Job Market Paper

How Do Firms Respond to Gender Quotas?

Evidence From California's Senate Bill 826

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Preliminary – Please Do Not Circulate

Abstract

More than one-third of US-listed companies had all-male corporate boards in 2015. Quotas are discussed as policy levers that can increase gender diversity, but there is much controversy surrounding whether they can increase female representation without harming organizational outcomes. In 2018, California passed a gender quota requiring the presence of at least one woman on corporate boards by the end of the following year. I estimate the quota reduced the share of all-male boards by twenty-five percentage points within one year, with no reductions in operating performance, firm values, or shareholder returns within three years. These results question why all-male boards were prevalent prior to the legislation. I find that women directors are less likely to possess top-level experience and employment connections with corporate executives, which both appear as viable explanations. These findings provide insight on why women continue to lack representation in corporate leadership.

1 Introduction

In the United States, gender parity in top leadership positions remains a rare occurrence. A recent Pew report documents that as of 2020, women constituted 27% of Congress, 18% of state governors, and 7% of Fortune 500 CEOs.[1] The lack of gender parity in leadership comes despite sizable female representation in graduate and professional schools. Women comprised 38% of MBA graduates in 1995, yet twenty five years later, only represented 21% of corporate boards (Figure 1).

To achieve a greater female presence on corporate boards, California passed SB826 in late 2018, which mandates that listed companies headquartered in California have at least one female director by the end of 2019. This legislation represents the first gender-based quota for corporate boards in the United States.[2] As an enforcement mechanism, annual fines ranging from $100,000 to $300,000 are levied on companies that fail to comply. In this paper, I ask whether companies subject to the quota added female representation, and if so, whether board gender diversity induced by the quota affected medium-run financial performance.[3]

From a theoretical perspective, it is unclear whether boardroom gender quotas should worsen, improve, or have no effect on financial performance. In a textbook argument, firms optimally choose the board of directors to maximize shareholder value. External factors that constrain the firm's ability to optimize, such as a government mandated gender quota, should then worsen outcome measures. It is frequently asserted that women are underrepresented in top corporate leadership positions because they possess less relevant work experience, such as prior board or c-suite roles (e.g. Ahern and Dittmar 2012). If so, the quota may coerce firms to hire female directors with less top-level experience who, in turn, reduce measures of financial performance.

[1] https://www.pewresearch.org/social-trends/fact-sheet/the-data-on-women-leaders/

[2] For a list of gender quotas implemented outside the United States, see Table 1 of Terjesen, Aguilera, and Lorenz (2015). For a comparison of gender quotas across Europe, see Table 1 of Mensi-Klarbach and Seierstad (2020). SB826 does have additional requirements. By the end of 2021, companies with 5 directors are mandated to have at least 2 female directors and companies with 6 or more directors are required to have at least 3 female directors. I study how companies responded to the first stage of SB826.

[3] I follow convention by measuring financial performance using Tobin's Q, Return on Assets, and Shareholder Returns. See, for example, Adams and Ferreira (2009). "Medium-run" is defined to be the three years following the legislation's passage.

A competing view highlights that quotas may incentivize companies to search for candidates with distinctive work experiences. These directors may improve financial performance by bringing new skills into the boardroom or monitoring corporate executives more closely.[4] Firms may not have previously considered quota-appointees for board positions because these candidates do not belong to the typical hiring networks used for recruitment (e.g. Hallock 1997). Applicants without referrals may be perceived as lower-ability or more-risky, which would systematically disadvantage women if they do not have connections to corporate leadership. However, quota-appointed directors may also be token appointments, lacking the influence to shape the board of directors' collective decision making. This may be especially true when the quota-appointed director is the sole female on a large board.

I link data between BoardEx, Compustat, and the Center for Research in Security Prices (CRSP) to investigate how the quota affected board composition and financial performance. BoardEx contains the annual gender composition of corporate boards, allowing me to assess compliance with the legislation. I construct two annual measures of operating performance – Return on Assets (ROA) and Tobin's Q – from Compustat's files. I use CRSP's daily security-level returns to calculate the returns from holding a portfolio of quota-affected companies. To identify the causal effects of the quota, I track firm-level outcomes of all domestic and listed companies that had no female board representation in 2017. Among these companies, only the firms based in CA as of 2017 ("treated or quota-affected firms") had to change board composition or corporate form to abide with SB826's requirements. I use the firms based outside of California as my control group and verify that the conditional independence assumption required of difference-in-differences research

[4]One reason quota-appointed directors may be tougher monitors is that they are less likely to belong to the "Old Boys Club." To the extent that firms benefit from additional monitoring, the quota may improve financial performance. Note that excessive monitoring by the board may deteriorate firm outcomes (Adams and Ferreira 2009). Alternatively, quota-appointed directors may improve performance by bringing new skills to the boardroom. See Kim and Starks (2016) for empirical evidence that female directors possess skill-sets typically missing on corporate boards. Women may also be underrepresented in corporate leadership and improve financial performance if their managerial potential is systematically underestimated (Benson 2021). See Spitzer and Talley (2013) for a theoretical model demonstrating how even a single quota-appointed director may shift group-level decision making. Viewed through their model, quota-appointed directors may undertake costly investments in information acquisition that can shift the preferences of the median director.

designs is likely to hold.[5]

The identification strategy leveraging quota-induced changes in board composition overcomes the fact that board structure is an equilibrium outcome designed to address a company's corporate governance issues (Adams, Hermalin, and Weisbach 2010). For example, managers of poorly performing companies may advocate for staggered boards to remain entrenched, while shareholders may elect outside directors to more closely monitor management (e.g. Gompers, Ishii, and Metrick 2003).[6] Similarly, I find that the board's gender composition also responds to internal conditions within the firm: growing firms adopt and subsequently maintain gender-diverse boards in the absence of policy pressures to diversify.[7] This descriptive finding is novel and highlights the usefulness of examining quota-induced changes in board gender diversity. Since growing firms add female directors, simple comparisons of financial outcomes before and after companies adopt gender-diverse boards risk overstating the positive impacts of diversity.

The primary result of this paper is that SB826 successfully introduced gender diversity onto corporate boards without harming medium-run financial performance. Between 2017 and 2019, the number of California-based listed companies with all-male boards declined from 204 to 59, representing a 71% reduction. This dramatic increase in boardroom gender diversity may not be entirely attributable to the quota, since firms naturally adopt gender-diverse boards as they age. Consistent with this observation, difference-in-differences estimates indicate that SB826 reduced the share of all-male boards by a more modest 26%. Robustness tests suggest that these results are not driven by shifts in attitudes about women in leadership particular to California or selective attrition among quota-affected firms.[8]

[5]The baseline "event study" econometric specification, stated in Equation 1, contains firm and industry by year fixed effects. Standard errors are clustered at the firm level. The quota's effects are identified based on a comparison of outcome changes between companies that did and did not have CA headquarters in 2017. The assertion that the conditional independence holds is supported by the fact that $\hat{\beta}^t, t \leq 2017 \approx 0$ for a variety of outcomes. Mackinnon and Webb (2019) discuss how standard errors may be underestimated when all treated units are part of a single cluster. Quantitatively similar results using the authors' Wild Bootstrap Randomization Inference procedure is available upon request.

[6]Directors in staggered boards have overlapping and multi-year terms. They are frequently used to prevent hostile-takeovers.

[7]As a result, mature firms are substantially more likely to have gender-diverse boards than newly listed firms (Figure A3).

[8]More specifically, my results are robust to a triple differences specification that includes companies that had

An investment strategy of buying and holding a value-weighted portfolio of quota-affected companies from October 1st, 2018 (the first trading day after the legislation's signing) to December 31st, 2021 generates returns 24 percentage points above that from holding the S&P 500 index over the same period. In contrast, the identical strategy applied to firms in the control group would under-perform the S&P 500 by 34 percentage points.[9] The difference-in-difference specifications indicate that the legislation increased Tobin's Q by 7% and ROA by 5 percentage points – both effects are statistically significant at the 10% level. Point estimates in the event-study regressions are also positive, though statistical significance varies based on the choice of specification. Interpreted conservatively, my results imply that the quota did not worsen firm values or operating performance within three years. A less-conservative interpretation that emphasizes results from the difference-in-difference specification yields the conclusion that the quota improved corporate performance. These positive effects cannot be explained by modifications in policy the board influences, as rates of delistings, mergers and acquisitions, dividend issues, and changes in shares outstanding remain stable. The conclusion that SB826 plausibly improved operating performance remains valid under various econometric specifications, splits of the sample, and financial outcomes considered.[10]

The relationships between SB826, financial outcomes, and company policy could be explained in several ways. One hypothesis is that firms continued business as usual and hired "token" female directors – those that have minimal influence on the board. If so, one might expect firms to comply with the quota by hiring less-credentialed women who do not serve on the most important committees. An alternative hypothesis is that quota-affected firms recruited qualified women outside of typical hiring pools, and that these women capably represented shareholder interests. I find strong support for the latter hypothesis, although some firms hired women who are unlikely to wield influence on the board.

gender-diverse boards in 2017 as a within-state control group (Figure 3). In addition, 'placebo tests' where I re-run the baseline-specification but consider companies with all-male boards in a year prior to 2017 provide null results. The placebo analysis implies that the first-stage results are not driven by differential mean reversion: California-based companies with all-male boards are not inherently more likely to add female directors (Figure A4).

[9] Similar patterns emerge from holding equally-weighted portfolios.

[10] For instance, Table 7 shows that the quota does not have deleterious impacts on ROA, ROE, Tobin's Q, and the Market-to-Book ratio, even among companies in male-dominated industries or with small boards. These findings are robust to controls for firm size or to a triple differences specification.

As evidence, the quota reduced the share of the board with prior employment connections to corporate leadership by 5 percentage points, with more than 90% of women appointed after the quota serving as non-executive directors.[11] Companies that adopted gender-diverse boards because of the quota ("Complier Firms") were particularly likely to recruit female candidates from out-of-network. The two-stage-least-squares estimates indicate the quota lowered the share of the board with a prior connection to leadership by 8 percentage points among these firms. This finding indicates that SB826 raised the share of "outsiders" on the board, and complements research by Hwang, Shivdasani, and Simintzi (2018), who show that women appointed after the quota have different work-experiences and skills than the typical director. Further, quota-affected firms had many qualified candidates from which to choose. Female directors rarely joined the boards of multiple treated companies, which might occur if few qualified female candidates are available. Quota-affected firms did not face additional litigation, as would be expected from demonstrably less capable boards.[12] Between 2018 and 2021, quota-affected companies experienced 3% higher employment than companies in the control group, which is consistent with research demonstrating that gender-diverse boards are less likely to undertake workforce reductions (Matsa and Miller 2013).

However, SB826 also lowered the share of the board with prior executive experience by 2-3%, reflecting the fact that the typical female director is slightly younger and less experienced than her male counterpart. The audit committee is regarded as one of the most important institutions within corporate boards since its members monitor financial reporting and disclosure (Ferris, Jagannathan, and Pritchard 2003). Firms refrained from immediately placing women onto the audit committee but not from other roles on the compensation or nominating committees. This pattern is particularly prevalent in male-dominated industries, where the quota reduced the share of the board on the auditing committee by 4%. These facts notwithstanding, the "tokenism" theory is not

[11] Non-Executive directors are board members who are not involved in the day-to-day management of the company.

[12] Litigation is measured based on whether companies were subject to a class action lawsuit. Companies complied with the legislation (as opposed to paying financial penalties), providing further support to the argument that firms could choose among many qualified candidates. In addition, there were far more active female board and c-suite members in 2017 than the number of treated companies (Table B6).

entirely satisfactory. Firms typically decided to hire women as non-executive directors as opposed to paying the relatively minor fines prescribed by the legislation.[13] Financial performance plausibly improved after the quota, and in most respects, quota-appointed directors play similar roles within the board as their peers.[14]

This paper contributes to literature that examines how gender diversity affects organizational outcomes. Research studying firm responses to SB826 has focused on stock price reactions in the immediate days following the legislation's announcement (Hwang, Shivdasani, and Simintzi 2018; Von Meyerinck et al. 2019; Gertsberg, Mollerstrom, and Pagel 2021; Greene, Intintoli, and Kahle 2020). These studies establish negative announcement returns ranging from 1-2%, but face the limitation that the effect may be driven by regulatory uncertainty or other bills signed on the same day.[15] I circumvent these challenges by analyzing the longer-run impacts of the quota.[16] In that sense, my methodology more closely resembles the literature evaluating the longer-run effects of the 2003 Norwegian quota. Ahern and Dittmar (2012) find that the quota led to less experienced boards and lower firm values within 5 years. Bertrand et al. (2019) show that the female directors appointed after the quota were more qualified than those appointed before the quota along many dimensions. These results may not necessarily hold in the US context since the Norwegian quota required 40% female board representation while California's mandated the presence of a single female director. In the three years following SB826, the legislation has resulted in less experienced boards, but has not reduced financial performance.

Outside the immediate context of corporate boards, studies have arrived at various insights on how female leadership affects organizational outcomes. For instance, Gompers et al. (2022) find that gender diversity at the partner level increases fund returns. Chattopadhyay and Duflo (2004)

[13]Non-executive directors have a median annual salary of 107,000 as of 2020. In contrast, executive directors have a median annual salary of 754,000 in 2020.

[14]Table 7 shows that there are no declines in the average committee load or predicted director compensation in response to the quota. Of course, the claim that directors play similar roles within the organization is subject to the recurring critique that they may behave differently in ways that are not measurable to the researcher.

[15]Von Meyerinck et al. 2019 document that the governor signed 183 bills on the weekend in which he signed SB826. Further, they show states with similar political leanings to California also experienced negative abnormal returns, suggesting regulatory uncertainty may contribute to the reaction.

[16]Since other legislation may affect financial outcomes, I use firms legally unaffected by SB826 as a within-state control group in a "triple differences" specification, which yields similar conclusions.

study a 1992 gender quota in India that required one-third of local political positions be reserved for women. They document that women policy-makers invest more in projects that address the needs of women. My paper contributes to the literature by showing that mandated gender diversity can introduce qualified women onto corporate leadership, thereby creating gains in equity without generating losses in efficiency.

This paper unfolds as follows. I discuss the quota's requirements in Section 2 and the data utilized in Section 3. In Section 4, I describe compliance with the legislation. Section 5 discusses the legislation's impacts on financial performance, while Section 6 inquires how the quota shifted the board's characteristics and decision-making. Section 7 concludes.

2 Legal Context

California Governor Jerry Brown signed into law Senate Bill (SB) 826 on 9/30/2018, which requires publicly-held corporations with a principal executive office in California to have at least one female director on the Board of Directors by December 31, 2019. By the end of 2021, companies with 5 directors are mandated to have at least 2 female directors and companies with 6 or more directors are required to have at least 3 female directors. I study how companies responded to the first stage of SB826, which is the very first board gender-quota in the United States.[17]

The legislation impacts companies based in California with shares listed on the New York Stock Exchange, NASDAQ, or NYSE American. SB826 does not cover private companies or listed companies with headquarters outside of California. Companies that fail to comply with the quota are subject to fines: each director seat required to be held by a female that is not actually held by a female for at least a portion of the calendar year counts as a violation. A fine of $100,000 is

[17] According to the CA Secretary of State, "A female is an individual who self-identifies her gender as a woman, without regard to the individual's designated sex at birth." Publicly-held companies have shares listed on the New York Stock Exchange, NASDAQ, or NYSE American. SB826 does cover companies listed on foreign exchanges with headquarters in CA. I exclude consideration of these companies since my analysis focuses on domestic and listed companies. Between 2015 and 2020, no state besides California has passed a corporate board gender quota that enforces fines on non-compliant companies. On May 13th, 2022, Los Angeles Superior Court Judge Maureen Duffy-Lewis found that SB826 violates the equal protection clause of California's constitution: https://corpgov.law.harvard.edu/2022/06/12/california-gender-board-diversity-law-is-held-unconstitutional/

imposed for the first violation, and $300,000 for each subsequent violation.[18] California-based firms impacted by SB826 have a couple of options to avoid paying fines. First, shareholders of these companies can add a female board member by the end of 2019, either by replacing an existing male director or by expanding the size of the board. Second, these companies can evade the reach of the legislation by going private or changing headquarter location.

Firm responses to California's gender quota can provide guidance on the efficacy of more recent boardroom diversity, equity, and inclusion (DEI) efforts. In late 2020, California Governor Newsom approved additional legislation which requires companies subject to SB826 to have at least one director from an underrepresented community by the end of 2021.[19] In mid-2021, the Securities and Exchange Commission approved NASDAQ's board diversity disclosure requirements that encourage (but do not require) companies listed on its exchange to have at least two diverse directors by mid-2023. Within the last year, large asset managers such as Blackrock and Goldman Sachs have urged US companies to have diverse boards. The California agency responsible for SB826's enforcement has yet to levy fines on companies that maintain all-male boards. Yet, as I will show in Section 4, companies subject to the quota swiftly added female directors. These results suggest that public pressures for firms to increase diverse representation may affect hiring decisions.

[18]For example, a listed California-based company that has no female board members between 1/1/2019 and 12/31/2020 would owe a fine of $400,000. Failure to file timely board gender information with California's Secretary of State yields a $100,000 fine. As of December 2021, no fines have been assessed as SB826 faces legal challenges: https://www.reuters.com/world/us/trial-begins-challenge-california-women-boards-law-2021-12-01/.

[19]AB979, approved on September 30th, 2020, identifies director from underrepresented communities as individual who self-identify as Black, African American, Hispanic, Latino, Asian, Pacific Islander, Native American, Native Hawaiian, or Alaska Native, or who self-identify as gay, lesbian, bisexual, or transgender. AB979 imposes fines for non-compliance.

3 Data Sources and Sample Description

3.1 Data Sources

I employ matched data between BoardEx, Compustat, and CRSP to study relationships between director characteristics, board characteristics, and firm outcomes.[20] BoardEx provides detailed information on the composition of corporate boards and the employment histories of directors. Using information from a company's annual reports, BoardEx provides yearly descriptors of the board's size and gender composition. BoardEx also characterizes the gender and employment histories of directors in its database by scraping online reports. Prior roles of directors contain a start and end date, allowing me to construct measures of a director's experience. These employment histories also enable BoardEx to determine whether any two directors in its database share a prior employment connection. I restrict attention to the sample period starting in 2010 and ending in 2021.[21]

Under this sample restriction, I observe the annual board composition of approximately 4000 companies (Table B1), which represents the near-universe of domestic and listed companies.[22] I use BoardEx data to assess compliance with the quota and understand the characteristics of directors added after SB826. Director characteristics are measured upon onboarding and over a range of dimensions; they include traditional measures of human capital – age, education, and experience – but also indicators for whether the director joins a monitoring intensive committee or has prior employment connections with company leadership.[23] Less capable boards may be more

[20] I use the crosswalk provided by WRDS and deploy a conservative approach that requires matched companies to have have identical SEC identifiers (CIKs) and security level identifiers (CUSIPs) across BoardEx, Compustat, and CRSP.

[21] Prior to 2010, BoardEx does not provide comprehensive annual board-level information for all listed firms.

[22] The annual characteristics of the board are measured as of the company's annual report date. If there are multiple annual reports in a single calendar year, I select the last annual report. BoardEx does not impute gender. Instead, gender is based on self identification or pronouns used in official reports. See Figure A1 for an example report where pronouns are used to classify gender. If two directors have a prior employment connection, the dates in which the two directors overlapped at the previous company are provided. The number of domestic and listed companies from BoardEx and CRSP are approximately equal.

[23] Monitoring intensive committees are defined to be the audit, compensation, and nominating committees. I observe whether a director has a prior connection to company leadership, but also the type of connection. Ie. whether two directors previously served together on a board or c-suite of another company.

likely to make errors in reporting financial statements and consequently face litigation for securities fraud. To examine this hypothesis, I identify companies that faced class-action lawsuits between 2015 to 2021 from the Stanford Securities Class Action Clearinghouse, producing a sample of 1646 firms.[24]

I use data from Compustat and CRSP to study how the quota affected firms' financial outcomes and policy. Each year, more than 90 percent of companies from BoardEx can be linked to Compustat and CRSP (Table B1, Col 3), indicating that all data sources cover the near universe of domestic and listed companies. Using annual data from Compustat, I construct various measures of Operating Performance that are measured at the end of a company's fiscal year. Following existing literature (e.g. Adams and Ferreira 2009; Ahern and Dittmar 2012), I focus on Tobin's Q and ROA, though there is not universal consensus that these proxies accurately measure operating performance.[25] Tobin's Q is defined as the ratio of the firm's market value to its book value of assets, where market value is book assets plus book equity minus the market value of equity. Return on Assets (ROA) is net income before extraordinary items and discontinued operations divided by book assets. In rare instances, companies report non-positive total assets or book assets, in which case the observation is dropped.

Shareholder returns and company policy variables are derived from CRSP. Delisting occurs if none of the company's securities are listed the subsequent year. All other company policy variables indicate if the event occurred for some security during the calendar year. For example, a company is defined to issue a dividend if any of the company's listed securities offers a dividend during the calendar year. Buy-and-hold returns are calculated using returns provided in the daily stock file. Among companies with multiple securities, I choose the security with the highest average trading volume between Jan 2nd, 2015 and March 31st, 2022. In calculating buy-and-hold returns, I exclude all companies that delist and have missing delisting returns, or do not delist and have missing returns over the holding period. Companies may respond to the quota by delisting or

[24] As discussed in Ferris, Jagannathan, and Pritchard (2003), the firms sued in this dataset have not necessarily committed fraud. Furthermore, firms sued in a given year may have committed fraud in previous years.

[25] I use the Market-to-Book ratio as an additional measure of operating performance. Bartlett and Partnoy (2020) provide counter-arguments for why measures of Tobin's Q do not accurately reflect operating performance

changing headquarter locations. I acquire annual information on each company's headquarter location from Compustat Snapshot to investigate this possibility.[26]

3.2 Sample Description

Table 1 shows the sample size by year, once I restrict to US-based listed companies that report the firm's headquarter location and board gender composition. All firms considered in my analysis are US-based ("domestic") and listed, so I drop these adjectives going forward.[27] Between 2015 and 2021, 16 to 20 percent of all firms in the sample are headquartered in California. Furthermore, in the three years prior to the legislation, 31 to 39 percent of CA-based firms had all-male boards, with a combined market value of approximately 123 billion dollars as of the first quarter of 2017.

Despite the fact that SB826 regulates board gender composition for all listed firms based in California, many legally affected firms are unlikely to actually modify their boards to respond to the gender quota. CA-based listed companies with at least one female board member prior to the legislation's passage would not need to make any changes to be compliant with SB826. In theory, the gender quota may deter firms already compliant with SB826 from transitioning to an all-male board. However, historical data demonstrates that firms overwhelmingly add (rather than remove) women to the board as the firm ages.[28] As a result, I define firms affected by the quota ("treated firms") to be CA listed companies with all-male boards in 2017, the year prior to the legislation's passage. Analogously, I define the control group to be firms with all-male boards and headquarters outside of CA as of 2017.

There are cross-sectional differences between firms in the treatment and control groups, as

[26]Geographic identifiers include both the state of the company's principal executive offices and the country of incorporation. These values are taken from Compustat Snapshot. If missing, geographic identifiers are taken from the WRDS SEC Analytics Suite. WRDS SEC data are linked to the matched BoardEx-Compustat data using the cik-gvkey linking table provided by WRDS. If the geographic identifier is still missing and the year is past 2019, the value is taken from Boardex's header-level information provided in the Company Profile files. Each year, more than eighty five percent of companies from BoardEx can be matched to CRSP, quarterly financial data, historical listing exchange identifiers, and historical geographic identifiers, as seen in the final column of Table B1.

[27]US-based companies are headquartered or incorporated in the United States.

[28]Figure A2 shows that in each year between 2010 - 2019, only 1 to 3 percent of domestic listed companies transition from having a gender-diverse board to an all-male board in the following year. Figure A3 corroborates this argument, showing that older firms are more likely to have gender-diverse boards in the 2017 cross-section.

observed in Table B9. In 2017, treated firms have smaller boards, are younger, and have fewer employees than control firms. In addition, treated firms have a stronger presence in manufacturing, have higher Tobin's Q, and are less likely to issue dividends than control firms. Despite differences in financial outcomes, many boardroom level characteristics are similar between the treatment and control groups. Average ages of directors joining the two groups are nearly identical, though directors joining treated firms are slightly more likely to have prior board and c-suite experience. The share of the board on the auditing committee is lockstep between the treatment and control group. Similar conclusions hold for the compensation committee, though treated firms have a larger share on the nominating committee.

4 How Did Firms Comply with SB826?

Studies of board gender quotas in other countries suggest that companies may restructure to avoid adding female directors.[29] SB826's monetary penalties for non-compliance are mild relative to penalties in other contexts, so one would expect far less evasive behavior among California-based firms affected by the gender-quota.[30] Indeed, I find that very few treated firms took evasive actions. Between 2017 and 2020, only 7 percent of treated firms delisted or changed headquarter location. Firms in the control group were actually *more likely* to change headquarter location and equally likely to go private (Table B3). Quota-affected firms in CA did not systematically evade the legislation through corporate restructure, but did they actually add women into their boards? After all, treated firms that want to maintain all-male boards have the option of paying fines described in Section 2. Suggestive evidence is that the quota caused firms to add female directors. First, there were 204 California companies with all-male boards in 2017, but only 12 in 2021 (Table 1).

[29]For example, Norway passed a gender quota in 2003 that required all public limited liability companies to have at least 40 percent representation of each gender. Any public limited liability company that failed to meet the requirements as of 2008 would be forced to dissolve. Bertrand et al. (2019) document sizable evasion: of the 563 public limited liability companies affected by the quota in 2003, only 179 maintained corporate form by 2008.

[30]In CA context, affected firms can evade, comply, or not comply. I refer to "evasion" as corporate restructure (ie. changing headquarter location or going private), "compliance" as the addition of female board members without corporate restructure, and "non-compliance" as payment of SB826 monetary penalties while maintaining the status quo. Note all three actions place companies within the letter of the law.

Second, Figure A2 shows the probability that a California-based company maintains an all-male board the subsequent year declines from 93 percent in 2010 to 30 percent in 2018.

While increases in female board representation among treated companies are prominent, these changes may not solely reflect the causal effect of the gender quota. Overall shifts in attitudes about women in leadership positions that occur during the sample period could be a confounding factor. To investigate the contribution of SB826 to the dramatic decline of California-based companies with all-male boards, I consider changes in board composition among non-CA-based firms with all-male boards in 2017 ("control firms"). Formally, using the firm-year panel from 2015 - 2021 and ordinary least squares, I estimate the parameters of the following regression:

$$Y_{fti} = \gamma_0 + \sum_{t \neq 2017} \beta^t \Big(1[Year = t] \times CA\ HQ_{2017} \Big) + \delta_f + \delta_{ti} + \varepsilon_{fti}, \tag{1}$$

where Y_{fti} is the board composition of firm f in year t and industry i, δ_f are firm fixed effects, δ_{ti} are industry by year fixed effects, and γ_0 is a constant. I use industry by year fixed effects to account for different industry compositions between treatment and control firms (see Table B9). Estimates of β^t represent differences in board composition between treatment and control firms in year t relative to 2017. For these estimates to identify the causal effect of SB826, it is necessary that the variables excluded from Equation 1 trend similarly between treatment and control firms within the same industry ("Parallel Trends Assumption").[31] All regressions use an unbalanced panel of firms and cluster standard errors at the firm level.

To visualize some of the assumptions made in Equation 1 more clearly, observe that

$$Y_{fti}(0) = \gamma_0 + \delta_f + \delta_{ti} + \varepsilon_{fti} \tag{2}$$

$$Y_{fti} = Y_{fti}(0) + \sum_{t > 2015} \beta^t \Big(1[Year = t] \times CA\ HQ_{2017} \Big) \tag{3}$$

[31] This assumption would be violated, for example, if attitudes about women in leadership trend differently in treated manufacturing firms relative to control manufacturing firms.

where $Y_{fti}(0)$ refers to board composition if a firm were to not be affected by SB826. Equation 2 restates the parallel trends assumption; if the assumption holds, then estimates of β^t for $t < 2019$ should be close to 0. Indeed, changes in outcomes between the 204 treated firms and 942 control firms are similar prior to the quota.[32] Almost all outcomes related to board composition and financial performance evolve similarly prior to SB826, providing prima-facie evidence that the parallel trends assumption is likely to hold (Tables 4 and 6).

Table 4 presents estimates of the event study coefficients in Equation 1. Taken at face value, SB826 raised the female board share by 5 percentage points and reduced the share of all-male boards by 26 percentage points within one year (Cols 1 and 2). In 2019, treated firms were substantially more likely to expand the board due to the quota: Column 4 shows that the quota raised the share of companies that added a board seat by 17 pp. For reference, the probability companies in the regression sample expand the board in any given year is 0.23.

4.1 Did Firms Added Female Directors For Reasons Besides the Quota?

These estimates may understate or overstate the true effects of the gender quota. If, for example, SB826 created social pressure for firms based outside of California to gender diversify their boards, then the event study coefficients from Table 4 would be underestimates. This would be consistent with the discussion in Von Meyerinck et al. (2019), who document that California often sets policy trends that are adopted by other states. In contrast, SB826 adoption may be associated with attitude shifts about women in leadership that occur in California but not elsewhere. Under the "Social Change" hypothesis (Donohue and Heckman 1991; McCrary 2007), increased female board representation among treated firms would have occurred even absent SB826. In this scenario, the numbers from Table 4 would overestimate the true effect of SB826.

[32] Some of these firms may not appear in my constructed firm-year panel outside of 2017 due to firm entry into and exit from listed status (ie. some firms IPO, go private, or dissolve). Table B2 presents annual attrition rates between 2015 - 2020 for the treatment and control groups separately. Two-sided t-tests reject the presence of differential attrition in any year, although 22 percent of treated and control firms exit my sample by 2020. I remain consistent in using an unbalanced panel so as to avoid bias arising from sample selection. In unreported results, I observe that firms in the balanced panel tend to be older and larger than those in the unbalanced panel.

I find that social trends or spillover effects are unlikely to create bias in the parameter estimates from Equation 1. Table A2 presents results when I re-estimate Equation 1, but further restrict the control group to firms headquartered in Democratic states – those that voted for Hillary Clinton in the 2016 election. As conjectured by Von Meyerinck et al. (2019), Democratic states are more likely to adopt gender quotas like SB826 than Republican states. Furthermore, attitudes about progressive causes are more likely to be concordant within Democratic states. As a result, if spillover effects or broad shifts in attitudes particular to Democratic states are at play, then estimates from Table A2, Column 2 should be muted relative to those in Table 4.

In fact, the estimated effects of SB826 on board gender composition are *larger* when I restrict the control group to firms based in Democratic states.[33] These numbers provide evidence that the effects documented in Table 4 are not overestimated due to omitted variables particular to Democratic states.

Furthermore, SB826 did not shift the board composition of CA-based firms with gender-diverse boards in 2017, suggesting that my results are not driven by unobserved CA-specific shocks. If the estimated effects of the quota on board gender diversity are upward biased due to Social Change, then one would expect increases in female board representation among all CA companies (even those already compliant with SB826). However, CA-based firms unaffected by the quota did not change board composition in response to SB826. Figure 3 tracks the share of companies with all-male boards among CA companies that already had female board representation in 2017. While the share of firms with all-male boards among the companies considered minutely rises between 2017 and 2020 (by less than 5 pp), similar patterns are also observed among non-CA-based companies without all-male boards in 2017.[34] Further, the estimated effects of SB826 on the board's gender composition substantially decline when I estimate Equation 1 on the sample of all domestic and listed firms (Col 7, Table A2). Given this evidence, it is not surprising that the triple differences

[33]Table A2 documents that SB826 reduced the share of all-male boards by 32 pp by 2020, while Table 4 documents a reduction of 28 pp. Similarly, the former table shows SB826 increased female board share by 8pp, while the latter table shows a 7pp increase.

[34]The low rates transition rates from gender-diverse to all-male boards is not a statistical anomaly. Figure A2 expands to the full sample of domestic and listed companies and shows that companies infrequently transition from gender-diverse to all-male boards.

point estimates presented in Table A2, Col 6 fall within the 95 percent confidence interval of Table 4's estimates.[35] These results corroborate that the magnitudes presented in Table 4 accurately capture the causal effects of SB826.

To summarize, firms affected by SB826 overwhelmingly responded by adding female board members. In contrast to firm responses in Norway, firms in California did not take systematic actions to evade the scope of SB826. Within two years, the quota raised the average share of female board members by 7 percentage points and reduced the share of all-male boards by 25 percentage points. To accommodate newly instated female board members, quota-affected firms were substantially more likely to increase the size of their board.

The gains in female board representation due to the quota should not be understated. For context, the female board share among all domestic and listed companies only increased by 7 percentage points between 2010 and 2017 (Figure 1). SB826 can thus be viewed as rapidly accelerating trends towards increased gender diversity on corporate boards.

5 How Do Gender-Diverse Boards Affect Financial Performance?

Directors may contribute to firm performance in ways that are not captured by traditional measures of qualifications. For example, Adams and Ferreira (2009) find that women directors are less likely to have attendance problems and suggest that gender-diverse boards are tougher monitors of executives. Because female directors may change the way the board collectively monitors executives, even single female additions can impact the way boards behave.

A hurdle in establishing causal impacts of gender-diverse boards is the endogeneity of board composition. As stressed by Adams, Hermalin, and Weisbach (2010), the governance structure of a company is an equilibrium outcome designed to address the company's corporate governance

[35] The triple differences specification uses the full sample of domestic and listed firms between 2015 and 2020. It presents OLS estimates of the following equation:

$$Y_{fti} = \gamma_0 + \theta_f + \delta_{CA,t} + \psi_{AMB,t} + \beta \left(1[Year \geq 2019] \times CA\ AMB_{2017} \right) + \varepsilon_{fti} \tag{4}$$

problems. For example, shareholders may elect directors to optimally monitor company executives. Since board composition (including the gender of its directors) is not randomly assigned, comparisons between companies with more and fewer female directors will misstate the effects of gender-diverse boards.

Within the US context, convincing causal estimates are scant due to the lack of natural experiments that affect a board's gender composition. This sentiment is reflected in Post and Byron (2015) review of the literature, who call for studies to elucidate potential endogeneity in the board's determination. Widely cited estimates of the effects of gender diversity on Firm Value come from Adams and Ferreira (2009), who use a firm fixed effects specification. Their econometric model attempts to identify the effects of gender diversity by studying how firm outcomes change when a firm gender diversifies its board. For their estimates to have a causal interpretation, firm-specific omitted variables such as corporate culture must not vary over the sample period. Bernile, Bhagwat, and Yonker (2018) address a similar question but use an instrumental research design. They use the diversity of potential directors that live within a non-stop flight of a firm's headquarter as an instrument for board diversity. Through two stage least squares estimates, the authors find that increased board diversity results in better financial performance. My empirical analysis complements these two approaches to provide a more comprehensive understanding of how gender diversity affects firm outcomes.

Using a recent panel data set from 2010 to 2017, I study how firm outcomes change when firms transition to having gender-diverse boards. Because changes in board composition must be exogenous to firm performance, I adopt an instrumental variables approach that takes advantage of shifts in the regulatory environment. California's SB826 mandated that companies have at least one woman on the board. In Section 4, I showed that firms with all-male boards prior to SB826 primarily responded to the legislation by adding female directors. Since these firms changed board composition to comply with SB826 (and not in response to changing corporate governance issues), I have an ideal experiment to assess how gender-diverse boards affect firm performance.

Because gender quotas provide a laboratory to examine the effects of board gender diversity on

firm outcomes, they have received much scrutiny from academic researchers. Ahern and Dittmar (2012) study Norway's requirement that female directors constitute at least 40 percent of the board. Within five years of the legislation's announcement, firms constrained by the quota had lower values, as measured by Tobin's Q. Like Norway, France instituted a board gender quota which required publicly listed firms to have at least 20% (40%) female directors by the end of 2013 (2017). Maghin (2022) studies the French context and finds that firms affected by the quota had higher total factor productivity (TFP) growth in the long-run. Other studies have examined Denmark's law that requires certain firms to have 40% female board representation (e.g. Chevrot-Bianco 2021).

Unlike the European context, the first stage of SB826 only requires that firms add one female director. The majority of US listed companies have fewer than two female directors, so modest changes in board composition due to SB826 more closely align with natural changes in board gender composition (see Figure 2). Further, Bennedsen, Pérez-González, and Wolfenzon (2020) find no value effects from director deaths in U.S. firms, implying U.S. firms have access to a large pool of qualified directors. If women constitute a sizable fraction of this pool, as suggested by Table **??**, then firms affected by SB826 should not experience value losses comparable to those observed in Norway.

5.1 Effects of Gender-Diverse Boards on Shareholder Returns

Using the annual firm-year panel from 2010 - 2017, I study how firm outcomes evolve when firms transition to or away from having gender-diverse boards. Given that corporate boards may take actions that affect long-run firm viability, I allow firm outcomes to be determined by lagged board composition. More specifically, my econometric specification posits that changes in board composition in one year can influence firm outcomes for the next four years:

$$Y_{fti} = \theta_0 + \sum_{k=-2}^{k=4} \delta^k \Big(GenderDiverseBoard_{f(t-k)i} \Big) + \delta_f + \delta_{ti} + \varepsilon_{fti}, \tag{5}$$

Since I include many leads and lags of whether a company has a gender-diverse board, Equation

5 is a "Distributed Lag" specification. This specification is well suited to contexts where the binary treatment variable can turn on and off over the sample period. If the identifying assumptions hold, the δ coefficients represent the effect of an additional year of exposure to a gender-diverse board. Since common practice is to report cumulative effects relative to an event, I use the following transformation suggested by Schmidheiny and Siegloch (2019):

$$\beta^{-1} = 0, \tag{6}$$

$$\beta^{k} = \sum_{j=0}^{k} \delta^{j}, k \geq 0 \tag{7}$$

$$\beta^{k} = \sum_{j=k+1}^{-1} -\delta^{j}, k < -1. \tag{8}$$

The standard errors of Equation 5 are clustered at the firm level to account for potential correlation of the error term within firms. The standard errors of the transformed variables ("event study coefficients") in Equations 6 - 8 are calculated using the Delta Method.

In order for the β coefficients to represent the cumulative impact of gender-diverse boards on firm outcomes, the firm's board gender composition must be unrelated to the excluded variables from Equation 5. This assumption could be violated for a couple of reasons. For example, firms may be more likely to transition away from all-male boards when firm performance is poor. Ryan and Haslam (2005) find support for this hypothesis among 100 firms listed on the FTSE 100 in 2003. They document that firms who added women directors consistently had worse performance in the preceding five months than those that appointed male directors. Firms may also add female directors as part of their broader Corporate Social Responsibility (CSR) efforts. If CSR activities can affect Firm Value, then estimates of the parameters in Equation 5 will be biased.

With these caveats in mind, I present estimates of the event study coefficients in Table A1. Following the literature, I consider Market Value of Common Equity, Tobin's Q, and Return on Assets (ROA) as proxies of Firm Value. I define Tobin's Q as the ratio of Market Value to Book

Value, and ROA as Net Income divided by Total Assets. These outcomes are tracked at the end of each company's fiscal year or quarter. I measure operating performance based on Net Income and Book Value – the bottom line metrics on the income and balance sheet respectively. The sample is restricted to firm-year observations with positive Assets and Book Value to ensure ROA and Tobin's Q have meaningful interpretations. I also consider the log of Book Value, Assets, and Liabilities because these variables are right-skewed and only take positive values. All domestic listed firms observed between 2010 - 2017 that fit the criteria described are included in the sample.

Table A1 suggests companies did not transition to or away from gender-diverse boards in response to prior changes in firm performance. Across all 12 outcomes, there is not a single "pre-event" coefficient that is statistically significant at conventional levels. This result stands in contrast to the findings in Ryan and Haslam (2005). Moreover, Table **??** implies that gender-diverse boards have an immediate and persistent impact in raising Market Value, Book Value, Assets, and Liabilities. In the preferred specification where I consider the log transform of these variables, $\hat{\beta}^0$ through $\hat{\beta}^4$ are all positive and statistically significant. The magnitudes indicate that gender-diverse boards have an immediate impact in raising Market Value by 7%, Book Value by 11%, Assets by 9%, and Liabilities by 10%. These effects are not transitory since the magnitudes remain constant over time. I observe null effects for the Income Statement variables considered.

Taken at face value, Table A1 suggests that gender-diverse boards swiftly and dramatically improve firm outcomes. An alternative reading is that growing firms adopt gender-diverse boards. If the companies that gender diversify their boards would have experienced faster growth even absent changes in board composition, the parallel trends assumption permitting causal interpretations of Equation 5's estimates is not satisfied. This assumption is fundamentally un-testable and may be violated if changes in board composition coincide with changes in corporate objectives. Other studies exploiting shifts in board composition induced by gender quotas (e.g. Ahern and Dittmar 2012; Bertrand et al. 2019) show that changes in board composition do not immediately impact firm outcomes. Adams (2003) finds that boards of growing firms modify their behavior to devote more time to strategic issues. These observations lead me to favor the interpretation that

companies on faster growth trajectories adopt gender-diverse boards. More generally, these results question whether observational studies that compare firm outcomes before and after shifts in board composition capture causal effects.

5.2 Effects of SB826 on Operating Performance

To address the limitations of the previous subsection, I examine how firm outcomes respond to the passage of SB826. Since the legislation *mandated* the addition of female directors, changes in board composition among quota-affected firms are arguably unrelated to shifts in corporate objectives – an omitted variable that potentially impacts both firm outcomes and board gender composition. Therefore, difference-in-differences estimates that compare changes in firm outcomes between the treatment and control groups plausibly capture the causal effect of SB826.

Using the unbalanced firm-quarter panel from 2015 Q1 through 2020 Q4, I estimate the parameters of the following regression using OLS:

$$Y_{fti} = \gamma_0 + \sum_{t \neq 2017Q1} \beta^t \Big(1[Quarter = t] \times CA\ HQ_{2017} \Big) + \delta_f + \delta_{ti} + \varepsilon_{fti}, \tag{9}$$

where Y_{fti} is a financial performance measure for firm f in quarter t and industry i. The outcome variable is transformed to represent the percentile rank among all firms in the sample in a given quarter. This statistic is useful in assessing the performance of a company relative to others in the sample. Estimates of β^t will represent differences in financial outcomes between treatment and control firms in quarter t relative to 2017 Q1. As in Section 4, the Parallel Trends Assumption is necessary for the β coefficients to represent the effects of SB826. The other parameters have similar interpretations as in Equation 1.

Table **??** displays results from the estimation procedure. The coefficients on the interaction terms prior to 2018 Q4 imply that firms in the treatment and control groups had similar financial trajectories prior to SB826.[36] Unlike the conclusions drawn from the previous subsection, Table

[36]Out of the 126 regression coefficients with interaction terms prior to 2018 Q4, only 17 are statistically significant at the 10 percent level (13% of coefficients). The similar trajectories prior to SB826 adoption suggest, but do not

?? does not imply that gender-diverse boards have an immediate impact on financial outcomes. In fact, the reduced form results generally suggest that the legislation had zero impact on financial outcomes in the 9 quarters after its implementation. The important exception is Market Value. Column 1 implies that the legislation *raised* Market Values of quota-affected firms within one quarter and that these positive effects persist over time. By the end of the compliance period (2019 Q4), the legislation raised quota-affected firms' percentile rank in the Market Value distribution by 2.2 points. To develop a sense of the magnitudes associated with Column 1's estimates, I re-run equation 9 using Log Market Value as the dependent variable. Within 5 quarters, SB826 appears to have raised the average Market Value of quota-affected firms by 17%. The fact that SB826 affected Market Value but no other financial measures may not be surprising. In a rational marketplace, the effects of events will immediately be reflected in security prices, while their effects on direct productivity related measures may require years of observation (MacKinlay 1997).

As a robustness check, I pool the post-treatment periods together and examine how SB826 altered the distribution of financial outcomes. I estimate the parameters of the following regression using quantile regression:

$$Y_{fti} = \beta^{\tau} Treated_f 1(t >= 2018Q3) + \lambda_{ti} + \alpha_f + e_{fti} \tag{10}$$

I consider $\tau \in \{0.25, 0.50, 0.75\}$ to study how SB826 affected the first, second, and third quartile of financial outcomes. I also estimate Equation 10's parameters through OLS. Since parameters estimated through quantile regression are less susceptible to outliers than those estimated via OLS, the outcome variables are not percentile transformed (Koenker 2001). Instead, I include all outcome variables in either log or level form.

Table **??** displays results, and generally corroborates the conclusions suggested by Table **??**. None of the metrics relating to operating performance are statistically significant. The assertion that SB826 raised the Market Value of quota-affected firms is reinforced; the point estimates from row 2 imply that SB826 increased market valuations of treated firms by 14% - 18% between 2018

prove, that the Parallel Trends Assumption holds.

Q3 and 2020 Q4. The magnitudes of these shifts are stable across the Market Value distribution. Positive and statistically significant estimates are also present for Market Value Returns (row 1) and Return on Assets (row 3). Interestingly, the legislation had a larger impact in shifting the 75th percentile of returns than the 25th percentile ($\hat{\beta}^{75} > \hat{\beta}^{50} > \hat{\beta}^{25}$). To check whether California-based companies with all-male boards are systematically more likely to grow in Market Value than non-CA-based companies with all-male boards, I implement the placebo regressions suggested by (Stevenson 2010). Only the 2017 cohort of CA-based companies experienced abnormal returns, implying that the positive Market Value effects are not driven by differential growth trajectories between CA and non-CA-based firms. Event study estimates from a triple differences specification further support the theory that SB826 raised Market Values of quota-affected firms.

To summarize, the results from this section indicate that investors react positively to companies that gender diversify their boards. This finding is consistent with the meta-analysis in Post and Byron (2015), where the authors find that the relationship between female board representation and market performance is positive only in countries with greater gender parity. The companies that voluntarily transition away from all-male boards appear to be on faster growth trajectories. Further, SB826 did not have any deleterious impacts on operating performance in the 2 years after its implementation.

$$Y_{fti} = \beta_0 + \beta_1 \Big(1[Year \geq 2019] \times CA\ HQ_{2017} \Big) + \delta_f + \delta_{ti} + \varepsilon_{fti} \tag{11}$$

6 Effects of the Quota on Board Characteristics

Given that the quota improved financial performance, a natural question arises: why were all-male boards the most popular form of board structure prior to the legislation? In this section, I demonstrate that firms typically recruit candidates with top-level experience and connections to corporate leadership. Women directors, including those appointed after the quota, are less likely to possess these characteristics, which helps to explain why corporate leadership is predominantly

male.

For evidence, I start by comparing the characteristics of all incoming male and female directors who start between 2015 - 2020 along three dimensions: education, experience, and connections. Even though this period is associated with gradual increases in female board representation (Figure 1), Table 5 shows that new male appointments still outpaced new female appointments by more than three to one. Incoming female directors are equally qualified as their male counterparts in terms of education, as proxied by MBA, Law Degree, and Ivy League attainment. In fact, incoming female directors are 2pp more likely to have a Law Degree (9% male vs 11% female). However, there do appear to be substantial gender differences in experience. Compared to incoming female directors, incoming male directors are more likely to have prior Board (83% men vs 72% women), C-Suite (70% men vs 67% women), and Same Sector experience (56% men vs 43% women). Although this finding is not novel (e.g. Ahern and Dittmar 2012; Hwang, Shivdasani, and Simintzi 2018), it is reassuring to observe in my sample period.

Incoming male directors are substantially more likely to have employment relationships with existing company leadership than incoming female directors, which is a descriptive finding that contributes to a small literature that investigates how workplace connection patterns affect male and female outcomes.[37] Men have a staggering 21pp advantage in having prior connections with the incumbent board and C-Suite. These gaps are exacerbated when considering the incidence of having a same-gender connection to the incumbent board: 58 percent of incoming male hires have a previous employment relationship with a sitting male director. In contrast, 13 percent of incoming female directors have previous employment relationships with a sitting female director. Further, 95 percent of incoming female directors are Non-Executive directors (compared to 82 percent of male directors), resonating with the theme that female directors are predominantly "outsiders." While not definitive, these numbers do hint that path dependence contributes to gender disparities in board membership: men are more likely to hold leadership positions, begetting connections to

[37]Essen and Smith (2022) find evidence of the "Old Boys Network" in the Danish board context, who show that gendered connection patterns increase the likelihood that male candidates achieve board positions. Similarly, Cullen and Perez-Truglia (2019) show that gendered connection patterns advantage males in the promotion process.

other company leaders, which in turn generate more leadership positions.

The quota reduced the share of the board with prior top-level experience and connections with leadership, consistent with underlying differences between the typical male and female director over the sample period. I use Equation 1 to evaluate how the quota shifted the composition of the boardroom. By 2020, SB826 reduced the share of the board with prior board and c-suite experience by 5 and 3 percentage points respectively (Table 6, Cols 4-5). After SB826, incidence of top-level experience among incoming female directors is comparable across firms in the treatment and control group, though gender-gaps still remain (Table A3). Therefore, reductions in the share of the board with top-level experience are driven by the fact that treated firms were substantially more likely to add female directors than control firms. Interestingly, there is no decline in the board's share with same-sector experience. This result implies that many of the women without top-level experience who did break the 'Glass Ceiling' came from the same sector as treated firms.

Perhaps the most striking effect of SB826 was its influence in promoting first-time directors without prior employment connections onto corporate boards. Column 7 of Table 6 shows that by 2020, the quota lowered the proportion of directors with prior employment connections to the board by 3%. When I consider the incidences of a prior board-board or same-gender connection, this number rises to 4.6% and 5.4% respectively (Cols 8, 10). Moreover, 93% of female directors held non-executive directorships in the post-quota period, which further validates the claim that quota-appointed directors are outsiders.[38]

Although quota-appointed directors have different types of work experiences, they do not appear less-qualified or influential on corporate boards. As demonstrated in the previous section, financial outcomes did not decline in response to SB826; this finding rejects the hypothesis that the quota would coerce firms to add unqualified directors who reduce measures of financial performance. For more granular evidence at the director-level, I observe that 210 female directors filled 214 vacancies, indicating that treated firms pulled from a diverse array of board candidates (Table A3). On average, women entering treated firms received 1.87 committee appointments; 54% sat

[38]More than 80% of directors are non-executive in the regression sample, so the point estimates in Column 11 are small in magnitude and not statistically significant.

on the auditing committee while 51% sat on the compensation committee. Although these values are lower than that for men in the control group, the difference-in-differences estimates presented in Table 7 find minimal support for the theory that SB826 changed the overall committee composition of corporate boards. There is one exception – the quota lowered the share of the board on the audit committee, especially among firms in male-dominated industries. This result indicates that quota-appointed directors were not immediately assigned the most important responsibilities on corporate boards.

Overall, this section elucidates that the gender experience and connection gap contributes to the gender representation gap in corporate leadership. The quota resulted in less experienced and connected boards, but did not deteriorate and plausibly improved financial performance among affected companies.

7 Conclusion

In this paper, I show that SB826, which mandated at least one woman onto corporate boards by the end of 2019, successfully introduced gender diversity without reducing corporate performance. Within two years, the legislation increased women's share on corporate boards by 7 percentage points, which corresponds to the entire gain in female board representation between 2010 and 2017. Within three years, quota-affected companies plausibly experienced higher shareholder returns, firm values, and operating performance.

My results should not be taken to imply that quotas are a panacea for addressing the lack of diverse representation in leadership. Many firms might have added female representation even absent the quota. I document that firms add gender diversity onto the boardroom as they age, so the quota can be interpreted as accelerating a natural process. Firms may react differently to the second stage of SB826, which mandates California-based listed companies have at least 40% female board representation by the end of 2021.

Nevertheless, proponents of active governmental invention to address inequalities may rejoice

in this paper's findings. The quota created a pathway for qualified women to enter corporate leadership without harming performance. But this result poses somewhat of a puzzle: why didn't the shareholders of quota-affected companies adopt gender-diverse boards prior to the legislation? This paper provides support for the theory that some capable women do not reach the top because they are not connected to incumbent male leadership. Employment connections develop through work experience, so it may not be entirely surprising that the quota also lowered the share of the board with prior board and c-suite experiences. The quota increased firm outreach efforts while maintaining bottom-line outcomes, in much the same way that some universal school outreach programs have improved minority representation while maintaining student-level outcomes (Card and Giuliano 2016).

The results of this paper may not be very surprising to some readers. The quota imposed a relatively minor requirement that one woman be on the corporate board. Firms complied with this low bar, and there there do not appear to be any adverse consequences of eliminating all-male boards within 3 years. However, the quota may generate externalities that take years to materialize. A promising avenue for future research would be examine whether the quota created gains for women that were not mandated by the legislation. It would be worthwhile to follow-up in the upcoming years to study whether quota-affected firms continued to recruit women or if the first-time female directors appointed after SB826 earned additional corporate leadership positions. For the more immediate present, socially conscious investors and policy-makers can take home the message that moderate pressures to increase diversity can be good for business and minority representation.

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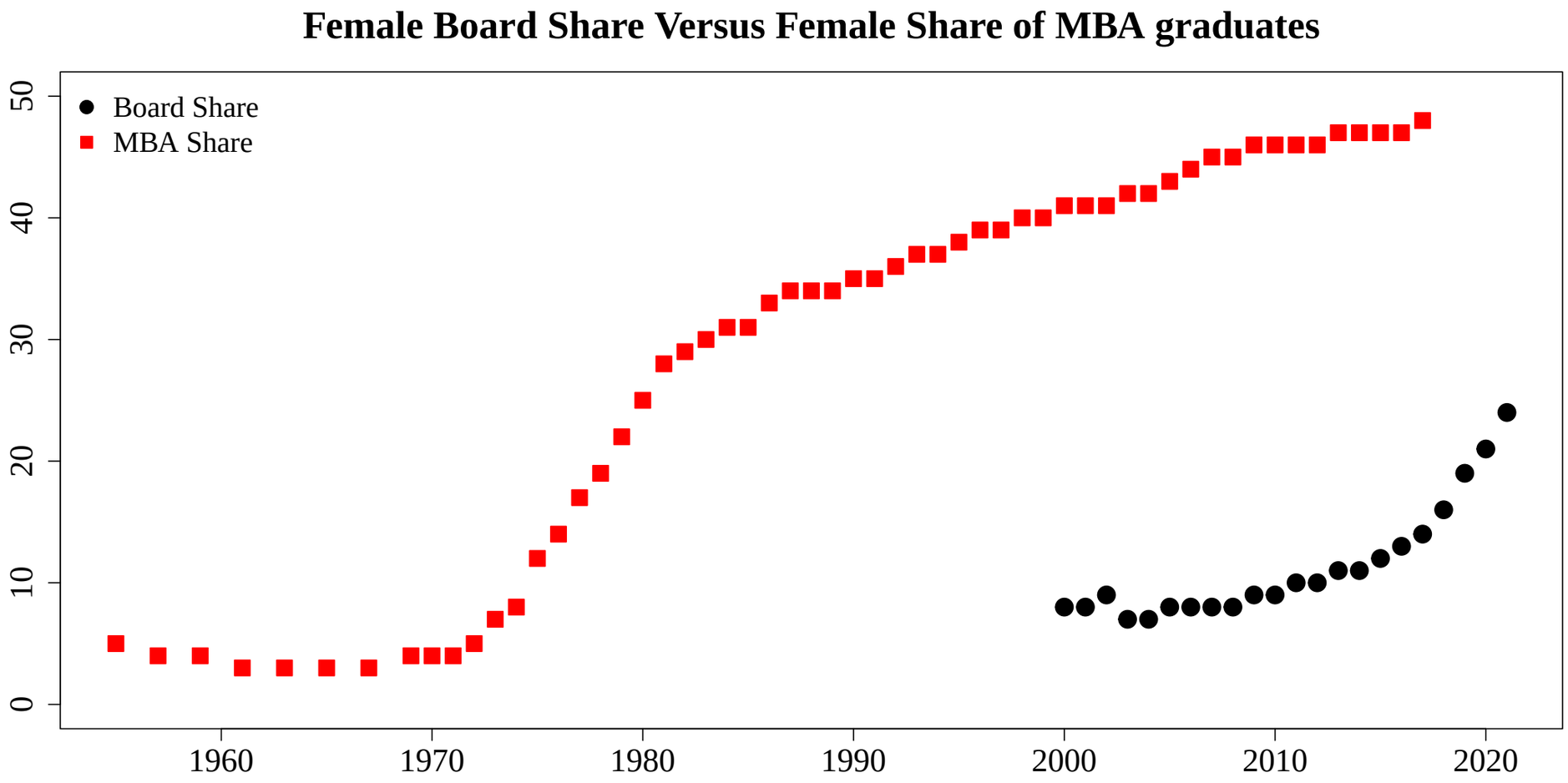
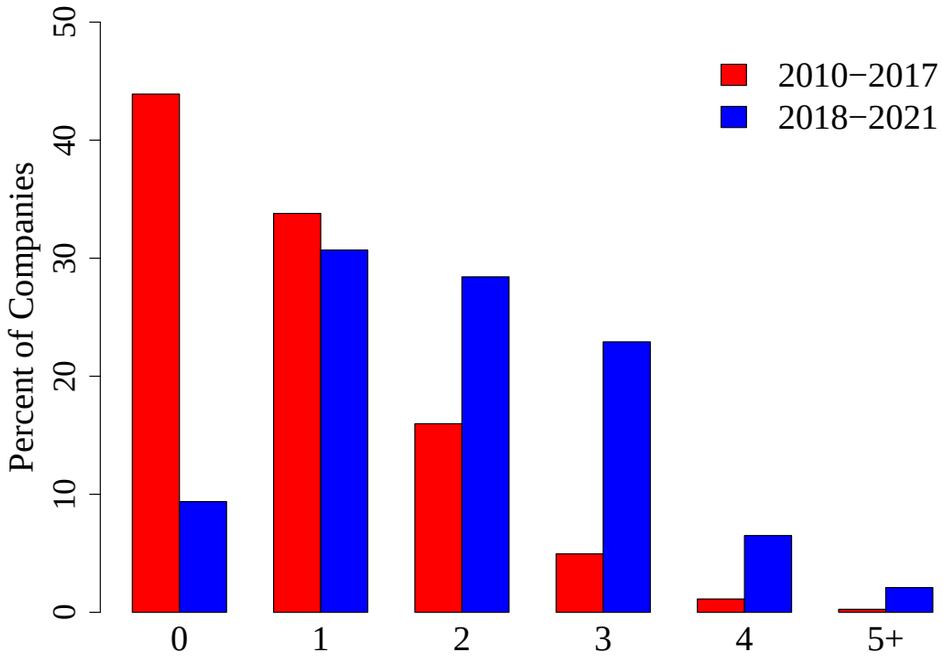
Figure 1



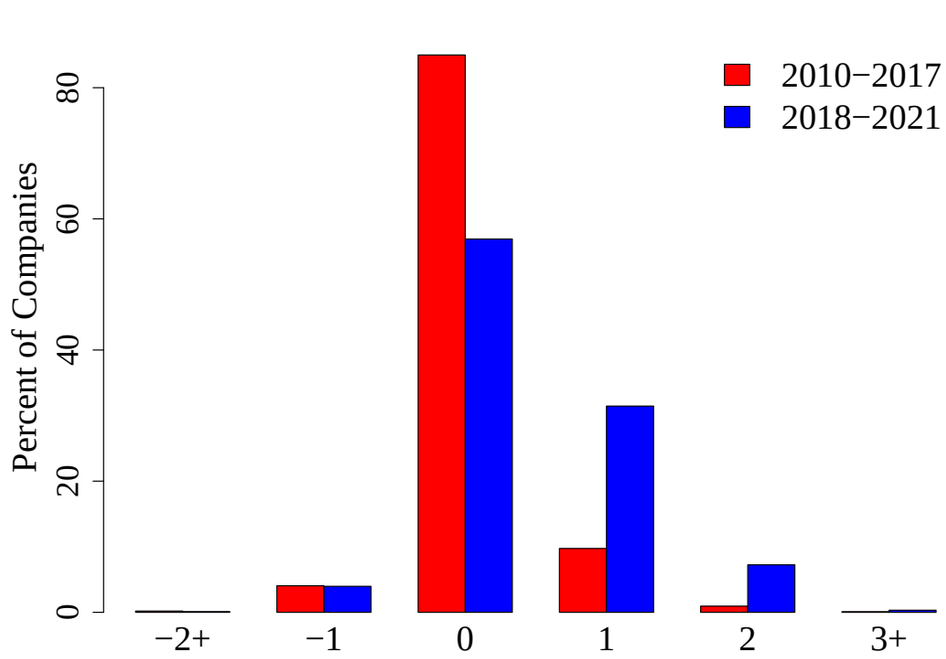
Note: The female share of MBA graduates is taken from NCES Table 325.25, which tracks postsecondary institutions participating in Title IV federal financial aid programs. The annual female board share of domestic and listed companies is derived from BoardEx's Organizational Summary files.

Figure 2

Panel A: Annual Distribution of the Number of Female Directors

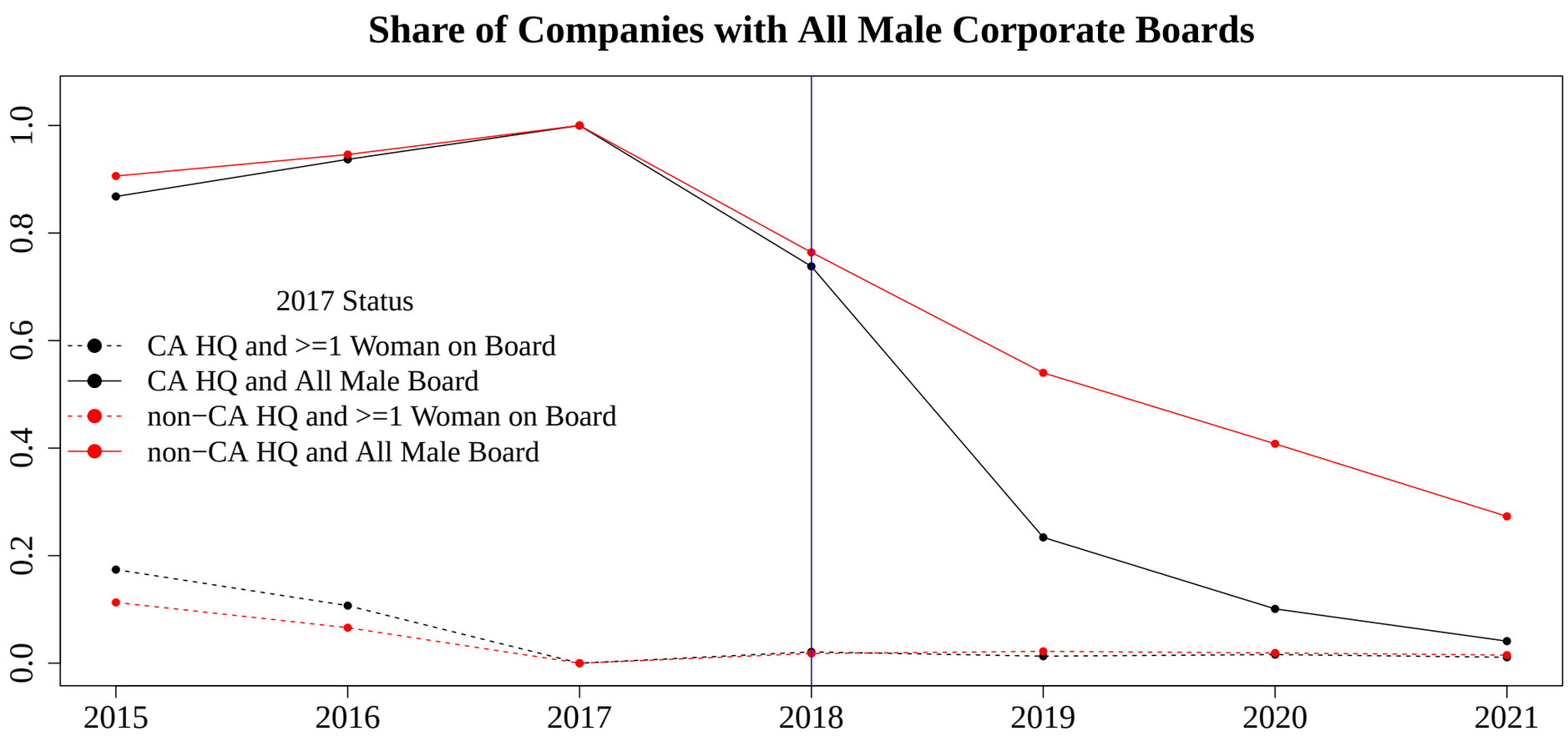


Panel B: Annual Changes in the Number of Female Directors



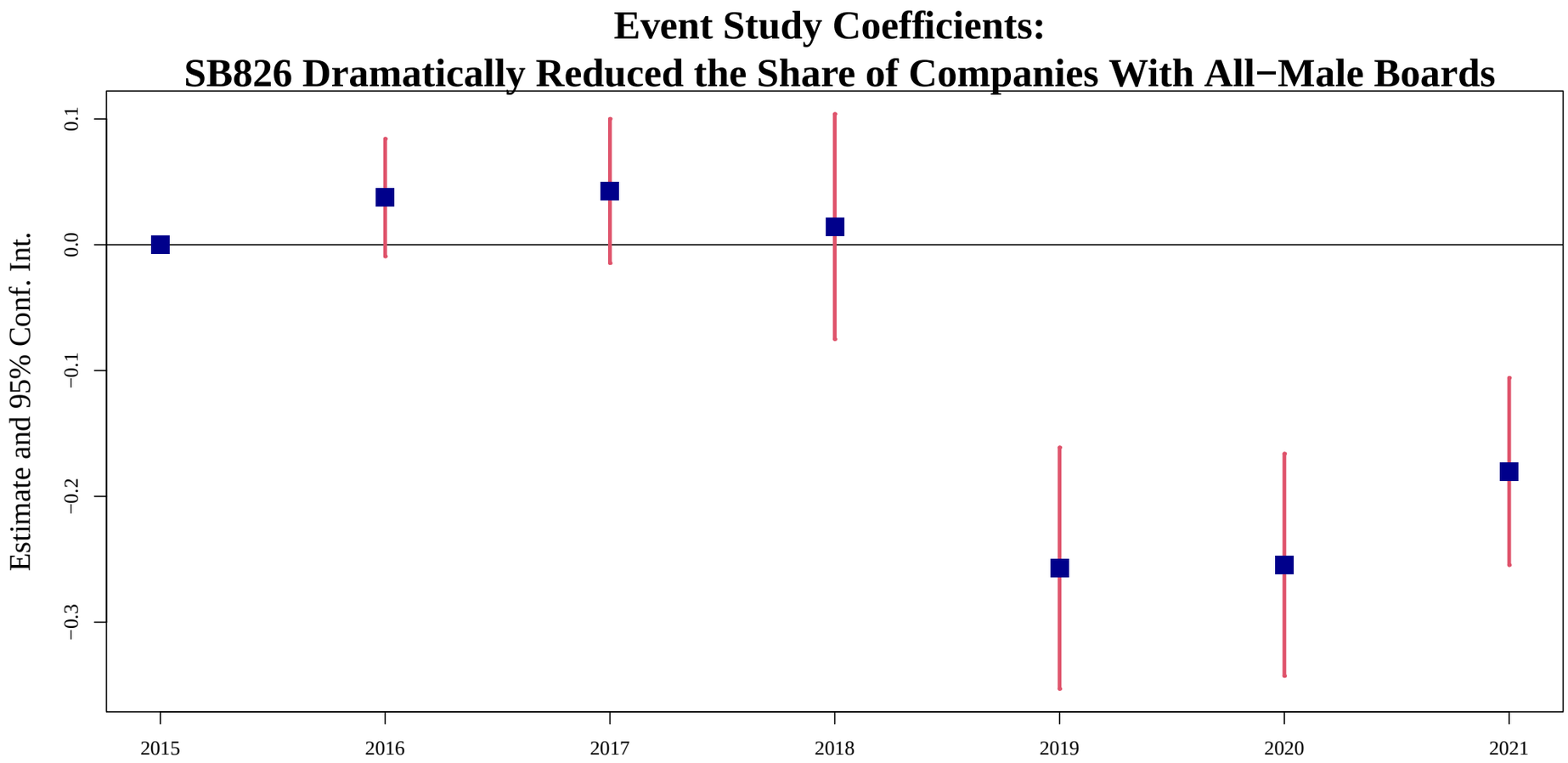
Note: Panel A displays the annual number of female directors and Panel B shows year over year changes in the number of female directors. The sample restricts to an unbalanced panel of California−based listed companies observed between 2010−2021. The gender composition of firms is provided by BoardEx, and historical headquarter location is triangulated from Compustat Snapshot, SEC reports, and BoardEx. CA SB 826, approved on 9/30/2018, mandated at least 1 woman be on the corporate board of listed companies with HQ in CA by 12/31/2019.

Figure 3



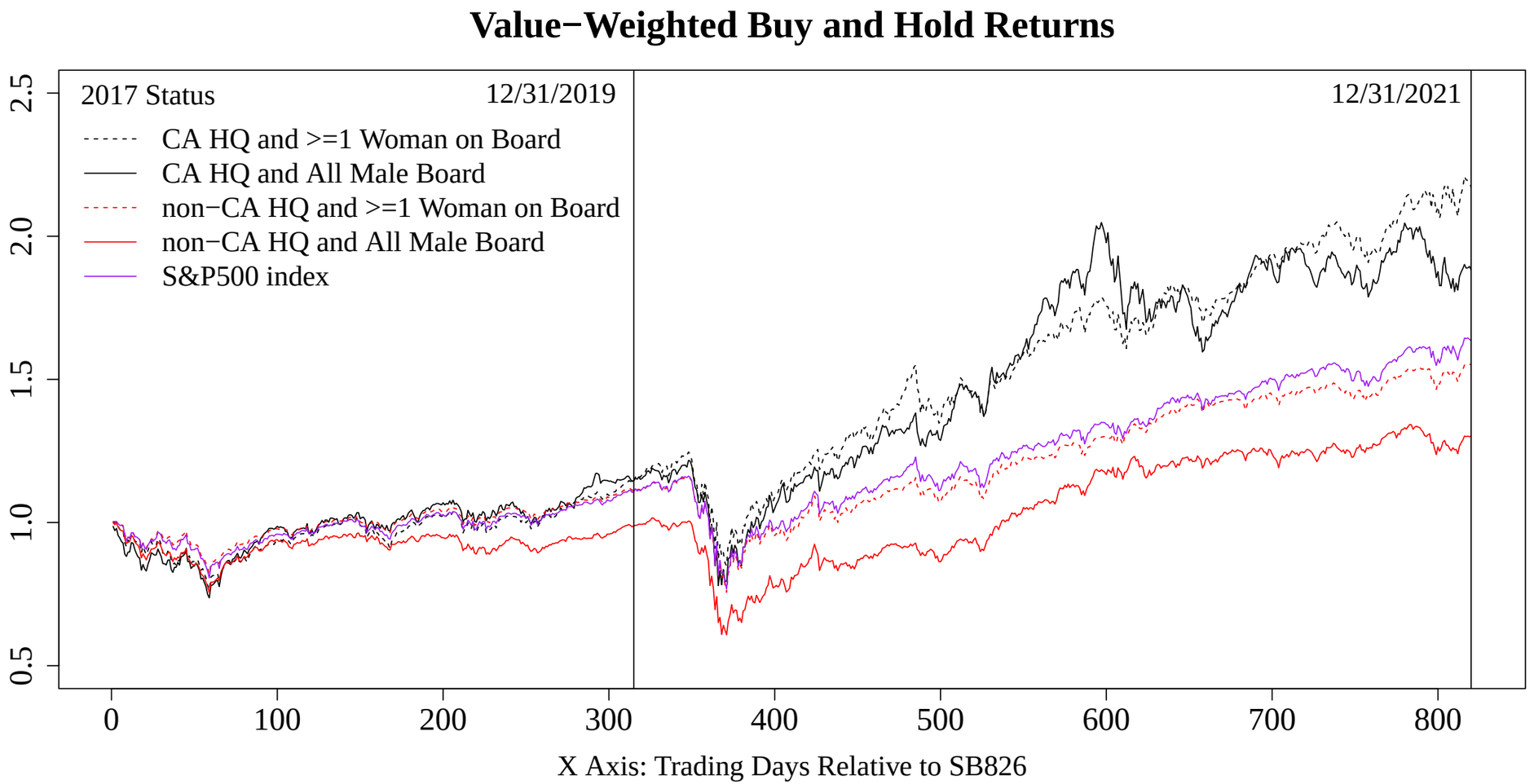
Notes: CA SB 826, approved on 9/30/2018, mandated at least 1 woman be on the corporate board of any listed company with HQ in CA by 12/31/2019. Listed companies have shares listed on the NASDAQ, NYSE, or NYSE American. The sample tracks an unbalanced panel of firms that were domestic and listed in 2017, the year before SB 826 was signed.

Figure 4



Note: The sample restricts to an unbalanced panel of firms that were domestic, listed, and had all−male boards in 2017. The time period covered is 2015 − 2021, with reported effects relative to the 2015 baseline. Standard errors are clustered at the firm level.

Figure 5



Note: The sample tracks an unbalanced panel of firms that were domestic and listed in 2017, the year before SB 826 was signed. Firms that delist and have missing delisting returns, or do not delist and have missing returns, are dropped. Company specific buy−and−hold−returns are weighted by market value as of SB826. SB826 was announced on Sunday September 30th, and Monday October was the first trading day after the legislation's announcement. Daily security returns are provided by CRSP. Among companies with multiple securities, I choose the security with the highest average trading volume between Jan 2nd, 2015 and March 31st, 2022.

Figure A1: Example Director Profile in SEC 10-K Reports

election of directors

Wanda M. Austin

Retired President and Chief Executive Officer, The Aerospace Corporation

Age: 66
Director Since: December 2016
Independent: Yes

Chevron Committees:
- Board Nominating and Governance
- Public Policy and Sustainability (Chair)

Current Public Company Directorships:
- Amgen Inc.
- Virgin Galactic Holdings, Inc.

Prior Public Company Directorships
(within last five years):
- None

Other Directorships and Memberships:
- Horatio Alger Association
- National Academy of Engineering
- University of Southern California (transitions to Life Trustee as of May 15, 2021)

Dr. Austin has held an adjunct Research Professor appointment at the University of Southern California's Viterbi School's Department of Industrial and Systems Engineering since 2007. She has been Co-founder and Chief Executive Officer of MakingSpace, Inc., a leadership and STEM (science, technology, engineering, and math) consulting firm, since December 2017. She is a World 50 executive advisor, fostering peer-to-peer discussions among senior executives from some of the world's largest companies. She served as Interim President of the University of Southern California from August 2018 until July 2019. She served as President and Chief Executive Officer of The Aerospace Corporation ("Aerospace"), a leading architect for the United States' national security space programs, from 2008 until her retirement in 2016. From 2004 to 2007, she was Senior Vice President, National Systems Group, at Aerospace. Dr. Austin joined Aerospace in 1979.

skills and qualifications

Business Leadership / Operations: Eight years as CEO of Aerospace. Thirty-seven-year career with Aerospace included numerous senior management and executive positions. CEO of MakingSpace, Inc., since December 2017.

Finance: More than a decade of financial responsibility and experience at Aerospace. Audit Committee member at Amgen Inc.

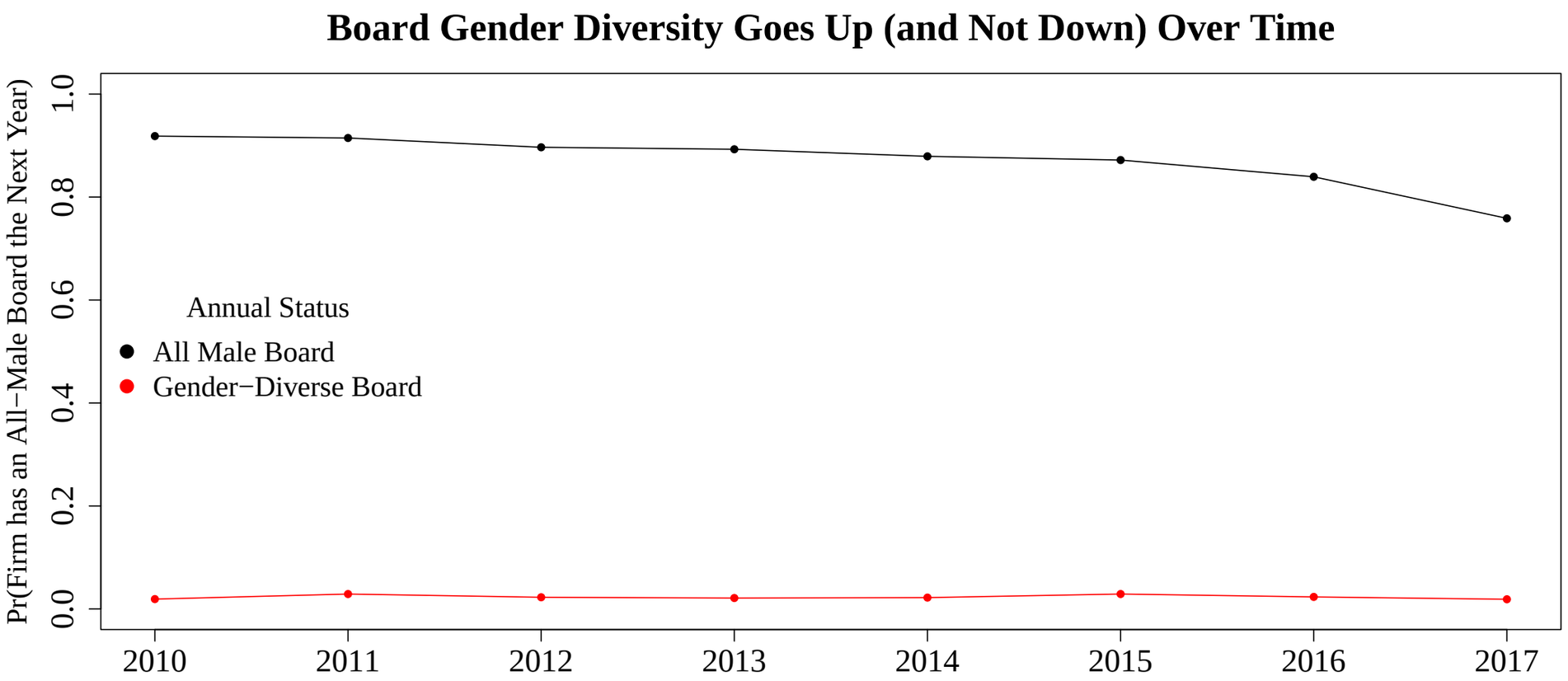
Global Business / International Affairs: Internationally recognized for her work in satellite and payload system acquisition, systems engineering, and system simulation. Former CEO of a company that provides space systems expertise to international organizations. Director of companies with international operations.

Government / Regulatory / Public Policy: Served on the President's Council of Advisors on Science and Technology and the President's Review of U.S. Human Space Flight Plans Committee. Appointed to the Defense Policy Board, the Defense Science Board, and the NASA Advisory Council.

Science / Technology / Engineering: Ph.D. in Industrial and Systems Engineering from the University of Southern California, Master of Science in both Systems Engineering and Mathematics from the University of Pittsburgh. Thirty-seven-year career in national security space programs. Director at Amgen Inc., a biotechnology company, and Virgin Galactic Holdings, Inc., the world's first commercial space line and vertically integrated aerospace company. Fellow of the American Institute of Aeronautics and Astronautics. Member of the National Academy of Engineering.

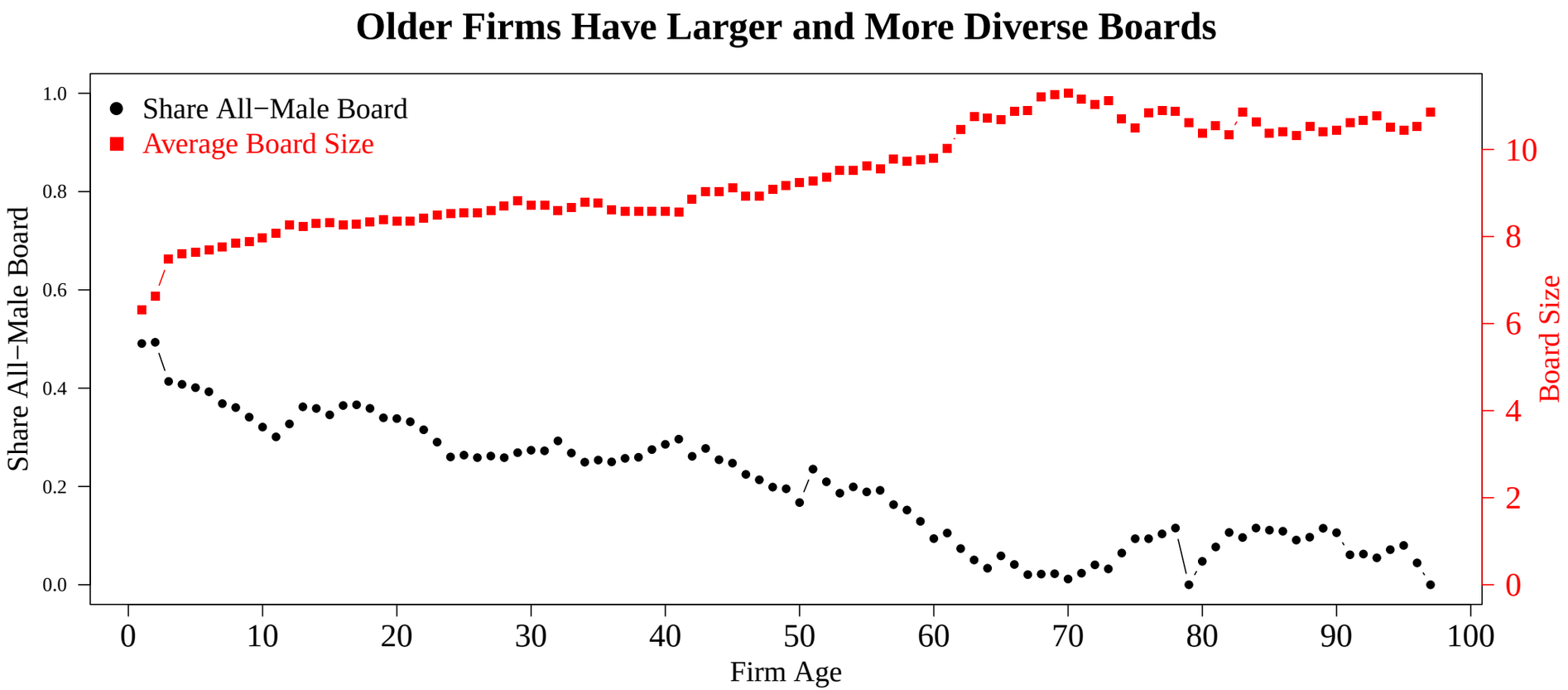
Research / Academia: Adjunct Research Professor at the University of Southern California's Viterbi School of Engineering. Former Interim President of the University of Southern California.

Figure A2



Note: The sample restricts to domestic and listed companies where annual board gender information is available. The annual board composition is provided by BoardEx. The universe of listed companies is provided by CRSP. Annual headquarter information is triangulated from Compustat, SEC reports, and BoardEx.

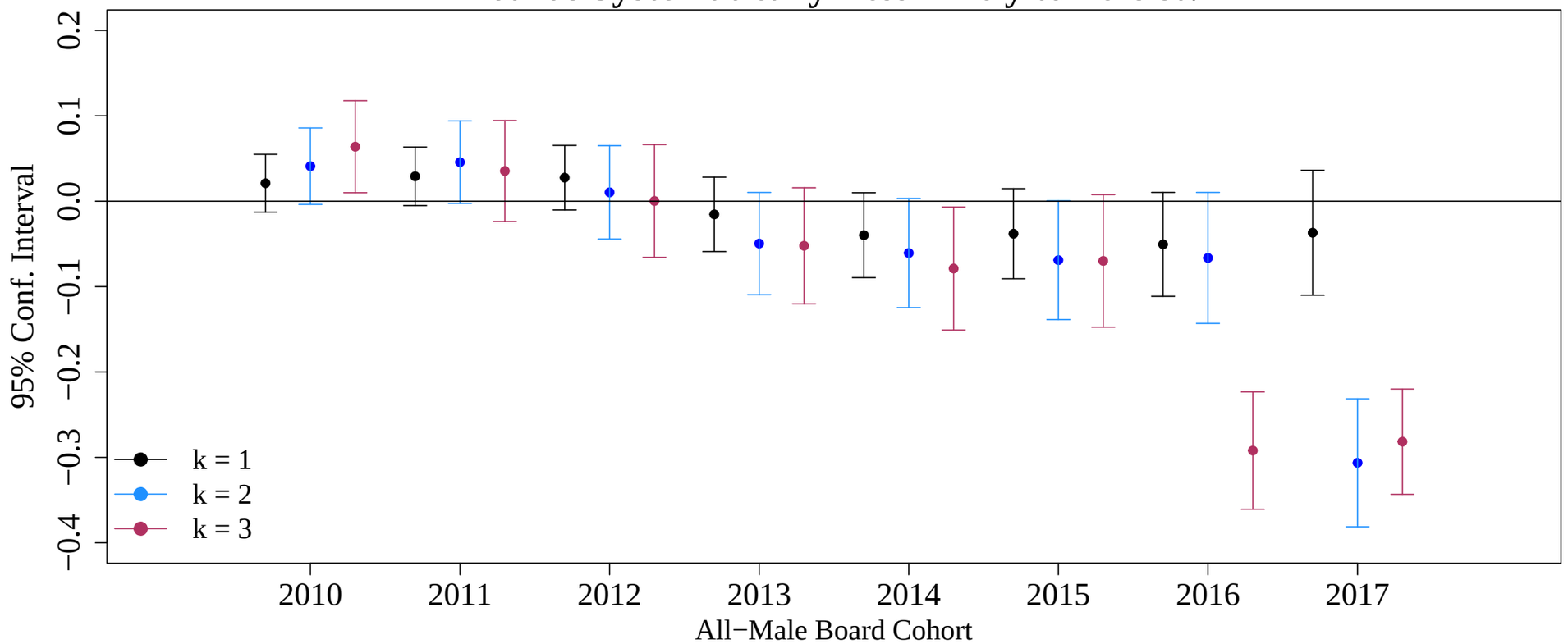
Figure A3



Note: The sample restricts to all domestic and listed companies observed between 2010 and 2021. The column variables are derived from Boardex's Organizational Summary files. I follow Loderer and Waelchli (2010) in constructing firm age. It is the earliest of the following: (a) the year in which the firm appears on CRSP; (b) the year in which the firm is included in COMPUSTAT; and (c) the year for which there is a link between CRSP and COMPUSTAT.

Figure A4

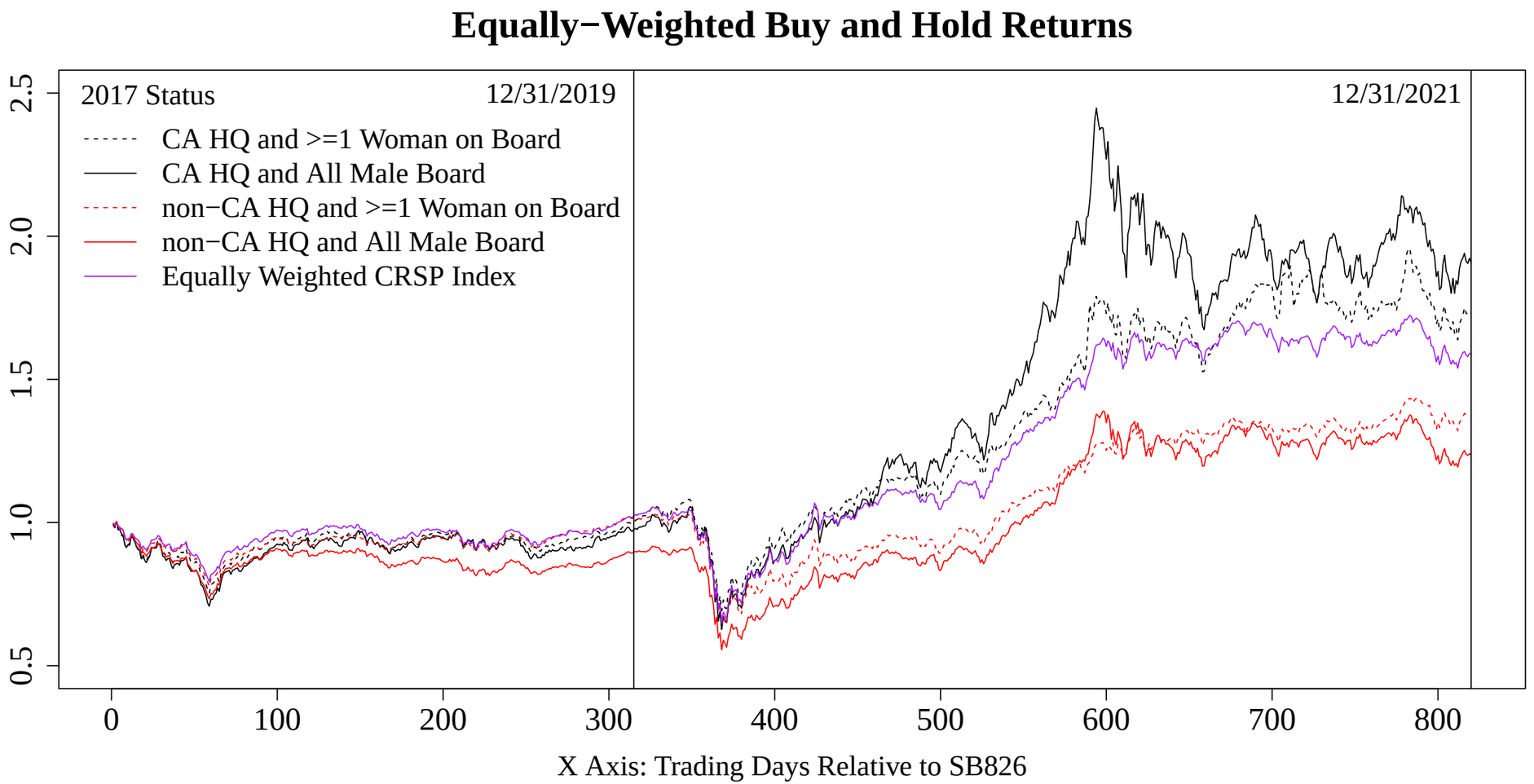
Differential Mean Reversion: Are California−Based Companies with All−Male Boards Systematically Less Likely to Persist?



Note: Point estimates for each cohort represent
β_{tk}: = Pr(AMB$_{t+k}$|AMB$_t$, CA HQ) − Pr(AMB$_{t+k}$|AMB$_t$, non−CA HQ)

CA SB 826, approved on 9/30/2018, mandated at least 1 woman be on the corporate board of listed firms with HQ in CA by 12/31/2019.

Figure A5



Note: The sample tracks an unbalanced panel of firms that were domestic and listed in 2017, the year before SB826 was signed. Firms that delist and have missing delisting returns, or do not delist and have missing returns, are dropped. Company specific buy−and−hold−returns are equally weighted. SB826 was announced on Sunday September 30th, and Monday October 1st was the first trad day after the legislation's announcement. Daily security returns are provided by CRSP. Among companies with multiple securities, I choose the security with the highest average trading volume between Jan 2nd, 2015 and March 31st, 2022.

Table 1: Sample Size

Year	N: All Firms	HQ in CA			HQ outside of CA		
		N	N: AMB	Pr(AMB)	N	N: AMB	Pr(AMB)
2015	4013	664	266	0.40	3349	1134	0.34
2016	3872	647	242	0.37	3225	1021	0.32
2017	3845	644	204	0.32	3201	942	0.29
2018	3817	658	166	0.25	3159	760	0.24
2019	3795	671	59	0.09	3124	582	0.19
2020	3861	702	24	0.03	3159	475	0.15
2021	3977	772	12	0.02	3205	314	0.10

Note:
The sample restricts to domestic and listed companies that report board gender and headquarter location. The annual gender composition of corporate boards is provided by BoardEx and reflects the board's composition as of the company's annual report date. Headquarter location is triangulated from Compustat Snapshot, BoardEx, and SEC filings. The universe of listed companies is derived from CRSP. "AMB" refers to companies with All-Male Boards. CA's SB826, approved on 9/30/2018, mandated at least 1 woman be on the corporate board of any listed with HQ in CA by 12/31/2019.

Table 2: Firm Characteristics in 2017

	CA-HQ	Outside CA-HQ	Diff	P-Value	N: CA-HQ	N: Outside CA-HQ
Boardroom Characteristics						
Board Size	6.38	6.75	-0.37	0.00	204	943
Dual CEO/Chairman Role	0.38	0.37	0.00	0.93	204	943
Director Age	61.00	61.64	-0.64	0.15	204	942
MBA Degree	0.39	0.34	0.05	0.01	204	941
Prior Board Experience	0.81	0.77	0.04	0.03	204	942
Prior C-Suite Experience	0.69	0.61	0.08	0.00	204	942
Prior Same Sector Experience	0.51	0.44	0.07	0.01	204	942
Prior Conx w/Board	0.57	0.54	0.03	0.23	204	941
Prior Board Conx w/Board	0.41	0.38	0.03	0.27	204	941
Prior Conx w/ C-Suite	0.49	0.43	0.05	0.03	204	940
Prior Same Gender Conx w/Board	0.56	0.54	0.03	0.22	204	941
Non-Executive Director	0.78	0.80	-0.02	0.04	204	943
Firm Characteristics						
Age	16.07	19.21	-3.14	0.00	202	942
Employees (k)	0.79	1.99	-1.19	0.00	193	875
Return on Assets	-0.30	-0.12	-0.18	0.00	194	895
Log(Tobin's Q)	0.82	0.55	0.28	0.00	188	870
Log(Market Value)	5.37	5.54	-0.16	0.23	189	874
Company Policies						
1(Delist)	0.02	0.01	0.01	0.23	204	943
1(Merger or Reorg)	0.00	0.00	0.00	0.90	204	943
1(Dividend)	0.14	0.36	-0.22	0.00	204	943
1(Incr in Shares Outstanding $\geq$ 5 percent)	0.04	0.04	-0.01	0.73	204	943
1(Decr in Shares Outstanding $\geq$ 5 percent)	0.06	0.07	-0.01	0.74	204	943
Committee Composition						
Avg Committee Load	2.90	2.72	0.17	0.02	203	939
Audit Share	0.73	0.73	0.00	0.79	203	939
Compensation Share	0.69	0.66	0.03	0.06	203	939
Nominating Share	0.63	0.58	0.06	0.01	203	939
Other Share	0.03	0.05	-0.02	0.00	203	939

Table 2: Firm Characteristics in 2017 *(continued)*

	CA-HQ	Outside CA-HQ	Diff	P-Value	N: CA-HQ	N: Outside CA-HQ
Industry Composition						
Agriculture, Forestry and Fishing	0.00	0.00	0.00	0.59	204	943
Construction	0.00	0.01	-0.01	0.34	204	943
Finance, Insurance and Real Estate	0.08	0.18	-0.10	0.00	204	943
Manufacturing	0.34	0.26	0.08	0.02	204	943
Mining	0.01	0.09	-0.08	0.00	204	943
Non-Classified	0.34	0.23	0.12	0.00	204	943
Public Administration	0.00	0.00	0.00	NaN	204	943
Retail Trade	0.01	0.03	-0.02	0.06	204	943
Services	0.16	0.12	0.04	0.14	204	943
Transportation, Communications, Electric, Gas and Sanitary service	0.02	0.06	-0.04	0.01	204	943
Wholesale Trade	0.02	0.03	-0.01	0.53	204	943

Note:
The sample restricts to firm-year observations in 2017 and selects companies that were domestic, listed, and had an all-male board. Sample sizes differ across rows due to missing values. Raw means and p-values from a two sided t-test reported. Boardroom characteristics are derived from BoardEx and represent mean values in 2017. Financial variables are derived from Compustat's annual fundamental files, and are either log transformed or winsorized at the 1st and 99th percentiles. The percentiles are calculated relative to all domestic and listed companies observed in the 2017. Tobin's q is the ratio of the firm's market value to its book value of assets. Market value is book assets plus book equity minus market value of equity. ROA is net income before extraordinary items and discontinued operations divided by book assets. All company policy variables are derived from CRSP's events files. A company delists if none of the company's securities are listed the subsequent year. All other company policies indicate if the event occured for some security during the calendar year, and are derived from CRSP's Events files. Committee membership is derived from Boardex's Committee files. The first row represents the average (over all companies) of the mean committee load within a company. The remaining rows in the section represent the average (over all companies) share of directors that serve on a given committee. Industries are categorized into 11 divisions using the 4 digit SIC code, following OSHA's crosswalk. SIC codes are derived from CRSP's Names files.

Table 3: Firm Characteristics in 2017

	CA-HQ	Outside CA-HQ	Diff	P-Value
Boardroom Characteristics				
Board Size	6.38	6.75	-0.37	0.00
Dual CEO/Chairman Role	0.38	0.37	0.00	0.94
Director Age	61.00	61.66	-0.66	0.14
MBA Degree	0.39	0.34	0.05	0.01
Prior Board Experience	0.81	0.77	0.04	0.03
Prior C-Suite Experience	0.69	0.61	0.08	0.00
Prior Same Sector Experience	0.51	0.44	0.07	0.01
Prior Conx w/Board	0.57	0.54	0.03	0.24
Prior Board Conx w/Board	0.41	0.38	0.03	0.26
Prior Conx w/ C-Suite	0.49	0.44	0.05	0.03
Prior Same Gender Conx w/Board	0.56	0.54	0.03	0.22
Non-Executive Director	0.78	0.80	-0.02	0.04
Firm Characteristics				
Age	16.07	19.32	-3.25	0.00
Employees (k)	0.79	1.98	-1.19	0.00
Return on Assets	-0.30	-0.12	-0.18	0.00
Log(Tobin's Q)	0.79	0.50	0.30	0.00
Log(Market Value)	5.37	5.54	-0.16	0.22
Company Policies				
1(Delist)	0.02	0.01	0.01	0.23
1(Merger or Reorg)	0.00	0.00	0.00	0.90
1(Dividend)	0.14	0.36	-0.22	0.00
1(Incr in Shares Outstanding $\geq$ 5 percent)	0.04	0.04	-0.01	0.72
1(Decr in Shares Outstanding $\geq$ 5 percent)	0.06	0.07	-0.01	0.74
Committee Composition				
Avg Committee Load	2.90	2.72	0.17	0.02
Audit Share	0.73	0.73	0.00	0.77
Compensation Share	0.69	0.66	0.03	0.07
Nominating Share	0.63	0.58	0.06	0.01
Other Share	0.03	0.05	-0.02	0.00

Table 3: Firm Characteristics in 2017 *(continued)*

	CA-HQ	Outside CA-HQ	Diff	P-Value
Industry Composition				
Agriculture, Forestry and Fishing	0.00	0.00	0.00	0.59
Construction	0.00	0.01	-0.01	0.26
Finance, Insurance and Real Estate	0.08	0.18	-0.10	0.00
Manufacturing	0.34	0.26	0.08	0.03
Mining	0.01	0.09	-0.08	0.00
Non-Classified	0.34	0.23	0.12	0.00
Retail Trade	0.01	0.03	-0.02	0.06
Services	0.16	0.12	0.04	0.14
Transportation, Communications, Electric, Gas and Sanitary service	0.02	0.06	-0.03	0.01
Wholesale Trade	0.02	0.03	-0.01	0.53

Note:

Table 4: Effects of the Gender Quota on Board Composition and Operating Performance

	Board Composition					Operating Performance	
Dependent Variables:	Male Share of Board	1(All-Male Board)	Board Size	1(Expand Board)	1(Male Dropped)	Log(Tobin's Q)	Return on Assets
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables							
$CA_{2017} \times$ Year = 2016	0.006	0.037	-0.064	-0.008	-0.056	0.004	0.019
	(0.004)	(0.024)	(0.078)	(0.050)	(0.059)	(0.036)	(0.027)
$CA_{2017} \times$ Year = 2017	0.007	0.043	-0.114	0.034	-0.047	0.052	-0.051
	(0.005)	(0.029)	(0.108)	(0.050)	(0.056)	(0.047)	(0.032)
$CA_{2017} \times$ Year = 2018	0.0007	0.014	-0.053	0.071	-0.021	0.059	-0.005
	(0.008)	(0.046)	(0.114)	(0.053)	(0.059)	(0.052)	(0.035)
$CA_{2017} \times$ Year = 2019	-0.049***	-0.257***	0.109	0.170***	-0.050	0.092*	0.029
	(0.009)	(0.049)	(0.133)	(0.056)	(0.060)	(0.056)	(0.033)
$CA_{2017} \times$ Year = 2020	-0.071***	-0.254***	0.058	0.010	0.008	0.147**	0.047
	(0.010)	(0.045)	(0.144)	(0.050)	(0.066)	(0.063)	(0.035)
$CA_{2017} \times$ Year = 2021	-0.098***	-0.180***	0.193	0.105*	-0.065	0.078	0.028
	(0.011)	(0.038)	(0.152)	(0.058)	(0.068)	(0.063)	(0.032)
Fixed-effects							
Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-SIC	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics							
Observations	6,878	6,878	6,878	6,638	6,638	5,979	6,625
Dependent variable mean	0.945	0.692	6.91	0.229	0.415	0.493	-0.139
Number of Firms	1,146	1,146	1,146	1,139	1,139	1,103	1,133

Clustered (Firm) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The sample restricts to an unbalanced panel of firms that were domestic, listed, and had all-male boards in 2017. The time period covered is 2015 - 2021, with reported effects relative to the 2015 baseline. Standard errors are clustered at the firm level. Treated firms have CA headquarters and all-male boards as of 2017. The 'Expand Board' indicator equals one if board size increases relative to the prior year. 'Male Dropped' equals 1 if some male director present in the previous year is not present in the current year. Tobin's q is the ratio of the firm's market value to its book value of assets, and is log transformed. Market value is book assets plus book equity minus market value of equity. ROA is net income before extraordinary items and discontinued operations divided by book assets, and is winsorized at the 1st and 99th percentiles of the regression sample. Outcome variables related to board composition are derived from BoardEx's organizational summary files, which provides the director roster as of the company's annual report date. Financial variables are derived from Compustat's annual fundamental files. Industries are categorized into 11 divisions using the 4 digit SIC code, following OSHA's crosswalk. SIC codes are derived from CRSP's Names files. Sample sizes vary due to missing values of the outcome variable. CA SB 826, approved on 9/30/2018, mandated at least 1 woman be on the corporate board of any listed with HQ in CA by 12/31/2019.

Table 5: Characteristics of Incoming Directors by Gender

	Male	Female	Difference	P Value
Age & Education				
Age	57.03	56.07	0.96	0.00
MBA Degree	0.38	0.38	0.00	0.83
Ivy League Degree	0.27	0.27	0.00	0.91
Law Degree	0.10	0.12	-0.02	0.00
Experience				
Prior Board Experience	0.83	0.72	0.11	0.00
Prior C-Suite Experience	0.70	0.67	0.03	0.00
Prior Same Sector Experience	0.55	0.43	0.12	0.00
Connections				
Prior Connection to Incumbent Board	0.61	0.39	0.21	0.00
Prior Board Connection with Incumbent Board	0.41	0.19	0.22	0.00
Prior Connections to the C-Suite	0.50	0.28	0.22	0.00
Prior Same Gender Connection to Incumbent Board	0.59	0.14	0.45	0.00
Non-Executive Director	0.82	0.95	-0.13	0.00
Sample Size				
Number of Positions	20412	6492		
Number of Directors	16434	4896		
Number of Companies	4516	3581		

Note:
The sample restricts to all incoming directors within domestic and listed companies. The time period considered is 2015 - 2020. Raw means and p-values from a two sided t-test reported. Observable characteristics of incoming directors at the time the boardship begins are derived from BoardEx. Age and education derived from director profile files, experience via employment history files, and connections through the network files. Two directors have a prior connection if they overlapped at a previous company. Sectoral classification following the FTSE International standard is provided by BoardEx; see Table B6 for the full list of sectors. Experience and connections gained through work spells in non-listed companies are counted.

Table 6: Effects of the Gender Quota on Boardroom Characteristics

	Demographics			Experience			Connections				
Dependent Variables:	Age	Male	MBA	Brd Exp	C-Suite Exp	Sector Exp	Brd Conx	Brd-Brd Conx	C-Suite Conx	Same Gender Brd Conx	Non-Exec Dir.
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Reduced Form											
$CA_{2017} \times$ Year = 2016	-0.271	0.007	0.007	-0.006	0.005	-0.002	-0.010	-0.016*	-0.003	-0.006	-0.011**
	(0.193)	(0.004)	(0.008)	(0.008)	(0.007)	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.005)
$CA_{2017} \times$ Year = 2017	-0.234	0.007	0.004	-0.013	0.002	-0.006	-0.004	-0.013	0.004	-0.0007	-0.013*
	(0.285)	(0.005)	(0.012)	(0.010)	(0.011)	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.007)
$CA_{2017} \times$ Year = 2018	-0.196	0.0007	-0.007	-0.017	-0.004	0.010	-0.019	-0.015	-0.010	-0.023	-0.003
	(0.311)	(0.007)	(0.014)	(0.013)	(0.013)	(0.013)	(0.017)	(0.016)	(0.015)	(0.016)	(0.008)
$CA_{2017} \times$ Year = 2019	-0.404	-0.049***	-0.011	-0.038**	-0.021	-0.004	-0.032*	-0.037**	-0.019	-0.050***	-0.0004
	(0.342)	(0.009)	(0.015)	(0.015)	(0.015)	(0.015)	(0.018)	(0.018)	(0.018)	(0.017)	(0.008)
$CA_{2017} \times$ Year = 2020	-0.346	-0.071***	-0.017	-0.046***	-0.027*	0.003	-0.030	-0.046**	-0.010	-0.054***	-0.007
	(0.391)	(0.010)	(0.017)	(0.016)	(0.016)	(0.018)	(0.020)	(0.020)	(0.020)	(0.018)	(0.009)
2SLS											
$1(\widehat{GenderDiverseBoard})$	-0.608	-0.224***	-0.056	-0.111***	-0.089**	0.00	-0.079*	-0.102**	-0.045	-0.156***	0.016
	(0.855)	(0.015)	(0.039)	(0.041)	(0.041)	(0.041)	(0.046)	(0.044)	(0.046)	(0.041)	(0.020)
Fixed-effects											
Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-SIC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics											
F-test (1st stage), 1(GenderDiverseBoard)	239.4	241.7	208.3	237.8	237.8	237.8	231.9	231.9	216.7	231.9	241.7
Observations	40,963	41,563	37,170	41,025	41,025	41,025	39,985	39,985	38,808	39,985	41,563
Dependent variable mean	61.8	0.956	0.354	0.760	0.619	0.454	0.529	0.354	0.428	0.512	0.807
Number of Firms	1,147	1,147	1,146	1,147	1,147	1,147	1,146	1,146	1,146	1,146	1,147

Clustered (Firm) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The sample restricts to all directors within firms that were domestic, listed, and had all-male boards as of 2017. The time period covered is 2015 - 2020, with reported effects relative to the 2015 baseline. Standard errors clustered at the firm level. Treated firms have CA headquarters and all-male boards as of 2017. Two directors have a prior connection if they overlapped at a previous company. Regression is weighted by the inverse of annual board size. Director-level characteristics measured upon year of onboarding. Sectoral classification used to code sectoral experience is provided by BoardEx; see Table B6 for the full list of sectors. Experience and connections gained through work spells in non-listed companies are counted. Industry variable used in the fixed effects are derived from 4 digit SIC codes provided by CRSP. Sample sizes vary due to missing values of director characteristics.

Table 7: Effects of the Gender Quota: Heterogeneity and Robustness

	Baseline	CA Treated	Size Control	Year FE	Dem. Subsample	AMB 2015-2017	Small Brd	Dual CEO-Chairman	Male Industry	Triple Diff
Compliance										
1(All-Male Board)	-0.258 (0.028)	-0.091 (0.018)	-0.264 (0.028)	-0.267 (0.027)	-0.274 (0.031)	-0.282 (0.029)	-0.339 (0.041)	-0.332 (0.047)	-0.266 (0.033)	-0.267 (0.027)
Male Share	-0.075 (0.007)	-0.040 (0.004)	-0.077 (0.007)	-0.078 (0.007)	-0.073 (0.008)	-0.079 (0.008)	-0.083 (0.010)	-0.086 (0.011)	-0.076 (0.008)	-0.078 (0.007)
Board Size	0.178 (0.095)	0.258 (0.051)	0.230 (0.091)	0.213 (0.095)	0.194 (0.100)	0.270 (0.107)	0.239 (0.125)	0.301 (0.134)	0.168 (0.105)	0.213 (0.095)
Expand Board	0.068 (0.029)	0.053 (0.015)	0.067 (0.030)	0.069 (0.029)	0.048 (0.031)	0.071 (0.031)	0.057 (0.039)	0.091 (0.046)	0.075 (0.035)	0.069 (0.029)
Drop Male	-0.003 (0.035)	0.019 (0.019)	-0.006 (0.035)	-0.002 (0.035)	-0.012 (0.037)	0.008 (0.039)	-0.004 (0.049)	-0.013 (0.056)	-0.030 (0.043)	-0.002 (0.035)
Financial Outcomes										
ROA	0.046 (0.022)	0.034 (0.009)	0.039 (0.021)	0.054 (0.022)	0.037 (0.023)	0.051 (0.025)	0.089 (0.034)	0.038 (0.038)	0.039 (0.028)	0.054 (0.022)
ROE	0.071 (0.074)	0.091 (0.032)	0.066 (0.074)	0.080 (0.073)	0.050 (0.079)	0.055 (0.084)	0.140 (0.113)	0.055 (0.121)	0.082 (0.097)	0.080 (0.073)
Log(Q)	0.073 (0.040)	0.046 (0.019)	0.072 (0.040)	0.069 (0.041)	0.059 (0.042)	0.080 (0.045)	0.089 (0.063)	0.061 (0.061)	0.077 (0.050)	0.069 (0.040)
Log(Market to Book)	0.102 (0.065)	0.087 (0.031)	0.100 (0.065)	0.107 (0.065)	0.087 (0.068)	0.130 (0.070)	0.148 (0.087)	0.120 (0.102)	0.122 (0.083)	0.107 (0.065)
Cash Flow	0.044 (0.022)	0.034 (0.009)	0.039 (0.021)	0.052 (0.022)	0.038 (0.024)	0.046 (0.025)	0.089 (0.035)	0.043 (0.041)	0.038 (0.027)	0.052 (0.022)
Log(Employment)	0.023 (0.015)	0.056 (0.011)	0.017 (0.014)	0.029 (0.015)	0.021 (0.017)	0.022 (0.015)	0.013 (0.017)	0.024 (0.023)	0.035 (0.017)	0.029 (0.015)
Capital Intensity	0.004 (0.002)	0.002 (0.001)	0.004 (0.002)	0.006 (0.002)	0.002 (0.002)	0.002 (0.002)	0.005 (0.003)	0.000 (0.004)	0.005 (0.003)	0.006 (0.002)
Boardroom Characteristics										
Board Experience	-0.031 (0.011)	-0.013 (0.005)	-0.035 (0.011)	-0.039 (0.011)	-0.029 (0.012)	-0.025 (0.012)	-0.044 (0.017)	-0.031 (0.017)	-0.020 (0.012)	-0.039 (0.011)
C-Suite Experience	-0.025 (0.011)	-0.012 (0.005)	-0.027 (0.011)	-0.024 (0.011)	-0.033 (0.012)	-0.029 (0.013)	-0.037 (0.017)	-0.032 (0.015)	-0.017 (0.013)	-0.024 (0.011)
Sector Experience	-0.001 (0.012)	-0.000 (0.005)	-0.002 (0.011)	-0.002 (0.011)	-0.001 (0.012)	0.002 (0.013)	0.025 (0.017)	-0.003 (0.018)	0.017 (0.015)	-0.002 (0.011)
Non-Exec Dir	0.004 (0.006)	0.003 (0.003)	0.004 (0.006)	0.006 (0.006)	0.004 (0.006)	0.002 (0.007)	0.010 (0.009)	0.009 (0.011)	0.002 (0.007)	0.006 (0.006)
Prior Brd-Conx	-0.021 (0.013)	-0.013 (0.006)	-0.020 (0.013)	-0.034 (0.013)	-0.019 (0.014)	-0.010 (0.015)	-0.029 (0.020)	-0.022 (0.020)	-0.022 (0.015)	-0.034 (0.013)
1(Lawsuit Filed)	0.003 (0.012)	0.002 (0.007)	0.007 (0.012)	0.003 (0.012)	0.003 (0.012)	0.000 (0.013)	-0.006 (0.015)	0.006 (0.024)	-0.004 (0.016)	0.003 (0.012)
Log(Predicted Compensation)	-0.019 (0.015)	-0.011 (0.007)	-0.024 (0.015)	-0.025 (0.015)	-0.017 (0.016)	-0.013 (0.016)	-0.038 (0.024)	-0.013 (0.026)	-0.005 (0.018)	-0.025 (0.015)
Committee Composition										
Audit Share	-0.019 (0.012)	-0.011 (0.006)	-0.024 (0.012)	-0.024 (0.012)	-0.013 (0.013)	-0.029 (0.013)	-0.026 (0.018)	-0.031 (0.017)	-0.035 (0.015)	-0.024 (0.012)
Compensation Share	-0.001 (0.012)	-0.004 (0.006)	-0.002 (0.012)	-0.004 (0.012)	0.005 (0.013)	-0.004 (0.013)	0.002 (0.018)	-0.032 (0.018)	-0.013 (0.014)	-0.004 (0.012)
Nominating Share	-0.007 (0.014)	-0.009 (0.006)	-0.009 (0.014)	-0.007 (0.014)	0.000 (0.015)	-0.012 (0.015)	-0.033 (0.021)	-0.003 (0.026)	-0.010 (0.017)	-0.007 (0.014)
Other Share	-0.008 (0.006)	0.003 (0.003)	-0.008 (0.006)	-0.006 (0.005)	-0.011 (0.006)	-0.006 (0.006)	-0.002 (0.006)	-0.012 (0.008)	0.000 (0.006)	-0.006 (0.005)
Avg. Committee Load	-0.062 (0.054)	-0.050 (0.026)	-0.085 (0.052)	-0.071 (0.055)	-0.051 (0.057)	-0.079 (0.059)	-0.068 (0.083)	-0.067 (0.084)	-0.028 (0.070)	-0.071 (0.055)

Table 7: Effects of the Gender Quota: Heterogeneity and Robustness *(continued)*

	Baseline	CA Treated	Size Control	Year FE	Dem. Subsample	AMB 2015-2017	Small Brd	Dual CEO-Chairman	Male Industry	Triple Diff
Company Policy										
1(Delist)	0.001 (0.002)	-0.002 (0.001)	-0.001 (0.001)	0.001 (0.014)	-0.001 (0.002)	-0.001 (0.001)	-0.002 (0.001)	-0.001 (0.001)	-0.002 (0.001)	0.001 (0.014)
1(Merger or Reorg)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.000)	0.003 (0.010)	-0.001 (0.001)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.001 (0.001)	0.003 (0.010)
1(Dividend Issued)	0.014 (0.016)	-0.002 (0.008)	0.008 (0.016)	0.017 (0.015)	0.029 (0.017)	0.017 (0.018)	0.014 (0.020)	0.041 (0.033)	0.015 (0.017)	0.017 (0.015)
1(Shares Outstanding Dcr by $\geq 5\%$)	0.029 (0.016)	0.009 (0.007)	0.028 (0.017)	0.020 (0.014)	0.019 (0.018)	0.026 (0.019)	0.019 (0.023)	0.024 (0.031)	0.025 (0.021)	0.020 (0.014)
1(Shares Outstanding Inr by $\geq 5\%$)	0.006 (0.018)	0.005 (0.009)	0.002 (0.018)	-0.004 (0.016)	-0.001 (0.020)	-0.001 (0.020)	0.000 (0.026)	0.008 (0.033)	-0.001 (0.024)	-0.004 (0.016)

Note:

The sample restricts to an unbalanced panel of firms that were domestic, listed, and had all-male boards in 2017. The time period covered is 2015 - 2021. The table presents the coefficients and standard errors from the difference-in-differences model, unless otherwise specified. Standard errors are clustered at the firm level. Treated firms have CA headquarters and all-male boards as of 2017. An exception is Column 2, where treated firms are defined to have California headquarters in 2017 (and not necessarily have all-male boards). Financial variables are derived from Compustat's annual fundamental files, are reported in millions, and are either log transformed or winsorized at the 1st and 99th percentiles. The percentiles are calculated relative to all domestic and listed companies observed in the annual distribution. Industries are categorized into 11 divisions using the 4 digit SIC code, following OSHA's crosswalk. SIC codes are derived from CRSP's Names files. Company policy variables are derived from the CRSP Events files. Column 3 adds a control for firm size, which is proxied by Log(Revenues). Column 5 subsets to firms headquartered in Democratic states in 2017 – states that voted for Hillary Clinton in the 2016 presidential election. Column 6 only considers companies that had all-male boards from 2015-2017. Column 7 subsets to companies that had fewer than 7 directors (the median board size) in 2017. Column 8 subsets to companies with dual CEO-Chairman roles in 2017. Column 9 subsets to firms in industries with below-average female board representation. Industry classification and averages are calculated using the 2017 cross-section. Column 10 makes no additional restrictions. CA SB 826, approved on 9/30/2018, mandated at least 1 woman be on the corporate board of any listed with HQ in CA by 12/31/2019. See data appendix for variable definitions.

Table A1: Growing Firms Adopt Gender Diverse Boards:
Sun and Abraham (2021) Estimator

Dependent Variables:	Log(Assets)	Log(Revenues)	Log(COGS)	Log(Liabilities)	Log(Employees)	Log(Market Value)	1(Dividend)	Board Size
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
1(*Diverse*) × Relative Year = -4 to -7	-0.025	0.003	0.005	-0.035	0.0007	-0.078**	-0.003	0.384***
	(0.030)	(0.031)	(0.035)	(0.033)	(0.013)	(0.034)	(0.011)	(0.053)
1(*Diverse*) × Relative Year = -3	-0.051**	-0.036	-0.008	-0.040	-0.026***	-0.108***	-0.013	0.169***
	(0.025)	(0.025)	(0.029)	(0.028)	(0.009)	(0.030)	(0.012)	(0.048)
1(*Diverse*) × Relative Year = -2	-0.022	-0.014	-0.040**	-0.029	-0.016***	-0.025	-0.014*	0.131***
	(0.014)	(0.016)	(0.018)	(0.018)	(0.005)	(0.020)	(0.008)	(0.034)
1(*Diverse*) × Relative Year = 0	0.045***	0.049***	0.043**	0.040**	0.020***	0.045**	0.010	0.845***
	(0.013)	(0.018)	(0.019)	(0.017)	(0.006)	(0.018)	(0.007)	(0.037)
1(*Diverse*) × Relative Year = 1	0.066***	0.070**	0.036	0.044*	0.022***	0.066**	0.021**	0.759***
	(0.020)	(0.027)	(0.029)	(0.027)	(0.008)	(0.028)	(0.010)	(0.050)
1(*Diverse*) × Relative Year = 2	0.075***	0.084**	0.065*	0.059*	0.040***	0.086**	0.028**	0.729***
	(0.029)	(0.036)	(0.038)	(0.036)	(0.012)	(0.038)	(0.013)	(0.061)
1(*Diverse*) × Relative Year = 3 to 7	0.076**	0.085*	0.076	0.037	0.058***	0.143***	0.026	0.764***
	(0.038)	(0.046)	(0.051)	(0.047)	(0.017)	(0.053)	(0.017)	(0.084)
Fixed-effects								
Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-SIC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics								
Observations	15,620	15,592	15,593	15,579	15,381	14,942	16,281	16,281
Dependent variable mean	6.05	5.16	4.60	5.25	0.777	5.81	0.362	7.37
F-test	598.9	552.2	426.3	519.5	939.8	305.4	141.0	119.0
Number of Firms	2,879	2,873	2,874	2,877	2,848	2,859	2,981	2,981

Clustered (Firm) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The sample restricts to an unbalanced panel of all domestic and listed firms between 2010-2017. Effects are relative to one year prior to the adoption of gender diverse boards. Relative periods are binned at four years prior to adoption and three years after adoption. Diverse firms transition away from all-male boards sometime between 2010-2017. Firm-year observations among companies that always have gender diverse boards when observed are dropped. Further, observations with negative revenues and cost of goods sold are dropped. All firm-year observations are included for companies that do not adopt diverse boards during the sample period. Standard errors are clustered at the firm level. Columns 1-6 are derived from Compustat's annual fundamental files. Column 7 is derived from CRSP's Dividend file, while Column 8 and the diverse indicator are derived from BoardEx's organizational summary file. Industries are categorized into 11 divisions using the 4 digit SIC code, following OSHA's crosswalk. SIC codes are derived from CRSP's Names files. Sample sizes vary due to missing values.

Table A2: Effects of the Gender Quota on Board Composition: Robustness Checks

Dependent Variables:	1(All-Male Board)							1(Expand Board)						
	Size Control	Dem. Subsample	AMB 2015-2017	Small Brd	Male Industry	Triple Diff	CA Treated	Size Control	Dem. Subsample	AMB 2015-2017	Small Brd	Male Industry	Triple Diff	CA Treated
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Variables														
Treated × Year = 2016	0.017	0.036	0.001	0.052	0.037	0.052*	0.004	-0.024	-0.009	-0.083	-0.138**	-0.019	0.007	-0.020
	(0.022)	(0.027)	(0.0008)	(0.035)	(0.030)	(0.028)	(0.014)	(0.053)	(0.055)	(0.053)	(0.063)	(0.065)	(0.062)	(0.030)
Treated × Year = 2017	0.022	0.040	-0.0009	0.030	0.045	0.107***	-0.017	-0.007	0.054	-0.004	-0.036	0.063	0.041	0.005
	(0.029)	(0.031)	(0.002)	(0.042)	(0.036)	(0.035)	(0.018)	(0.053)	(0.054)	(0.055)	(0.061)	(0.066)	(0.061)	(0.030)
Treated × Year = 2018	-0.020	-0.008	-0.009	-0.025	0.020	0.075	-0.026	0.044	0.093	0.042	0.003	0.093	0.095	-0.002
	(0.047)	(0.048)	(0.041)	(0.065)	(0.057)	(0.050)	(0.020)	(0.056)	(0.058)	(0.057)	(0.072)	(0.068)	(0.062)	(0.030)
Treated × Year = 2019	-0.259***	-0.291***	-0.304***	-0.334***	-0.277***	-0.194***	-0.112***	0.154**	0.156**	0.147**	0.160**	0.205***	0.120*	0.078**
	(0.051)	(0.053)	(0.045)	(0.071)	(0.059)	(0.052)	(0.023)	(0.061)	(0.061)	(0.064)	(0.074)	(0.072)	(0.066)	(0.031)
Treated × Year = 2020	-0.277***	-0.294***	-0.330***	-0.359***	-0.239***	-0.199***	-0.105***	0.034	0.023	-0.041	-0.065	-0.003	0.046	-0.016
	(0.046)	(0.050)	(0.034)	(0.068)	(0.056)	(0.049)	(0.024)	(0.053)	(0.055)	(0.056)	(0.068)	(0.064)	(0.060)	(0.029)
Treated × Year = 2021	-0.214***	-0.183***	-0.211***	-0.278***	-0.195***	-0.132***	-0.085***	0.103*	0.086	0.064	-0.063	0.146*	0.015	0.082**
	(0.039)	(0.044)	(0.031)	(0.058)	(0.046)	(0.042)	(0.023)	(0.061)	(0.064)	(0.064)	(0.076)	(0.075)	(0.069)	(0.032)
Log(Revenues)	-0.031***							0.004						
	(0.010)							(0.010)						
Fixed-effects														
Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-SIC	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes		Yes
1(CA HQ)-Year						Yes							Yes	
1(AMB)-Year						Yes							Yes	
Fit statistics														
Observations	6,233	4,013	5,426	3,237	4,094	24,038	24,016	6,056	3,865	5,366	3,116	3,899	23,464	23,448
Dependent variable mean	0.690	0.683	0.729	0.725	0.689	0.226	0.226	0.227	0.234	0.217	0.203	0.235	0.257	0.257
Number of Firms	1,096	685	866	536	692	3,845	3,845	1,090	675	866	532	686	3,830	3,830

Clustered (Firm) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The sample considers an unbalanced panel of domestic and listed firms observed between 2015 - 2021, with reported effects relative to the 2015 baseline. Standard errors are clustered at the firm level. Treated firms are defined to have CA headquarters and all-male boards as of 2017. Column 1 subsets to companies that had all-male boards in 2017. Log(Revenues) is used as a proxy for firm size. Col 2 further subsets to firms headquartered in Democratic states – states that voted for Hillary Clinton in the 2016 presidential election. Col 3 only considers companies that had all-male boards from 2015-2017. Col 4 subsets to companies that had fewer than 7 directors (the median board size) in 2017. Col 5 subsets to firms in industries with below-average female board representation. Industry classification and averages calculated using the 2017 cross-section. Col 6 makes no additional restrictions. Col 7 makes no additional restrictions, and redefines treated firms to have CA headquarters as of 2017. The 'Expand Board' indicator equals one if board size increases relative to the prior year. Cols 8-14 make the analogous sample restrictions. All outcome variables are derived from BoardEx's organizational summary files, which provides the director roster as of the company's annual report date. Industries are categorized into 11 divisions using the 4 digit SIC code, following OSHA's crosswalk. SIC codes are derived from CRSP's Names files. CA SB 826, approved on 9/30/2018, mandated at least 1 woman be on the corporate board of any listed with HQ in CA by 12/31/2019.

Table A3: Characteristics of Incoming, Exiting, and Retained Directors by Treatment Status

	California HQ				Non-California HQ			
	Entering F	Entering M	Exiting M	Retained M	Entering F	Entering M	Exiting M	Retained M
Age & Education								
Age	56.79	56.33	62.12	60.83	55.93	56.25	62.78	61.54
MBA Degree	0.33	0.33	0.39	0.39	0.33	0.35	0.34	0.35
Experience								
Prior Board Experience	0.56	0.69	0.82	0.80	0.57	0.68	0.77	0.78
Prior C-Suite Experience	0.62	0.64	0.67	0.70	0.62	0.64	0.58	0.62
Prior Same Sector Experience	0.48	0.58	0.54	0.52	0.42	0.52	0.47	0.44
Connections								
Prior Conx w/Board	0.31	0.37	0.56	0.58	0.29	0.48	0.57	0.55
Prior Board Conx w/Board	0.08	0.13	0.40	0.41	0.09	0.20	0.38	0.38
Prior Conx w/ C-Suite	0.19	0.29	0.47	0.50	0.17	0.33	0.44	0.44
Prior Same Gender Conx w/Board	0.03	0.35	0.55	0.57	0.03	0.46	0.56	0.54
Non-Executive Director	0.93	0.80	0.84	0.78	0.95	0.80	0.83	0.80
Committee Composition								
Number of Committees	1.87	2.44	2.81	2.82	1.90	2.19	2.61	2.68
Audit Committee	0.54	0.62	0.63	0.69	0.57	0.63	0.65	0.68
Compensation Committee	0.51	0.60	0.66	0.64	0.46	0.53	0.62	0.62
Nominating Committee	0.54	0.54	0.62	0.60	0.50	0.43	0.54	0.56
Other Committee	0.04	0.03	0.04	0.04	0.06	0.08	0.07	0.07
Sample Size								
Number of Positions	214	224	402	941	566	1076	1660	4856
Number of Directors	210	222	391	919	549	1058	1614	4592
Number of Companies	147	105	150	198	443	502	646	918

Note:
The sample considers firms that were domestic, listed, and had all-male boards as of 2017. Entering (Exiting) directors join (leave) sometime between 2018 - 2020. Retained directors remain with the company between 2017 - 2020. These variables are derived from BoardEx's organizational summary files, which provides the complete director roster as of the annual report date. Two directors have a prior connection if they overlapped at a previous company. Director-level characteristics measured upon year of onboarding. Sectoral classification used to code sectoral experience is provided by BoardEx; see Table B6 for the full list of sectors. Directors may hold multiple positions. Some directors have missing characteristics.

Table A4: Buy and Hold Returns by Quarter Relative to SB826

Quarter	CA-HQ	Outside CA-HQ	Diff	P-Value	N: CA-HQ	N: Outside CA-HQ
1	0.89	0.88	0.01	0.75	190	885
2	0.92	0.86	0.06	0.11	190	885
3	0.90	0.84	0.06	0.21	190	885
4	0.75	0.67	0.08	0.13	190	885
5	1.07	0.86	0.21	0.03	190	885
6	1.50	1.00	0.50	0.04	190	885
7	1.99	1.27	0.72	0.08	190	885
8	1.86	1.26	0.60	0.06	190	885
9	1.91	1.24	0.67	0.06	190	885

Note:
The sample shows the buy and hold returns for companies that were domestic, listed, and had all-male boards as of 2017. SB826 was announced on Sunday September 30th, and Monday October 1st was the first trading day after the legislation's announcement. The sample excludes firms that delist and have missing delisting returns, or do not delist and have missing returns. Company specific buy-and-hold-returns are equally weighted within quarter and the treatment/control groups. Daily security returns are provided by CRSP. Among companies with multiple securities, I choose the security with the highest average trading volume between Jan 2nd, 2015 and March 31st, 2022. Annual board gender composition and size is provided by Boardex's Organizational Summary files. P-values reported are from a two sided t-test that allows for unequal variances.

Table B1: Share of BoardEx Companies Matched with the Following:

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Year	BoardEx N	CRSP/ Compustat	Annual Financials	Listing Exchange	Geographic Identifiers	All of (2-6)
2015	4188	0.967	0.950	0.962	0.960	0.941
2016	4030	0.969	0.953	0.965	0.963	0.944
2017	4000	0.970	0.956	0.966	0.963	0.947
2018	3980	0.967	0.955	0.963	0.960	0.948
2019	3971	0.960	0.952	0.956	0.958	0.948
2020	4149	0.933	0.926	0.929	0.933	0.921
2021	4546	0.874	0.866	0.874	0.874	0.866

Note:
Note: Column (2) restricts to BoardEx's 'Quoted' and US based companies that report annual board gender ratios. BoardEx-CRSP-Compustat crosswalk provided by WRDS. Annual Financials derived from the Compustat Annual Fundamental files. Listing exchange pulled from CRSP Names file. Geographic identifiers include both the state of the company's principal executive offices and the country of incorporation. These values are taken from Compustat Snapshot. If missing, geographic identifiers taken from the WRDS SEC Analytics Suite (item regstatehdq). If still missing and the year is past 2019, the value is taken from Boardex's header level information provided in the Company Profile files.

Table B2: Differential Attrition?
Annual Board Gender Reporting Rates

Year	California HQ	Outside CA HQ	Diff	P-Val	N: California HQ	N: Outside CA HQ
2015	0.85	0.85	0.01	0.80	174	797
2016	0.94	0.90	0.03	0.09	191	850
2017	1.00	1.00	0.00	1.00	204	942
2018	0.90	0.91	-0.01	0.62	183	856
2019	0.84	0.85	-0.01	0.75	171	798
2020	0.78	0.78	0.00	0.95	159	736
2021	0.72	0.72	-0.01	0.84	146	681

Note:
The sample restricts to companies that i) had all-male boards in 2017 and ii) were listed and domestic in 2017. Raw means and p-values from a two sided t-test reported. Annual board gender composition is provided by Boardex's Organizational Summary files. Attrition may occur if the company goes private, ceases to exist, or if BoardEx doesn't collect the company's gender composition as of the annual report date.

Table B3: Non-Compliance, Evasion, and Attrition

Firm Status	Year	N: AMB	N: Diverse	N	Change in N	N: Delist	N: Change HQ
Treated	2015	151	23	174	NA	0	2
Treated	2016	179	12	191	17	0	5
Treated	2017	204	0	204	13	4	2
Treated	2018	135	48	183	-21	8	3
Treated	2019	40	131	171	-12	14	4
Treated	2020	16	143	159	-12	12	3
Treated	2021	6	140	146	-13	10	4
Control	2015	722	75	797	NA	0	19
Control	2016	804	46	850	53	0	16
Control	2017	942	0	942	92	7	30
Control	2018	654	202	856	-86	42	23
Control	2019	431	367	798	-58	77	18
Control	2020	300	436	736	-62	46	25
Control	2021	186	495	681	-55	39	11

Note:
Treated firms have CA headquarters and are listed as of 2017, while control firms are listed and headquartered in another US state as of 2017. Cols 3-6 are derived from BoardEx's organizational summary files, which indicates a company's annual gender ratio. Companies may fail to appear in BoardEx if the company goes private, ceases to exist, or if BoardEx doesn't collect the company's gender composition as of the annual report date. Col 7 is derived from CRSP's Delisting file; a company is defined to delist if none of the company's securities are listed the subsequent year. The last column uses headquarter location data triangulated from Compustat Snapshot, BoardEx, and SEC filings.

Table B4: How Do All-Male Boards Gender Diversify?
Male Replacement vs Board Expansion

Headquarter State	Share Expand	Share Drop Men	Share Expand and Drop Men	N: Expand	N: Drop Men	N: Expand and Drop	N: Gender Diverse Board in 2019	N: All-Male Board in 2017
California	0.73	0.76	0.50	96	100	65	131	204
Outside of California	0.72	0.78	0.50	263	288	184	367	942

Note:
The sample restricts to companies that had All-Male Boards in 2017, were listed and domestic in 2017, and had gender diverse boards in 2019. A company is counted as expanding if it increases its board size in any year between 2018 and 2019. Similarly, a company is counted as dropping men if there is turnover among the male roster in any year between 2018 and 2019. Indicators for board expansion and male replacement are derived from BoardEx's Organizational Summary files, which provides the director roster as of the annual report date.

Table B5: Endogeneity of Board Composition:
Growing Firms Adopt Gender Diverse Boards

Dependent Variables:	Log(Assets)	Log(Revenues)	Log(COGS)	Log(Liabilities)	Log(Employees)	Log(Market Value)	1(Dividend)	Board Size
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
1(*Diverse*) × Relative Year = -5 to -7	-0.078**	-0.083**	-0.054	-0.080*	-0.033**	-0.117**	0.004	0.097
	(0.034)	(0.038)	(0.046)	(0.044)	(0.016)	(0.046)	(0.016)	(0.069)
1(*Diverse*) × Relative Year = -4	-0.029	-0.036	-0.008	-0.047*	-0.023**	-0.064**	0.015	0.090*
	(0.023)	(0.027)	(0.032)	(0.028)	(0.010)	(0.033)	(0.012)	(0.050)
1(*Diverse*) × Relative Year = -3	-0.030**	-0.038**	0.004	-0.026	-0.012**	-0.059***	0.002	0.066*
	(0.015)	(0.015)	(0.020)	(0.017)	(0.005)	(0.021)	(0.010)	(0.036)
1(*Diverse*) × Relative Year = -1	0.029**	0.030**	0.070***	0.045***	0.017***	0.003	0.015*	-0.150***
	(0.013)	(0.013)	(0.015)	(0.016)	(0.005)	(0.018)	(0.008)	(0.033)
Fixed-effects								
Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-SIC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics								
Observations	25,727	25,694	25,681	25,688	25,442	24,535	27,107	27,107
Dependent variable mean	6.78	5.85	5.23	6.07	1.18	6.45	0.481	8.39
F-test	2,947.8	2,539.6	1,934.0	2,416.9	5,120.8	1,367.8	443.1	538.4
Number of Firms	5,234	5,227	5,227	5,229	5,191	5,189	5,479	5,479

Clustered (Firm) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The sample restricts to an unbalanced panel of all domestic and listed firms between 2010-2017. Effects are relative to two years prior to the adoption of gender diverse boards. Relative periods more than 5 years prior to adoption are binned at 5 years. Diverse firms transition away from all-male boards sometime between 2010-2017. Firm-year observations including and after diverse firms adopt gender diverse boards are excluded. Further, observations with negative revenues and cost of goods sold are dropped. All firm-year observations are included for companies that do not adopt diverse boards during the sample period. Standard errors are clustered at the firm level. Columns 1-6 are derived from Compustat's annual fundamental files. Column 7 is derived from CRSP's Dividend file, while Column 8 and the diverse indicator are derived from BoardEx's organizational summary file. Industries are categorized into 11 divisions using the 4 digit SIC code, following OSHA's crosswalk. SIC codes are derived from CRSP's Names files. Sample sizes vary due to missing values.

Table B6: Pipeline: Number of Women with Top-Level Experience in 2017

Sector	Any Position	Board Position	C-Suite Position	N: Treated Firms
Pharmaceuticals and Biotechnology	734	304	177	40
Software and Computer Services	712	243	118	22
Health	358	204	75	20
Information Technology Hardware	248	87	45	20
Electronic and Electrical Equipment	359	226	45	14
Real Estate	351	251	47	9
Business Services	363	185	58	8
Telecommunication Services	226	84	31	8
Banks	1043	649	138	6
Engineering and Machinery	243	140	42	5
Food Producers and Processors	205	127	31	5
Media and Entertainment	168	84	31	5
Renewable Energy	45	31	5	5
Speciality and Other Finance	472	213	76	4
Beverages	77	28	18	3
Clothing and Personal Products	192	109	30	3
General Retailers	421	219	93	3
Containers and Packaging	40	28	5	2
Insurance	324	158	71	2
Automobiles and Parts	127	65	20	1
Blank Check / Shell Companies	2	1	0	1
Construction and Building Materials	134	101	13	1
Education	36	21	7	1
Electricity	64	23	11	1
Household Products	123	80	17	1
Investment Companies	112	90	10	1
Leisure and Hotels	381	208	79	1
Leisure Goods	45	29	6	1
Oil and Gas	233	142	32	1
Private Equity	41	12	4	1
Steel and Other Metals	56	40	8	1
Utilities - Other	274	168	46	1

Note:
The sample restricts to women working in domestic and listed companies as of 2017, the year prior to the passage of SB826. Since BoardEx tracks the employment histories of board members, the women considered have sat on a board sometime between 1950 and 2020 (the years of BoardEx coverage). The variables are derived from Boardex's employment history files, which tracks the work histories of board members. Sector classification following FTSE is provided by BoardEx. The data is sorted on the industries that contain the most number of treated firms – the firms that are listed and have CA headquarters as of 2017.

Table B7: Industry Composition Among Treated and Control Firms: FTSE International Classification

Sector	CA	N: CA	Outside CA	N: Outside CA
Pharmaceuticals and Biotechnology	0.23	47	0.12	111
Software and Computer Services	0.11	22	0.06	54
Health	0.10	20	0.05	46
Information Technology Hardware	0.10	20	0.02	19
Electronic and Electrical Equipment	0.07	14	0.07	64
Real Estate	0.04	9	0.07	64
Business Services	0.04	8	0.03	33
Telecommunication Services	0.04	8	0.02	16
Banks	0.03	6	0.06	60
Engineering and Machinery	0.02	5	0.04	37
Food Producers and Processors	0.02	5	0.02	15
Media and Entertainment	0.02	5	0.02	19
Renewable Energy	0.02	5	0.01	9
Speciality and Other Finance	0.02	4	0.05	45
Beverages	0.01	3	0.00	2
Clothing and Personal Products	0.01	3	0.00	4
General Retailers	0.01	3	0.02	16
Containers and Packaging	0.01	2	0.00	1
Insurance	0.01	2	0.02	15
Automobiles and Parts	0.00	1	0.01	9
Blank Check / Shell Companies	0.00	1	0.00	2
Construction and Building Materials	0.00	1	0.03	32
Education	0.00	1	0.00	1
Electricity	0.00	1	0.00	4
Household Products	0.00	1	0.01	7
Investment Companies	0.00	1	0.02	19
Leisure and Hotels	0.00	1	0.03	24
Leisure Goods	0.00	1	0.01	5
Oil and Gas	0.00	1	0.12	109
Private Equity	0.00	1	0.01	5
Steel and Other Metals	0.00	1	0.01	8
Utilities - Other	0.00	1	0.00	3
Aerospace and Defence	0.00	0	0.01	5
Chemicals	0.00	0	0.01	13
Consumer Services	0.00	0	0.00	4
Diversified Industrials	0.00	0	0.01	6
Food and Drug Retailers	0.00	0	0.00	2
Forestry and Paper	0.00	0	0.00	2
Life Assurance	0.00	0	0.00	3
Mining	0.00	0	0.02	21
Publishing	0.00	0	0.00	2
Tobacco	0.00	0	0.00	1
Transport	0.00	0	0.03	25

Table B8: Abnormal Returns on October 1st, 2018

			Parametric Tests		Non-Parametric Tests	
	Abnormal Return	N Firms	T-Test	Patell (1976) T-Test	Cowan (1992) Sign-Test	Wilcoxon (1945) Signed Rank Test
CA AMB	-0.007	195	*	***	***	***
CA Gender Diverse	-0.012	428	***	***	***	***
Shortfall 0	-0.006	76	***	***	***	***
Shortfall 1	-0.010	169	***	***	***	***
Shortfall 2	-0.012	243	***	***	***	***
Shortfall 3	-0.009	135		***	***	***

Note:
The sample shows the mean abnormal return on Monday, October 1st of 2018 for companies that were domestic, listed, and had headquarters in California as of 2017. SB826 was announced on Sunday September 30th, and Monday October 1st was the first trading day after the legislation's announcement. For each firm, the abnormal return is defined as observed returns minus the expected return. The expected return is derived using the parameters from a market model regression, which is fit using the 252 trading days from Sep 15th, 2017 - Sep 15th, 2018. The CRSP value weighted index is used as a proxy for the market return. The sample excludes firms with fewer than 100 observations in the estimation window, and firms with missing returns on October 1st, 2018. The first (second) row corresponds to CA-based domestic and listed companies that had all-male (gender-diverse) boards in 2017. 'Shortfall' corresponds to the number of additional female directors companies would need to hire (using 2017 board gender composition as a baseline) to be compliant with all stages of SB826. Daily security returns are provided by CRSP. Among companies with multiple securities, I choose the security with the highest average trading volume between Jan 2nd, 2015 and March 31st, 2022. Annual board gender composition and size is provided by Boardex's Organizational Summary files.

Table B9: Firm Characteristics in 2020 by Compliance Status

	All-Male Board	Gender-Diverse Board	Diff	P-Value	N: All-Male	N: Gender-Diverse
Boardroom Characteristics						
Board Size	5.69	7.07	-1.38	0.00	16	143
Dual CEO/Chairman Role	0.44	0.38	0.06	0.66	16	143
Director Age	62.17	61.78	0.39	0.79	16	143
MBA Degree	0.29	0.35	-0.07	0.33	16	143
Prior Board Experience	0.70	0.73	-0.03	0.52	16	143
Prior C-Suite Experience	0.70	0.67	0.03	0.66	16	143
Prior Same Sector Experience	0.38	0.53	-0.15	0.11	16	143
Prior Conx w/Board	0.43	0.50	-0.07	0.37	16	143
Prior Board Conx w/Board	0.26	0.30	-0.04	0.59	16	143
Prior Conx w/ C-Suite	0.39	0.41	-0.01	0.82	16	143
Prior Same Gender Conx w/Board	0.42	0.43	-0.01	0.89	16	143
Non-Executive Director	0.78	0.81	-0.03	0.28	16	143
Firm Characteristics						
Age	17.75	19.06	-1.31	0.62	16	141
Employees (k)	0.46	1.03	-0.56	0.01	16	141
Return on Assets	-0.44	-0.21	-0.22	0.30	16	141
Log(Tobin's Q)	0.89	0.88	0.01	0.97	12	131
Log(Market Value)	5.49	6.15	-0.66	0.25	16	139
Company Policies						
1(Delist)	0.00	0.00	0.00	NaN	16	143
1(Merger or Reorg)	0.00	0.00	0.00	NaN	16	143
1(Dividend)	0.25	0.16	0.09	0.45	16	143
1(Incr in Shares Outstanding $\geq$ 5 percent)	0.12	0.07	0.06	0.54	16	143
1(Decr in Shares Outstanding $\geq$ 5 percent)	0.12	0.07	0.06	0.54	16	143
Committee Composition						
Avg Committee Load	3.03	2.74	0.28	0.34	16	143
Audit Share	0.82	0.68	0.13	0.03	16	143
Compensation Share	0.72	0.67	0.05	0.48	16	143
Nominating Share	0.58	0.64	-0.06	0.51	16	143
Other Share	0.04	0.03	0.00	0.94	16	143
Industry Composition						

Table B9: Firm Characteristics in 2020 by Compliance Status *(continued)*

	All-Male Board	Gender-Diverse Board	Diff	P-Value	N: All-Male	N: Gender-Diverse
Agriculture, Forestry and Fishing	0.00	0.01	-0.01	0.32	16	143
Construction	0.00	0.01	-0.01	0.32	16	143
Finance, Insurance and Real Estate	0.12	0.09	0.03	0.71	16	143
Manufacturing	0.31	0.30	0.01	0.93	16	143
Mining	0.00	0.01	-0.01	0.16	16	143
Non-Classified	0.38	0.36	0.02	0.89	16	143
Public Administration	0.00	0.00	0.00	NaN	16	143
Retail Trade	0.00	0.01	-0.01	0.32	16	143
Services	0.12	0.16	-0.04	0.70	16	143
Transportation, Communications, Electric, Gas and Sanitary service	0.06	0.03	0.03	0.67	16	143
Wholesale Trade	0.00	0.02	-0.02	0.08	16	143

Note:
The sample restricts to firm-year observations among CA-based and listed companies in 2020. As a further restriction, these companies must be present in the data prior in 2017, prior to the quota. Raw means and p-values from a two sided t-test reported. Boardroom characteristics are derived from BoardEx and represent mean values in 2020. Financial variables are derived from Compustat's annual fundamental files, and are either log transformed or winsorized at the 1st and 99th percentiles. The percentiles are calculated relative to all domestic and listed companies observed in the 2020. Tobin's q is the ratio of the firm's market value to its book value of assets. Market value is book assets plus book equity minus market value of equity. ROA is net income before extraordinary items and discontinued operations divided by book assets. All company policy variables are derived from CRSP's events files. A company delists if none of the company's securities are listed the subsequent year. All other company policies indicate if the event occured for some security during the calendar year, and are derived from CRSP's Events files. Committee membership is derived from Boardex's Committee files. The first row represents the average (over all companies) of the mean number of committees each director serves. The remaining rows in the section represent the average (over all companies) share of directors that serve on a given committee. Industries are categorized into 11 divisions using the 4 digit SIC code, following OSHA's crosswalk. SIC codes are derived from CRSP's Names files.