2) of $Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ equals $\beta_2 + \beta_5$, i.e., the coefficients on $Female_{i,ct}$ plus $Female_{i,ct} \times New_{i,ct}$, in Specification (1). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A4:** Support for Female Nominees: Pre- versus Post-Quota for New and Incumbent Nominees
– Controlling for ISS Recommendations

| | Support | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Pooled | New nominees | Incumbent nominees |
| Female nominee | 0.003 | 0.083 | 0.004 |
| | (0.018) | (0.063) | (0.018) |
| Post x Female nominee | 0.101*** | -0.019 | 0.099*** |
| | (0.026) | (0.074) | (0.026) |
| New nominee | 0.079*** | | |
| | (0.025) | | |
| Female nominee x New nominee | 0.045 | | |
| | (0.042) | | |
| Post x New nominee | 0.122*** | | |
| | (0.042) | | |
| Post x Female nominee x New nominee | -0.126** | | |
| | (0.063) | | |
| ISS Against Recommendation | -1.479*** | -1.268*** | -1.753*** |
| | (0.039) | (0.357) | (0.058) |
| Election FEs | Yes | Yes | Yes |
| R-squared | 0.772 | 0.746 | 0.776 |
| Observations | 14,623 | 559 | 9,304 |
| **Implied differences between female and male nominees** | | | |
| | Pooled | New nominees | Incumbent nominees |
| Incumbent nominee pre: female - male | 0.003 | | 0.004 |
| | (0.018) | | (0.018) |
| Incumbent nominee post: female - male | 0.104*** | | 0.103*** |
| | (0.019) | | (0.019) |
| New nominee pre: female - male | 0.048 | 0.083 | |
| | (0.038) | (0.063) | |
| New nominee post: female - male | 0.022 | 0.063 | |
| | (0.041) | (0.040) | |

Corresponds to the estimation results of Specifications 1 and 2 reported in Table 3 for the sub-sample of elections for which an ISS recommendation is available. The dependent variable (*Support*) is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). The unit of analysis is an election. *ISS Against Recommendation* takes the value of one if ISS issued an "against" recommendation for the nominee in the focal election. *Female nominee* takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. We use election fixed effects in all regressions. Column (1) includes the full sample of nominees. Column (2) includes the sub-sample of new nominees. Column (3) includes the sub-sample of incumbent nominees. The top part of the table presents results from Specification (1). The bottom part of the table presents results from Specification (2). The implied differences between female and male nominees shown in the bottom part of the table for new and incumbent female nominees relative to new and incumbent male nominees respectively can also be calculated from the point estimates in the regression Specification (1) shown in the top part of the table. For example, the coefficient $\gamma_3$ in Specification (2) of $Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ equals $\beta_2 + \beta_5$, i.e., the coefficients on $Female_{i,ct}$ plus $Female_{i,ct} \times New_{i,ct}$, in Specification (1). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A5:** Support for Female Nominees: Pre- versus Post-Quota for New and Incumbent Nominees
– Controlling for ISS Recommendations in Non-Classified Boards

| | Support | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Pooled | New nominees | Incumbent nominees |
| Female nominee | 0.010 | 0.123* | 0.010 |
| | (0.019) | (0.070) | (0.019) |
| Post x Female nominee | 0.107*** | -0.053 | 0.108*** |
| | (0.027) | (0.083) | (0.027) |
| New nominee | 0.093*** | | |
| | (0.028) | | |
| Female nominee x New nominee | 0.080* | | |
| | (0.046) | | |
| Post x New nominee | 0.092** | | |
| | (0.046) | | |
| Post x Female nominee x New nominee | -0.152** | | |
| | (0.068) | | |
| ISS Against Recommendation | -1.463*** | -1.321*** | -1.759*** |
| | (0.044) | (0.409) | (0.062) |
| Election FEs | Yes | Yes | Yes |
| R-squared | 0.731 | 0.710 | 0.714 |
| Observations | 11,468 | 460 | 7,231 |
| **Implied differences between female and male nominees** | | | |
| | Pooled | New nominees | Incumbent nominees |
| Incumbent nominee pre: female - male | 0.010 | | 0.010 |
| | (0.019) | | (0.019) |
| Incumbent nominee post: female - male | 0.118*** | | 0.118*** |
| | (0.019) | | (0.019) |
| New nominee pre: female - male | 0.090** | 0.123* | |
| | (0.041) | (0.070) | |
| New nominee post: female - male | 0.070 | 0.045 | |
| | (0.045) | (0.043) | |

Corresponds to the estimation results of Specifications 1 and 2 reported in Table 3 for the sub-sample of firms with non-classified boards. The dependent variable (*Support*) is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). The unit of analysis is an election. *ISS Against Recommendation* takes the value of one if ISS issued an "against" recommendation for the nominee in the focal election. *Female nominee* takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. We use election fixed effects in all regressions. Column (1) includes the full sample of nominees. Column (2) includes the sub-sample of new nominees. Column (3) includes the sub-sample of incumbent nominees. The top part of the table presents results from Specification (1). The bottom part of the table presents results from Specification (2). The implied differences between female and male nominees shown in the bottom part of the table for new and incumbent female nominees relative to new and incumbent male nominees respectively can also be calculated from the point estimates in the regression Specification (1) shown in the top part of the table. For example, the coefficient $\gamma_3$ in Specification (2) of $Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ equals $\beta_2 + \beta_5$, i.e., the coefficients on $Female_{i,ct}$ plus $Female_{i,ct} \times New_{i,ct}$, in Specification (1). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A6:** Support for Female Nominees: Pre- versus Post-Quota for New and Incumbent Nominees – Firms with Stock Returns

| | Support | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Pooled | New nominees | Incumbent nominees |
| Female nominee | 0.035 | 0.138* | 0.040 |
| | (0.024) | (0.076) | (0.025) |
| Post x Female nominee | 0.071** | -0.098 | 0.061* |
| | (0.034) | (0.087) | (0.034) |
| New nominee | 0.249*** | | |
| | (0.031) | | |
| Female nominee x New nominee | 0.039 | | |
| | (0.056) | | |
| Post x New nominee | 0.132** | | |
| | (0.053) | | |
| Post x Female nominee x New nominee | -0.125 | | |
| | (0.079) | | |
| Election FEs | Yes | Yes | Yes |
| R-squared | 0.676 | 0.605 | 0.660 |
| Observations | 13,631 | 521 | 8,635 |
| **Implied differences between female and male nominees** | | | |
| | Pooled | New nominees | Incumbent nominees |
| Incumbent nominee pre: female - male | 0.035 | | 0.040 |
| | (0.024) | | (0.025) |
| Incumbent nominee post: female - male | 0.106*** | | 0.102*** |
| | (0.023) | | (0.023) |
| New nominee pre: female - male | 0.074 | 0.138* | |
| | (0.049) | (0.076) | |
| New nominee post: female - male | 0.021 | 0.041 | |
| | (0.050) | (0.042) | |

Corresponds to the estimation results of Specifications 1 and 2 reported in Table 3 for the sub-sample of 524 firms for which sufficient stock price information was available to calculate announcement returns and who did not have any other material events at the time of the quota announcement (corresponding to sample in Table 4). The dependent variable (*Support*) is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). The unit of analysis is an election. *Female nominee* takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. We use election fixed effects in all regressions. Column (1) includes the full sample of nominees. Column (2) includes the sub-sample of new nominees. Column (3) includes the sub-sample of incumbent nominees. The top part of the table presents results from Specification (1). The bottom part of the table presents results from Specification (2). The implied differences between female and male nominees shown in the bottom part of the table for new and incumbent female nominees relative to new and incumbent male nominees respectively can also be calculated from the point estimates in the regression Specification (1) shown in the top part of the table. For example, the coefficient $\gamma_3$ in Specification (2) of $Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ equals $\beta_2 + \beta_5$, i.e., the coefficients on $Female_{i,ct}$ plus $Female_{i,ct} \times New_{i,ct}$, in Specification (1). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A7:** Support for New Female Nominees: Pre- versus Post-Quota – Controlling for Nominee Attributes

| | Support |
|---|---|
| Female nominee | 0.121* |
| | (0.065) |
| Post x Female nominee | -0.036 |
| | (0.080) |
| Independent | -0.031 |
| | (0.093) |
| Appointed before election | -0.107** |
| | (0.045) |
| Audit committee | 0.074 |
| | (0.051) |
| Compensation committee | -0.003 |
| | (0.054) |
| Election FEs | Yes |
| R-squared | 0.629 |
| Observations | 578 |
| **Implied differences between female and male nominees** | |
| New nominee pre: female - male | 0.121* |
| | (0.065) |
| New nominee post: female - male | 0.085* |
| | (0.048) |

Corresponds to Specifications 1 and 2 reported in Table 3 Column (2) which includes the sub-sample of new nominees where at least one new female and one new male nominee stand for election. Additional controls are included indicating whether a nominee is independent *(*independent), part of the audit committee *(*Audit Committee), and/ or part of the compensation committee *(*Compensation Committee). The control variable *Appointed prior election* is equal to one if a nominee was appointed within one year prior to the election and is standing for election for the first time. The variable is equal to zero if a nominee was not appointed prior to the election and is standing for election for the first time. The dependent variable (*Support*) is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). The unit of analysis is an election. *Female nominee* takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. Election fixed effects are included. The top part of the table presents results from Specification (1). The bottom part of the table presents results from Specification (2). The implied differences between female and male nominees shown in the bottom part of the table for new and incumbent female nominees relative to new and incumbent male nominees respectively can also be calculated from the point estimates in the regression Specification (1) shown in the top part of the table. For example, the coefficient $\gamma_3$ in Specification (2) of $Pre_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ equals $\beta_2 + \beta_5$, i.e., the coefficients on $Female_{i,ct}$ plus $Female_{i,ct} \times New_{i,ct}$, in Specification (1). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A8:** Do Shareholders React to how Firms Adjust Board Composition after the Quota? – By Shortfall21

| | Announcement Returns | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Shortfall21=1 | Shortfall21=2 | Shortfall21=3 |
| Add Woman | 0.008 | -0.002 | 0.004 |
| | (0.017) | (0.005) | (0.007) |
| Add Woman & LS turned over | -0.011 | -0.010 | 0.004 |
| | (0.008) | (0.006) | (0.012) |
| Add Woman & LS not turned over | -0.008 | -0.007 | -0.030** |
| | (0.009) | (0.005) | (0.013) |
| Constant | 0.014 | 0.015 | -0.028 |
| | (0.018) | (0.015) | (0.026) |
| Board Controls | Yes | Yes | Yes |
| Observations | 162 | 188 | 106 |
| R-squared | 0.081 | 0.077 | 0.101 |

Corresponds to a variant of the regression results reported in Table 7 for different sub-samples of firms who require one, two, and three female directors respectively to comply with the 2021 quota requirement based on its gender composition at the time of the announcement of the quota. The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). *Do Nothing* is the reference group (captured by the constant) and is a dummy that takes a value of one for firms that don't add a woman to the board by their first post-quota election. *Add Woman* is a dummy that takes a value of one for firms that add a woman without turning over an incumbent male director by their first post-quota election. *Add Woman & LS turned over* is a dummy that takes a value of one for firms that add a woman and turn over the least-supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is a dummy that takes a value of one for firms that add a woman and don't turn over the least-supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. All specifications include the control variables listed in Table 6 defined at the firm level at the time of the quota announcement. Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A9:** Summary Statistics for Turned Over Directors

| | Least or second-least supported replaced | | | | | Other than least or second-least supported replaced | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | mean | sd | p25 | p50 | p75 | mean | sd | p25 | p50 | p75 | Δ |
| Support: raw | 0.904 | 0.091 | 0.862 | 0.923 | 0.976 | 0.937 | 0.094 | 0.958 | 0.974 | 0.996 | -0.034 |
| Support: standardized | -0.400 | 0.999 | -0.859 | -0.187 | 0.390 | -0.031 | 1.033 | 0.192 | 0.376 | 0.611 | -0.369 |
| Excess support | -0.049 | 0.079 | -0.066 | -0.009 | 0 | 0.027 | 0.052 | 0.001 | 0.003 | 0.034 | -0.076*** |
| Independent | 0.941 | 0.243 | 1 | 1 | 1 | 0.846 | 0.376 | 1 | 1 | 1 | 0.095 |
| Director age | 64.941 | 9.243 | 59 | 64 | 73 | 61.769 | 12.617 | 56 | 65 | 70 | 3.171 |
| Director tenure | 9.529 | 8.783 | 3 | 6 | 15 | 8.308 | 5.936 | 4 | 9 | 13 | 1.222 |

This table reports descriptive statistics for male directors who were turned over by the time of the first post-quota election split by the level of shareholder support in the last pre-quota election. The sample consists of director departures in firms that add at least one female director in the first election after the quota and where a male incumbent director departs from the board (N=27, based on Table 6 and the groups *Add Woman & LS turned over* and *Add Woman & LS not turned over*). This sample excludes female directors, CEO and board chairs that were turned over before the first pre-quota election. It also excludes turnovers that are unlikely to be related to the quota (as a result of mergers and restructurings, director deaths, health reason, or requirements on retirement age). Standardized Support is the z-score of raw Support which is calculated as raw Support minus its sample average and subsequently dividing by the sample standard deviation. Excess Support is defined as the nominee's support in the election minus the average for all other nominees in that election. Columns (2)-(7) show descriptive statistics for turned over directors who had the least or second-least support in the last pre-quota election (*Add Woman & LS turned over*). Columns (8)-(13) show descriptive statistics for turned over directors who were not the least or second-least supported in the last pre-quota election (*Add Woman & LS not turned over*). When a director did not stand for election in the last pre-quota election, their ranking is calculated based on the last election where they were a nominee. Δ indicates the difference in the means the two groups and whether the difference is statistically significant. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A10:** Predicting How Firms will Adjust Board Composition after the Quota Announcement

| | Outcome (Board Composition Adjustment) | | |
|---|---|---|---|
| | Do Nothing | Add Woman | Add Woman & LS turned over |
| Co-opted board | 0.114 | -0.456 | 1.322 |
| | (0.670) | (0.742) | (0.939) |
| Plurality voting rule | -0.875 | -1.681 | -2.151* |
| | (1.113) | (1.161) | (1.224) |
| ISS opposition against LS director | -0.107 | -0.087 | -0.038 |
| | (0.642) | (0.723) | (0.850) |
| Classified board | 0.217 | 1.521** | 1.670* |
| | (0.681) | (0.758) | (0.875) |
| Board size | -0.414** | -0.470* | 0.288 |
| | (0.204) | (0.240) | (0.289) |
| Independent | -3.304 | -2.649 | 0.502 |
| | (2.317) | (2.519) | (3.054) |
| Tenure | 0.016 | 0.008 | 0.103 |
| | (0.071) | (0.081) | (0.095) |
| Constant | 7.766*** | 6.846** | -3.016 |
| | (2.712) | (2.942) | (3.907) |
| Observations | | | 163 |

This table reports coefficients from a single multinomial logit model. The dependent variable is categorical and represents the different ways for firms to adjust board composition (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, *Add Woman & LS not turned over*) between the time of the quota announcement (September 30, 2018) and the firm's first post-quota election. Columns (1)-(3) report coefficients for each outcome. The reference group is *Add Woman & LS not turned over*. *Do Nothing* is equal to one if a firm doesn't add a woman to the board by their first post-quota election. *Add Woman* is equal to two if a firm adds a woman without turning over an incumbent male director by its first post-quota election. *Add Woman & LS turned over* is equal to three if a firm adds a woman and turns over an incumbent male director who is the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is equal to zero if a firm adds a woman and doesn't turn over an incumbent male director who is the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement. *Co-opted board* is a dummy that takes a value of one if the share of directors who joined the board after the CEO is above the sample average. *Plurality voting rule* is a dummy that takes a value of one if the firm has a plurality voting rule in place for director elections and zero if it has a majority voting rule. *ISS opposition against LS* is a dummy that takes a value of one if the ISS issued an against recommendation for the least or second-least supported director in the last pre-quota election. The remaining control variables are equivalent to those in Table 6 defined at the firm level at the time of the announcement of the quota. Standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A11:** Do Stock Prices React to how Shareholders Expect Firms to Adjust Board Composition after the Quota? – Specification with Bootstrapped Standard Error

| | Announcement Returns |
|---|---|
| Pr(Add Woman) | -0.022 |
| | (0.033) |
| Pr(Add Woman & LS turned over) | -0.012 |
| | (0.030) |
| Pr(Add Woman & LS not turned over) | -0.137** |
| | (0.062) |
| Constant | 0.003 |
| | (0.010) |
| Observations | 163 |
| R-squared | 0.043 |

Corresponds to a variant of the regression results reported in Table 8. In this specification, standard errors are bootstrapped by running the specifications in Tables A10 and 8 on 1,000 random draws of our sample. The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). All independent variables are the predicted probabilities for each outcome (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, *Add Woman & LS not turned over*) extracted from the multinomial logit model reported in Table A10 in the Appendix. *Pr(Do Nothing)* is the reference group (captured by the constant) and is the predicted value for a firm to not add a woman to the board by their first post-quota election. *Pr(Add Woman)* is the predicted value for a firm to add a woman without turning over an existing male director by their first post-quota election. *Pr(Add Woman & LS turned over)* is the predicted value for a firm to add a woman and turn over an incumbent male director who is the least or second-least supported one based on shareholder votes (*Support*) in the last election before the quota announcement (when a director did not stand for election in the last pre-quota election, their ranking is calculated based on the last election where they were a nominee). *Pr(Add Woman & LS not turned over)* is the predicted value for a firm to add a woman and not turn over an incumbent male director who is the least or second-least (Column (1)) or least (Column (2)) supported one based on shareholder votes (*Support*) in the last election before the quota announcement. Bootstrapped standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A12:** Do Shareholders React to how Firms Adjust Board Composition after the Quota? – Using only the Least-Supported Director instead of the Least- and Second-Least-Supported Directors

| | Announcement Returns | |
|---|---|---|
| Add Woman | -0.003 | |
| | (0.006) | |
| Add Woman & LS turned over | 0.000 | |
| | (0.013) | |
| Add Woman & LS not turned over | -0.028** | |
| | (0.011) | |
| Pr(Add Woman) | | -0.011 |
| | | (0.024) |
| Pr(Add Woman & LS turned over) | | -0.005 |
| | | (0.027) |
| Pr(Add Woman & LS not turned over) | | -0.114*** |
| | | (0.041) |
| Constant | 0.012 | 0.000 |
| | (0.015) | (0.008) |
| Board controls | Yes | No |
| Observations | 163 | 163 |
| R-squared | 0.101 | 0.038 |

Columns (1) corresponds to a variant of the regression results reported in Table 7. Columns (2) corresponds to a variant of the regression results reported in Table 8. In these specifications a low-support director is defined as the least-supported director rather than least or second-least director based on shareholder votes (*Support*) in the last election before the quota announcement. The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). *Do Nothing* is the reference group (captured by the constant) and is a dummy that takes a value of one for firms that don't add a woman to the board by their first post-quota election. *Add Woman* is a dummy that takes a value of one for firms that add a woman without turning over an incumbent male director by their first post-quota election. *Add Woman & LS turned over* is a dummy that takes a value of one for firms that add a woman and turn over the least-supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is a dummy that takes a value of one for firms that add a woman and don't turn over the least-supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. In Column (2) the predicted values for the four board composition adjustment types (*Pr(Do Nothing)*, *Pr(Add Woman)*, *Pr(Add Woman & LS turned over)*, *Pr(Add Woman & LS not turned over)*) extracted from the regression in Table A10 are used in place of the actual board composition adjustment variables (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, *Add Woman & LS not turned over*). The specification in Column (1) includes the control variables listed in Table 6 defined at the firm level at the time of the quota announcement. These variables are included in the multinomial prediction model (Table A10) used to obtain the predicted values that are outcome variables in Column (2). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A13:** Do Shareholders React to how Firms Adjust Board Composition after the Quota? – Turnovers up until May 2019

| | Announcement Returns | |
|---|---|---|
| Add Woman | -0.002 | |
| | (0.005) | |
| Add Woman & LS turned over | 0.003 | |
| | (0.011) | |
| Add Woman & LS not turned over | -0.036*** | |
| | (0.011) | |
| Pr(Add Woman) | | -0.026 |
| | | (0.029) |
| Pr(Add Woman & LS turned over) | | -0.031 |
| | | (0.027) |
| Pr(Add Woman & LS not turned over) | | -0.199*** |
| | | (0.071) |
| Constant | 0.016 | 0.011 |
| | (0.015) | (0.013) |
| Board controls | Yes | No |
| Observations | 163 | 163 |
| R-squared | 0.117 | 0.053 |

Corresponds to a variant of the regression results reported in Tables 7 (Column 1) and 8 (Column 2). Instead of the time of the first post-quota election, turnovers of male directors and additions of new female directors are considered up until and including May 2019 for all firms. The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). *Do Nothing* is the reference group (captured by the constant) and is a dummy that takes a value of one for firms that don't add a woman to the board by their first post-quota election. *Add Woman* is a dummy that takes a value of one for firms that add a woman to the board without turning over an incumbent male director by their first post-quota election. *Add Woman & LS turned over* is a dummy that takes a value of one for firms that add a woman to the board and turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is a dummy that takes a value of one for firms that add a woman to the board and don't turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. In Column (2) the predicted values for the four board composition adjustment types (*Pr(Do Nothing)*, *Pr(Add Woman)*, *Pr(Add Woman & LS turned over)*, *Pr(Add Woman & LS not turned over)*) extracted from the regression in Table A10 are used in place of the actual board composition adjustment variables (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, *Add Woman & LS not turned over*). The specification in Column (1) includes the control variables listed in Table 6 defined at the firm level at the time of the quota announcement. These variables are included in the multinomial prediction model (Table A10) used to obtain the predicted values that are outcome variables in Column (2). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A14:** Do Shareholders React to how Firms Adjust Board Composition after the Quota? – Non-Classified Boards

| | Announcement Returns | |
|---|---|---|
| Add Woman | 0.000 | |
| | (0.008) | |
| Add Woman & LS turned over | -0.007 | |
| | (0.010) | |
| Add Woman & LS not turned over | -0.030* | |
| | (0.016) | |
| Pr(Add Woman) | | 0.104 |
| | | (0.081) |
| Pr(Add Woman & LS turned over) | | 0.043 |
| | | (0.049) |
| Pr(Add Woman & LS not turned over) | | -0.111** |
| | | (0.050) |
| Constant | 0.001 | -0.015 |
| | (0.020) | (0.013) |
| Board controls | Yes | No |
| Observations | 96 | 96 |
| R-squared | 0.115 | 0.072 |

Corresponds to a variant of the regression results reported in Tables 7 (Column 1) and 8 (Column 2) for the sub-sample of non-classified board. The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). *Do Nothing* is the reference group (captured by the constant) and is a dummy that takes a value of one for firms that don't add a woman to the board by their first post-quota election. *Add Woman* is a dummy that takes a value of one for firms that add a woman to the board without turning over an incumbent male director by their first post-quota election. *Add Woman & LS turned over* is a dummy that takes a value of one for firms that add a woman to the board and turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is a dummy that takes a value of one for firms that add a woman to the board and don't turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement.In Column (2) the predicted values for the four board composition adjustment types (*Pr(Do Nothing)*, *Pr(Add Woman)*, *Pr(Add Woman & LS turned over)*, *Pr(Add Woman & LS not turned over)*) extracted from the regression in Table A10 are used in place of the actual board composition adjustment variables (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, *Add Woman & LS not turned over*). The specification in Column (1) includes the control variables listed in Table 6 defined at the firm level at the time of the quota announcement. These variables are included in the multinomial prediction model (Table A10) used to obtain the predicted values that are outcome variables in Column (2). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A15:** Do Shareholders React to how Firms Adjust Board Composition after the Quota? – Sample of Firms whose Equity is traded on a Major Stock Exchange

| | Announcement Returns | |
|---|---|---|
| Add Woman | -0.001 | |
| | (0.006) | |
| Add Woman & LS turned over | 0.001 | |
| | (0.010) | |
| Add Woman & LS not turned over | -0.024** | |
| | (0.011) | |
| Pr(Add Woman) | | -0.017 |
| | | (0.026) |
| Pr(Add Woman & LS turned over) | | -0.008 |
| | | (0.028) |
| Pr(Add Woman & LS not turned over) | | -0.101** |
| | | (0.044) |
| Constant | 0.005 | -0.003 |
| | (0.019) | (0.009) |
| Board controls | Yes | No |
| Observations | 144 | 144 |
| R-squared | 0.066 | 0.029 |

Corresponds to a variant of the regression results reported in Tables 7 (Column 1) and 8 (Column 2) excluding firms not traded on a major stock exchange (as shown in Table 4). The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). *Do Nothing* is the reference group (captured by the constant) and is a dummy that takes a value of one for firms that don't add a woman to the board by their first post-quota election. *Add Woman* is a dummy that takes a value of one for firms that add a woman to the board without turning over an incumbent male director by their first post-quota election. *Add Woman & LS turned over* is a dummy that takes a value of one for firms that add a woman to the board and turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is a dummy that takes a value of one for firms that add a woman to the board and don't turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. In Column (2) the predicted values for the four board composition adjustment types (*Pr(Do Nothing)*, *Pr(Add Woman)*, *Pr(Add Woman & LS turned over)*, *Pr(Add Woman & LS not turned over)*) extracted from the regression in Table A10 are used in place of the actual board composition adjustment variables (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, *Add Woman & LS not turned over*). The specification in Column (1) includes the control variables listed in Table 6 defined at the firm level at the time of the quota announcement. These variables are included in the multinomial prediction model (Table A10) used to obtain the predicted values that are outcome variables in Column (2). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A16:** Do Shareholders React to how Firms Adjust Board Composition after the Quota? – Controlling for Market Capitalization and Industry returns

| | Announcement Returns | |
|---|---|---|
| Add Woman | 0.001 | |
| | (0.006) | |
| Add Woman & LS turned over | 0.004 | |
| | (0.010) | |
| Add Woman & LS not turned over | -0.026** | |
| | (0.011) | |
| Pr(Add Woman) | | -0.029 |
| | | (0.022) |
| Pr(Add Woman & LS turned over) | | -0.012 |
| | | (0.026) |
| Pr(Add Woman & LS not turned over) | | -0.083* |
| | | (0.048) |
| Log of market capitalization | -0.006** | |
| | (0.002) | |
| Fama-French 12 industry returns | 0.106 | |
| | (0.734) | |
| Constant | -0.017 | -0.002 |
| | (0.019) | (0.008) |
| Board controls | Yes | No |
| Observations | 144 | 144 |
| R-squared | 0.121 | 0.085 |

Corresponds to a variant of the regression results reported in Tables 7 (Column 1) and 8 (Column 2) controlling for the firms' (logarithm of) market capitalization (scaled by one million) at the time of the quota announcement and industry returns (Fama-French 12 industry portfolio returns) at the day of the quota announcement. The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). *Do Nothing* is the reference group (captured by the constant) and is a dummy that takes a value of one for firms that don't add a woman to the board by their first post-quota election. *Add Woman* is a dummy that takes a value of one for firms that add a woman to the board without turning over an incumbent male director by their first post-quota election. *Add Woman & LS turned over* is a dummy that takes a value of one for firms that add a woman to the board and turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is a dummy that takes a value of one for firms that add a woman to the board and don't turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. In Column (2) the predicted values for the four board composition adjustment types (*Pr(Do Nothing)*, *Pr(Add Woman)*, *Pr(Add Woman & LS turned over)*, *Pr(Add Woman & LS not turned over)*) extracted from a variant of regression in Table A10 are used in place of the actual board composition adjustment variables (*Do Nothing*, *Add Woman*, *Add Woman & LS turned over*, *Add Woman & LS not turned over*). The specification in Column (1) includes the control variables listed in Table 6 defined at the firm level at the time of the quota announcement. These variables (as well as the market capitalization and Fama-French 12 industry portfolio returns) are included in a multinomial prediction model used to obtain the predicted values that are outcome variables in Column (2). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table A17:** Are there Long-run Implications for Firm Value Associated with Sub-optimal Replacements?

Panel A: Long-run valuation effects

| | | Violation19=1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Tobin's Q | Violation19=0 | Do Nothing | Δ | Add Woman | Δ | Add Women & LS turned over | Δ | Add Women & LS not turned over | Δ |
| 2018 | -0.124*** | -0.189*** | -0.065 | -0.169** | -0.045 | 0.011 | 0.134 | -0.377** | -0.253* |
| | (0.023) | (0.055) | (0.060) | (0.084) | (0.088) | (0.203) | (0.204) | (0.148) | (0.150) |
| 2019 | -0.084*** | -0.083 | 0.001 | 0.013 | 0.097 | 0.207 | 0.291 | -0.361*** | -0.278** |
| | (0.023) | (0.058) | (0.062) | (0.094) | (0.097) | (0.232) | (0.233) | (0.116) | (0.118) |
| 2020 | 0.037 | 0.114* | 0.077 | 0.039 | 0.002 | 0.174 | 0.137 | -0.130 | -0.167 |
| | (0.026) | (0.068) | (0.073) | (0.093) | (0.097) | (0.221) | (0.223) | (0.151) | (0.153) |
| N (N firms) | | | | | | | | | 2,033 (522) |

Panel B: Performance and costs

| | | Violation19=1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ROA | Violation19=0 | Do Nothing | Δ | Add Woman | Δ | Add Women & LS turned over | Δ | Add Women & LS not turned over | Δ |
| 2018 | -0.051 | 0.011 | 0.063 | -0.013 | 0.039 | 0.049 | 0.101 | 0.099 | 0.151 |
| | (0.048) | (0.055) | (0.073) | (0.042) | (0.064) | (0.055) | (0.073) | (0.154) | (0.161) |
| 2019 | 0.049 | 0.051 | 0.002 | 0.010 | -0.039 | -0.006 | -0.055 | 0.201* | 0.152 |
| | (0.036) | (0.058) | (0.068) | (0.053) | (0.053) | (0.058) | (0.069) | (0.108) | (0.114) |
| 2020 | 0.087** | 0.066 | -0.021 | 0.060 | -0.027 | 0.040 | -0.047 | 0.243 | 0.156 |
| | (0.041) | (0.071) | (0.082) | (0.048) | (0.063) | (0.057) | (0.070) | (0.168) | (0.173) |
| N (N firms) | | | | | | | | | 2,033 (522) |

| | | Violation19=1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Asset turnover | Violation19=0 | Do Nothing | Δ | Add Woman | Δ | Add Women & LS turned over | Δ | Add Women & LS not turned over | Δ |
| 2018 | -0.005 | 0.019 | 0.024 | -0.019 | -0.014 | -0.049 | -0.044 | 0.154 | 0.159 |
| | (0.013) | (0.033) | (0.036) | (0.046) | (0.048) | (0.041) | (0.043) | (0.122) | (0.123) |
| 2019 | -0.047*** | -0.009 | 0.038 | -0.081* | -0.034 | -0.077 | -0.030 | 0.133* | 0.181** |
| | (0.013) | (0.032) | (0.035) | (0.043) | (0.045) | (0.047) | (0.049) | (0.069) | (0.071) |
| 2020 | -0.117*** | -0.130*** | -0.013 | -0.148*** | -0.031 | -0.103** | 0.014 | 0.087 | 0.204* |
| | (0.016) | (0.040) | (0.043) | (0.046) | (0.049) | (0.046) | (0.049) | (0.121) | (0.122) |
| N (N firms) | | | | | | | | | 2,033 (522) |

| | | Violation19=1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SGA to Sales | Violation19=0 | Do Nothing | Δ | Add Woman | Δ | Add Women & LS turned over | Δ | Add Women & LS not turned over | Δ |
| 2018 | 0.024 | -0.001 | -0.025 | -0.020 | -0.043 | -0.108* | -0.131* | 0.027 | 0.003 |
| | (0.034) | (0.047) | (0.057) | (0.034) | (0.048) | (0.064) | (0.072) | (0.152) | (0.156) |
| 2019 | -0.060** | -0.042 | 0.018 | -0.011 | 0.049 | -0.118* | -0.058 | -0.082 | -0.022 |
| | (0.026) | (0.048) | (0.055) | (0.034) | (0.043) | (0.068) | (0.073) | (0.054) | (0.060) |
| 2020 | -0.119*** | -0.084* | 0.035 | -0.057 | 0.062 | -0.024 | 0.014 | -0.235 | -0.116 |
| | (0.029) | (0.049) | (0.057) | (0.039) | (0.049) | (0.090) | (0.094) | (0.152) | (0.155) |
| N (N firms) | | | | | | | | | 1,700 (443) |

Panel C: Firm Policy

| | | Violation19=1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Leverage | Violation19=0 | Do Nothing | Δ | Add Woman | Δ | Add Women & LS turned over | Δ | Add Women & LS not turned over | Δ |
| 2018 | 0.018* | -0.036 | -0.054 | -0.004 | -0.022 | -0.051 | -0.068 | -0.054 | -0.072 |
| | (0.009) | (0.035) | (0.037) | (0.021) | (0.023) | (0.065) | (0.066) | (0.116) | (0.116) |
| 2019 | 0.066*** | 0.014 | -0.052 | 0.040 | -0.026 | -0.008 | -0.074 | 0.057 | -0.010 |
| | (0.010) | (0.035) | (0.036) | (0.025) | (0.027) | (0.070) | (0.071) | (0.120) | (0.120) |
| 2020 | 0.069*** | 0.011 | -0.058 | 0.019 | -0.050* | -0.003 | -0.072 | -0.066 | -0.135 |
| | (0.011) | (0.040) | (0.041) | (0.024) | (0.027) | (0.066) | (0.067) | (0.113) | (0.114) |
| N (N firms) | | | | | | | | | 2,033 (522) |

| | | Violation19=1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cash to Assets | Violation19=0 | Do Nothing | Δ | Add Woman | Δ | Add Women & LS turned over | Δ | Add Women & LS not turned over | Δ |
| 2018 | -0.013** | -0.001 | 0.012 | -0.015 | -0.002 | 0.065* | 0.078** | -0.080* | -0.067 |
| | (0.006) | (0.017) | (0.018) | (0.023) | (0.024) | (0.039) | (0.039) | (0.045) | (0.046) |
| 2019 | -0.037*** | -0.029 | 0.009 | -0.048* | -0.010 | 0.017 | 0.054 | -0.117*** | -0.079* |
| | (0.006) | (0.018) | (0.019) | (0.026) | (0.027) | (0.037) | (0.038) | (0.044) | (0.045) |
| 2020 | -0.004 | 0.023 | 0.027 | 0.006 | 0.009 | 0.047 | 0.050 | -0.097* | -0.094* |
| | (0.008) | (0.020) | (0.043) | (0.026) | (0.027) | (0.045) | (0.046) | (0.055) | (0.055) |
| N (N firms) | | | | | | | | | 2,033 (522) |

| | | Violation19=1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R&D to Assets | Violation19=0 | Do Nothing | Δ | Add Woman | Δ | Add Women & LS turned over | Δ | Add Women & LS not turned over | Δ |
| 2018 | 0.020 | 0.004 | -0.016 | -0.022 | -0.042 | -0.014 | -0.034 | -0.072* | -0.092** |
| | (0.017) | (0.019) | (0.025) | (0.025) | (0.030) | (0.027) | (0.032) | (0.039) | (0.042) |
| 2019 | -0.018 | -0.005 | 0.013 | -0.029 | -0.011 | 0.016 | 0.034 | 0.019 | -0.000 |
| | (0.013) | (0.023) | (0.055) | (0.025) | (0.028) | (0.031) | (0.033) | (0.035) | (0.037) |
| 2020 | -0.046*** | -0.040* | 0.006 | -0.056* | -0.010 | -0.020 | 0.026 | -0.028 | 0.018 |
| | (0.014) | (0.023) | (0.027) | (0.033) | (0.036) | (0.032) | (0.035) | (0.035) | (0.038) |
| N (N firms) | | | | | | | | | 2,033 (522) |

This table presents coefficients from an OLS estimation where the dependent variable is the firm performance measure specified in the top-right row of each panel in a given fiscal year. The independent variables include a *Violation19=0* dummy, a *Do Nothing* dummy, an *Add Woman* dummy, an *Add Woman & LS turned over* dummy, an *Add Woman & LS not turned over* dummy, fiscal year dummies, and interactions thereof. The base year in every regression is 2017. All regressions include firm fixed effects and are run without a constant. *Violation19=0* represent coefficients for firms that have at least one female director on their boards at the time of the quota announcement (September 30, 2018). *Violation19=1* represent coefficients for firms where the board has zero female directors at the time of the quota announcement. *Do Nothing* is a dummy that takes a value of one for firms that don't add a woman to the board by their first post-quota election. *Add Woman* is a dummy that takes a value of one for firms that add a woman to the board without turning over an incumbent male director by their first post-quota election. *Add Woman & LS turned over* is a dummy that takes a value of one for firms that add a woman to the board and turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. *Add Woman & LS not turned over* is a dummy that takes a value of one for firms that add a woman to the board and don't turn over the least or second-least supported incumbent male director based on shareholder votes (*Support*) in the last election before the quota announcement. Δ is the difference between the means of *Violation19=0* and each group under *Violation19=1*. All inputs for the firm performance measures are obtained from Compustat and Orbis. *Tobin's Q Total* is defined as Total assets – Common equity + Market equity/Total assets; *ROA* is defined as Operating income before depreciation/Total assets; *Asset turnover* is defined as Revenues/Total assets; *SGA/Sales* is defined as Selling, general, & administrative expense/Total revenues; *Leverage* is defined as Book liabilities/Total assets; *Cash to Assets* is defined as Total Cash holding/Total assets; *R&D to Assets* is defined as RD investments/Total assets. The sample corresponds to the sample used in Table 4 where data was available from the public financial sources above. Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

# B Appendix

## Turnover of Committee Chairs

Ertimur, Ferri, and Oesch (2018) show that in uncontested director elections, shareholders use their votes to express dissatisfaction with specific corporate governance problems they would like to see addressed. They do so by targeting the chairs of the committees where they see issues. However, the withdrawal of support for committee chairs is not intended to imply that the director is generally not a good fit for the company. For instance, related to gender diversity specifically, institutional investors advocating higher female board representation through campaigns preceding the quota threatened to vote against the chair of the nominating committee if they felt that their request was not sufficiently addressed by firms (as also described in Gormley et al. (2020)). According to the logic described in Ertimur, Ferri, and Oesch (2018), it might be the case that shareholders voted against committee chairs to address specific issues but did not want to see these committee chairs leave the board. This means that in cases where a committee chair is the least (or second-least) supported director and is leaving the board we should see a negative stock price reaction. Thus, the value-neutral returns for violating firms who turn over the least supported directors should be driven by firms who turn over least supported directors who are not committee chairs. To test whether this is the case, we conduct an analysis for the sub-sample of firms where the least or second-least supported director is leaving the board and a female director is added to the board by the first post-quota election. Within this sample, we separate firms where the departing least or second-least supported director is a committee chair from those where the departing least or second-least supported director is not a committee chair. The results are reported in Table B1 and show that the difference in returns between these two cases is not statistically significant and very close to zero.

## Substitution of Male Incumbent Directors with New Female Directors

One alternative explanation for the negative share price reaction within the group of firms who violated the quota at announcement and did not turn over the least or second-least supported director is that these firms also have difficulties attracting high-quality female candidates. To examine this explanation, we compare the average excess support of new female nominees in their first post-quota election

and the excess support of the turned over male directors in their last pre-quota election. Excess support is defined as the nominee's support in an election minus the average for all other nominees in that same election. Note that while these are two different elections, excess support accounts for the average level of support in the respective elections.

First, the excess support of new female nominees in violator firms who fail to turn over the least or second-least supported male director is the same as the level of excess support for new female nominees in violator firms who turn over the least or second-least supported male director (5.8%). There are no cases where the female nominee receives less support than the least or second-least supported male nominee, regardless of whether the least or second-least supported director turns over. This does not support the conjecture that there are differences in the abilities of these two types of firms to recruit suitable female nominees. Second, the average excess support of the new female nominees (5.8%) is above the average excess support of the departing male incumbents on boards where the or second-least supported male director leaves (-4.8%) and on boards where a different male director leaves (3.5%). If a firm does not turn over the least or second-least supported director, any new director mechanistically has relatively high support. Therefore, we re-calculate the excess support for new female nominees while excluding the retained low-supported male directors. This leads to a somewhat lower excess support of 3.4% for new female nominees. The difference in the excess support of new female nominees in violator firms who fail to turn over the least or second-least supported male director and the level of excess support for new female nominees in violator firms who turn over the least or second-least supported male director (5.8%) is still not statistically significant different from zero.

Another alternative explanation for the negative share price reaction within the group of firms who did not turn over the least or second-least director is that the least or second-least supported director has a critical skill required to fulfill a committee function the female nominee lacks. Therefore, it could be that firms have no choice but to replace the director with higher voting support in such case. We argue that the shareholder support measure also captures the director's fit with the remaining board. Nevertheless, to understand whether such concern is merited we compare the skills of the added female director, the departing not least or second-least director, and the retained least-supported director. Our focus is on the audit committee as a committee where the required skill set (finance and accounting experience) is unambiguous. We check whether there are cases where i) the retained least-supported director is part of the audit committee, ii) the added female nominee has no finance or accounting experience, iii) the turned over not least-supported director is not on the audit committee. We find only one such firm which has a quota announcement return of -0.4%.

**Table B1:** Do Shareholders React to how Firms will Adjust Board Composition after the Quota? – Turnovers of Committee Chairs

| | Announcement Returns |
|---|---|
| Committee chair | -0.006 |
| | (0.038) |
| Constant | 0.144 |
| | (0.147) |
| Board controls | Yes |
| Observations | 15 |
| R-squared | 0.246 |

Corresponds to the specification in Table 7 for the subsample of firms where the least or second least supported male incumbent director based on shareholder votes (*Support*) in the last election before the quota announcement departs from the board and a female director is added to the board by the time of the first post-quota election. The dependent variable is *Announcement Returns*, which is the market model adjusted stock return on October 1, 2018. The sample consists of firms that violate the 2019 quota requirement of 1 female director at the time of the quota announcement (September 30, 2018) (Violation19=1). *Committee chair* is a dummy that takes a value of one if the departing director is the least or second-least supported director and the chair of a board committee and xero otherwise. Includes the control variables listed in Table 6 defined at the firm level at the time of the quota announcement. Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

# C Appendix

## Alternative Explanations for Changes in Support for Female Nominees

Our analysis provides evidence that shareholders do not oppose quota-mandated female nominees. For our story to hold, it is crucial that new female nominees are not less supported by shareholders than new male nominees after the quota. Therefore, in the subsequent section, we more closely investigate underlying drivers of shareholder votes and support for female nominees.

### Director Characteristics

Shareholder votes a are market-based measure of director performance and reflect quality in the perception of shareholders (Erel et al., 2021). However, one may ask whether shareholders vote in favour of female nominees post-quota not because they regard them as a good fit for the firm but to express their view that the firm should avoid violating the quota and the resulting fine. As a result, female nominees gain higher shareholder support than the same nominee would receive without the quota. Our argument is that there is no need for shareholders to vote in favour of the female nominee to ensure compliance because there is essentially no risk to end up non-compliant as long as there is a female nominee standing as a director for election. Nevertheless, in the following analysis, we test whether there is evidence of inflated shareholder support for quota-mandated female nominees by analyzing whether changes in the characteristics between new female nominees pre and post-quota would have predicted lower support than they actually received.

The current literature on board composition fails to provide unambiguous evidence of universal director characteristics that increase firm value (see Adams, Hermalin, and Weisbach (2010) for a review). Board composition is determined endogenously with substantial heterogeneity across firms with different characteristics (Hermalin and Weisbach, 1988; Erel et al., 2021). A director characteristic that is beneficial for one board may be disadvantageous for another board. Erel et al. (2021) create a machine learning algorithm trained to identify nominees that will perform well in uncontested elections for the board of directors (i.e. obtain high shareholder support). Importantly, their model was trained using a sample of shareholder votes outside of the CA quota period. Based on a Lasso model, the authors identify ten features and associated coefficients that are most relevant in predicting shareholder support for new nominees. While these coefficients cannot be interpreted in the same way as OLS coefficients, they provide a sense

for the magnitude and direction of how a characteristic will affect support (see Mullainathan and Spiess (2017)). We select the five features that would not have been absorbed by election fixed effects in our analysis and check how these characteristics changed for new female and male nominees from pre to post-quota.

Table C1 shows the average values on the five characteristics for female (Columns (1) and (3)) and male nominees (Columns (2) and (4)) that stood for election for the first time before (Columns (1) and (2)) and after the quota (Columns (3) and (4)). The table also shows the difference on these characteristics between men and women before and after the quota. Lastly, the table shows the relative change in these characteristics between female and male nominee pre to post-quota (Post-Pre). Based on the *Erel et al. coefficient*, being in the audit committee exerts a positive impact on support. Being on the compensation committee, having three or more board seats (Busy), and being born between 1965 and 1980 (Generation X) has a negative influence on support; having sat on many private company boards exerts the most negative impact on support. The table shows that, pre-quota, new female nominees had a higher average value on the positive attribute and lower average values on the negative attributes than new men. After the quota, the gap between female and male nominees becomes even larger on all except for one attribute (more female nominees serve on the compensation committee post-quota than before). Overall, this means that one would rather expect new female nominees to have more support post than pre-quota. Thus, we see no evidence that the quota provided new female nominees with a boost inconsistent with their characteristics.

### General Trends: Shareholder Support in Other US States

We investigate whether the trend in shareholder voting we observe for female nominees is unique to the state of CA. For instance, Von Meyerinck et al. (2019) show that the announcement of the CA quota had also spill-over effects to other states due to anticipation of other stakeholder-friendly mandates rather than labour market frictions related to the gender quota. To see whether similar patterns as in CA can be found elsewhere, we analyze voting results for US companies headquartered outside of CA over the same time period (January 2016 until year-end 2020). As in CA, we see support for female board members falls (though not statistically significantly) after the quota; however, the support for women remains at least as high as the support for men. Unlike in CA, we do not see a large decline in support for incumbent men in states that have not yet introduced a quota. This suggests that sub-optimal replacements of male directors have not followed in firms in other US states since no mandate is in yet in place.

We obtain data from the ISS Voting Analytics database, which covers voting outcomes for Russell 3000 firms. As in our main analysis, we only include firms

for which voting results are available for the pre- and the post period leading to a sample of 3,812 firms and 39,865 nominees. We match directors with ISS' director database and BoardEx in order to identify gender and the starting date of a director on a company board. A manual search is conducted for directors that cannot be matched to either database in order to obtain information on their gender. The starting date for those directors is inferred from the earliest recorded election result for the director in the particular company in the ISS Voting Analytics database which tracks voting results since 2003.

In Figure C1, we can see that the relative number of female nominees increased over the last years in other US states as well. However, there is no similarly sharp change in the ratio of female to male nominees as it is the case for CA in 2019 and 2020 (see Figure 2). Next, we repeat our main analysis in Table 3 for all US states excluding CA. The regression results are presented in Table C2. The triple interaction for new female nominees post is also negative (albeit lower in magnitude), meaning that new female nominees lose support post-quota relative to prediction in other US states, too. Furthermore, like in CA, new female nominees are more supported than new male nominees pre-quota, suggesting that women were held to a higher standards by boards in other US states as well. Similarly, after the quota, new female nominees fall to levels closer to new male nominees. (Column (2)). However, as can be seen in Figure C2, changes in the differences of support between new female and new male nominees seem to be driven by changes in support for new male nominees. New male nominees appear to lose support around the time of the quota announcement and regain some of it afterwards. In the case of CA, new female nominees experience a large decline in support at the time of the quota that brings their support closer to the level of new men. The most crucial difference between CA and other US states is that in other states, incumbent male nominees do not experience such a steep decline in support around the time of the quota, as it was the case in CA (Column (3) in Table C2 and Figure C2). Our finding is that the negative stock price reaction to the quota is not related to concerns related to quota-mandated women but to how boards subsequently turn over male incumbent directors. The voting patterns in other US states suggests that male incumbent nominees might not have been turned over in the same way as in CA to add new female nominees.

Our narrative is that shareholders do not oppose female directors even when they are mandated by the quota. The observation that female nominees are supported all over the US is in line with our conclusion that shareholders do not oppose the addition of female board members.

### Institutional Investor Voting

Institutional investors have strong influence on voting results and stock prices because of the large size of their investments. We want to ensure that these large investors show no opposition towards quota-mandated female nominees. Previous literature identifies heterogeneity in the preferences of mutual fund investors that is reflected in their voting behavior (Matvos and Ostrovsky, 2010; Bubb and Catan, 2018; Bolton et al., 2020). As a result, some funds will have a larger preference for female directors than others. We expect that mutual funds with a high emphasis on diversity in their investment strategy will not oppose female nominees pre or post-quota in elections. In the following analysis, we want to make sure that the group of institutional investors that does not have a built-in preference for women, also shows no opposition towards female nominees post-quota.

**Mutual funds with a diversity focus** First, we split mutual funds based on their emphasis on diversity in their investment strategy. We obtain individual mutual fund voting results for the time period from January 2016 until September 2019 from the ISS Voting Analytics database.[40] These are based on N-PX filings that must be filed by mutual funds and are available through EDGAR. ISS Voting Analytics does not include conventional identifiers for mutual funds. Instead, it provides a link to the original N-PX forms that we use to match with the CRSP and Thomson Reuters Financial databases following the approach described in Moskalev (2019) and Schwartz-Ziv and Wermers (2020). Using this matching procedure, we can allocate individual funds to their fund families and determine the composition of their investment portfolios.[41] Next, to understand the mutual funds' investment orientation with respect to diversity, we identify the workforce diversity score of every portfolio company in 2017 using the MSCI ESG KLD database. We calculate a value-weighted average diversity score for every fund family based on their portfolio holdings in 2017. We choose the year 2017 as the latest period before the quota announcement, to avoid any potential influence of the quota on the investment decisions of the mutual funds. Subsequently, we rank the mutual funds based on how strongly their portfolios are tilted towards companies with a diversity focus.

We repeat our main analysis for new female nominees in Table 3 for mutual fund votes only, conditional on the intensity of the mutual funds' diversity focus. In total, there is an overlap for 1,812 elections with the ISS Voting Analytics database and the fund families that we identified in the matching procedure. We calculate support in the same way as in the main analyses after aggregating votes from

[40] At the time of the analysis, voting results were only available until September 2019 from ISS Voting Analytics.

[41] In total, we are able to identify 903 different fund families.

each mutual fund for each nominee in every election. The analysis is restricted to elections and nominees for which we observe votes from both mutual fund types (top 10 percent and not top 10 percent in terms their diversity orientation strength).[42] The results of the analysis are presented in Table C3. We separately show sub-sample results for mutual funds that are in the top ten percent based on the strength of their diversity orientation (Column (1)) and mutual funds that are below the top ten percent in this ranking (Columns (2)).[43] In neither of the two groups do we see evidence of less support for new female nominees than for new male nominees after the quota. In line with our expectations, we find that the voting pattern we observe for new female nominees in our main analysis is driven by the subset of mutual funds that don't have a diversity focus in their portfolio (not in the top ten percent). Nevertheless, even in the subset of mutual fund investors who don't have a built-in preference for women, we observe no opposition towards female nominees post-quota.

**The "Big Three" diversity campaigns** Gormley et al. (2020) document that the three largest mutual funds ("Big Three"), State Street, Vanguard and Blackrock, advocated an increase in female representation on corporate boards of their portfolio firms in 2017.[44] Because of the preference for female directors of the "Big Three" one may expect that new female nominees will be supported in firms where these investors have a large ownership stake. Therefore, we next want to make sure that post-quota voting outcomes for new female nominees are not worse than voting outcomes for new male nominees in firms that do not have a high ownership concentration by the "Big Three".

We argue that a firm will only have an incentive to respond to a mutual fund's demand if the mutual fund has enough voting power to affect corporate decisions. Similarly, the mutual fund will only be incentivized to monitor a firm if its stake and voting power are sufficiently large. We split our sample based on the percentage of votes in the last quarter proceeding the election controlled by each mutual fund. We compare shareholder support for female nominees in firms where the percentage of votes controlled by a mutual fund is equal or above the mutual fund's overall average percentage of votes controlled.[45] As previously, we focus on the sub-group

[42] Note, that we do not consider how many shares each fund holds and can vote on.

[43] Our results remain qualitatively the same when we split our sample based on the top 100 firms with respect to the strength of their diversity orientation.

[44] Note that our analysis focuses on violators, firms who have no women on their boards at the time of the quota announcement. These firms were clearly not responding to other initiatives intended to increase gender diversity. The average negative stock price announcement return in response to the quota is also evidence of the event's relevance to shareholders.

[45] This results in very low (and thus conservative) thresholds for the required percentage of votes controlled of 1.3% for State Street, 0.1% for Vanguard and 6.6% for BlackRock.

of new nominees, as this is the group that is affected by the campaigns. We are interested in whether new female nominees are supported in the sub-sample of firms where the “Big Three" have a large ownership stake but not in the remaining firms. Table C4 in the Appendix reports the results. In neither group we find evidence of opposition towards new female nominees post quota. Thus, we do not see that institutions without a preference for women disapprove of the new female nominees.

Overall, the preceding analysis shows no evidence of a group of large shareholders that support women to a lesser degree than men post quota. Since these large investors potentially have a large influence on stock prices, this substantiates our earlier interpretation that the negative share price reaction to the quota is not due to shareholders' negative attitudes toward new women.

**Table C1:** Characteristics of New Female and Male Nominees up for Election Pre- and Post-Quota

| | New nominee pre-quota | | New nominee post-quota | | Difference | | | |
|---|---|---|---|---|---|---|---|---|
| | Female | Male | Female | Male | Pre | Post | | |
| Characteristic | (1) | (2) | (3) | (4) | (1)-(2) | (3)-(4) | Post-Pre | Erel et al. coefficient |
| Audit committee | 0.412 | 0.375 | 0.384 | 0.342 | 0.037 | 0.042 | 0.005 | 0.005 |
| Compensation committee | 0.342 | 0.389 | 0.384 | 0.311 | -0.046 | 0.073 | 0.119 | -0.005 |
| Total number of unlisted boards sat on | 1.191 | 1.695 | 1.168 | 1.932 | -0.504 | -0.763 | -0.259 | -0.018 |
| Busy | 0.455 | 0.481 | 0.400 | 0.453 | -0.025 | -0.053 | -0.027 | -0.004 |
| Generation X | 0.296 | 0.299 | 0.332 | 0.366 | -0.004 | -0.035 | -0.031 | -0.002 |
| N | 257 | 882 | 380 | 453 | | | | |

This table reports characteristics and differences in characteristics of female (Columns (1) and (3)) and male (Columns (2) and (4)) who were standing for election for the first time (new nominee) before (Columns (1) and (2)) and after (Columns (3) and (4)) the quota announcement (October 2018). All characteristics are based on the time of the Def14A (proxy material) that was submitted to shareholders before the respective election. *Audit committee* equals one if the nominee is a member of the audit committee. *Compensation committee* equals one if the nominee is a member of the audit committee. *Total number of unlisted boards sat on* is the number of boards of private companies that the nominee has served on. *Busy* equals one if the nominee sits on three or more boards. *Generation X* equals one if the nominee was born between 1965 and 1980. The source of information is Boardex and Def14a filings. The characteristics are based on Table A.1 in Erel et al. (2021) that reports the most relevant characteristics that predict shareholder support. This table only includes characteristics that would not be absorbed by election fixed effects in our model *Erel et al. coefficient* is the estimated coefficient in Erel et al. (2021) (Table A.1) for the respective characteristic based on a Lasso model that predicts shareholder support. Note, that these coefficients cannot be interpreted in the same way as OLS coefficients.

**Table C2:** Support for Female Nominees: Pre- versus Post-Quota for New and Incumbent Nominees – Non-CA Sample

| | Support | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Pooled | New nominees | Incumbent nominees |
| Female nominee | 0.048*** | 0.098*** | 0.044*** |
| | (0.007) | (0.018) | (0.007) |
| Post x Female nominee | 0.022** | -0.047 | 0.019* |
| | (0.011) | (0.033) | (0.011) |
| New nominee | 0.197*** | | |
| | (0.008) | | |
| Female nominee x New nominee | 0.013 | | |
| | (0.015) | | |
| Post x New nominee | 0.108*** | | |
| | (0.016) | | |
| Post x Female nominee x New nominee | -0.078*** | | |
| | (0.028) | | |
| Election FEs | Yes | Yes | Yes |
| R-squared | 0.684 | 0.826 | 0.574 |
| Observations | 111,549 | 3,493 | 50,459 |
| **Implied differences between female and male nominees** | | | |
| | Pooled | New nominees | Incumbent nominees |
| Incumbent nominee pre: female - male | 0.048*** | | 0.044*** |
| | (0.007) | | (0.007) |
| Incumbent nominee post: female - male | 0.070*** | | 0.064*** |
| | (0.009) | | (0.009) |
| New nominee pre: female - male | 0.061*** | 0.098*** | |
| | (0.013) | (0.018) | |
| New nominee post: female - male | 0.005 | 0.051* | |
| | (0.022) | (0.028) | |

Corresponds to a variant of the regression results reported in Table 3 for the sample of US firms with headquarters outside of CA over the same time period. The sample includes Russell 3000 firms from the ISS Voting Analytics database. The dependent variable (*Support*) in all OLS regressions is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). Female nominee takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. The unit of analysis is an election. Column (1) includes the full sample of nominees. Column (2) includes the sub-sample of new nominees where at least one new female and one new male nominee stand for election. Column (3) includes the sub-sample of incumbent nominees where at least one incumbent female and one incumbent male nominee stand for election. We use election fixed effects in all regressions. The top part of the table presents results from Specification (1). The bottom part of the table presents results from Specification (2). The implied differences between female and male nominees shown in the bottom part of the table for new and incumbent female nominees relative to new and incumbent male nominees respectively can also be calculated from the point estimates in the regression Specification (1) shown in the top part of the table. For example, the coefficient $\gamma_3$ in Specification (2) of $Post_{i,ct} \times Female_{i,ct} \times New_{i,ct}$ equals $\beta_2 + \beta_5$, i.e., the coefficients on $Female_{i,ct}$ plus $Female_{i,ct} \times New_{i,ct}$, in Specification (1). Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table C3:** Support for Female Nominees: Pre- versus Post-Quota for New and Incumbent Nominees – Votes from Mutual Funds with a Diversity Focus only

| | Support | |
|---|---|---|
| | (1) | (2) |
| | Top10% | Other |
| Female nominee | 0.065 | 0.102* |
| | (0.041) | (0.056) |
| Post x Female nominee | 0.038 | -0.061 |
| | (0.094) | (0.062) |
| Election FEs | Yes | Yes |
| R-squared | 0.442 | 0.377 |
| Observations | 257 | 257 |

Corresponds to a variant of the regression results reported in Table 3 for voting results from mutual fund investors for the period from January 2016 until September 2019. The dependent variable, (*Support*), considers only votes from mutual fund investors and is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. We standardize *Support* by subtracting its sample mean and subsequently dividing it by the sample standard deviation (z-score). *Top 10%* includes the sub-sample of votes for a nominee from mutual fund investors who are ranked in the top ten percent based on the (value-weighted) MSCI ESG KLD ratings in the category Workforce Diversity of their portfolio firms in 2017 (Column (1)). *Other* includes votes for a nominee from mutual fund investors who are not in the top ten percent based on the MSCI ESG KLD ratings for the category Workforce Diversity of their portfolio firms in 2017 (Column (2)). Only elections and nominees are considered where we observe votes from both types of mutual funds (Top 10% and Other). The fund portfolios are determined on fund family level. *Female nominee* takes the value of one if the focal nominee standing for election is a woman. *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. *New nominee* is equal to one if a nominees stands for election for the first time and was appointed to board within one year of the meeting where the election took place. The unit of analysis is an election. Includes only the sub-sample of elections where at least one new female and one new male nominee stand for election. We use election fixed effects in all regressions. Robust (White) Standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

**Table C4:** Support for New Female Nominees and Ownership by the Big Three Mutual Funds

| | Support | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Big3 | Excluding Big3 | State Street | Excluding State Street | Vanguard | Excluding Vanguard | Blackrock | Excluding Blackrock |
| New female nominee | 0.114* | 0.148 | 0.010 | 0.147* | 0.122** | 0.119 | 0.053 | 0.158* |
| | (0.059) | (0.267) | (0.060) | (0.084) | (0.060) | (0.162) | (0.092) | (0.094) |
| Post x New female nominee | -0.018 | -0.090 | 0.086 | -0.089 | 0.004 | -0.052 | 0.041 | -0.083 |
| | (0.076) | (0.281) | (0.079) | (0.120) | (0.096) | (0.172) | (0.106) | (0.113) |
| Election FEs | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.481 | 0.699 | 0.690 | 0.615 | 0.502 | 0.665 | 0.476 | 0.645 |
| Observations | 409 | 169 | 207 | 371 | 270 | 308 | 192 | 386 |

Corresponds to a variant of the regression results reported in Table 3 for the sub-sample of new nominees where at least one new female and one new male nominee stand for election. Sample splits are performed based on the ownership stake (with voting power) of the big three mutual funds State Street, Vanguard and Blackrock. Column (1) corresponds to the sub-sample of firms where either of the big three mutual funds had an average or above average ownership stake in the firm (based on their respective distribution of ownership) in the quarter preceding the election. Columns (2) corresponds to the sub-sample firms that excludes these firms. Columns (3), (5), (7) consider each mutual fund separately and correspond to the sub-samples of firms where either State Street, Vanguard or Blackrock had an average or above average ownership stake in the firm (based on their respective distribution of ownership) in the quarter preceding the election. The dependent variable (*Support*) in all OLS regressions is defined as the number of "for" votes divided by the sum of "for," "abstain," "against," and "withhold" votes. *New female nominee* takes the value of one if the focal nominee standing for election is a woman, is standing for election for the first time and was appointed to the board within one year of the election . *Post* is a dummy equal to one if the election takes place in October 2018 or later and zero otherwise. The unit of analysis is an election. We use election fixed effects in all regressions. Robust (White) standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

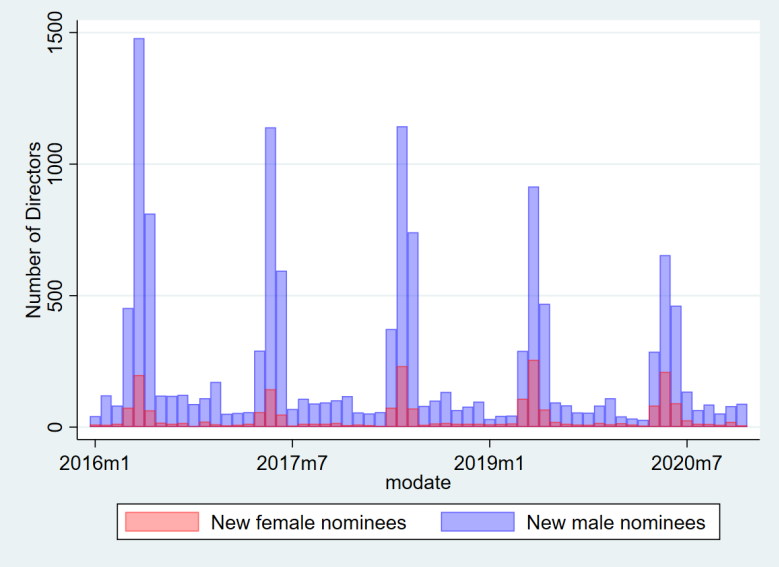


**Figure C1:** Number of new female and new male board nominees over our sample period in US firms that are headquartered outside of CA. New nominees are nominees who stand for election for the first time and were appointed to a board within one year of the meeting where the election took place. The sample includes Russell 3000 firms from the ISS Voting Analytics database.

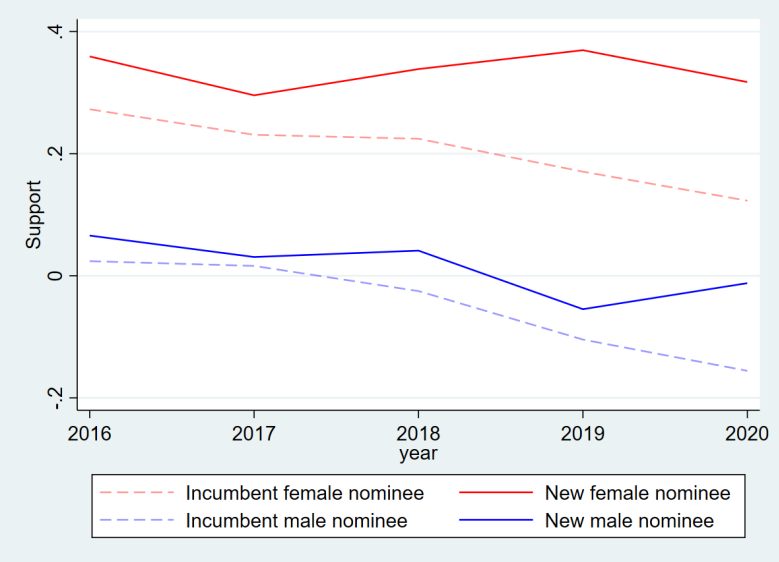


**Figure C2:** Average yearly support for incumbent and new, male and female nominees standing for election in US firms that are headquartered outside of CA. The sample includes Russell 3000 firms from the ISS Voting Analytics database. Support is defined as the ratio of "for" votes to the sum of "for," "abstain," and "against" votes. It is standardized by subtracting the sample average and subsequently dividing by the sample standard deviation. New nominees are nominees who stand for election for the first time and were appointed to board within one year of the meeting where the election took place.

# D Appendix

## Announcement Returns to the CA Quota Repeal

In this section, we provide a preliminary analysis on the market's reaction to the repeal announcement. We use May 17, 2022 as our event date as the repeal was announced at the end of the business day of May 16. To connect the quota repeal (2022) to the quota announcement (2018) price reaction we focus on our sample firms (see Table 4) in this analysis.[46]

Table D1 presents our results. We find that the average announcement return to the repeal announcement is 0.95% (relative to the quota announcement return of -1.06% in Table 4). Previous studies as well as our analysis show that the negative quota announcement returns were concentrated in firms who were not compliant with the quota at the time of announcement (see Table 6).[47] Because violator firms revealed a distaste for female directors we would expect these firms to benefit most from the quota repeal. However, we don't find a difference in the repeal announcement returns of violator (0.98%) and non-violator firms (0.87%). The group that lost most value (-2.11%) at quota announcement were firms who had no women on their boards and required three women to comply with the 2021 quota requirement (Shortfall21=3). We find that their repeal announcement returns (1.34%) don't recover this value loss. Moreover, their repeal announcement returns are not statistically significantly different from the repeal announcement returns (0.94%) of firms who were compliant with the 2021 requirement at the time of quota announcement. Next, we consider the compliance status at the time of the quota repeal of firms who had zero female directors at the time of the quota announcement and required three female directors by 2021 to be compliant with the quota (Shortfall21=3). We would expect that non-compliant firms would benefit most from the repeal. However, we don't find higher repeal announcement returns for firms who violate the quota (0.99%) versus those who are compliant with it (1.68%) when the repeal is announced. Lastly, we consider how repeal announcement returns differ in the Shortfall21=3 violator group depending on whether the least or second-least supported director was turned over when a woman was added to the board.[48] We find average repeal announcement returns of 2.23%

[46] Security returns are not updated at this point in the database CRSP. Therefore, we obtained security prices for our sample firms from Compustat. We use these prices to calculate value-weighted returns on May 17. In the return calculations, we omit two days prior to the event to account for information leakage. We use the return of the Russell 3000 index (2.13%) on the repeal announcement day to (market-) adjust raw returns of our sample firms.

[47] To be consistent, we compare unconditional average market-adjusted returns.

[48] In the meantime also other replacements took place. However, it is less clear whether future replacements were related to the quota.

in the group of firms who turned over the least or second-least supported male director when adding a woman to the board. Firms who did not turn over the least or second-least directors have repeal returns that are close to zero. This pattern could be explained by shareholders being uncertain as to whether or not the replacement would be done right. Once the replacement was completed and no future replacements were required (due to the repeal) firms who did the turnovers in the right way recovered the initial value loss. Those firms who didn't turn over the least or second-least supported directors didn't recover their value loss (of -4.6%).

Overall, the observed patterns in the announcement returns to the repeal are inconsistent with shareholders opposing female directors. However, these result should be treated with caution and are highly preliminary at this point.

**Table D1:** Average Announcement Returns for Sample Firms on Quota Repeal Announcement Day

| | Group of firms | | Δ |
|---|---|---|---|
| | All | | |
| Mean announcement return | 0.95% *** | | |
| N | 452 | | |
| | Violation19=0 | Violation19=1 | |
| Mean announcement return | 0.98% | 0.87% | 0.12% |
| N | 311 | 141 | |
| | Shortfall21=0 | Shortfall21=3 | |
| Mean announcement return | 0.94% | 1.34% | -0.40% |
| N | 60 | 91 | |
| | Shortfall21=3 | | |
| | Compliant at repeal announcement | Not compliant at repeal announcement | |
| Mean announcement return | 1.68% | 0.99% | 0.69% |
| N | 47 | 44 | |
| | Shortfall21=3 | | |
| | Least or second-least turned over | Least or second-least not turned over | |
| Mean announcement return | 1.82% | 0.15% | -1.67% |
| N | 11 | 10 | |

This table reports the mean announcement returns on the quota repeal announcement day (May 18, 2022) for our sample firms (see Table 4). Of the 524 firms, 67 were acquired and one firm declared bankruptcy over the time period since the quota announcement (October 1, 2018). Four firms were removed as they had material events at the time of the quota repeal announcement. Security returns are not updated at this point in the database CRSP. Therefore, we obtained security prices for our sample firms from Compustat. We use these prices to calculate value-weighted returns on May 18. In the return calculations, we omit two days prior to the event. We use the return of the Russell 3000 index (2.13%) on the repeal announcement day to (market-) adjust raw returns of our sample firms. Δ indicates the difference in the mean announcement returns between groups and whether the difference is statistically significant. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.