Is there a business case for racial diversity on corporate boards?

Attila Balogh
University of Melbourne

Scott E. Yonker
Cornell University

July 24, 2024

Abstract

Using a large sample of U.S.-based public corporations, we evaluate the business case for board racial diversity. Our analysis shows that board racial diversity is positively associated with firm performance and value, and negatively associated with realized risk. However, causal tests that use mandated board racial diversity in California and the acceleration of the BLM movement as shocks to the demand for racial minority directors indicate that forced increases in board racial diversity have no effect on firm performance, value, risk, or other traditional corporate finance policies. Firms compelled to select racial minority directors find candidates with qualifications similar to those of existing directors, suggesting that in these settings board racial diversity itself does not impact performance and value outcomes. Overall the evidence suggests that the business case is insufficient on its own to either justify or oppose mandated racial diversity on boards.

JEL classification: G34, K2
Keywords: board diversity, board of directors, quotas, mandates

---

Balogh: Department of Finance, 198 Berkeley Street, University of Melbourne, Melbourne, VIC 3010, Australia. E-mail: balogh@unimelb.edu.au. Yonker: SC Johnson College of Business, 201J Warren Hall, Cornell University, Ithaca, NY 14853, USA. E-mail: sey8@cornell.edu. We thank Justin Murfin and seminar participants at Cornell University and Rutgers University for helpful comments. All errors are our own. We acknowledge the use of ChatGPT as a copy editor.

1. Introduction

In September 2020, Governor Gavin Newsom of California signed Assembly Bill No. 979, mandating that publicly traded companies headquartered in California include racial minorities on their boards. Similarly, Nasdaq proposed a listing requirement mirroring this law later that year, pushing a majority of Nasdaq-listed firms to enhance board diversity in terms of both gender and race. Recently, influential institutional asset managers and proxy advisers have also joined this movement, pressuring companies to appoint racial-ethnic minority (minority, hereafter) directors.[1] Despite the potential to advance diversity in business and society (Pande, 2003), the repercussions of these measures for companies and their shareholders remain uncertain.

Both the California legislation and the Nasdaq rule have faced legal challenges, partly questioning whether these initiatives will benefit shareholders. The Alliance for Fair Board Recruitment (AFBR), taking legal action against the SEC over the Nasdaq rule, has notably critiqued it as has Fried (2021).[2] One criticism revolves around the lack of studies demonstrating the positive impact of board racial diversity on firms. While existing studies on the causal effects of gender diversity on firm performance yield mixed results,[3] there are currently no academic studies comprehensively assessing the effects of board *racial* diversity on firms and their shareholders (Fried, 2021). This article aims to fill this research gap.

The assertion that increasing board diversity should either enhance firm value or, at the very least, not diminish it is commonly referred to as "the business case for diversity." A broader interpretation of this business case suggests that the advantages stemming from diverse boards outweigh the associated costs. Opponents of mandated board diversity argue against the business case, contending that boards are optimally selected, and constraints on director choice lead to boards of lower quality, ultimately diminishing shareholder value (Demsetz and Lehn, 1985). An alternative view posits that boards are "captured," because managers selectively appoint directors who

[1] For brevity and to reduce repetition, we often use the term *minority* in the place of *racial-ethnic minority*, which is the suggested term according to the seventh edition of the APA Style guide (2020).

[2] The AFBR's critiques are outlined in their initial comment letter to the SEC dated April 6, 2021. `https://www.sec.gov/comments/sr-nasdaq-2020-081/srnasdaq2020081-8639478-230941.pdf`

[3] Some show negative effects (Ahern and Dittmar, 2012; Adams and Ferreira, 2009), others document positive effects (Bennouri, Chtioui, Nagati, and Nekhili, 2018; Liu, Wei, and Xie, 2014), and some show no effects (Eckbo, Nygaard, and Thorburn, 2022).

prioritize retaining valuable board seats over improving firm value, leading to reduced monitoring and inefficient director labor market outcomes (Bebchuk and Fried, 2003). If qualified minorities face barriers in accessing the boardroom, then mandated diversity could alleviate these obstacles, improving efficiency in the director labor market and ultimately leading to increased firm value and performance. A third perspective asserts that diversity itself can impact group decisions, potentially enhancing outcomes through broader perspectives and mitigating groupthink (Page, 2007; Sah and Stiglitz, 1991), but it may also lead to internal conflicts among directors (Baranchuk and Dybvig, 2009), or indecision (Donaldson, Malenko, and Piacentino, 2020). The validity of all these theories hinges on whether directors have any impact on firm outcomes whatsoever. Evidence analyzing legal changes (Duchin, Matsusaka, and Ozbas, 2010; Ahern and Dittmar, 2012), director deaths (Nguyen and Nielsen, 2010), and commonality in idiosyncratic stock market returns (Burt, Hrdlicka, and Harford, 2020) supports the idea that directors indeed matter.

In this article, we empirically test whether there exists a "business case" for racial diversity on corporate boards using a large sample of over 2,400 U.S. public firms. Our approach involves initially identifying correlations between the racial diversity of corporate boards and measures of firm performance and value. Subsequently, our goal is to establish causality. Our headline result is that while board racial diversity is associated with better performance, higher value, and lower realized risk among firms, these relationships are not causal. Causal estimates indicate that increased board racial diversity in the settings we examine has no effect on traditional measures of firm performance or value, suggesting that arguments related to the business case are insufficient on their own to either justify or oppose mandated board racial diversity.

We acknowledge that while the business case is a significant factor, it's not the sole rationale behind advocating for or opposing racial diversity quotas in boardrooms. If there are obstacles within the director labor market that hinder the inclusion of minorities on corporate boards, then mandated quotas could help to alleviate these frictions. Bogan, Potemkina, and Yonker (2021) highlight how costly search processes and racial biases contribute to the underrepresentation of minorities in these positions. However, opponents argue that mandated quotas based on race are discriminatory by nature, violating the Fifth Amendment of the U.S. Constitution's Equal

Protection Clause.[4] Moreover, there's a growing demographic of shareholders who prioritize not only financial returns but also Environmental, Social, and Governance (ESG, hereafter) concerns (Matos, 2020). These investors may be willing to sacrifice a portion of their investment returns in favor of fostering more inclusive director labor markets and societal equity.[5]

The primary challenge in establishing the causality of board composition on firm outcomes lies in addressing the endogenous formation of corporate boards (Hermalin and Weisbach, 1998). A notable example is the potential for higher-quality firms to attract higher-quality directors. In this scenario, if these high-quality firms outperform others, then it is unclear whether the outperformance should be attributed to director or firm quality. The inclusion of firm fixed effects can effectively eliminate time-invariant firm characteristics like firm quality, but they fail to account for endogenous timing effects. Firms may recruit minority directors based on their expectations of future performance, whether positive or negative. Similarly, minority directors may accept positions with companies they anticipate will thrive in the future. Researchers have employed various approaches to tackle this issue, including relying on legal changes inducing exogenous changes in the demand for certain types of directors (e.g., Duchin et al., 2010; Ahern and Dittmar, 2012) and focusing on director supply-side shocks (e.g., Bernile, Bhagwat, and Yonker, 2018). Our causal analysis relies on two shocks to the demand for minority directors — one induced by legal changes and the other by social pressure. We rigorously evaluate the methodologies utilized, intending to reveal the fundamental truth and hoping to spark further research on the subject.

The primary shock we consider is attributed to a law that mandated board racial diversity for firms based in California. Introduced as California Assembly Bill No. 979 on February 21, 2019, the legislation was subsequently passed with significant margins in both the California Assembly and Senate, becoming law in September of 2020. The law mandated publicly traded California-based firms to have at least one director from an "underrepresented community" on their board by the end of 2021.[6] By the end of 2022, the law required firms to add additional underrepresented directors,

---

[4] For example, see Bell, Washington, Malone, Thatcher, and Bartlett LLP (2023) for a summary of the legal arguments made in the Alliance for Fair Board Recruitment v. SEC.

[5] Evidence exists that minority representation at the highest levels has spillover effects (Pande, 2003).

[6] "A director from an underrepresented community is an individual who self-identifies as Black, African American, Hispanic, Latino, Asian, Pacific Islander, Native American, Native Hawaiian, or Alaska Native, or who self-identifies as gay, lesbian, bisexual, or transgender." (`https://www.sos.ca.gov/business-programs/underrepresented-`

with the requirements increasing with board size. However, in March of 2022, the Superior Court of California ruled the law unconstitutional, violating the state's equal protection clause.[7] While, race is not the only basis for directors being categorized as underrepresented, we document a significant abnormal increase in board racial diversity following the enactment of the law among California firms previously non-compliant with the law. We utilize this demand shift in a triple difference framework to estimate the causal effects of board racial diversity on firm performance and value.

The second demand shock we examine emanates from the rapid acceleration of the racial justice movement. Bogan et al. (2021) present evidence of a notable upswing in the appointment of Black directors subsequent to the tragic event of George Floyd's murder in May of 2020 and the ensuing explosion of the Black Lives Matter (BLM) movement. Figure 1 illustrates these dynamics in our sample, showing Black representation among new director appointments each year relative to their representation in other corporate roles. Black appointments more than doubled from 2019 to 2020 and increased to nearly 23% of all director appointments in 2021, surpassing Black representation in the overall labor force by over 50%. We use this surge in the demand for Black directors in an instrumental variables framework, akin to the approach employed by Ahern and Dittmar (2012) in the context of the Norwegian board gender quota. Within this framework, we generate exogenous shifts in board racial diversity that transpired after the BLM movement's surge, utilizing pre-BLM cross-sectional variation in Black representation on corporate boards as an instrument for these changes. Companies with fewer Black directors on their boards before the movement had a stronger imperative to adapt to emerging social expectations driven by the BLM movement, in comparison to firms with a higher representation of Black directors.

Both identification strategies carry their own set of advantages and drawbacks. We choose the California triple differences setting as our primary test for two main reasons. First, we can observe a natural counterfactual in this context. These tests gauge the impact of board racial diversity by examining how the performance differences between non-compliant and compliant California firms change following the law's implementation, compared to changes in the performance

---

`communities-boards`)

[7] The final judgment and permanent injunction were filed in July of 2022. See Bogan et al. (2021) for a more detailed discussion of this law.

difference between firms with initial board structures that would be considered non-compliant and compliant under the California law, but are located outside of California as a counterfactual. This counterfactual controls for both time-invariant factors that cause firms to locate in the treated jurisdiction (California) and also for factors that drive the initial levels of board racial diversity at firms. Second, non-compliant California firms were obligated to appoint minority directors or face financial penalties.[8] In the instrumental variables framework, firms lacking Black directors were not compelled to add them; rather, they had the option to comply with emerging social norms. This introduces the possibility that only certain "special" firms responded to the instrument, potentially introducing bias into our estimates.

Another challenge for both tests is that these demand shocks coincide with the onset of the COVID-19 pandemic in March 2020, leading to extreme market volatility and significant variation in firm performance across industries. Additionally, our demand shocks overlap, and the sample period includes other shocks to minority director demand, such as the Nasdaq's board diversity listing requirement discussed earlier.

We address these issues in several ways beyond our basic empirical setup. First, we include industry-by-time fixed effects in our models to control for time-varying heterogeneity by industry. Second, to ensure that our results are not driven by variation within a particular industry, we re-estimate all our results by sequentially removing groups of firms based on their two-digit Standard Industry Classification (SIC) code. We show the utility of this sequential industry exclusion analysis graphically for each of our main outcome variables. Finally, we conduct a series of robustness checks, which include using alternative samples, such as dropping Nasdaq-listed firms.

With these considerations in mind, we proceed with our empirical analysis. We construct a sample of over 2,400 U.S. public firms listed on the New York Stock Exchange (NYSE), Nasdaq, and NYSE American that were in existence at the end of 2017 and conduct our tests on these firms through the end of 2022.

We measure board racial diversity using a Gini-Simpson index that is based on director shares

[8] One concern may be that California firms perceived that the law lacked permanence due to the ongoing legal challenges that ultimately led to its overturning. However, our data indicate that by the end of our sample period, 92% of California firms were in compliance with the law based on director race alone up from 57% in 2017. These figures underestimate the true compliance rates, considering firms could also comply based on the sexual orientations or gender identities of its directors, variables for which we lack data.

across nine racial-ethnic categories from our comprehensive data from the Institutional Shareholder Services (ISS) director diversity datafeed, which covers the racial backgrounds of over 97% of the directors in our final sample. A simple interpretation of this measure is the probability of selecting two directors of different races from the board with replacement.

In our initial analysis of correlations, we show that indeed better firms have more racially diverse boards. We estimate highly significant positive correlations between levels of board racial diversity and sales, ROA, and Tobin's Q. We also find that racial diversity is associated with lower idiosyncratic volatility. However, once we include firm fixed effects to remove time-invariant firm characteristics, only the relationship between board racial diversity and volatility remains statistically significant at better than the 5% significance level.

Next, we turn to our causal tests to address the endogenous timing of director selection, beginning with our triple difference tests. We illustrate that the California law led to abnormal increases in board racial diversity for non-compliant California-based firms, in all but the largest size quartile of firms. We estimate that the law caused board racial diversity to increase by about 0.10 by the end of 2021 or a little more than a standard deviation. To put this in perspective, the average board racial diversity in our sample increased by 0.12 from 0.16 in 2017 to 0.28 in 2022. So, the *abnormal increase* in board racial diversity among non-compliant California-based firms was similar in magnitude to that of the average firm's increase during a time period when board racial diversity saw its largest gains.

To test the business case for board racial diversity, we then employ the same triple difference models with sales, ROA, Tobin's Q, and realized idiosyncratic volatility as dependent variables. While we find no evidence that board racial diversity affects sales, Tobin's Q, and volatility, preliminary estimates indicate that non-compliant California firms exhibited significantly higher ROA in 2021 that reverted in the subsequent year. However, our sequential industry exclusion analysis shows that this temporary increase in ROA is driven by firms in the chemical industry, and more specifically, drug-producers in COVID-related segments. We therefore attribute this finding to abnormal within industry variation in ROA generated by the pandemic.

We show that our tests satisfy the identifying assumption of parallel trends in differences for each of our outcome variables. Moreover, we test the robustness of our null results using alternative methods of controlling for non-random assignment of the treatment and by altering our sample

construction choices. These tests provide additional null results, strengthening our initial conclusion that forced increases in racial diversity in the California setting had no effect on firm performance, value or risk.

One criticism of these tests focuses on their external validity. Firms in California are located in areas where the upper echelons of corporations are more racially diverse compared to firms headquartered in other states. This is illustrated in Figure 2, which shows the distribution of minority local manager shares for firms within and outside California. There are over twice as many local minority managers near California-based firms than near firms in other states. This higher local availability of qualified minority directors may make it easier for California-based firms to attract minority directors compared to firms in less diverse areas. Consequently, extrapolating our results to predict the impact of mandated board racial diversity in less diverse jurisdictions may lead to overly optimistic conclusions.

Our instrumental variables setting provides an additional framework to conduct performance and value tests that is not subject to this concern. The rise of the BLM movement was national in nature, prompting firms across the U.S. to diversify their boards. Additionally, we exclude California-based firms from the analysis when estimating these IV regressions specifically to eliminate any effect of the California legislation.

Our first-stage estimates substantiate the relevance of our instruments for above-median-sized firms in the sample. Unlike the California setting, where small and midsize firms responded to the treatment, only larger firms responded to the rise of the BLM movement.[9] Within this sample, we show that firms with lower initial Black board share were more likely to increase board racial diversity following the murder of George Floyd. We estimate that firms with a 0.10 lower initial Black board share increased racial diversity by 0.036 more than similar firms by the end of 2022. The effective F statistic of Montiel Olea and Pflueger (2013) is nearly twenty-five, easily surpassing recommended critical values.

Our second stage largely confirms our earlier results from our triple difference tests. There is no evidence that increases in racial diversity due to the BLM movement led to significant changes in

[9] This aligns with the narrative that larger firms without board racial diversity voluntarily responded to the BLM movement by appointing Black directors. In contrast, mandates were required to compel smaller firms lacking diversity to diversify their boards.

firm performance, value, or risk. Robustness checks akin to those conducted in the triple difference tests focusing on addressing non-random assignment of the treatment, alternative subsamples, and robustness to removing industries all confirm these null results.

We further explore whether forced board racial diversity leads to differential financial, investment, or payout policies, as these could signal differences in future performance that we are not yet able to detect. Neither setting provides robust evidence that board racial diversity impacts leverage choices, cash holdings, capital expenditures, acquisitions, R&D expenditures, or payout policies. Overall, we conclude that forced board racial diversity in our settings has no impact on firm performance, value, risk, or other important financial, investment, or payout policies.

Finally, we estimate the impact of board racial diversity on average board characteristics in our two settings to understand the mechanism behind our null results. We examine the average educational, experience, and demographic characteristics of the board. Consistent with our null findings, we observe minimal changes in director characteristics resulting from both the California law and the rise of the BLM movement. The exception is an increase in directors' busyness in the California setting, suggesting that the law led firms to hire minority directors who were already serving on other boards. This may explain why other director characteristics did not change in that setting.

Overall, this evidence supports the notion that the demand shocks we consider prompted firms to increase racial diversity by selecting minority directors with similar qualifications to existing directors, without causing harm to shareholders. This challenges the idea that board quotas will necessarily disrupt optimal board composition. Furthermore, these results suggest that racial diversity itself may not yield detectable costs or benefits in board decisions, potentially because individuals of different races who reach the director level share more similarities than differences. This is akin to the argument made by Adams and Ragunathan (2015), which posits that women in top financial positions exhibit similar levels of risk aversion as men due to selection effects.

Our primary contribution is to provide the first causal estimates of the effects of board racial diversity on long-term firm performance and value, using a broad sample of U.S. firms. Early studies faced challenges due to the lack of available data on director race and ethnicity, resulting in reliance on relatively small and selected samples of large firms. Carter, Simkins, and Simpson (2003) was among the first to explore the relationship between board racial diversity and firm performance,

finding a positive cross-sectional correlation between the percentage of minorities on the board and Tobin's Q, based on a sample of approximately 800 large firms in 1999. Subsequently, Carter, D'Souza, Simkins, and Simpson (2010) used firm fixed effects and 3-stage least squares regressions to analyze firm performance and Tobin's Q over a five-year period, with an average sample size of about 200 firms per year. This study identified a positive correlation between ROA and racial minority board representation, but did not establish a causal relationship. More recently, Pajuste, Dzabarovs, and Madesovs (2024) investigated whether one-year changes in Tobin's Q from the second quarter of 2020 to the second quarter of 2021 differed significantly for S&P 500 firms that appointed Black directors in response to George Floyd's murder compared to those that did not. The study found no difference in average changes in Tobin's Q between these groups but did not address the endogeneity of the appointment decision. Several other studies have examined the correlation between firm performance and board diversity, including both women and racial minorities combined, yielding mixed results (Erhardt, Werbel, and Shrader, 2003; Zahra and Stanton, 1988).

Other studies have concentrated on ethnic, cultural, ancestral, and racial diversity by using director nationalities or names to infer director backgrounds. The findings from these studies vary, with some indicating negative effects of diversity (Frijns, Dodd, and Cimerova, 2016; Giannetti and Zhao, 2019) and others revealing positive effects (Delis, Gaganis, Hasan, and Pasiouras, 2017; Bernile et al., 2018).[10] Our study is the first to employ data on the actual racial backgrounds of directors to create a board racial diversity index and utilize this index to examine the consequences of board racial diversity for firms and their shareholders.

Our study builds on recent work that focuses on the minority director labor market outcomes and stock market reactions to race-related events. This literature documents the surge in Black director appointments following the murder George Floyd among public corporations (Bogan et al., 2021; Pajuste et al., 2024; Balakrishnan, Copat, De La Parra, and Ramesh, 2023) with a more muted

[10] Frijns et al. (2016) examine a sample of UK firms and discover an inverse relationship between board cultural diversity and firm value and performance. Giannetti and Zhao (2019) gauge ancestral diversity based on last names and conclude that this aspect of diversity can lead to conflicts and inefficiencies in the boardroom. Delis et al. (2017) find that increases in board genetic diversity, measured based on directors' countries of origin, result in enhanced firm performance. Bernile et al. (2018) establish that board diversity positively influences firm performance, with board diversity measured based on an index of six dimensions, including race inferred by director names.

response by private firms (Cassel, Weston, and Yimfor, 2024). It also documents racial disparities in obtaining both board seats (Bogan et al., 2021) and leadership roles on boards (Field, Souther, and Yore, 2020). Studies of stock market reactions around race-related events yield mixed results.[11] The most relevant of these findings are those of Bogan et al. (2021), who report no abnormal stock market reaction of firms exposed to either the announcement of California Assembly Bill No. 979 or the murder of George Floyd. These short-term reactions align with our findings that board racial diversity has little effect on longer-term firm performance and value outcomes. Several studies also investigate how minority director characteristics change with the rise in the BLM movement, generally concluding that new minority directors possess qualifications similar to their White counterparts (Bogan et al., 2021; Pajuste et al., 2024; Cassel et al., 2024). Using a more expansive set of characteristics, our results corroborate these findings in a causal setting, helping to explain our null results.

Understanding the consequences of forced board racial diversity is crucial for policymakers considering board racial diversity quotas. Our study contributes to this discourse by investigating the effects of *mandated* demographic diversity in the boardroom. Previous studies on board gender mandates yield diverse findings. Research studying the Norwegian gender quota often finds adverse effects on firm value and performance (Ahern and Dittmar, 2012; Matsa and Miller, 2013; Bøhren and Staubo, 2016), while Eckbo et al. (2022) report null results, attributing earlier findings to methodological differences. Studies on California's board gender diversity quota mostly reveal negative announcement returns for firms compelled to add women (Greene, Intintoli, and Kahle, 2020; Von Meyerinck, Niessen-Ruenzi, Schmid, and Solomon, 2024; Hwang, Shivdasani, and Simintzi, 2021; Gertsberg, Mollerstrom, and Pagel, 2021), whereas Reguera-Alvarado, De Fuentes, and Laffarga (2017) conclude that Spain's gender quota improved firm outcomes. Our study is the first to analyze the implications of racial diversity mandates on firm outcomes, demonstrating that the California racial diversity mandate had minimal impact on firm performance and value.

---

[11] Pajuste et al. (2024) find evidence of a delayed negative stock market reaction to George Floyd's murder among S&P 500 firms without Black directors, while Bogan et al. (2021) find null results analyzing the same experiment with a larger sample of firms. Balakrishnan et al. (2023) develop a text-based measure of racial diversity exposure from conference call transcripts and finds small negative abnormal returns for exposed firms around George Floyd's murder. Denes and Seppi (2023) find a overall positive stock market reaction to race-related events, while Ba, Rivera, and Whitefield (2023) show that policing firms experienced large positive abnormal stock returns around the murder of George Floyd.

Broadly, our findings contribute to the literature on board diversity's effects on firm outcomes, including studies that do not rely on quotas to establish causality. Previous studies document mixed results regarding board diversity's effects on firm performance, considering various dimensions such as demographics, professional backgrounds, expertise, and other personal attributes like political affiliation (Knyazeva, Knyazeva, and Naveen, 2021).[12] Board diversity on the dimensions of gender (Adams and Ferreira, 2009), industry experience and skill sets (Knyazeva, Knyazeva, and Raheja, 2023; Adams, Akyol, and Verwijmeren, 2018) have been shown to negatively impact firm value or performance. Conversely, studies using multidimensional measures of director diversity generally find positive effects on firm outcomes (Anderson, Reeb, Upadhyay, and Zhao, 2011; Bernile et al., 2018).[13] Our findings suggest that racial diversity alone may not yield significant benefits in board decisions, perhaps because directors of different races who reach the board level share more similarities than differences.

2. Methodology

Our objective is to determine the causal effect of board racial diversity on firm outcomes. However, directly regressing firm performance on board racial diversity levels presents challenges due to omitted variable bias and reverse causality. To mitigate these issues, a common approach involves estimating regressions using first differences or incorporating firm fixed effects. In our analysis we focus on fixed effects estimators but also present first difference estimators as we anticipate the presence of outliers in our dataset and managing outliers is more feasible within a first difference framework.[14] Our baseline model also incorporates industry-by-year fixed effects to account for time-varying heterogeneity across industries. Our baseline fixed effects model is:

$$\mathrm{Y}_{i,t} = \beta \text{ Racial Diversity}_{i,t} + \Gamma' X_{i,t} + \delta_{j,t} + \psi_i + \varepsilon_{i,t}. \tag{1}$$

[12] The literature has yet to determine, which dimensions of diversity are most important for boards, with Fos, Jiang, and Nie (2024) studying how different measures of diversity are interrelated.

[13] See Knyazeva et al. (2021) for a thorough review of the finance and economics literature on board diversity.

[14] For instance, winsorizing changes in the logarithm of Tobin's Q helps eliminate outliers in the growth of firm value within firms, while winsorizing the logarithm of Tobin's Q is likely to set the value of growth of the most valuable firms to zero, equalizing their value levels through time.

Here, $Y_{i,t}$ is firm i's value or performance metric, Racial Diversity$_{i,t}$ is firm i's board racial diversity index, $\delta_{j,t}$ is an industry-by-time fixed effect, ψ_i is a firm fixed effect, $X_{i,t}$ is a vector of firm-level control variables, and $\varepsilon_{i,t}$ is the error term. Our variable of interest is β, which captures the relationship between board racial diversity and firm outcomes.

While incorporating firm fixed effects aids in mitigating endogeneity concerns associated with time-invariant omitted characteristics, it doesn't adequately account for endogenous timing considerations. For instance, companies might enhance board diversity in anticipation of, or in response to, success or failure. Ryan and Haslam (2005) offer evidence supporting this notion in the realm of gender diversity, revealing that women are more likely to receive promotions following periods of negative firm performance. To tackle this timing issue, it becomes essential to identify exogenous factors that lead to variation in board racial diversity across firms, factors that are independent of a firm's future performance or policies.

We concentrate on two notable shocks to the demand for minority directors: the passage of California Assembly Bill No. 979 and the emergence of the BLM movement.

2.1. Triple difference methodology

As discussed in the introduction, our primary approach to mitigating concerns regarding endogenous timing involves leveraging the enactment of California Assembly Bill No. 979 as an exogenous shock to board racial diversity among California-based companies lacking diversity in a triple difference setting. While the legislation mandated a minimum level of racial diversity on the boards of publicly-held firms in California, the impact varied among California companies since some initially complied with diversity requirements at the time of the Bill's enactment (compliant firms), while others did not (non-compliant firms). Outside of California, firms were not subjected to these diversity requirements. However, some exhibited board diversity similar to compliant California-based firms, while others resembled non-compliant firms within California. Changes in the disparities in corporate outcomes among these "untreated" non-compliant and compliant firms around the implementation of the California mandate provides a counterfactual for changes in outcome disparities between non-compliant and compliant firms within California.

Therefore, to estimate the effect of mandated racial diversity on firm outcomes, we employ the following dynamic triple difference regression equation:

$$\mathrm{Y}_{i,t} = \sum_{k=2019}^{2022} \Big(\beta_t \big(I(k=t)_t \times \mathrm{NC}_{i,2017} \times \mathrm{CA}_{i,2017} \big) + \gamma_{1,t} \big(I(k=t)_t \times \mathrm{NC}_{i,2017} \big) + \gamma_{2,t} \big(I(k=t)_t \times \mathrm{CA}_{i,2017} \big) \Big) + \delta_{j,t} + \psi_i + \varepsilon_{i,t} \tag{2}$$

In Equation (2), the β_t's are our coefficients of interest, capturing the average treatment effects of mandated increases in board racial diversity on changes in our performance and value outcome variables. The variable $\mathrm{CA}_{i,2017}$ is the treatment indicator, signifying whether the firm is headquartered in California. $\mathrm{NC}_{i,2017}$ is an indicator variable that identifies firms with board racial diversity that would be non-compliant with the California law regardless of whether they are bound by it. Both of these variables are constant and are measured at the end of 2017, predating the Bill's introduction in February 2019. Since the law was overturned prior to the 2022 thresholds taking effect, we define compliance based on the 2021 requirements. Therefore, $\mathrm{NC}_{i,2017}$ is one for firms with no racial minority directors in 2017 and zero otherwise. $I(k=t)_t$ are year indicator variables that are interacted with the NC and CA indicator variables, allowing us to estimate dynamic average treatment effects. This is crucial as California firms had discretion over the timing of their compliance within a nearly three-year window, from the Bill's introduction in February 2019 until the compliance deadline of December 31, 2021. We therefore include the years 2019 to 2022. In this generalized triple difference model, the β_t's capture the cumulative changes in the outcome variable from the average pre-period level, which includes 2017 and 2018 firm-year observations.

To enhance this model, we also introduce a dynamic first difference version where the dependent variable is the year-on-year change in $Y_{i,t}$. This enables us to gauge the average treatment effect of the law in any particular year.

2.2. Instrumental variables

Our secondary strategy to tackle the issue of endogenous timing revolves around employing a two-stage least squares identification strategy, with the structural equation represented by our baseline regression, Equation (1). To address concerns regarding the endogenous timing of changes in board racial diversity, we leverage the unexpected surge of the BLM movement in May of 2020 as a shock to the demand for minority, particularly Black, directors. Drawing inspiration from Ahern

and Dittmar (2012), we anticipate that this increase varied significantly across firms, depending on the proportion of Black directors on their boards prior to the BLM movement. It is expected that firms with a lower percentage of Black directors on their boards before BLM would be more inclined to augment board racial diversity in response to the movement. Thus, we instrument for board racial diversity using the interaction between firms' pre-BLM Black director composition and the post-BLM period. Our first-stage regression predicts the endogenous regressor, *Racial Diversity*, as follows:

$$\begin{aligned} \text{Racial Diversity}_{i,t} = &\sum_{k=2020}^{2022} \lambda_t \big(I(k=t)_t \times \text{IBBS}_{i,2018} \big) \\ &+ \sum_{k=2020}^{2022} \omega_t \big(I(k=t)_t \times \text{IMBS}_{i,2018} \big) \\ &+ \Psi' (X_{i,2018} \times \text{Post-BLM}_t) + \tau_{j,t} + \alpha_i + \nu_{i,t}. \end{aligned} \tag{3}$$

We measure the initial share of Black directors on the board as of the end of 2018, which we call the initial Black board share (*IBBS*), and interact it with year indicator variables ($I(k=t)_t$) for years following the murder of George Floyd, which occurred in May of 2020. We hypothesize that the λ_t coefficient estimates are negative, indicating that firms with larger proportions of Black directors prior to the acceleration of the BLM movement were less likely to increase board racial diversity in response to the event. We include the years 2018 through 2022 in our regressions, allowing each λ_t to capture the cumulative differential change in racial diversity attributed to differences in the initial proportion of the board composed of Black directors.

A critique of similar designs for assessing the impact of board gender diversity, such as Ahern and Dittmar (2012), is that pre-treatment gender diversity is not randomly assigned (Eckbo et al., 2022). In our earlier triple difference setting, we effectively controlled for this by comparing firms with similar board composition in California to firms in other states. However, this is not feasible in the BLM setting because all firms without Black directors will be affected by the BLM movement. To address this, we condition on several firm-specific control variables, denoted as $X_{i,2018}$, which are time-invariant and measured in 2018 prior to the shock, and interact them with a post-BLM indicator variable. This approach controls for differential trends due to any of these differences in observable characteristics.

Importantly, we also include pre-treatment initial minority board share (*IMBS*) interacted with the same year indicator variables we use for *IBBS*. By doing so, our instrument captures the increase in board racial diversity caused by increased demand for one particular racial group while controlling for pre-treatment minority board share. This type of instrumentation would not be feasible for binary characteristics, like gender. With our empirical specification, we hypothesize that a firm with one Latino and eight White directors will increase the racial diversity on its board more than a similar firm with one Black and eight White directors because the BLM movement addressed issues concerning the Black community specifically.

The identifying assumption is that variation in pre-BLM Black director composition affects changes in firm outcomes during the post-BLM period only through its influence on changes in board racial diversity after controlling for observable characteristics included in the model. While the exclusion restriction is theoretically untestable, the firm fixed effects model is helpful in mitigating concerns such as low-quality firms being unable to attract Black directors. Remember that it is the endogenous timing of the decision to appoint racially diverse directors that our instrument addresses. It would be more concerning if the BLM movement caused these same firms to increase the racial diversity of their workforce and if this omitted factor were actually driving any firm-specific outcome. Our primary test mitigates this concern because it relies on *mandatory* changes in board racial diversity. Moreover, Figure 1, shown previously, does not show a substantial rise in Black representation in any corporate role other than the board of directors.

Equation (4) below represents the second stage of our two-stage least squares identification strategy. Note that the only difference from Equation (1) is that Racial Diversity is instrumented, and the model is more specific about the controls included in the model.

$$\begin{aligned} \mathrm{Y}_{i,t} = \ & \beta \ \widehat{\text{Racial Diversity}}_{i,t} + \sum_{k=2020}^{2022} \xi_t \big(I(k=t)_t \times \mathrm{IMBS}_{i,2018} \big) \\ & + \ \Gamma' (X_{i,2018} \times \text{Post-BLM}_t) + \delta_{j,t} + \psi_i + \varepsilon_{i,t}. \end{aligned} \tag{4}$$

3. Data

In this section we discuss the data used in our tests.

3.1. Data sources

Our examination draws upon firm and security-level data from three primary sources. Data pertaining to prices and share classes at the security level is sourced from the Center for Research on Security Prices database (CRSP). Financial statement data is from S&P's Compustat North America database (Compustat). Information on headquarters location and institutional ownership is from the Layline Dataverse, using data extracted from the Securities and Exchange Commission's EDGAR system (Layline).[15]

For our insights into directors, we extract data from two central sources. Data related to race and ethnicity originates from the Institutional Shareholder Services (ISS) director diversity datafeed. This dataset encompasses a plethora of details on each director, including appointment commencement and conclusion dates, committee assignments, and crucially for our research, demographic data encompassing race and ethnicity, gender, and age. Director racial backgrounds in the ISS database are identified by analysts through diverse sources including public disclosures, images, news articles, and supplementary references.

Our second source of director data is BoardEx. We integrate BoardEx with ISS to augment our dataset with additional insights into directors' educational background, past and present board appointments, announcement dates, and career histories. During this process, we manually verify each match if multiple directors share the same surname and have been appointed to the same board at some point.

3.2. Sample construction

To conduct our analysis, we create two samples employing nearly identical construction methodologies, differing mainly based on the initial dates firms are required to exist. This divergence arises because both methodologies rely on variation in ex ante board racial composition and the demand shocks vary in their timing. Consequently, our initial existence dates are selected to be at least one year preceding the demand shock, falling within a two-year time frame. Given that California Assembly Bill No. 979 was introduced in February 2019, we assemble our sample from publicly

[15] `https://dataverse.harvard.edu/dataverse/layline`

traded firms that were in existence as of December 31, 2017. The BLM movement accelerated with the murder of George Floyd in May of 2020, consequently our sample for this demand shock encompasses firms that existed as of December 31, 2018. For conciseness, we delineate the construction of the sample utilized in our California law triple difference tests below, noting any methodological differences when constructing the sample for the IV tests.

We begin with the CRSP universe of publicly traded companies as of December 31, 2017 with ordinary common shares of stock (shrcd 11 and 12) listed on the NYSE, NYSE American or Nasdaq stock exchanges (exchcd 1, 2, or 3). We match these firms to U.S.-based, operating companies in Compustat and retain firm-year observations with valid ROA and Tobin's Q.[16] Our experimental framework necessitates that each firm appears in at least one year in each of the pre- and post-treatment periods, we therefore drop firms that do not meet this requirement.

Starting from the end of 2017, the number of firms satisfying these criteria stood at 3,231, and by the culmination of 2022, it amounted to 2,548 firms. The decline in the number of firms within the sample each year is attributed to delistings and acquisitions occurring during the sampling timeframe, which we verify by referring to the delisting codes in CRSP.

To enhance the precision of our primary variable, we introduce a criterion stipulating that the racial identity of at least seventy-five percent of directors on each board must be identifiable. This requirement applies to all firms' boards in 2017, as our tests rely on board racial composition from that specific year. Furthermore, we enforce this condition in subsequent years by excluding instances of firm-year observations where the previous year's board data fails to meet this condition, making all changes in racial diversity based on observations with at least 75% coverage. The reduction in our initial sample size is under 13% due to the implementation of this filter, illustrating the comprehensiveness of ISS coverage concerning the racial backgrounds of directors. Coverage of the racial backgrounds of directors averages 97% in this sample. Given that our study is among the first ones reliant on the ISS director diversity datafeed, we also corroborate baseline board variables with BoardEx.

We also apply two pandemic-related data filters. First, we exclude all firms that manufacture

[16] Headquarters locations are based on business addresses listed in SEC regulatory filings closest to the firm's fiscal year end, obtained from the Layline corporate filings dataset at `https://doi.org/10.7910/DVN/WACGV5`.

"Biological Products, except Diagnostic Substances", which accounts for approximately 7% of our sample.[17] The rationale for this exclusion is straightforward: many of these firms are vaccine producers that underwent significant fluctuations in valuations, accounting performance, and volatility during the COVID-19 pandemic. This introduces substantial noise into our estimates and renders them susceptible to outliers.

Second, for the sample used in the triple difference analysis only, we eliminate all firms that changed their headquarters state during our sample period, since firm location is central to these tests. In normal circumstances, this is not a major concern. However, during our sample period, nearly 15% of firms headquartered in California in 2017 relocated to another state by 2022. In contrast, only about 5% of firms in other states changed headquarters states during the sample period. Therefore, we remove these firms to enhance the precision of our estimates. The concern with this approach is the potential bias it may introduce into our sample. For this reason, we exclude all firms that change states, not just firms leaving California. However, there could be other considerations. For example, firms may leave California to evade the board diversity regulations, leading to a selection bias. In unreported results, we investigate whether these moves are related to the California mandate by predicting out-of-state moves in our triple difference setting and find no evidence supporting this hypothesis.

This initial process establishes the foundation of our sample. Table A1, found in the Appendix, illustrates this sample construction process, showing the count of firms that fulfill these key criteria each year.

For the IV test sample, we apply three filters. In addition to removing vaccine firms as previously, we also exclude firms headquartered in California to mitigate any influence from the California mandate on these tests. Thirdly, we omit firms with high levels of initial Black board share (exceeding the 99th percentile), as there may be omitted characteristics contributing to these elevated levels. For instance, Carver Bancorp Inc., established in 1948 in Harlem to cater to African-American communities, boasted a board entirely comprised of Black directors in 2018. Carver holds designations as a Community Development Financial Institution (CDFI) by the U.S. Treasury and a Black-led Minority Depository Institution (MDI) by the FDIC, a status shared by

[17] Firms in the 2836 SIC industry based on 2017 classification. Source: `https://www.osha.gov/sic-manual/2836`

Broadway Financial Corp., which had 55% of its board comprised of Black directors in 2018.[18] Later, we demonstrate how relaxing each of these filtering choices affects our estimates for both of our experiments.

3.3. Variable construction

Our primary variable of interest is board racial diversity, which we quantify following Bernile et al. (2018) using a Gini-Simpson index that accounts for nine racial-ethnic categories. We define:

$$\text{Diversity} = 1 - \sum_{r=1}^{S} \left(\frac{n_r}{N}\right)^2, \tag{5}$$

where S represents the number of distinct races and ethnicities, n_r the number of individuals in race r, N is board size, and n_r/N signifies the proportion of the board comprised of individuals of race r. Our study includes the racial and ethnic categories: Asian, Black, Caucasian, Hispanic, Indian, Middle Eastern, Native American, and Native Hawaiian, and Other. This index boasts a straightforward interpretation: it represents the likelihood of randomly selecting two directors from a board with dissimilar racial or ethnic origins, while allowing for replacement in the selection process. The measure is bounded between zero and $(S-1)/S$, so our variable is theoretically bounded between 0 and 0.89, with the maximum value occurring when a nine-member board has each director representing a different racial or ethnic group.

To illustrate the dynamics of the racial diversity index, a board with only White directors has a diversity index of zero and replacing one of the directors with a director from a non-White race on a nine-person board would change the index to 0.198. To provide another example, consider again our canonical nine-person board: replacing a second White director with the same minority race as the first would change our index to 0.346. However, adding a director from a different minority race instead would change the index to 0.370.

We assess firm performance and value using four key variables. First, we consider consumer reactions to board composition, anticipating that customers may "vote with their wallets." Thus,

[18] This subset of firms also includes various non-banks, such as Urban One Inc., an African-American-owned media company. However, not all firms with high initial Black board share exhibit clear connections to the African American community.

our initial measure is the natural logarithm of total sales. To determine whether changes in sales translate to differences in profitability, we use Return on Assets (ROA), calculated as net income divided by lagged assets. For firm value, we use the natural logarithm of Tobin's Q, defined as the sum of total assets and market capitalization minus book equity, divided by total assets. We also examine the impact of board racial diversity on firm risk, measured by annualized stock market idiosyncratic volatility. This is estimated as the standard deviation of daily market-adjusted returns, multiplied by the square root of the number of observations in the 365 calendar days leading up to the firm's fiscal year-end. Additionally, we also measure firm performance through five-day cumulative abnormal returns surrounding director announcements, adjusted for market returns. For comprehensive definitions of these and other variables used in the analysis, please refer to Appendix B.

3.4. Data summary

Figure 3 contextualizes the racial diversity of corporate boards within the broader corporate labor market. The dashed lines in the figure represent the racial diversity of employees in various corporate roles (all employees, managers, executive/senior managers) in U.S. firms. These diversity metrics are derived from nationally aggregated workforce data collected through the Equal Employment Opportunity Commission's (EEOC) form EEO-1. All private sector employers with at least one hundred employees are mandated to file this form annually, detailing the number of workers in various corporate roles segmented by gender and seven racial-ethnic groups.[19] The figure illustrates a trend where racial diversity diminishes at higher echelons of the corporate hierarchy. For instance, while the racial diversity of the entire labor force stood at just over 0.60 in 2021, it was approximately half that for executive/senior managers.

The solid lines in the figure are derived from the sample of firms previously described. The green line depicts the average board racial diversity of firms in our sample each year, whereas the orange line indicates the racial diversity of directorships each year. This latter measure is comparable to those represented by the dashed lines, as it is based on aggregated directorships by racial group. It

[19] The data is available for download at `https://www.eeoc.gov/data/eeo-1-employer-information-report-statistics`.

is noteworthy that this measure is consistently about 0.05 higher than the average firm's diversity measure, attributable to larger firms having more directors and, consequently, more diverse boards. Irrespective of the measure used, corporate directors are significantly less diverse than any other corporate role depicted. However, the figure reveals that starting in 2020, the largest gains in racial diversity have occurred on corporate boards compared to any other corporate role. The racial diversity of the average board increased by over 50% during this period, rising from 0.18 in 2019 to 0.28 by 2022. These changes are attributed to the increasing diversity of new directors hired each year, as depicted by the solid blue line. From 2017 to 2019, the diversity of new directors was comparable to that of the executive/senior manager labor pool. However, in 2020, it increased to approximately 0.40, slightly below the racial diversity of all managers in the U.S. By 2021, it peaked at over 0.60, reflecting the diversity of the entire labor force, and in 2022, the diversity of newly hired directors remained above 0.50. This indicates that if two newly hired directors were randomly selected, there would be more than a 50% chance they would be from different racial backgrounds.

Figure 4 presents the distribution of board racial diversity among firms in 2017 and 2022, detailing the transformation in board racial diversity during our sample period. A significant portion of this increase emanated from firms that previously lacked racial diversity but subsequently added minority directors. In 2017, approximately 47% of firms had no racial diversity, while this figure dropped to less than 20% by 2022. Concurrently, there was a noteworthy upswing in firms exhibiting higher levels of diversity.

Table 1 shows the summary statistics and the evolution of key variables in our study during the sample period. Consistent with Figure 3, board racial diversity increased over 75% during the sample period from 0.16 in 2017 to 0.28 in 2022. Moreover, the share of Black directors on boards increased from an average of 3.48% in 2017 to 7.65% in 2022, representing an increase of more than 100%. Non-Black minorities also saw increases in their board shares over the sample period, beginning at 7.44% in 2017 and increasing to 10.72% by the end of 2022.[20] In terms of other board characteristics, the table shows that board size increased modestly by about 0.5 directors, while average director age and tenure remained relatively constant. Director appointments were also

[20] A breakdown of the board share evolutions by each racial group is found in the Internet Appendix, Table IA.1.

fairly constant, with firms appointing about 0.8 new directors per year.

In Panel B of Table 1, we provide a summary of our outcome variables and other firm variables used throughout our study. Most ratios remained stable over time, with the exception of our measure of risk, idiosyncratic volatility, which was heightened in 2020 during the COVID-19 crisis. The table also shows that about 15% of firms in the sample were headquartered in California, 46% were non-compliant with the California diversity targets as of the end of 2017, and 6% of the sample comprised non-compliant California firms. Importantly, all of these percentages remained near constant throughout the sample, indicating that none of these groups experienced abnormal survival rates.

3.5. OLS estimates

As a starting point for our analysis, we use ordinary least squares (OLS) to estimate the relationship between board racial diversity and our four primary outcome variables, using the sample designed for our triple difference tests discussed above. The odd-numbered columns in Table 2 display OLS regression results for the levels of our outcome variables on board racial diversity. The even-numbered columns show the results for the fixed effects specification described in Equation (1). We provide results for both contemporaneous and lagged versions of the model in separate panels.

The level regressions generally align with the previously articulated narrative of endogenous matching based on firm quality. Board racial diversity is positively and significantly associated with firm value and performance metrics in both contemporaneous and lagged specifications. Furthermore, racial diversity correlates with reduced risk, as indicated by lower idiosyncratic stock market volatility.

The incorporation of firm fixed effects substantially diminishes the magnitude of all coefficients, rendering the associations between ROA and Tobin's Q with contemporaneous board racial diversity statistically insignificant. Sales exhibit only a weak positive relationship in the contemporaneous model and lose significance in the lagged specification. The sole robust finding is the inverse relationship between racial diversity and risk, although the coefficients are significantly reduced. Specifically, the fixed effects estimator is approximately one-third the magnitude of the OLS estimator. According to the fixed effects estimator, the annualized idiosyncratic volatility of a firm

with an all-White nine-member board would decrease by about 1.5% if one member were replaced with a minority director, compared to a 4.1% reduction predicted by the OLS estimator. These fixed effects regressions underscore the critical need to account for unobservable, time-invariant firm-level variables. In the following section, we address issues of endogenous timing by leveraging exogenous shocks to the demand for racially diverse directors.

4. Triple difference estimates

In this section we conduct our primary tests of the business case for board racial diversity using the passage of California Assembly Bill No. 979 as shock to the demand for racial minority directors by California-based firms with low initial board racial diversity. We do so by estimating Equation (2) for four primary outcomes using the sample described in Section 3.

4.1. Board racial diversity

In Figure 5, we present the variation in board racial diversity utilized in our tests. This figure illustrates the progression of average racial diversity across four primary subgroups analyzed in our study: compliant firms in California, non-compliant firms in California, compliant firms outside California, and non-compliant firms outside California. By design, non-compliant firms, irrespective of location, exhibited no board racial diversity in 2017, whereas compliant firms had positive levels.

The figure reveals that compliant firms in California consistently maintained higher levels of racial diversity compared to their counterparts outside the state, although the growth trends in racial diversity for both subgroups are similar. In contrast, the non-compliant subgroups display divergent trends. While the average non-compliant firm experienced growth in board racial diversity over the sample period, non-compliant firms in California observed more significant growth. This divergent growth primarily occurred following the introduction of Assembly Bill 979 in February 2019, with the most substantial increase in 2021, just before the law's initial compliance deadline.

This figure supports the validity of our experimental design, demonstrating that firms expected to react to the law indeed increased their board racial diversity. A critical assumption in a triple-difference setup is parallel trends in differences between non-compliant and compliant subgroups within the treatment and control groups prior to the treatment. We provide such a test later in

Section 4.3 and show that the assumption holds for each of our four outcome variables.

We next formally assess the effects of the California mandate on board racial diversity by estimating Equation (2), with board racial diversity as the dependent variable. The regression results are presented in Table 3. In the odd-numbered columns, our estimates of β_t represent the cumulative abnormal change in racial diversity since the average pre-period levels in 2017 and 2018. The even-numbered columns test for year-on-year changes in board racial diversity to identify whether the changes were significant in any particular year. It is important to note that in this first difference specification, fixed effects are excluded because time-invariant firm characteristics are eliminated through differencing.

The first column of Table 3 shows that the introduction of the law in 2019 prompted firms to begin increasing racial diversity on their boards immediately. Additional effects were observed in 2020, with the most substantial increase occurring in 2021. In 2022, after the law was repealed, affected firms did not continue to diversify their boards at abnormal rates.[21]

Next, we analyze how firms' responsiveness to the California law varies with firm size, given that larger firms are more likely to have at least one minority director (Bogan et al., 2021). Coupled with the finding later in this article that larger firms were more likely to respond to the BLM movement by appointing Black directors to their boards, we anticipate that the California mandate had a minimal impact on the largest firms within the state.

Columns 3 through 6 of Table 3 confirm this, displaying estimates of Equation (2) using subsamples consisting of firms from the three smallest size quartiles (columns 3 and 4) and those in the largest (columns 5 and 6).[22] Among midsize firms, the increase in racial diversity attributed to the California mandate amounted to 0.102 by 2021, with a t-statistic exceeding four. Conversely, large firms did not experience any abnormal increase in their racial diversity. Consequently, subsequent analyses exclude firms in the largest size quartile.[23]

---

[21] These findings align with those of Bogan et al. (2021), although their dependent variable is the percentage of the board that is minority, which is highly correlated with our board racial diversity measure, especially at low levels of diversity.

[22] Appendix Figure A1, we present the estimates of β_{2022} within each market equity size quartile subsample. The figure shows consistently positive and significant effects from the California board racial diversity law on board racial diversity within the two smallest quartiles, while no differential effects are observed among the largest firms.

[23] The more aggressive response of large non-compliant firms during this period is indicated by the larger estimates of $\lambda_{1,2021}$ among large firms compared to small firms (0.123 vs. 0.086).

4.2. Value, performance, and risk

The results from estimating Equation (2) for firm performance and realized risk are presented in Table 4. Based on the previous findings, we would expect any abnormal changes in these variables to coincide with the increases in racial diversity that began in 2019, particularly in 2021 when most of the board changes occurred. The table shows that firms that increased racial diversity due to the California mandate did not experience abnormal changes in sales, firm value, or risk. However, these firms did experience a temporary increase in ROA in 2021, which reverted to normal levels in 2022.

As previously discussed, a limitation of our study is that the sample period coincides with the COVID-19 pandemic, a time marked by significant heterogeneity in performance across industries. Therefore, before interpreting our results, we test whether the results are specific to any particular industry by re-estimating the models for subsamples of firms, excluding firms within each two-digit SIC code one-by-one.

In Figure 6, we plot the estimates of β_{2021} and β_{2022} and their 90% confidence intervals for these sequential industry exclusion (SIE) subsamples, using both board racial diversity (Panels (a) and (b)) and ROA (Panels (c) and (d)) as dependent variables. The sample includes firms in sixty two-digit SIC codes, so each panel displays sixty coefficient estimates. Panels (a) and (b) show that the effect of the California law on board racial diversity is fairly stable around 0.10, indicating that it was not driven by any one industry. This finding is not surprising since the law applied to California firms, regardless of industry.

Panels (c) and (d) display subsample estimates for β_{2021} and β_{2022} from the ROA regressions. This analysis shows that the abnormally high ROA of non-compliant California firms in 2021 is entirely driven by firms within two-digit SIC code 28, broadly defined as chemicals. Excluding firms from this industry leads to coefficients that are dramatically smaller in magnitude and not statistically different from zero. While we previously removed all firms in industry code 2836, which included vaccine producers, drug companies make up a large proportion of the firms in SIC code 28 and they also experienced large fluctuations in ROA during the pandemic.[24] This highlights the

[24] Figure IA.1 in the Internet Appendix shows that our null estimates for sales, Tobin's Q, and risk are insensitive to particular industries using analogous SIE analyses.

potential influence of outliers when conducting analysis during this period.

We conclude that forced increases in board racial diversity due to the California mandate had no detectable effects on firm value, performance, or risk. Although there was initially some indication of effects on accounting performance, these findings appear to have been driven by the abnormal performance of specific industries during the COVID-19 pandemic.

4.3. Robustness

Overall our results indicate that forced board racial diversity has little impact on firms. We now test some of the underlying assumptions of our triple difference tests and provide a number of robustness tests.

4.3.1. Parallel trends in differences

A fundamental assumption in a triple-difference setup is the parallel trends in the differences between non-compliant and compliant groups within the treatment and control groups prior to the implementation of the treatment. This difference-in-difference is captured each year by the estimates of the β_t's from Equation (2). The parallel trends assumption posits that there should be no significant difference in the β_t estimates until after California non-compliant firms experienced abnormal increases in board racial diversity due to the mandate. We showed previously in Table 3, that some firms began responding after the bill was first proposed in 2019 and that the most significant increases were in 2021. Therefore, we expect the β_t estimates to be zero prior to 2019.

In Figure 7, we plot the estimates of β_t and their 90% confidence intervals including additional years of data going back to 2016 to show any possible pre-trends for each of our four main outcomes variables (panels a through d). All differences are relative to the base year of 2017, which is when compliance with the law is measured. The figure shows estimates consistent with the parallel trends assumption. Significant deviations do not occur prior to 2019 for any of the performance or value outcomes. As we showed earlier, significant differences do not emerge afterward either.

4.3.2. Random assignment

Non-random assignment of the treatment could lead firms to follow divergent paths that are unrelated to the treatment itself. To mitigate the potential influence of such differences, we present

the results of our triple-difference regressions for a propensity-score-matched sample and also by estimating a model that directly controls for initial characteristics.[25]

Table A2 in the Appendix shows the results of covariate balance tests for both the full and matched samples, while Table A3 provides the means of these initial characteristics for our four main subgroups of firms. The tables reveal few differences in differences in initial characteristics between non-compliant and compliant firms in California and outside California for the full sample and no significant differences after matching, demonstrating the efficacy of the matching procedure.

Table 5 presents the coefficient estimates for β_{2022} from our robustness tests for performance, value, and risk outcomes. For comparison, the first line shows the results from our baseline model from Table 4. The second line displays the results of the triple-difference regressions using the propensity-score-matched sample. The impact of matching on these characteristics is minimal, with a slight reduction in the increase of racial diversity among non-compliant California firms compared to our baseline estimates, and minor shifts in the performance, value, and risk measures toward zero.

Our second approach to addressing non-random assignment involves directly controlling for differences in initial observable characteristics. To do so, we interact the post California Bill period (2019 onwards) with the following initial firm characteristics: ROA, risk, board size, market leverage, and the natural logarithms of sales, Tobin's Q, and market capitalization. The third row of Table 5 shows that our inferences remain consistent. Since the inclusion of these controls results in only minor adjustments to the coefficient estimates, this also helps substantiate our test design.

4.3.3. Alternative samples

Next, we examine whether our initial sample construction choices affect our inferences. Specifically, we assess the impact of reintroducing the largest quartile of firms, vaccine producers, firms that changed their headquarters state during the sample period, and all firms by removing each of these sample filters. We also show estimates when removing Nasdaq-listed firms since they are

[25] To construct our matched sample, we employ nearest neighbor propensity score matching, as shown in Appendix Table A4. Here, we predict California firms within the subsets of non-compliant and compliant firms independently, using one-to-one nearest neighbor matching. The models in even columns are ultimately used in constructing the matched samples.

subject to their own board diversity mandates and also when removing highly regulated financial and utility firms.

Regardless of the filters applied, our conclusions remain consistent: the mandated board racial diversity resulting from the California law had no significant effect on firm performance, value, or risk. However, the effects on board racial diversity weaken when excluding large firms and those that relocated to California, highlighting our rationale for excluding these firms from the analysis.

5. Instrumental variables estimates

As second test of the business case for board racial diversity, we rely on the acceleration of the BLM movement following the murder of George Floyd in May of 2020 as a shock to the demand for racial minority, particularly Black directors. As outlined in Section 2.2 we rely on variation in the pre-BLM board composition of Black directors to instrument for changes in racial diversity, hypothesizing that firms with fewer Black directors were more likely to respond to the BLM movement by appointing Black directors to their boards.

5.1. Board racial diversity

In the first column of Table 6 we present the first-stage regression results from estimating Equation (3) for the full sample of firm-year observations outlined in Section 3.2 spanning from 2018 to 2022. For brevity, we only report the estimates of the λ_t and ω_t coefficients, which are significantly negative for each year following the acceleration of the BLM movement. This signifies that firms with fewer Black directors in 2018 were more inclined to enhance racial diversity in response to the movement compared to their counterparts with similar minority board representation.

In columns 2 and 3 of the Table we test the hypothesis that larger firms were more responsive to the BLM movement in their director appointment behavior by splitting the sample by the median 2018 market value of equity. This hypothesis stems from the idea that larger firms have more resources to conduct broad director searches. Bogan et al. (2021) show evidence consistent with this. Indeed the λ_{2022} estimate for large firms is twice the size as that of small firms and has much greater statistical significance. For large firms, the estimate of λ_{2022} is significant at better than the 1% level (t-statistic over 6), while for small firms it is barely significant at the 10% level.

Following Montiel Olea and Pflueger (2013), we test for weak instruments that are robust to heteroscedasticity, serial correlation, and clustering. We evaluate this "effective F-statistic" against a two-stage least squares (TSLS) "worst case" benchmark with significance level $\alpha = 5\%$ and Nagar (1959) bias of $\tau = 10\%$. This benchmark is the 5% critical value for testing the null hypothesis that the TSLS bias exceeds 10% of the OLS bias, adjusted for non-homoskedasticity. The effective F-statistic is above the tabulated critical values in all but the small-firm sample, leading us to reject the null of weak instruments. For robustness, we also examine a model that uses a single instrument by collapsing the year indicators to a single *Post* interaction term. Our results remain consistent throughout and we tabulate these results in Tables IA.2 and IA.3 of the Internet Appendix.

We proceed with the rest analysis focusing on "large" firms, referring to the model shown in column 3 as our "baseline" model, which includes controls interacted with the post-BLM period. Controls are important in this setting, since there are systematic differences among firms that initially have Black directors and those that do not. Controls effectively adjust for the non-random assignment of the instrument. Table A5 in the Appendix displays these differences before and after constructing a propensity-score-matched sample.

The model in column 4 omits controls except for initial minority board share interacted with individual year indicators during the post period. We show the results of this model to illustrate how our inferences can change if we do not control for observable differences. A notable critique of the Ahern and Dittmar (2012) analysis is that they do not condition on important characteristics, like firm size (Eckbo et al., 2022). In the first-stage regressions these controls have very little influence on the coefficient estimates. Controls become more important in the second stage estimation.

Another way of dealing with covariate imbalance and potential functional form misspecification is to construct matched samples. The model shown in column 5 is estimated omitting controls, but is run on a propensity-score-matched sample.[26] Matching on observables reduces the sample by about 40%, but leads to the largest estimate of λ_{2022}. This estimate implies that a firm with 0.10 lower initial Black board share (zero Black directors vs. one on a ten person board) will increase

[26] Column 4 of Table A6 in the Appendix shows the model used to match firms. It was chosen to be the most parsimonious model that explained differences between firms that initially had Black directors and those that did not. The matching algorithm uses one-to-one matching without replacement. Table A6 shows that it does a good job of matching, at least on observable characteristics.

racial diversity by about 0.04 more by 2022 than a similar firm.

5.2. Value, performance, and risk

Given the first stage results, we proceed by focusing on the sample of large firms to conduct our tests of the business case for racial diversity. Table 7 shows the regression results from OLS (Panel A), IV (Panel B), and reduced form (Panel C) regressions. Each of the panels displays estimates using our baseline model, our baseline model without controls, and the propensity-score-matched sample (PSM) for each of our four main dependent variables. All models include firm fixed effects and industry by year fixed effects.

The OLS estimates in Panel A are largely consistent with our earlier estimates in Table 2. In this sample of large firms, racial diversity is unrelated to sales, ROA, and Tobin's Q. However, racial diversity and firm risk are significantly inversely related in the model without controls and using the propensity score-matched sample. In fact, the magnitudes shown in column 12 are very similar to those estimated earlier in Table 2.

In Panel B, however, the local treatment effects estimated by the two-stage least squares estimator imply that the relationship between board racial diversity and risk is not causal. There is some evidence however, that increased board racial diversity led to higher sales, although this increase did not translate in to greater accounting performance or firm value. The statistical significance of this finding is weak in our baseline model, with a t-statistic of only 1.8. Economically, an increase in racial diversity of 0.18 implies about a 17% increase in sales, which seems somewhat large.

The reduced form estimates in column 1 of Panel C, reinforce this finding. The estimate on the 2021 year interaction with initial Black board share is significantly negative, indicating that firms that were more likely to add Black directors saw sales increases relative to their industry peers. The estimates imply that firms with 10% lower Black representation on their boards experienced sales increases of about 3.6% in 2021 but that these increases were temporary.

5.3. Robustness

We analyze the robustness of these results by conducting sequential industry exclusion analysis that is analogous to that conducted for our tests in the California setting. We focus on our first-stage estimates and the sales results in Figure 8, but also show the results for our other three

outcomes in Figure A2 in the Appendix.

In Panel (a) of Figure 8, we show that removing any one industry has little effect on the first stage estimate. For sales, in Panel (b), most of the IV estimates hover close 1.0, but removing a few industries renders the IV estimate insignificant, such as SIC code 49, broadly defined as utilities. However, these industries are not pandemic related and do not seem to be driving the magnitudes of the estimates. Removing other industries, strengthens the positive IV estimate. Most notably, removing financials (SIC code 60), increases the coefficient estimate by nearly 50%. While these results are somewhat difficult to interpret, the results from the sequential industry exclusion analysis on our other three outcome variables are unambiguous (See Figure A2 in the Appendix). Even if board racial diversity leads to higher sales it does not translate into better accounting performance, higher firm value, or lower realized risk.

Next we estimate our instrumental variables regressions for alternative subsamples, as we did previously for our triple difference tests. Column 1 of Table 8 shows the first-stage estimates of λ_{2022} and columns 2 through 5 display the second-stage estimates of β for our four outcome variables for various subsamples. The first row displays our previously reported baseline first- and second-stage estimates from Tables 6 and 7 for comparison purposes. Columns 3 through 5 illustrate that our inferences on the relationship between board racial diversity and accounting performance, firm value, and risk are unaltered no matter the sample, finding no evidence that board racial diversity affects any of these outcomes. However, in column 2, we see a fairly robust positive relationship between board racial diversity and sales. In four of the seven subsamples, we identify a significantly positive relationship between board racial diversity and sales. The IV estimate is insignificant when including small firms, firms with high Black board share, and when removing Nasdaq-listed firms. However, the first column shows that removing small firms and firms with high initial Black board share weakens the first stage estimate.Moreover, removing Nasdaq-listed firms greatly reduces the power of our tests.

Overall, we interpret these findings as weak evidence that forced board racial diversity caused by the BLM movement led to a temporary increase in sales, but did not significantly affect firm performance, value, or risk. These results are mostly consistent with what we found earlier in our triple difference tests, helping to establish the external validity of those results.

6. Additional analysis

To this point, there is no indication that board racial diversity has any impact on firm performance, value, or risk in the settings that we explore. However, new directors may initially have limited influence on the board. Consequently, detecting effects of increases in racial diversity on accounting performance can be challenging, and even the most efficient markets may struggle to price in the value effects of new directors on firms. Therefore, we next test whether mandated racial diversity systematically impacts firms' investment, financial, and payout policies. Differences in these policies could translate into meaningful cultural or style differences across firms. We then test whether the average characteristics and qualifications of boards changed as a result of increases in board racial diversity since others have shown that diverse directors can bring new skills to the board (Adams and Ferreira, 2009).

6.1. Investment, financial, and payout policies

We estimate both our triple difference and IV models for three measures of investing activity: capital expenditures to assets (CAPEX), acquisitions to assets (Acquisitions), and R&D expenditures to assets (R&D). We also examine two measures of financing activities: cash to assets (Cash) and book leverage (Leverage), and a measure of shareholder distribution: payouts, which includes repurchases and dividends to assets.

Table 9 presents the results. The data indicates that board racial diversity does not have long-term effects on any of the financial or payout policies, as evidenced by the statistically insignificant estimates of β_{2022} in Panel A and of β in Panel B. The only policy that mandated board racial diversity potentially affects is R&D expenditures. The estimates in column 3 of Panel A indicates that mandated racial diversity leads to lower R&D expenditures. By the end of 2021, non-compliant California firms had R&D expenditures that were 0.035 lower than similar firms, and this effect persisted through 2022, although it somewhat weakened. The IV estimates of β for the R&D regressions are not statistically different from zero, however. Moreover, the sequential industry exclusion analysis in Figure 9 shows that the long-term impact of board racial diversity on R&D is sensitive to the exclusion of certain industries. Removing chemicals, which includes drug companies, pushes both the 2021 and 2022 estimates to zero. The electronics industry, which includes semiconductor

manufacturers, also is important to the estimates. Overall, the analysis indicates that forced board racial diversity stemming from the California mandate or the BLM movement did not significantly affect investment, financial, or payout policies.

6.2. Board characteristics

Next, we examine how the composition, training, and work experience of corporate boards changed as a result of increasedboard racial diversity stemming from the California law and the BLM movement. To do this, we calculate average board characteristics for each firm each year and estimate the first difference specification of Equation (2) and Equation (4) using these board characteristics as dependent variables. In our triple difference tests, our focus is on estimating β_{2021} in the first difference model, as it captures the abnormal changes in board characteristics among affected California firms when racial diversity increased the most. For our instrumental variable tests, we report the IV estimates of β from Equation (4).

Table 10 presents the estimates for various average board characteristics. Consistent with the findings on firm value and performance, the estimates in the table indicate minimal impact from forced racial diversity on board characteristics. Specifically, there are few changes in the educational backgrounds and work experience of directors resulting from increases in racial diversity due to either demand shock. Demographically, however, increased racial diversity stemming from the BLM movement led to greater representation of women boards, suggesting that a significant portion of new Black directors were women. In the California setting, we find that racial diversity increased the average number of concurrent board seats held, suggesting that average board characteristics remain unchanged in California because minority directors are drawn from the existing pool of directors. This is not the case in the BLM setting, suggesting a different mechanism. Firms increased racial diversity on boards by choosing Black directors from an expanded director talent pool consisting of minorities who possessed similar educational backgrounds and work experience as existing directors. Ultimately, both mechanisms led to the same outcome: boards that are more racially diverse with little effect on firm performance, value, risk, or policies.

In further director-level analysis, we confirm that the California law resulted in new minority directors who are busier and share similar characteristics with existing directors. A similar analysis in the BLM setting shows more differences in minority director characteristics. For example, there

is a larger increase after 2019 in minority directors who have medical degrees and have work experience in DEI compared to White directors. Minorities also have less board experience in the post-BLM period, consistent with a widening of the talent pool (See Tables IA.4 and IA.5 in the Internet Appendix.).

6.3. Heterogeneous effects

Our analysis to this point shows that increases in board racial diversity due to the either of the shocks that we study had no detectable effects on firm performance, value, risk, or other corporate policies. However, it is possible that forced changes on boards impact certain firms more than others. For example, the impact of any one director on a small board is likely larger than among firms with large boards. Directors may also be more important for younger and more innovative firms since strategy is particularly important among these firms. We therefore run tests of heterogeneous effects of racial diversity on our four main outcomes, splitting our samples by firm size, board size, firm age, and R&D expenditures in both of our settings.

In the IV setting, there was weak evidence that increases in racial diversity led to increased sales, but those sales did not translate into significantly higher ROA. These findings are suggestive of a consumer response to Black director appointments. Therefore, in the IV setting we also test whether this sales result is related to race and racial animus.

Panel A of Table 11 displays estimates of β_{2022} along with stars indicating the statistical significance when estimating Equation (2) for our diversity, performance, value, and risk outcomes within each of the subsamples. Smaller and older firms, those with smaller boards, and higher R&D expenditures to assets see larger increases in racial diversity on their boards due to the mandate. However, board racial diversity does not impact any of the performance or value metrics. Large firms and firms with high R&D expenditures experience lower levels of risk, although in both of these subsamples the estimates are significant only at the 10% level.

Panel B of Table 11 displays the first- and second-stage estimates from IV regressions that now include two endogenous regressors, which are interaction terms between racial diversity and dummy variables that indicate each subsample. For example, when splitting the sample based on board size, the endogenous regressors are now *Racial Diversity* $\times$ *Small boards* and *Racial Diversity* $\times$ *Large boards*. Columns 2 through 5 of the Table report IV estimates for each these terms for our

four main outcomes. The first stage regression, is also altered such that each of our instruments is interacted with each of these dummy variables, increasing the number of instruments from three to six.[27] In column 1 of Panel B, we report the estimates of λ_{2022} interacted with these indicators, showing the cumulative effect of *IBBS* on *Racial Diversity* for each subsample. Equations (IA.1) to (IA.3) show these specifications in the Internet Appendix.

Consistent with earlier findings, Panel B of the table shows very few subsamples in which racial diversity is significantly related to ROA, Tobin's Q, or risk. The same is not true for sales. Increases in board racial diversity led to increased sales in smaller firms, firms with smaller boards, younger firms, and for firms headquartered in locations where racial discrimination has been historically more prevalent. Interestingly, within the subsample of firms located in areas of high racial animus, we find weak evidence that increases in board racial diversity generated by the BLM movement translated into better firm performance. This is suggestive of a socially-motivated consumer response leading to improvements in performance. Recent articles using Nielsen retail scanner and foot-traffic data show that consumers respond to company-wide ESG events (Dube, Lee, and Wang, 2023; Xiao, Zheng, and Zheng, 2023; Meier, Servaes, Wei, and Xiao, 2023). It is possible that minority appointments are one such event.

7. Conclusion

Governments, institutional investors, exchanges, and proxy advisers have recently pushed for increased racial diversity on boards. Others, such as the Alliance for Fair Board Recruitment, have stood in opposition. Both sides have made arguments surrounding the business case for board racial diversity, the idea that mandated board racial diversity would benefit or hurt shareholders. Our study takes the business case for board racial diversity to the data by conducting causal tests in two different settings using a large sample of U.S. firms to understand the effects of board racial diversity on firm performance, value, and risk.

The initial correlations that we estimate are consistent with reports from prominent manage-

[27] Continuing with our example using board size, the instruments included in the model are the triple interactions of Initial Black Board Share, *Large/Small Board*, and year indicators for 2020 to 2022. We also include one of the subsample indicator variables as an additional control variable interacted with the *post* indicator, similarly to all of our other control variables.

ment consulting firms that support the business case for Diversity, Equity, and Inclusion in firms.[28] Firms with more racially diverse boards are associated with better accounting performance, higher firm value, at the same time delivering less risk. However, simple models that control for unobservable firm characteristics, like firm quality, push all but the relationship between board racial diversity and risk to zero.

When we account for endogenous timing effects by using shocks to the demand for minority directors stemming from the California board racial diversity law and the BLM movement, not even the risk result survives. Using the same methodology, we test whether board racial diversity leads to differential financial, investment, and payout policies and again find null results.

When we test how board characteristics change as a result of our demand shocks, we find that they also change very little, suggesting that the minority director pool was sufficient to meet the demand with qualified minority candidates. California firms did not look too far. They chose minorities who were already sitting on boards. However, firms responding to the BLM movement did not follow this same direction.

Our results support the notion that forced racial diversity did not lead to suboptimal board structures, largely because the minority director pool was sufficient to meet the demand. Since few board characteristics changed other than racial diversity as a result of our shocks, our results also suggest that board racial diversity itself does not generate detectable costs or benefits to shareholders. It is possible that individuals of different races who reach the director level share many more similarities than differences and that racial background is less important to views held by directors on key board-level decisions than other dimensions like experience or education. However, it is also conceivable that newly appointed directors take longer to influence meaningful changes than our sample period allows us to examine, or that a single new director's viewpoint is overshadowed by the majority of the incumbent directors.

A limitation of our study is that the changes in board racial diversity generated by the California mandate and BLM movement were fairly small. The California law generated an abnormal increase in board racial diversity of 0.10 in our main tests. When comparing this to overall changes in

[28] In a series of reports McKinsey & Company makes the business case for DEI. See for example Dixon-Fyle, Dolan, Vivian Hunt, and Prince (2020) and Dixon-Fyle, Huber, del Mar Martinez Marquez, Prince, and Thomas (2023).

diversity this may seem large, but it is equivalent to adding a little more than a half of a minority director to a racially homogeneous, nine-person board. This may not be a large enough to influence the performance and value metrics that we test. However, even our simple tests point toward null results, so if board racial diversity impacts firm performance and value, then it would require there to be substantial corrections for endogenous timing issues to push our estimates away from zero.

We encourage future research on this topic hoping that our study serves as a starting point for discussion of the impact of board racial diversity on firms. We also acknowledge that our study is limited to the impact of racial diversity on boards. Racial diversity at other levels of the corporate hierarchy could lead to different results. Additionally, the outcomes that we explore are not exhaustive. Racially diverse boards may foster a more diverse workforce as suggested by Cassel et al. (2024) among private firms. Is this also true among large public firms? Do racially diverse boards implement differential ESG policies, or have different levels of community involvement? We leave these questions and others to future research.

References

Adams, R. B., Akyol, A. C., Verwijmeren, P., 2018. Director skill sets. Journal of Financial Economics 130, 641–662.

Adams, R. B., Ferreira, D., 2009. Women in the boardroom and their impact on governance and performance. Journal of Financial Economics 94, 291–309.

Adams, R. B., Ragunathan, V., 2015. Lehman sisters. Working Paper 2380036, Financial Research Network, https://dx.doi.org/10.2139/ssrn.2380036.

Ahern, K. R., Dittmar, A. K., 2012. The Changing of the Boards: The Impact on Firm Valuation of Mandated Female Board Representation. The Quarterly Journal of Economics 127, 137–197.

American Psychological Association, 2020. Publication manual of the American Psychological Association. American Psychological Association.

Anderson, R. C., Reeb, D. M., Upadhyay, A., Zhao, W., 2011. The economics of director heterogeneity. Financial Management 40, 5–38.

Ba, B. A., Rivera, R., Whitefield, A., 2023. Market response to racial uprisings. Working Paper 31606, National Bureau of Economic Research, http://www.nber.org/papers/w31606.

Balakrishnan, K., Copat, R., De La Parra, D., Ramesh, K., 2023. Racial Diversity Exposure and Firm Responses Following the Murder of George Floyd. Journal of Accounting Research 61, 737–804.

Baranchuk, N., Dybvig, P. H., 2009. Consensus in diverse corporate boards. The Review of Financial Studies 22, 715–747.

Bebchuk, L. A., Fried, J. M., 2003. Executive compensation as an agency problem. Journal of economic perspectives 17, 71–92.

Bell, M., Washington, A., Malone, L., Thatcher, S., Bartlett LLP, 2023. Fifth circuit declines to review SEC's approval of Nasdaq's board diversity rule. Harvard Law School Forum on Corporate Governance, Harvard College, https://corpgov.law.harvard.edu/2023/11/15/fifth-circuit-declines-to-review-secs-approval-of-nasdaqs-board-diversity-rule/.

Bennouri, M., Chtioui, T., Nagati, H., Nekhili, M., 2018. Female board directorship and firm performance: What really matters? Journal of Banking & Finance 88, 267–291.

Bernile, G., Bhagwat, V., Yonker, S. E., 2018. Board diversity, firm risk, and corporate policies. Journal of Financial Economics 127, 588–612.

Bogan, V. L., Potemkina, E., Yonker, S. E., 2021. What Drives Racial Diversity on U.S. Corporate Boards? Working Paper 3952897, Social Science Research Network, https://dx.doi.org/10.2139/ssrn.3952897.

Bøhren, Ø., Staubo, S., 2016. Mandatory gender balance and board independence. European Financial Management 22, 3–30.

Burt, A., Hrdlicka, C., Harford, J., 2020. How much do directors influence firm value? The Review of Financial Studies 33, 1818–1847.

Carter, D. A., D'Souza, F., Simkins, B. J., Simpson, W. G., 2010. The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance. Corporate Governance: An International Review 18, 396–414, publisher: Blackwell Publishing Ltd ISBN: 1467-8683.

Carter, D. A., Simkins, B. J., Simpson, W. G., 2003. Corporate Governance, Board Diversity, and Firm Value. Financial Review 38, 33–53.

Cassel, J., Weston, J., Yimfor, E., 2024. Venturing into racial diversity on startup boards. Research Paper 4622698, Columbia Business School, https://dx.doi.org/10.2139/ssrn.4622698.

Delis, M. D., Gaganis, C., Hasan, I., Pasiouras, F., 2017. The effect of board directors from countries with different genetic diversity levels on corporate performance. Management Science 63, 231–249.

Demsetz, H., Lehn, K., 1985. The structure of corporate ownership: Causes and consequences. Journal of Political Economy 93, 1155–1177.

Denes, M., Seppi, D. J., 2023. Racial Dynamics in the U.S.: Evidence from the Stock Market. Working Paper 4005677, Social Science Research Network, https://dx.doi.org/10.2139/ssrn.4005677.

Dixon-Fyle, S., Dolan, K., Vivian Hunt, D., Prince, S., 2020. Diversity wins: How inclusion matters. White paper, McKinsey & Company, https://mck.co/2ZMiV76.

Dixon-Fyle, S., Huber, C., del Mar Martinez Marquez, M., Prince, S., Thomas, A., 2023. Diversity Matters Even More: The Case for Holistic Impact. White paper, McKinsey & Company, https://mck.co/3R1CmTm.

Donaldson, J. R., Malenko, N., Piacentino, G., 2020. Deadlock on the board. The Review of Financial Studies 33, 4445–4488.

Dube, S., Lee, H. S. G., Wang, D., 2023. Do Consumers Vote With Their Feet in Response to Negative ESG News? Evidence From Consumer Foot Traffic to Retail Locations. Working Paper 4506950, Social Science Research Network, https://dx.doi.org/10.2139/ssrn.4506950.

Duchin, R., Matsusaka, J. G., Ozbas, O., 2010. When are outside directors effective? Journal of Financial Economics 96, 195–214.

Eckbo, B. E., Nygaard, K., Thorburn, K. S., 2022. Valuation Effects of Norway's Board Gender-Quota Law Revisited. Management Science 68, 4112–4134.

Erhardt, N. L., Werbel, J. D., Shrader, C. B., 2003. Board of director diversity and firm financial performance. Corporate governance: An international review 11, 102–111.

Field, L. C., Souther, M. E., Yore, A. S., 2020. At the table but can not break through the glass ceiling: Board leadership positions elude diverse directors. Journal of Financial Economics 137, 787–814.

Fos, V., Jiang, W., Nie, H., 2024. A Diverse View on Board Diversity. Working Paper 4667857, Social Science Research Network, https://dx.doi.org/10.2139/ssrn.4667857.

Fried, J. M., 2021. Will Nasdaq's Diversity Rules Harm Investors? Harvard Business Law Review Online 12, 1.

Frijns, B., Dodd, O., Cimerova, H., 2016. The impact of cultural diversity in corporate boards on firm performance. Journal of Corporate Finance 41, 521–541.

Gertsberg, M., Mollerstrom, J., Pagel, M., 2021. Gender Quotas and Support for Women in Board Elections. Working Paper 28463, National Bureau of Economic Research, http://www.nber.org/papers/w28463.

Giannetti, M., Zhao, M., 2019. Board ancestral diversity and firm-performance volatility. Journal of Financial and Quantitative Analysis 54, 1117–1155.

Greene, D., Intintoli, V. J., Kahle, K. M., 2020. Do board gender quotas affect firm value? Evidence from California Senate Bill No. 826. Journal of Corporate Finance 60, 101526.

Hermalin, B. E., Weisbach, M. S., 1998. Endogenously Chosen Boards of Directors and Their Monitoring of the CEO. American Economic Review pp. 96–118.

Hwang, S., Shivdasani, A., Simintzi, E., 2021. Mandating Women on Boards: Evidence from the United States. Research Paper No. 18-34, Kenan Institute of Private Enterprise, https://dx.doi.org/10.2139/ssrn.3265783.

Knyazeva, A., Knyazeva, D., Naveen, L., 2021. Diversity on corporate boards. Annual Review of Financial Economics 13, 301–320.

Knyazeva, A., Knyazeva, D., Raheja, C. G., 2023. Benefits of Focus vs. Heterogeneity: An Analysis of Corporate Boards. Meetings Paper 1364947, AFA 2010 Atlanta, https://dx.doi.org/10.2139/ssrn.1364947.

Liu, Y., Wei, Z., Xie, F., 2014. Do women directors improve firm performance in china? Journal of Corporate Finance 28, 169–184.

Matos, P., 2020. ESG and Responsible Institutional Investing Around the World: A Critical Review. CFA Institute Research Foundation Literature Reviews, CFA Institute Research Foundation.

Matsa, D. A., Miller, A. R., 2013. A Female Style in Corporate Leadership? Evidence from Quotas. American Economic Journal: Applied Economics 5, 136–69.

Meier, J.-M., Servaes, H., Wei, J., Xiao, S. C., 2023. Do Consumers Care About ESG? Evidence from Barcode-Level Sales Data. Finance Working Paper No. 926/2023, European Corporate Governance Institute, https://dx.doi.org/10.2139/ssrn.4260716.

Montiel Olea, J. L., Pflueger, C., 2013. A Robust Test for Weak Instruments. Journal of Business & Economic Statistics 31, 358–369.

Nagar, A. L., 1959. The Bias and Moment Matrix of the General k-Class Estimators of the Parameters in Simultaneous Equations. Econometrica 27, 575–595.

Nguyen, B. D., Nielsen, K. M., 2010. The value of independent directors: Evidence from sudden deaths. Journal of Financial Economics 98, 550–567.

Page, S. E., 2007. The difference: How the power of diversity creates better groups, firms, schools, and societies. Princeton University Press.

Pajuste, A., Dzabarovs, M., Madesovs, R., 2024. Boardroom racial diversity: Evidence from the Black Lives Matter protests. Corporate Governance: An International Review 32, 170–189.

Pande, R., 2003. Can Mandated Political Representation Increase Policy Influence for Disadvantaged Minorities? Theory and Evidence from India. American Economic Review 93, 1132–1151.

Reguera-Alvarado, N., De Fuentes, P., Laffarga, J., 2017. Does Board Gender Diversity Influence Financial Performance? Evidence from Spain. Journal of Business Ethics 141, 337–350.

Ryan, M. K., Haslam, S. A., 2005. The Glass Cliff: Evidence that Women are Over-Represented in Precarious Leadership Positions. British Journal of Management 16, 81–90.

Sah, R. K., Stiglitz, J. E., 1991. The Quality of Managers in Centralized Versus Decentralized Organizations. The Quarterly Journal of Economics 106, 289–295.

Von Meyerinck, F., Niessen-Ruenzi, A., Schmid, M., Solomon, S. D., 2024. As California Goes, So Goes the Nation? Board Gender Quotas and Shareholders' Distaste of Government Interventions. Finance Working Paper No. 785/2021, European Corporate Governance Institute, https://dx.doi.org/10.2139/ssrn.3303798.

Xiao, Z., Zheng, X., Zheng, Y., 2023. The Economic and Financial Impact of Negative Environmental and Social Practices: Evidence from Consumer Store Visits. Working Paper 4475050, Social Science Research Network, https://dx.doi.org/10.2139/ssrn.4475050.

Zahra, S. A., Stanton, W. W., 1988. The implications of board of directors composition for corporate strategy and performance. International journal of management 5, 229–236.

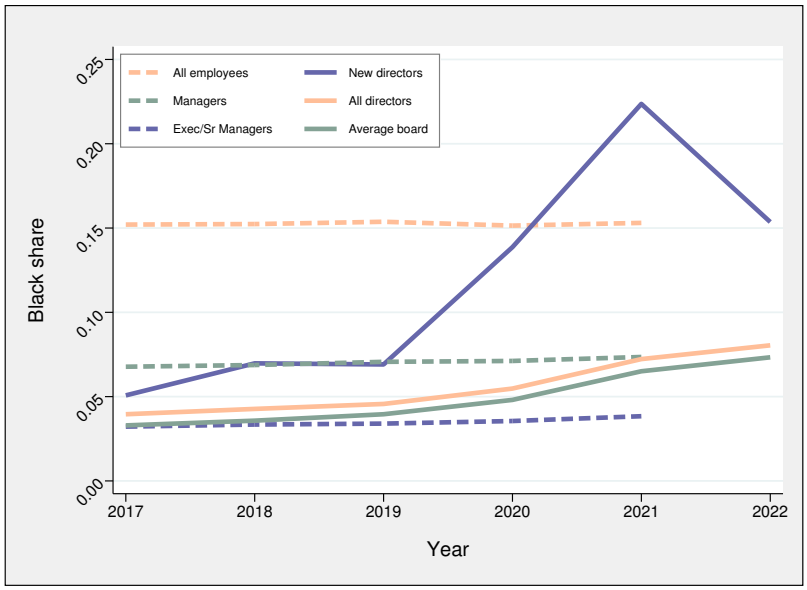


Fig. 1. Black representation by corporate role

This figure shows the Black share of various corporate roles. Dashed lines use nationally aggregated data from the EEOC form EEO-1 to calculate the Black share of all employees, managers (including executive and senior managers), and executive and senior managers. Solid lines use data from the sample outlined in Section 3.1 of the text. The "average board" is the average Black share of firms in the sample, whereas "all directors" is computed based on the racial distribution of directorships each year of the sample. The Black share of "New directors" is based upon the racial distribution of directors appointed during the calendar year.

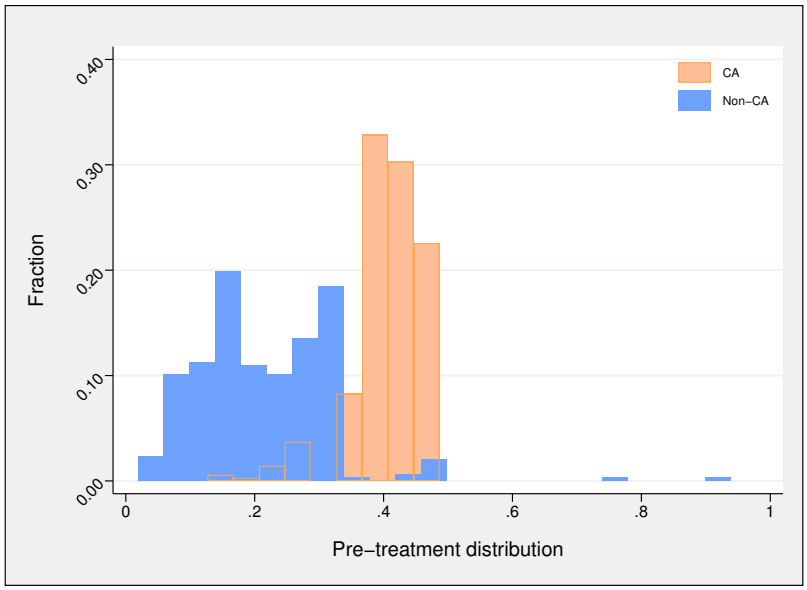


Fig. 2. Racial minority local manager share

This figure displays the distribution of initial local racial minority manager share for firms based inside and outside California. Local racial minority manager share is the proportion of the managerial labor force in the CBSA of the firms' headquarters composed of non-Whites. The sample is constructed using the sample of firms included in the analysis in Table 4.

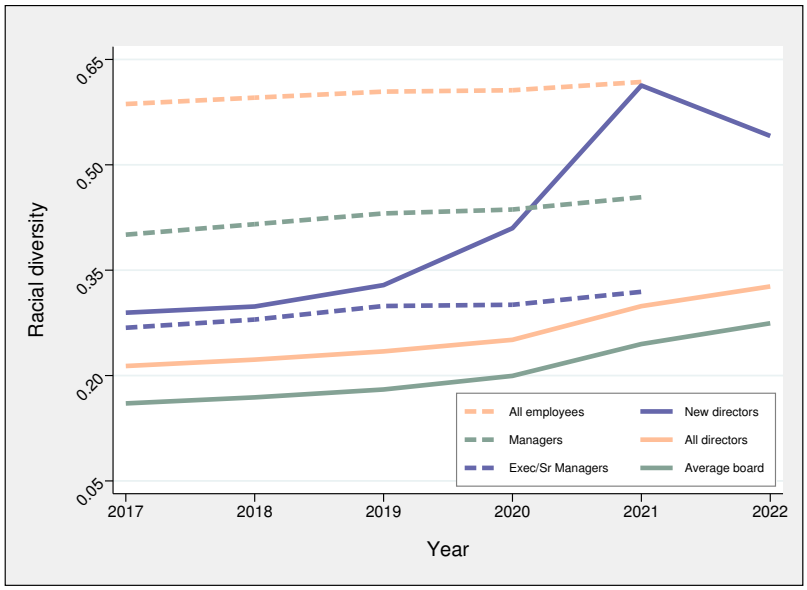


Fig. 3. Racial diversity by corporate role

This figure shows the racial diversity index of various corporate roles. Dashed lines use nationally aggregated data from the EEOC form EEO-1 to calculate the racial diversity of all employees, managers (including executive and senior managers), and executive and senior managers. Solid lines use data from the sample outlined in Section 3.1 of the text. The "average board" is the average racial diversity of firms in the sample, whereas "all directors" is computed based on the racial distribution of directorships each year of the sample. The racial diversity of "New directors" is based upon the racial distribution of directors appointed during the calendar year.

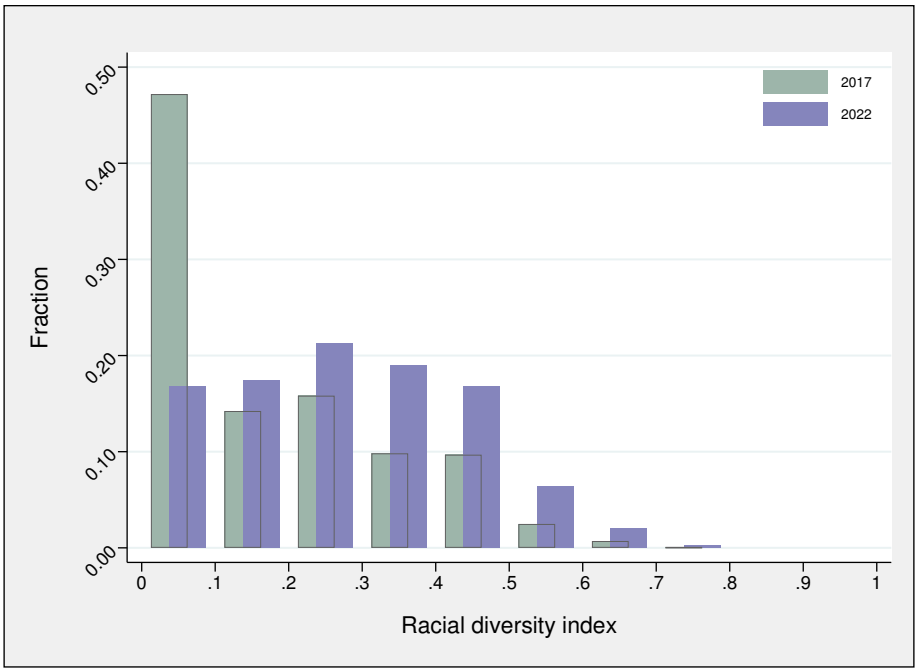


Fig. 4. Changes in the distribution of racial diversity on boards

This figure displays the distribution of the racial diversity index at the end of 2017 and at the end of 2022 using the sample of firms summarized in Table 1.

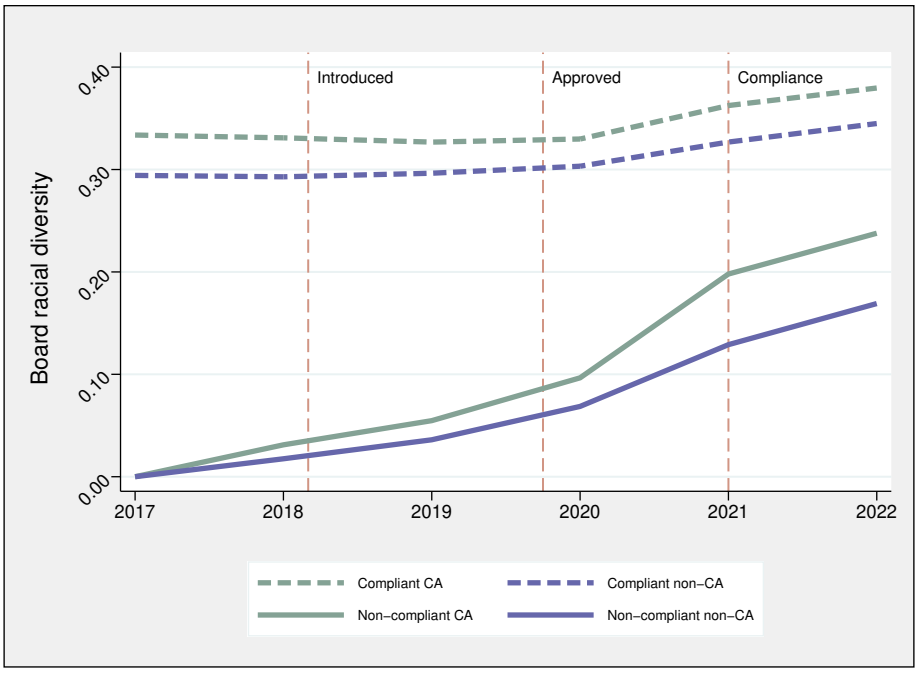


Fig. 5. Trends in board racial diversity by California law subgroup

This figure plots the average racial diversity each year from 2017 until 2022 for the four primary subgroups analyzed in the study: compliant firms in California, non-compliant firms in California, compliant firms outside California, and non-compliant firms outside California. Averages are computed using the sample summarized in Table 1.



(a) Board racial diversity in 2021

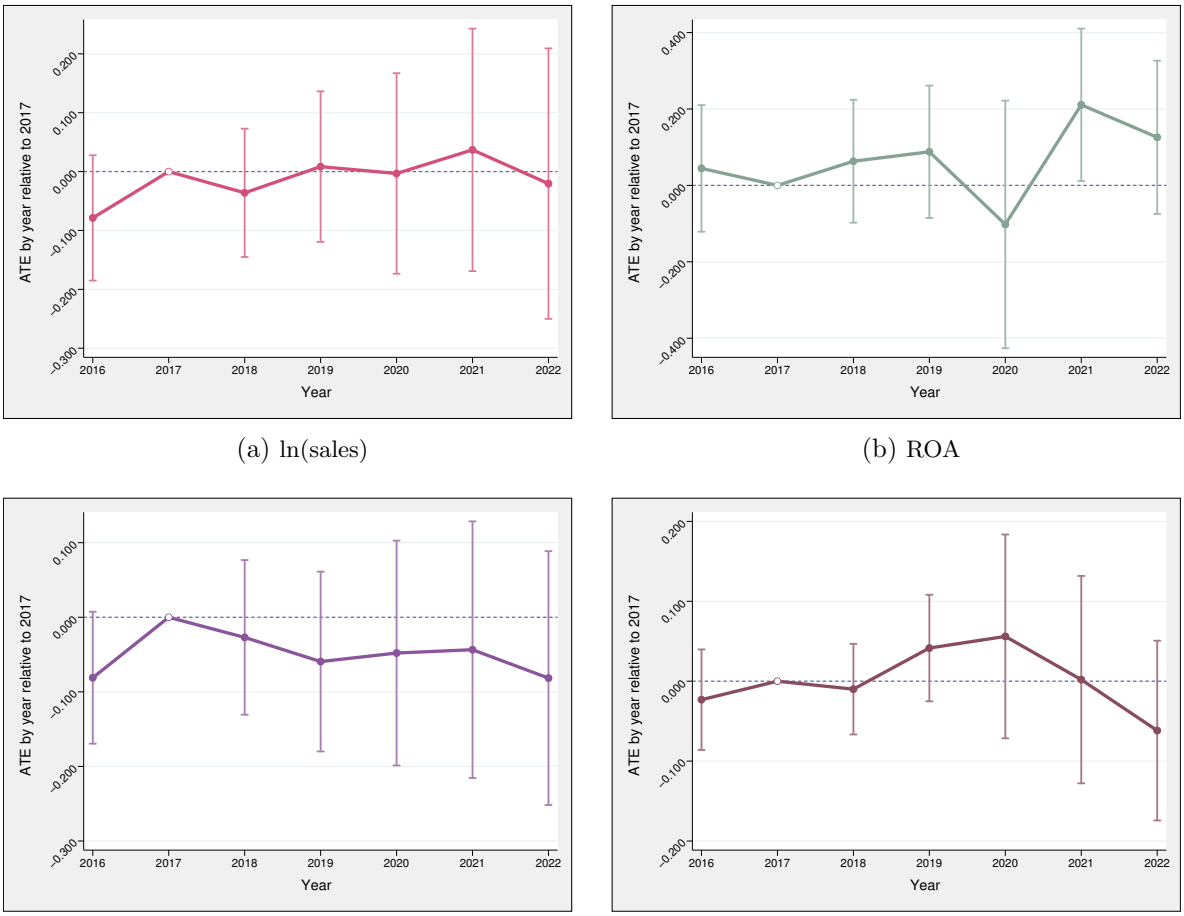
(b) Board racial diversity in 2022

(c) Return on assets in 2021

(d) Return on assets in 2022

Fig. 6. California law sequential industry exclusion analysis

These figures plot estimates and 90% confidence intervals of β_{2021} and β_{2022} from Equation (2) for over sixty sequential industry exclusion (SIE) subsamples, using both board racial diversity (Panels (a) and (b)) and ROA (Panels (c) and (d)) as dependent variables. SIE subsamples are created by removing firms belonging to one two-digit SIC industry code at a time from the sample of firms included in the analysis in Table 4. Two digit SIC codes are indicated on the horizontal axis. Confidence intervals are estimated using robust standard errors clustered by firm.



(a) ln(sales)

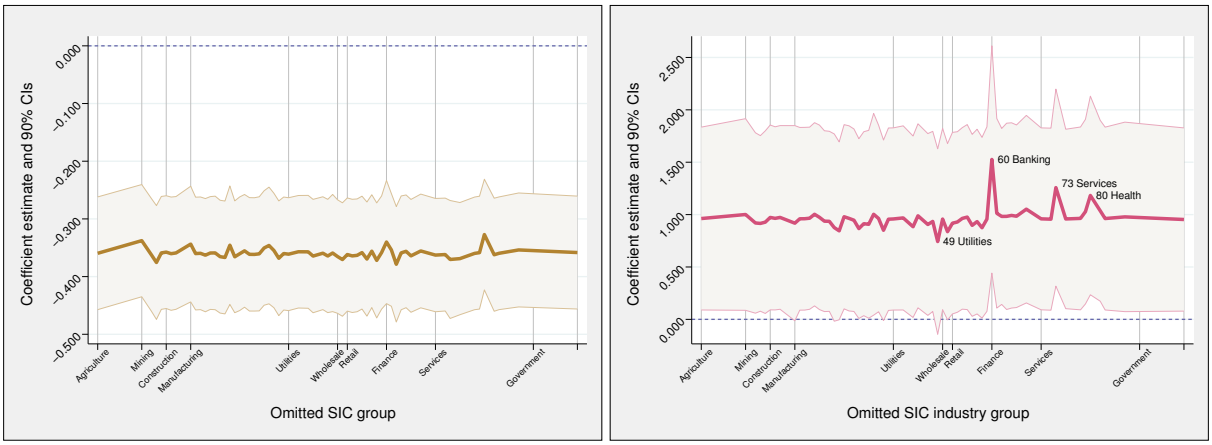
(b) ROA

(c) Tobin's Q

(d) Risk

Fig. 7. Tests of parallel trends in differences

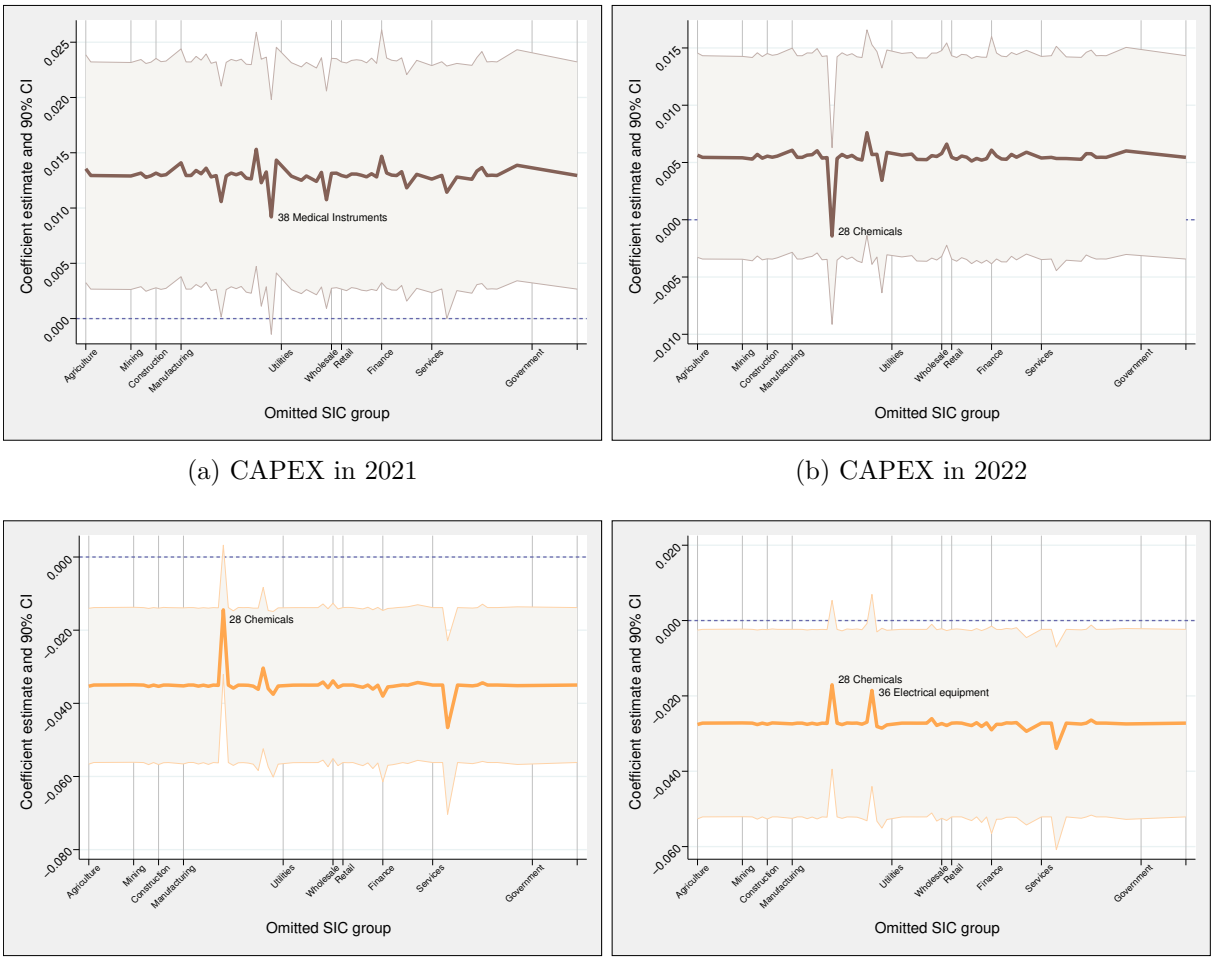
These figures show the results of tests of the parallel trends in differences assumption, plotting the estimates of the β_t's from Equation (2) and their 95% confidence intervals based on robust standard errors clustered by firm where ln(sales), ROA, Tobin's Q, and Risk are the dependent variables in Panels a, b, c, and d, respectively. The sample includes the set of firms included in the analysis in Table 4 for the years 2016 through 2022. We omit β_{2017} from the regression model, so that all estimates are relative to 2017.



(a) Board racial diversity (b) ln(sales)

Fig. 8. BLM sequential industry exclusion analysis

These figures plot estimates and 90% confidence intervals of λ_{2022} from Equation (3) (Panel a) and the second-stage IV estimates on racial diversity from Equation (4) with ln(sales) as the dependent variable (Panel b) for sixty "industry-out" subsamples. Industry-out subsamples are created by removing firms belonging to one two-digit SIC industry code at a time from the sample of firms included in the analysis in Table 7. Two digit SIC codes are indicated on the horizontal axis. Confidence intervals are estimated using robust standard errors clustered by firm.



(a) CAPEX in 2021

(b) CAPEX in 2022

(c) R&D in 2021

(d) R&D in 2022

Fig. 9. California law sequential industry exclusion analysis of corporate policies

These figures plot estimates and 90% confidence intervals of β_{2021} and β_{2022} from Equation (2) for over sixty "industry-out" subsamples, using both CAPEX (Panels (a) and (b)) and R&D (Panels (c) and (d)) as dependent variables. Industry-out subsamples are created by removing firms belonging to one two-digit SIC industry code at a time from the sample of firms included in the analysis in Table 4. Two digit SIC codes are indicated on the horizontal axis. Confidence intervals are estimated using robust standard errors clustered by firm.

Table 1: Sample summary

The table provides descriptive statistics for the main sample used in the analysis, which is described in detail in section 3.2. It includes U.S. public operating companies included in the CRSP/Compustat merged database that existed at the end of 2017 with ordinary common shares listed on the NYSE, NYSE American, or Nasdaq, with a valid match to the ISS database, and with at least seventy-five percent of directors' race identified in 2017. It excludes firms operating in SIC code 2836. The first six columns show annual sample means and the final two columns include mean and standard deviation for the 2017–2022 sample used subsequent empirical analysis.

	2017	2018	2019	2020	2021	2022	Mean	SD
Panel A: Board characteristics								
Racial diversity	0.16	0.17	0.18	0.20	0.24	0.28	0.20	0.18
Black (%)	3.48	3.79	4.17	5.04	6.77	7.65	5.03	7.66
Minority, not black (%)	7.44	7.72	7.95	8.19	9.53	10.72	8.50	13.36
Board size	8.91	8.96	9.12	9.22	9.30	9.47	9.15	2.56
Director age	61.37	61.63	61.91	62.20	62.24	62.47	61.94	4.44
Director tenure	8.21	8.27	8.37	8.48	8.46	8.53	8.38	4.27
New appointments								
Directors	0.78	0.79	0.81	0.81	0.83	0.73	0.79	1.06
Black (%)	5.72	7.46	6.80	15.20	25.64	16.30	12.56	29.73
Minority, not black (%)	11.04	10.41	12.49	10.49	20.45	21.08	14.05	31.28
Panel B: Firm characteristics								
ln(Sales)	6.50	6.61	6.72	6.71	6.88	7.03	6.73	2.24
ROA	-0.02	-0.01	-0.01	-0.03	0.01	0.02	-0.01	0.22
ln(TobinsQ)	0.54	0.46	0.49	0.51	0.56	0.42	0.50	0.59
Risk	0.35	0.38	0.38	0.59	0.44	0.42	0.42	0.27
CAPEX	0.04	0.04	0.04	0.03	0.03	0.03	0.04	0.05
Acquisitions	0.03	0.03	0.03	0.02	0.03	0.02	0.03	0.08
R&D	0.05	0.04	0.04	0.04	0.04	0.03	0.04	0.10
Cash	0.20	0.18	0.17	0.23	0.22	0.15	0.19	0.29
Leverage	0.28	0.28	0.32	0.33	0.31	0.30	0.30	0.28
Payouts	0.03	0.04	0.03	0.03	0.04	0.04	0.04	0.06
Market capitalization ($bn)	9.36	9.36	11.69	14.42	18.91	16.72	13.13	65.66
California firms	0.15	0.15	0.15	0.15	0.14	0.15	0.15	0.35
Non-compliant firms	0.47	0.47	0.46	0.46	0.46	0.45	0.46	0.50
California × Non-compliant	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.24
Observations	2,440	2,419	2,272	2,164	2,042	1,958	13,295	

Table 2: Board racial diversity, firm value, performance, and risk

The table reports Ordinary Least Squares (OLS) regression results of ln(sales), firm value (ln(Tobin's Q), accounting performance (ROA), and risk (Idiosyncratic volatility) on board racial diversity using firm-year observations from the sample summarized in Table 1 that runs from 2017-2022. Even columns report regression results using the model in Equation (1). Odd columns do not include firm fixed effects. In Panel A, racial diversity is measured contemporaneously with the firm level outcome variable and in Panel B it is lagged one year. All models include industry by year fixed effects where industry is measured by 2-digit SIC code. For each covariate the table displays coefficient estimates with t-statistics based on robust standard errors clustered by firm below in parenthesis. Significance at the 1, 5, and 10% levels are denoted by ***,**, and * respectively.

	ln(Sales)		ROA		ln(Tobin's Q)		Risk	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Contemporaneous racial diversity								
Racial diversity	4.038***	0.108*	0.079***	−0.014	0.206***	−0.014	−0.207***	−0.077***
	(17.620)	(1.807)	(3.669)	(−0.795)	(3.720)	(−0.334)	(−8.556)	(−3.716)
Firm FE	No	Yes	No	Yes	No	Yes	No	Yes
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,295	13,295	13,295	13,295	13,295	13,295	13,295	13,295
R-squared	0.306	0.986	0.120	0.797	0.273	0.873	0.247	0.781
Panel B: Lagged racial diversity								
Racial diversity	3.877***	0.044	0.070***	−0.016	0.146**	−0.073*	−0.182***	−0.036*
	(16.441)	(0.724)	(3.272)	(−0.888)	(2.571)	(−1.666)	(−7.380)	(−1.656)
Firm FE	No	Yes	No	Yes	No	Yes	No	Yes
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,171	13,171	13,171	13,171	13,171	13,171	13,171	13,171
R-squared	0.299	0.987	0.119	0.798	0.272	0.875	0.244	0.785

Table 3: The effect of the California law on board racial diversity

The table summarizes the impact of the California board racial diversity mandate on the board racial diversity of non-compliant, California-based firms. Odd columns display regression results from estimating Equation (2) with board racial diversity as the dependent variable using the sample of firm-year observations summarized in Table 1. Even columns show estimates of first difference models running from 2018 to 2022. This model does not include firm fixed effects since they are differenced out. Firms are defined as non-compliant (NC) if they have no minority directors at the end of 2017 and are classified as California-based (CA) if they were headquartered in California as of the end of 2017. Columns 3 and 4 show the results for mid-sized firms, which include all firms in the bottom three quartiles of 2017 market capitalization. Columns 4 and 5 show results for large firms, which include those in the top quartile. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels and standard errors clustered at the firm level.

	All		Midsize		Large	
	(1) Levels	(2) Changes	(3) Levels	(4) Changes	(5) Levels	(6) Changes
CA × NC × 2018		0.015		0.017		0.005
		(1.622)		(1.622)		(0.163)
CA × NC × 2019	0.029***	0.020**	0.028**	0.018	0.039	0.038
	(2.832)	(2.123)	(2.413)	(1.579)	(1.113)	(1.292)
CA × NC × 2020	0.037***	0.006	0.047***	0.016	0.007	−0.033
	(2.700)	(0.582)	(2.887)	(1.363)	(0.197)	(−1.122)
CA × NC × 2021	0.080***	0.047***	0.102***	0.061***	0.006	−0.010
	(4.503)	(3.197)	(4.834)	(3.580)	(0.184)	(−0.278)
CA × NC × 2022	0.076***	−0.003	0.102***	0.002	−0.019	−0.026
	(4.073)	(−0.230)	(4.594)	(0.126)	(−0.537)	(−1.005)
CA × 2018		−0.006		−0.007		−0.003
		(−0.913)		(−0.880)		(−0.291)
CA × 2019	−0.013*	−0.010	−0.011	−0.007	−0.015	−0.014
	(−1.805)	(−1.504)	(−1.270)	(−0.869)	(−1.163)	(−1.206)
CA × 2020	−0.013	0.001	−0.018	−0.005	−0.003	0.011
	(−1.495)	(0.184)	(−1.599)	(−0.587)	(−0.219)	(1.013)
CA × 2021	−0.009	0.002	−0.019	−0.004	0.011	0.016
	(−0.869)	(0.228)	(−1.378)	(−0.431)	(0.704)	(1.178)
CA × 2022	−0.003	0.009	−0.012	0.010	0.011	0.000
	(−0.263)	(1.332)	(−0.823)	(1.112)	(0.649)	(0.037)
NC × 2018		0.019***		0.021***		0.029***
		(6.143)		(5.204)		(3.665)
NC × 2019	0.021***	0.011***	0.024***	0.013***	0.025***	0.010
	(6.191)	(3.588)	(5.701)	(3.420)	(3.094)	(1.303)
NC × 2020	0.048***	0.027***	0.052***	0.028***	0.066***	0.042***
	(10.637)	(7.591)	(9.430)	(6.630)	(6.438)	(4.679)
NC × 2021	0.083***	0.034***	0.086***	0.033***	0.123***	0.056***
	(14.069)	(7.580)	(11.888)	(6.119)	(9.581)	(5.078)
NC × 2022	0.107***	0.024***	0.108***	0.023***	0.158***	0.033***
	(16.547)	(6.062)	(13.724)	(4.761)	(11.512)	(3.496)
Firm FE	Yes	No	Yes	No	Yes	No
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,295	10,843	9,560	7,743	3,730	3,058
R-squared	0.861	0.089	0.846	0.101	0.874	0.156

Table 4: The effect of the California law on firm value performance and risk

This table reports the impact of the California board racial diversity mandate on firm performance, value, and risk. It shows regression results from estimating Equation (2) using the sample of midsize firms included in columns 3 and 4 of Table 3. Like the previous Table, odd columns show results for the fixed effects model and even columns report results for first difference models. For brevity, only the estimates on the β_t's are reported. Non-compliance (NC) and California-based (CA) are defined as before. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels and standard errors clustered at the firm level.

	ln(Sales)		ROA		ln(Tobin's Q)		Risk	
	(1) Levels	(2) Changes	(3) Levels	(4) Changes	(5) Levels	(6) Changes	(7) Levels	(8) Changes
CA × NC × 2018		−0.013		−0.012		−0.001		−0.003
		(−0.299)		(−0.450)		(−0.026)		(−0.132)
CA × NC × 2019	0.020	0.033	0.011	0.015	−0.059	−0.034	0.029	0.037
	(0.404)	(0.834)	(0.488)	(0.575)	(−1.305)	(−0.795)	(1.105)	(1.433)
CA × NC × 2020	0.005	0.004	0.018	0.025	−0.026	0.009	−0.001	−0.022
	(0.066)	(0.087)	(0.569)	(0.791)	(−0.433)	(0.183)	(−0.035)	(−0.602)
CA × NC × 2021	0.044	0.039	0.082**	0.067*	−0.040	−0.043	0.012	−0.016
	(0.458)	(0.890)	(2.422)	(1.801)	(−0.546)	(−0.777)	(0.304)	(−0.375)
CA × NC × 2022	−0.010	−0.026	0.014	−0.070**	−0.058	−0.017	−0.037	−0.055
	(−0.096)	(−0.561)	(0.397)	(−2.120)	(−0.766)	(−0.343)	(−1.006)	(−1.413)
Firm FE	Yes	No	Yes	No	Yes	No	Yes	No
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,560	7,743	9,560	7,743	9,560	7,743	9,560	7,743
R-squared	0.978	0.161	0.794	0.067	0.843	0.154	0.757	0.337

Table 5: The effect of the California law: robustness

This table reports estimates of β_{2022} from Equation (2), their significance levels, and sample size (N), for alternative samples to that used in the main analysis in Tables 4. The dependent variables follow those in Table 4. The first row shows estimates from Table 4 for comparison purposes. The second column uses the propensity-score-matched sample described in Section 4.3.2. The third row includes the control variables discussed in that same section. Rows four through add back firms that were filtered out of the main sample. Row four includes firms in the top size quartile. Row five includes vaccine producers; firms in SIC code 2836. Row six includes firms that changed their state of headquarters during the sample period. Row seven removes Nasdaq-listed firms from the main sample. Row eight removes firms in the financial and utilities sectors. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels and standard errors clustered at the firm level.

	California × Non-compliant × 2022					
	(1) Diversity	(2) ln(Sales)	(3) ROA	(4) ln(TobinsQ)	(5) Risk	N
Baseline estimates	0.102***	−0.010	0.014	−0.058	−0.037	9,560
Propensity score matching	0.086***	0.001	0.004	0.004	−0.000	2,843
Including controls	0.097***	−0.002	0.007	−0.059	−0.037	9,560
Including large firms	0.076***	−0.068	0.013	−0.099	−0.029	13,295
Including vaccine producers	0.101***	0.040	−0.010	−0.017	−0.022	10,537
Including headquarter movers	0.087***	−0.002	0.011	−0.053	−0.043	10,213
All firms	0.065***	0.004	−0.011	−0.064	−0.031	15,375
Removing Nasdaq-listed firms	0.115***	−0.268	−0.003	−0.018	0.032	3,692
Removing finance and utilities	0.104***	0.010	0.021	−0.044	−0.063	7,186

Table 6: Board racial diversity and initial Black board share

This table reports first-stage regression results from estimating Equation (3) using the sample of firm-year observations from 2018 to 2022 outlined in Section 3.2. The dependent variable is board racial diversity. For brevity, only λ_t and ω_t estimates are reported. All models include firm and industry by year fixed effects using two-digit SIC codes. In column(s) 2 (3 and 4) the sample includes firms whose initial market capitalization is below (above) the median in the sample. Results reported in column 5 include a propensity-score-matched sample, which is constructed through one-to-one matching without replacement using the model shown in column 4 of Table A6 in the Appendix to match firms to those without Black directors in 2018. The matching is done once in 2018 and matched firms are included throughout the sample period. We include year by industry fixed effects using the two-digit SIC codes. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels, and t-statistics shown in parentheses are based on standard errors clustered at the firm level. We report the Montiel Olea and Pflueger (2013) effective F statistic for the excluded instruments and 5% critical values for the null hypothesis that the respective Nagar (1959) bias exceeds 10% of the worst-case benchmark.

	(1) All	(2) Small	(3) Large	(4) Large	(5) Large PSM
IBBS × 2020	−0.163***	−0.123**	−0.117***	−0.096**	−0.108**
	(−4.860)	(−2.128)	(−2.780)	(−2.432)	(−1.991)
IBBS × 2021	−0.237***	−0.096	−0.295***	−0.274***	−0.350***
	(−5.348)	(−1.160)	(−5.327)	(−5.017)	(−4.831)
IBBS × 2022	−0.302***	−0.189*	−0.360***	−0.337***	−0.424***
	(−5.617)	(−1.724)	(−6.060)	(−5.708)	(−5.464)
IMBS × 2020	−0.169***	−0.127***	−0.200***	−0.184***	−0.201***
	(−8.627)	(−5.527)	(−6.870)	(−6.838)	(−5.060)
IMBS × 2021	−0.310***	−0.251***	−0.397***	−0.380***	−0.383***
	(−11.163)	(−6.730)	(−9.756)	(−9.856)	(−7.273)
IMBS × 2022	−0.397***	−0.325***	−0.510***	−0.493***	−0.502***
	(−10.869)	(−6.030)	(−12.220)	(−12.387)	(−9.079)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year × Industry FE	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	No	No
Observations	9,955	4,563	5,355	5,355	3,230
R-squared	0.871	0.848	0.872	0.871	0.871
Effective F statistic	22.541	2.092	24.921	22.868	21.290
Critical value (α=5%, τ=10%)	17.473	17.773	17.239	17.543	17.953

Table 7: IV estimates of the effect of board racial diversity on firm performance, value, and risk

This table reports the relationship between board racial diversity and firm outcomes by showing OLS estimates (Panel A), second-stage estimates (Panel B), and reduced form estimates (Panel C) using the sample of above median size firms from columns 3-5 in Table 6. Each of the panels displays estimates using our baseline model that includes controls, the baseline model without controls, and the sample matched on the propensity score (PSM) for each of our four main dependent variables. All models include firm fixed effects and industry by year fixed effects. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels, and t-statistics shown in parentheses are based on standard errors clustered at the firm level.

Panel A: OLS

	ln(Sales)			ROA			ln(Tobin's Q)			Risk		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM
Racial diversity	0.015	0.029	0.026	0.003	0.002	0.024	0.064	0.056	0.040	−0.037	−0.046**	−0.072**
	(0.202)	(0.352)	(0.222)	(0.179)	(0.120)	(1.055)	(1.224)	(1.035)	(0.576)	(−1.597)	(−2.002)	(−2.489)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No
Observations	5,355	5,355	3,230	5,355	5,355	3,230	5,355	5,355	3,230	5,355	5,355	3,230

Panel B: Two-stage least squares

	ln(Sales)			ROA			ln(Tobin's Q)			Risk		
	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM
Racial diversity	0.962*	1.612***	0.395	0.129	0.087	0.132	−0.275	−0.473	0.278	−0.042	0.062	0.132
	(1.815)	(2.618)	(0.669)	(1.219)	(0.736)	(1.207)	(−0.790)	(−1.259)	(0.758)	(−0.301)	(0.445)	(0.857)

Panel C: Reduced form

	ln(Sales)			ROA			ln(Tobin's Q)			Risk		
	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM
IBBS × 2020	0.056	−0.148	0.014	−0.005	0.014	0.032	−0.250**	−0.188*	−0.309**	−0.104	−0.138**	−0.055
	(0.448)	(−1.178)	(0.085)	(−0.142)	(0.363)	(0.670)	(−2.276)	(−1.844)	(−2.377)	(−1.531)	(−1.979)	(−0.588)
IBBS × 2021	−0.358**	−0.569***	−0.265	−0.052	−0.036	−0.063	−0.126	−0.061	−0.137	0.010	−0.025	−0.060
	(−2.192)	(−3.387)	(−1.152)	(−1.390)	(−0.914)	(−1.343)	(−0.974)	(−0.488)	(−0.838)	(0.158)	(−0.414)	(−0.671)
IBBS × 2022	−0.258	−0.453**	−0.060	−0.035	−0.017	−0.032	0.182	0.243*	−0.162	−0.007	−0.044	−0.057
	(−1.410)	(−2.450)	(−0.238)	(−0.857)	(−0.384)	(−0.629)	(1.395)	(1.833)	(−1.001)	(−0.135)	(−0.883)	(−0.892)

Table 8: IV estimates of the effect of board racial diversity: robustness

This table reports first- and second-stage estimates from Equations (3) and (4), their significance levels, and sample size (N), for alternative samples to that used in the main analysis in Table 7. The dependent variables follow those in Table 7. The first row shows estimates from Table 7, Panel B and Table 6, column 3 for comparison purposes. Rows two through five add back firms that were filtered out of the main sample. Row two includes firms below median size. Row three includes vaccine producers; firms in SIC code 2836. Row four includes firms headquartered in California. Row five includes firms with high initial Black board share. Row six removes Nasdaq-listed firms from the main sample. Row seven removes firms in the financial and utilities sectors. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels and standard errors clustered at the firm level.

	Instrument	Instrumented racial diversity				
	(1)	(2)	(3)	(4)	(5)	
	× 2022	ln(Sales)	ROA	ln(TobinsQ)	Risk	N
Baseline estimates	−0.360***	0.962*	0.129	−0.275	−0.042	5,355
Including small firms	−0.302***	0.664	−0.111	0.096	−0.019	9,955
Including vaccine producers	−0.343***	1.203*	0.162	−0.301	−0.067	5,474
Including CA firms	−0.373***	0.894**	0.142	0.036	−0.161	6,368
Including high black board share	−0.275***	0.995	0.083	−0.341	0.042	5,416
Removing Nasdaq-listed firms	−0.359***	0.850	0.066	−0.568	0.035	3,500
Removing finance and utilities	−0.348***	1.650**	0.155	−0.504	0.003	3,985

Table 9: The effect of board racial diversity on investment, financial, and payout policies

Panel A of this table reports the impact of the California board racial diversity law on three measures of investing activity: capital expenditures to assets (CAPEX), acquisitions to assets (Acquisitions), and R&D expenditures to assets (R&D); two measures of financing activities: cash to assets (Cash) and book leverage (Leverage); and a measure of shareholder distributions: payouts, which is repurchases and dividends to assets. It shows regression results from estimating Equation (2) using the sample of midsize firms included in columns 3 and 4 of Table 3. For brevity, only the estimates on the β_t's are reported. Non-compliance (NC) and California-based (CA) are defined as before. Panel B reports second-stage estimates from Equation (4) for these same policies. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels and standard errors clustered at the firm level.

Panel A: California law

	(1) CAPEX	(2) Acquisitions	(3) R&D	(4) Cash	(5) Leverage	(6) Payouts
CA × NC × 2019	0.001	0.010	0.008	0.045	−0.055*	0.001
	(0.356)	(0.768)	(0.807)	(1.120)	(−1.759)	(0.092)
CA × NC × 2020	0.000	0.013	−0.010	0.065	−0.029	0.003
	(0.034)	(0.948)	(−0.821)	(1.100)	(−0.950)	(0.400)
CA × NC × 2021	0.013**	0.017	−0.035***	0.010	−0.072*	0.011
	(2.073)	(1.089)	(−2.720)	(0.165)	(−1.788)	(1.308)
CA × NC × 2022	0.005	0.008	−0.027*	0.058	−0.038	0.002
	(1.010)	(0.530)	(−1.800)	(1.400)	(−0.934)	(0.184)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,560	9,560	9,560	9,560	9,560	9,560
R-squared	0.781	0.318	0.870	0.670	0.774	0.645

Panel B: IV estimates

	(1) CAPEX	(2) Acquisitions	(3) R&D	(4) Cash	(5) Leverage	(6) Payouts
Racial diversity	−0.019	0.075	−0.046	0.075	−0.096	0.031
	(−0.511)	(0.639)	(−1.580)	(0.418)	(−0.441)	(0.427)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,355	5,355	5,355	5,355	5,355	5,355

Table 10: The effect of board racial diversity on board characteristics

Column 1 in this table shows the coefficient estimates of "CA × NC × 2021" and their significance levels for regressions of various average board characteristics using the sample and model from even columns of Table 4. Column 2 reports analogous second-stage IV estimates and significance levels from estimating Equation (4) using the baseline BLM sample used in Table 7. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels and standard errors clustered at the firm level.

	(1) CA law	(2) IV estimates
Board size	0.214	−0.991
Independence	−0.000	0.221
Executive	−0.006	−0.087
Diversity index (ex-race)	0.016**	−0.084
Diversity index (with race)	0.023***	0.132*
Board experience		
Experience diversity	0.024	−0.316*
Concurent boards	0.591**	−0.151
Previous boards	−0.006	0.080
Education		
Educational diversity	0.014*	0.098
Business	0.020*	−0.339*
MBA	0.017	−0.112
Law	−0.002	0.188
Medical	0.006	−0.009
Science	0.014	−0.030
Arts	−0.011	0.220
Graduate degree	0.002	0.234
PhD	−0.009	−0.055
Ivy league	−0.007	0.114
Work experience		
Work diversity	0.008	−0.027
Finance	0.009	−0.160
STEM	0.003	0.019
Marketing	−0.010	0.109
Sales	−0.003	0.095
HR	0.000	0.053
ESG	−0.000	0.012
Law	−0.005	0.008
Entrepreneurship	−0.000	−0.094
Strategy	−0.002	0.102
Academic	−0.015*	−0.132
CEO	−0.009	0.012
CFO	0.014	−0.107
Demographics		
Generational diversity	0.006	−0.141
Age	−0.264	3.113
Women	0.005	0.273**
Minority	0.033***	0.537***
Observations	7,556	5,355

Table 11: Heterogeneous effects of board racial diversity

Panel A of this table reports estimates of β_{2022} from Equation (2) and their significance levels for subsamples of our main analysis in Table 4. Panel B reports the first- and second-stage estimates from IV regressions that include two endogenous regressors, which are interaction terms between racial diversity and dummy variables that indicate each subsample. For example, when splitting the sample based on board size, the endogenous regressors are now *Racial Diversity* × *Small boards* and *Racial Diversity* × *Large boards*. Columns 2 through 5 of the Table report IV estimates for each these terms for our four main outcomes. The first stage regression includes six instruments. Each of our previous instruments is interacted with each of these characteristic dummy variables. Also included in the model is one of the subsample indicator variables interacted with the *post-BLM* indicator, similarly to all of our other control variables. In column 1 of Panel B, we report the coefficient estimates on IBBS interacted with 2022 and these indicators, showing the cumulative effect of *IBBS* on *Racial Diversity* for each subsample. Equations (IA.1) to (IA.3) show these specifications in the Internet Appendix. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels and standard errors clustered at the firm level.

Panel A: Triple difference estimates

	California × Non-compliant × 2022				
	(1) Diversity	(2) ln(Sales)	(3) ROA	(4) ln(TobinsQ)	(5) Risk
Small firms	0.109***	0.107	0.051	−0.009	−0.034
Large firms	0.075***	−0.113	−0.041	−0.101	−0.054*
Small boards	0.091***	−0.006	0.055	−0.073	−0.054
Large boards	0.088**	−0.068	−0.044	−0.005	−0.026
Young firms	0.087***	0.031	0.014	−0.194	−0.072
Old firms	0.103***	−0.118	−0.010	0.121	−0.002
Low R&D	0.072**	−0.089	−0.035	0.064	0.031
High R&D	0.118***	−0.037	0.040	−0.112	−0.093*

Panel B: IV estimates

	Instrument	Instrumented racial diversity			
	(1) × 2022	(2) ln(Sales)	(3) ROA	(4) ln(TobinsQ)	(5) Risk
Small firms	−0.395***	1.176**	0.103	−0.218	−0.196
Large firms	−0.337***	0.787	0.171	−0.182	0.298*
Small boards	−0.355***	1.220**	0.180	−0.593	−0.076
Large boards	−0.350***	0.665	0.080	0.042	−0.014
Young firms	−0.433***	1.848**	0.081	−0.264	−0.020
Old firms	−0.348***	0.796	0.149	−0.221	−0.026
Low R&D	−0.341***	0.961*	0.148	−0.351	−0.085
High R&D	−0.393***	1.054*	0.108	−0.178	0.025
Low racial animus	−0.416***	0.629	0.002	−0.210	−0.104
High racial animus	−0.337***	1.210**	0.185*	−0.229	0.083

Appendix A. Appendix

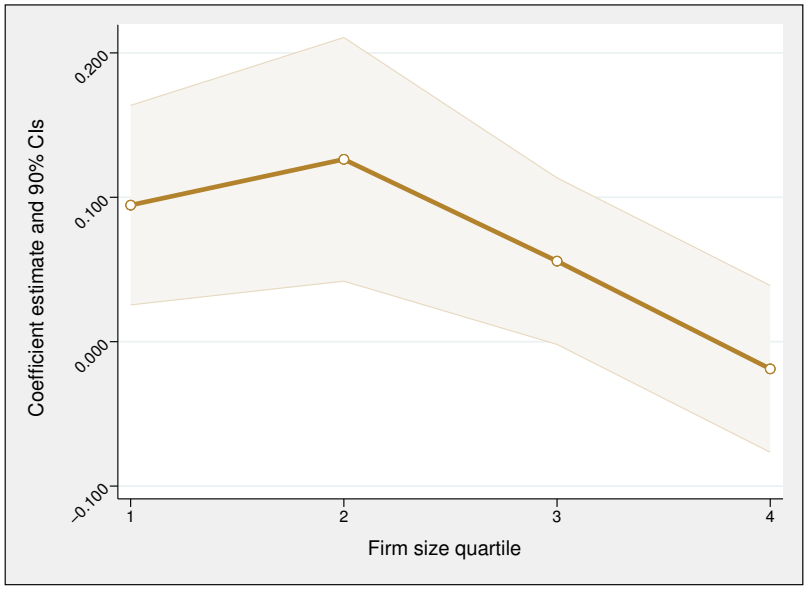
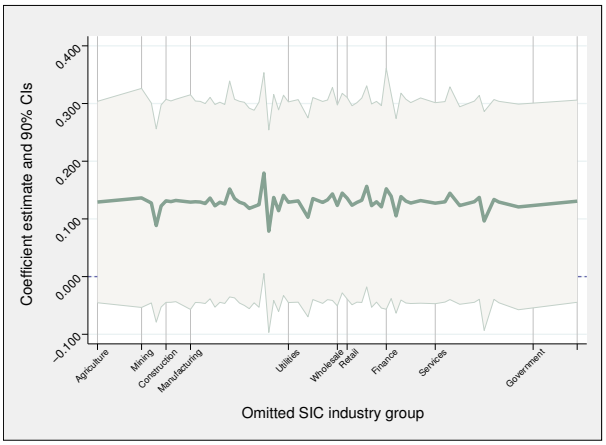
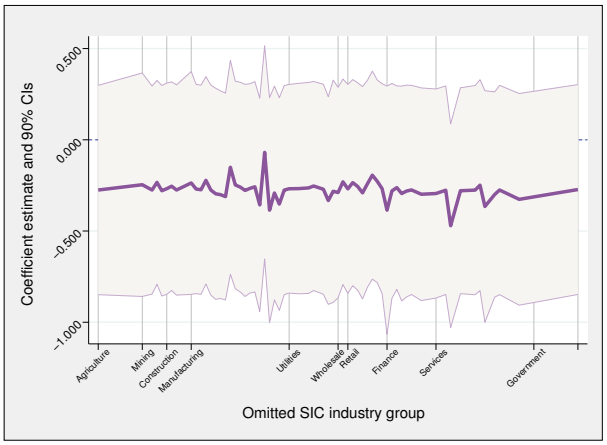


Fig. A1. 2022 Racial diversity by size quartile

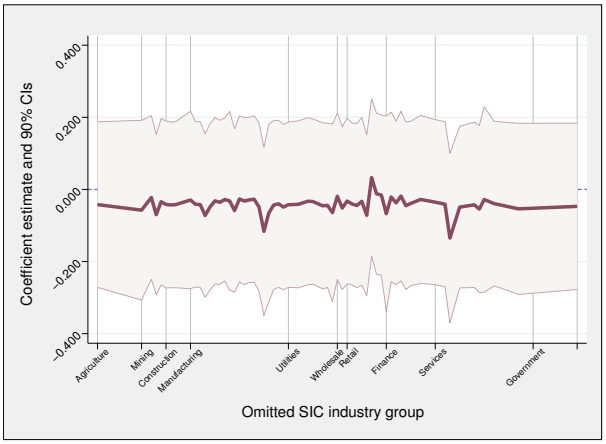
This figure plots estimates and 90% confidence intervals for λ_{2022} using the model estimated in column 1 of Table 3 in the main text for subsamples of firm size quartiles based on 2017 market capitalizations.



(a) ROA



(b) ln(Tobin's Q)



(c) Risk

Fig. A2. BLM additional sequential industry exclusion analysis

These figures plot estimates and 90% confidence intervals the second-stage IV estimates on racial diversity from Equation (4) with ROA, ln(Tobins's Q), and Risk as the dependent variables (Panels a, b, and c, respectively) for sixty SIE subsamples. SIE subsamples are created by removing firms belonging to one two-digit SIC codes at a time from the sample of firms included in the analysis in Table 7. Two digit SIC codes are indicated on the horizontal axis. Confidence intervals are estimated using robust standard errors clustered by firm.

Table A1: Sample breakdown

The sample is constructed by first identifying the ordinary common shares of firms (shrcd = 11 and 12), located in the U.S., and listed on either the NYSE, NYSE American, or the Nasdaq in 2017. We merge these share classes to Compustat North America using the CRSP/Compustat linking dataset by keeping firms with multiple share classes only once. The Compustat column lists the number of firms with valid 2017 values and subsequent annual changes to Tobin's Q and ROA. The sample tabulated in the ISS column is limited to firms with at least 75 percent of directors' race identified in ISS. In the Ex-vaccine column, firms are removed if their four-digit SIC is 2836 in 2017; the Ex-movers column removes firms if their headquarters listed in SEC regulatory filings changed during the sample period. The Midsize column excludes firms in the top quartile of 2017 market capitalization.

	Compustat	ISS	Ex-vaccine	Ex-movers	Midsize
2017	3,231	2,818	2,600	2,440	1,793
2018	3,202	2,791	2,575	2,419	1,773
2019	3,011	2,623	2,425	2,272	1,642
2020	2,838	2,504	2,317	2,164	1,547
2021	2,681	2,371	2,190	2,042	1,440
2022	2,548	2,268	2,100	1,958	1,365
Total	17,511	15,375	14,207	13,295	9,560

Table A2: California covariate balance tests

This table provides a test for differences in observable firm characteristics by regressing firm characteristics shown in column headings at end end of the firm's 2017 fiscal year on indicator variables for California firms, Non-compliant firms, the interaction of the two, and industry fixed effects. Panel A shows results for the full sample at end end of the firm's 2017 fiscal year from Table A1, and Panel B shows results limited to the sample matched on the propensity score. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels.

Panel A: Full sample

	(1) Racial diversity	(2) Board size	(3) ln(MktCap)	(4) ln(TobinsQ)	(5) ROA	(6) ln(Sales)	(7) Risk	(8) Leverage	(9) Minority managers
California × Non-compliant	−0.050***	0.780***	0.245	0.030	−0.036	0.255	0.007	0.032*	0.008
	(−4.924)	(3.534)	(1.055)	(0.457)	(−1.023)	(1.104)	(0.243)	(1.821)	(1.039)
Non-compliant	−0.291***	−1.671***	−1.473***	−0.034	−0.024**	−1.410***	0.065***	−0.015**	−0.023***
	(−79.730)	(−17.599)	(−17.778)	(−1.576)	(−2.496)	(−16.846)	(7.093)	(−2.362)	(−5.145)
CA firms	0.042***	−0.818***	−0.195	0.155***	−0.036*	−0.466***	0.056***	−0.041***	0.190***
	(4.151)	(−4.982)	(−1.122)	(3.991)	(−1.816)	(−2.746)	(3.160)	(−4.133)	(34.530)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,440	2,440	2,440	2,440	2,440	2,440	2,440	2,440	2,384
Adjusted R-squared	0.754	0.289	0.201	0.280	0.119	0.303	0.175	0.257	0.404

Panel B: Matched sample

	(1) Racial diversity	(2) Board size	(3) ln(MktCap)	(4) ln(TobinsQ)	(5) ROA	(6) ln(Sales)	(7) Risk	(8) Leverage	(9) Minority managers
California × Non-compliant	−0.041***	−0.169	−0.412	−0.123	−0.016	−0.288	−0.006	−0.000	0.014
	(−3.253)	(−0.563)	(−1.292)	(−1.317)	(−0.338)	(−0.927)	(−0.148)	(−0.004)	(1.019)
Non-compliant	−0.302***	−0.825***	−0.897***	0.084	−0.029	−0.897***	0.068**	0.018	−0.027**
	(−34.088)	(−3.794)	(−3.915)	(1.220)	(−0.860)	(−3.923)	(2.326)	(1.263)	(−2.427)
CA firms	0.035***	0.135	0.247	−0.007	−0.006	0.296	0.023	0.016	0.183***
	(2.837)	(0.620)	(1.046)	(−0.116)	(−0.199)	(1.296)	(0.932)	(1.242)	(18.133)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	710	710	710	710	710	710	710	710	697
Adjusted R-squared	0.764	0.232	0.136	0.269	0.117	0.267	0.154	0.257	0.615

Table A3: California covariate balance

The table provides means of initial firm characteristics for non-compliant firms (NC) and compliant form (C) headquartered in California and outside California, along with the results of t-tests for differences between these groups. Panel A shows results for the full sample at end end of the firm's 2017 fiscal year from Table A1, and Panel B shows results limited to the sample matched on the propensity score.

Panel A: Full sample

	California		Non-California		Differences			
	NC	C	NC	C	(1) – (2)	(3) – (4)	(1) – (3)	(2) – (4)
Racial diversity	0.000	0.338	0.000	0.293	−0.338***	−0.293***	0.000	0.045***
Board size	7.688	8.615	8.142	9.796	−0.927***	−1.654***	−0.454***	−1.181***
ln(MktCap)	6.212	7.425	6.302	7.843	−1.213***	−1.542***	−0.090	−0.418**
ln(TobinsQ)	0.836	0.757	0.469	0.520	0.079	−0.051**	0.367***	0.237***
ROA	-0.131	-0.053	-0.019	0.008	−0.078**	−0.027***	−0.112***	−0.060***
ln(Sales)	5.278	6.465	5.788	7.322	−1.186***	−1.534***	−0.509***	−0.857***
Risk	0.465	0.380	0.374	0.303	0.085***	0.071***	0.091***	0.076***
Leverage	0.135	0.111	0.158	0.174	0.024	−0.016**	−0.023	−0.063***
Minority managers	0.396	0.406	0.198	0.221	−0.010	−0.023***	0.198***	0.185***
Observations	157	205	985	1,093	362	2,078	1,142	1,298

Panel B: Matched sample

	California		Non-California		Differences			
	NC	C	NC	C	(1) – (2)	(3) – (4)	(1) – (3)	(2) – (4)
Racial diversity	0.000	0.337	0.000	0.302	−0.337***	−0.302***	0.000	0.035***
Board size	7.708	8.682	7.721	8.642	−0.974***	−0.921***	−0.013	0.040
ln(MktCap)	6.238	7.474	6.288	7.362	−1.236***	−1.073***	−0.051	0.113
ln(TobinsQ)	0.810	0.737	0.827	0.767	0.073	0.060	−0.017	−0.030
ROA	-0.105	-0.035	-0.058	-0.019	−0.069**	−0.039	−0.046	−0.016
ln(Sales)	5.350	6.559	5.396	6.583	−1.209***	−1.187***	−0.046	−0.024
Risk	0.446	0.366	0.436	0.349	0.080***	0.087***	0.010	0.016
Leverage	0.137	0.113	0.131	0.106	0.024	0.025	0.006	0.007
Minority managers	0.396	0.406	0.196	0.223	−0.010	−0.027**	0.200***	0.184***
Observations	154	201	154	201	355	355	308	402

Table A4: California matching models

This table shows probit regressions evaluated to construct our matched sample by employing nearest neighbor propensity score matching. We predict California firms within the subsets of non-compliant firms and compliant firms independently. The models selected to match firms on the propensity score are shown in even columns. The sample period is 2017 as shown in Table A1. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels and standard errors clustered at the firm level.

	Non-compliant firms		Compliant firms	
	(1)	(2)	(3)	(4)
ln(Sales)	0.020		-0.083^{*}	
	(0.415)		(-1.684)	
ROA	-0.255		0.071	
	(-1.182)		(0.311)	
ln(TobinsQ)	0.488^{***}	0.470^{***}	0.109	0.180^{**}
	(4.854)	(6.360)	(1.087)	(1.963)
Risk	0.399	0.641^{***}	0.676^{**}	0.670^{***}
	(1.531)	(3.503)	(2.486)	(2.635)
ln(MktCap)	-0.026		0.133^{**}	0.055^{*}
	(-0.472)		(2.372)	(1.655)
Board size	-0.013		-0.110^{***}	-0.108^{***}
	(-0.512)		(-4.399)	(-4.327)
Leverage	0.126		-1.100^{***}	-1.271^{***}
	(0.387)		(-3.061)	(-3.678)
Observations	1,142	1,142	1,298	1,298
Pseudo R-squared	0.066	0.063	0.077	0.075

Table A5: BLM covariate balance

The table provides means of initial firm characteristics for firms with no Black directors (BD = 0) and firms with at least one Black director (BD > 0), along with the results of t-tests for differences between these groups. The first three columns show results for the full sample at the end of the firm's 2018 fiscal year, and the last three columns show results limited to the sample matched on the propensity score. The sample includes firms with initial market capitalization above the median, shown in Table 6 column 3, limited to 2018 observations.

	Large			PSM		
	(1) BD = 0	(2) BD > 0	(3) (1) – (2)	(4) BD = 0	(5) BD > 0	(6) (4) – (5)
Racial diversity	0.134	0.308	−0.175***	0.143	0.306	−0.163***
Board size	9.259	11.006	−1.747***	10.219	10.210	0.009
ln(MktCap)	8.196	9.051	−0.854***	8.546	8.489	0.057
ln(TobinsQ)	0.574	0.461	0.112***	0.470	0.460	0.010
ROA	0.055	0.057	−0.002	0.057	0.058	−0.001
ln(Sales)	7.629	8.675	−1.046***	8.037	8.189	−0.152
Risk	0.286	0.245	0.041***	0.264	0.264	−0.000
Leverage	0.177	0.195	−0.017*	0.194	0.198	−0.004
Black manager share	0.067	0.078	−0.011***	0.068	0.077	−0.010***
Non-Black minority manager share	0.153	0.146	0.006	0.153	0.145	0.008
Observations	609	489	1,098	333	333	666

Table A6: BLM matching models

This table shows probit regressions evaluated to construct our matched sample by employing nearest neighbor propensity score matching. We predict the relationship between no Black directors in 2018 and various firm characteristics. The sample includes firms with initial market capitalization above the median, shown in Table 6 column 3, limited to 2018 observations. The model selected to match firms on the propensity score is shown in column 4. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels.

	(1)	(2)	(3)	(4)
ln(Sales)	−0.215***	−0.219***	−0.190***	
	(−3.730)	(−3.902)	(−3.607)	
ROA	0.556	0.558		
	(1.061)	(1.063)		
ln(TobinsQ)	0.005	0.016	0.077	0.248***
	(0.045)	(0.149)	(0.808)	(3.004)
Risk	0.748	0.702		
	(1.413)	(1.367)		
ln(MktCap)	−0.072	−0.070	−0.113*	−0.291***
	(−1.036)	(−1.010)	(−1.800)	(−7.573)
Board size	−0.172***	−0.171***	−0.175***	−0.169***
	(−7.916)	(−7.908)	(−8.176)	(−7.988)
Leverage	−0.118			
	(−0.363)			
Observations	1,098	1,098	1,098	1,098
Pseudo R-squared	0.165	0.165	0.163	0.154

Appendix B. Variable definitions

Unless otherwise notes, capitalized text in brackets refer to Compustat variable names.

Variable	Definition and description
Acquisitions	Acquisitions (AQC) scaled by lagged Assets
Assets	Total Assets (AT)
Racial diversity	$$1 - \sum_{r=1}^{S} \left(\frac{n_r}{N}\right)^2,$$ where S represents the number of distinct races and ethnicities, n_r the number of individuals in race r, N is board size, and n_r/N, or p_r signifies the proportion of the board comprised of individuals of race r. Our study includes the racial and ethnic categories: Asian, Black, Caucasian, Hispanic, Indian, Middle Eastern, Native American, and Native Hawaiian, and Other.
Book Equity	Stockholders equity plus deferred taxes (TXDB) plus investment tax credit (ITCB) minus post-retirement benefit asset (PRBA) minus preferred stock. Stockholders equity is either total stockholders equity (SEQ), or if missing then total common equity (CEQ) plus preferred stock par value (PSTK), or if missing then total assets (AT) minus total liabilities (LT) plus minority interest (MIB). Preferred stock is either preferred stock redemption value (PSTKRV), or if missing then preferred stock liquidating value (PSTKL), or if missing the preferred stock carrying value (PSTK).
Board Size	The number of active directors at the firm during the last quarter of the firm's fiscal year end from ISS
CAPEX	Capital Expenditures (CAPX) scaled by lagged Assets
CAR [x, y]	Percentage cumulative abnormal returns for firm i is $$CAR_{it} = \left[\sum_{t=x}^{Y} (r_{it} - r_{mt}) \right] \times 100\%$$ where x is the number of trading days before the event and y is the number of trading days after the event, r_{it} is the return for firm i on trading day t, and r_{mt} is the return on CRSP value-weighted market index for trading day t.
Cash	Cash and Short-Term Investments (CHE) scaled by lagged Assets
California firms	Firms headquartered in California based on corporate filings from the Layline corporate filings dataset
Director age	The number of years between the director's birth year in BoardEx and the year of the DATADATE

Variable	Definition and description
Director tenure	The number of years between the director's first appointment at the firm in BoardEx and the year of the DATADATE
Firm age	The difference between the year of firm's relevant reporting date in Compustat (DATADATE) and the year the firm (PERMCO) is first listed in CRSP (BEGEXCHDATE).
Firm size	See Market capitalization.
Leverage	The sum of long-term debt (DLTT) and debt in current liabilities (DLC) scaled by lagged Assets
Market capitalization	Number of shares outstanding (SHROUT) multiplied by the absolute value of price (PRC) in CRSP at the end of the month closest to Compustat DATADATE
Non-compliant firm	Firms with no minority directors at the end of the firm's 2017 fiscal year
R&D	Research and development expense (XRD) scaled by lagged Assets
ROA	Return on assets calculated as Net Income (NI) scaled by lagged Assets
Risk	idiosyncratic volatility, estimated as the standard deviation of daily market-adjusted returns, multiplied by the square root of the number of observations in the 365 calendar days leading up to the firm's fiscal year-end
Sales	Sales / Net Turnover (SALE)
Payouts	The sum of common dividends (DVC) and purchase of common and preferred stock (PRSTKC) scaled by lagged assets
Racial animus	Number of Fair Housing Act cases filed with a Black or African-American race basis in 2018, scaled by the number of housing units as of July 1, 2018. States are ranked using this value and are classified to have "low racial animus" is if they are one of the 25 states with the lowest value. Sources: Fair Housing Act Cases Filed by Year and State, U.S. Department of Housing and Urban Development[29] and Estimates of Housing Unit Change for the United States and States, and State Rankings: July 1, 2018 to July 1, 2019, U.S. Census Bureau Population Division[30]
Tobin's Q	Assets plus Market capitalization minus Book Equity, scaled by Assets.

[29] https://catalog.data.gov/dataset/fair-housing-act-cases-filed-by-year-and-state

[30] https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-housing-units.html

Is there a business case for racial diversity on corporate boards?

Internet Appendix

Attila Balogh Scott E. Yonker

July 24, 2024

Balogh: Department of Finance, 198 Berkeley Street, University of Melbourne, Melbourne, VIC 3010, Australia. E-mail: balogh@unimelb.edu.au. Yonker: SC Johnson College of Business, 201J Warren Hall, Cornell University, Ithaca, NY 14853, USA. E-mail: sey8@cornell.edu. All errors are our own.

Heterogenous effects specifications

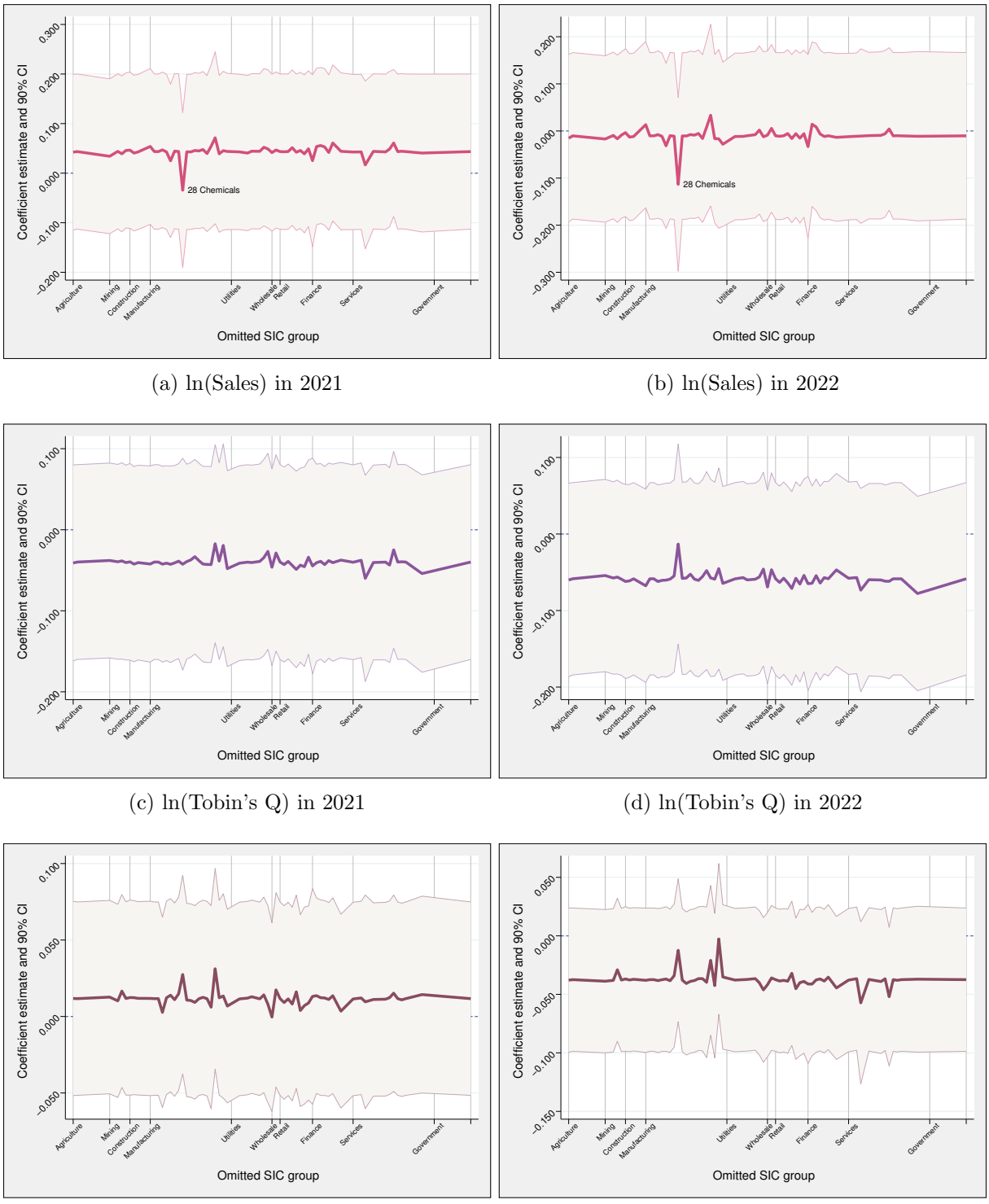
First stage

$$\begin{aligned}\text{Racial Diversity}_{i,t,d=0} = &\sum_{d=0}^{1}\sum_{k=2020}^{2022}\lambda_{dk}\big(I(k=t)_t \times \text{Black board share}_{i,2018} \times D(\text{FirmChar}_m = d)_{i,2018}\big) \\ &+ \sum_{k=2020}^{2022}\omega_t\big(I(k=t)_t \times \text{Minority board share}_{i,2018}\big) \\ &+ \Psi'(\text{Post-BLM}_t \times X_{i,2018}) + \gamma\big(\text{Post-BLM}_t \times D(\text{FirmChar}_m)_{i,2018}\big) \\ &+ \tau_{j,t} + \alpha_i + \nu_{i,t}\end{aligned} \tag{IA.1}$$

$$\begin{aligned}\text{Racial Diversity}_{i,t,d=1} = &\sum_{d=0}^{1}\sum_{k=2020}^{2022}\lambda_{dk}\big(I(k=t)_t \times \text{Black board share}_{i,2018} \times D(\text{FirmChar}_m = d)_{i,2018}\big) \\ &+ \sum_{k=2020}^{2022}\omega_t\big(I(k=t)_t \times \text{Minority board share}_{i,2018}\big) \\ &+ \Psi'(\text{Post-BLM}_t \times X_{i,2018}) + \gamma\big(\text{Post-BLM}_t \times D(\text{FirmChar}_m)_{i,2018}\big) \\ &+ \tau_{j,t} + \alpha_i + \nu_{i,t}\end{aligned} \tag{IA.2}$$

Structural equation

$$\begin{aligned}\text{Y}_{i,t} = &\beta_1\ \widehat{\text{Racial Diversity}}_{i,t,d=0} + \beta_2\ \widehat{\text{Racial Diversity}}_{i,t,d=1} \\ &+ \sum_{k=2020}^{2022}\xi_t\big(I(k=t)_t \times \text{Minority board share}_{i,2018}\big) \\ &+ \Gamma'(\text{Post-BLM}_t \times X_{i,2018}) + \gamma\ (\text{Post-BLM}_t \times D(\text{FirmChar}_m)_{i,2018}) \\ &+ \delta_{j,t} + \psi_i + \varepsilon_{i,t}\end{aligned} \tag{IA.3}$$



(a) ln(Sales) in 2021

(b) ln(Sales) in 2022

(c) ln(Tobin's Q) in 2021

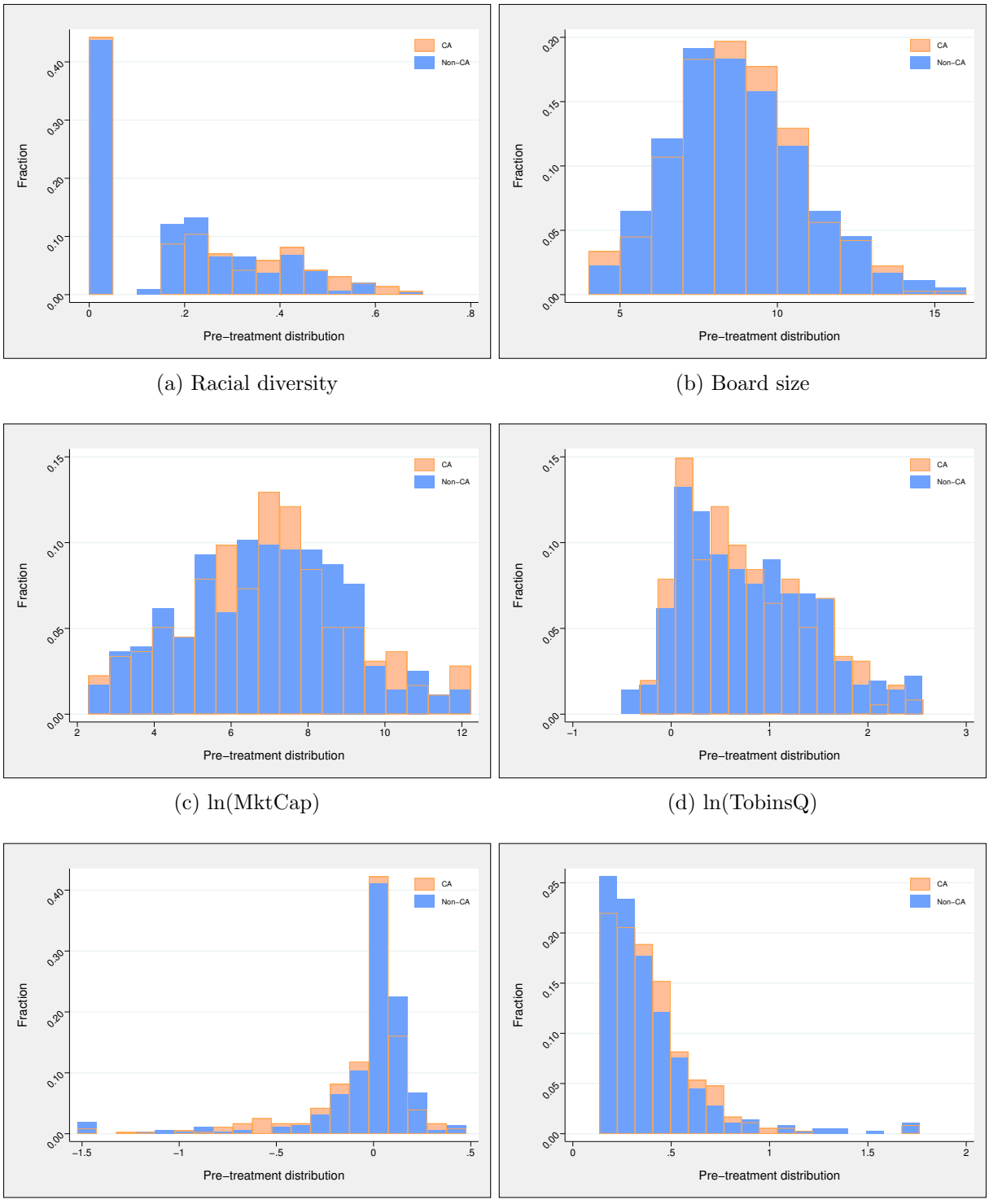
(d) ln(Tobin's Q) in 2022

(e) Risk in 2021

(f) Risk in 2022

Fig. IA.1. California law – Industry group analysis

This figures plots estimates and confidence intervals for the "California × Non-compliant × Year" coefficient from equation (2) by excluding one two-digit SIC industry in each iteration, indicated along the horizontal axis. The outcome variable and year interaction terms are indicated under each figure and the coefficients are estimated for the subsample of midsize firms shown in Table 4.



(a) Racial diversity

(b) Board size

(c) ln(MktCap)

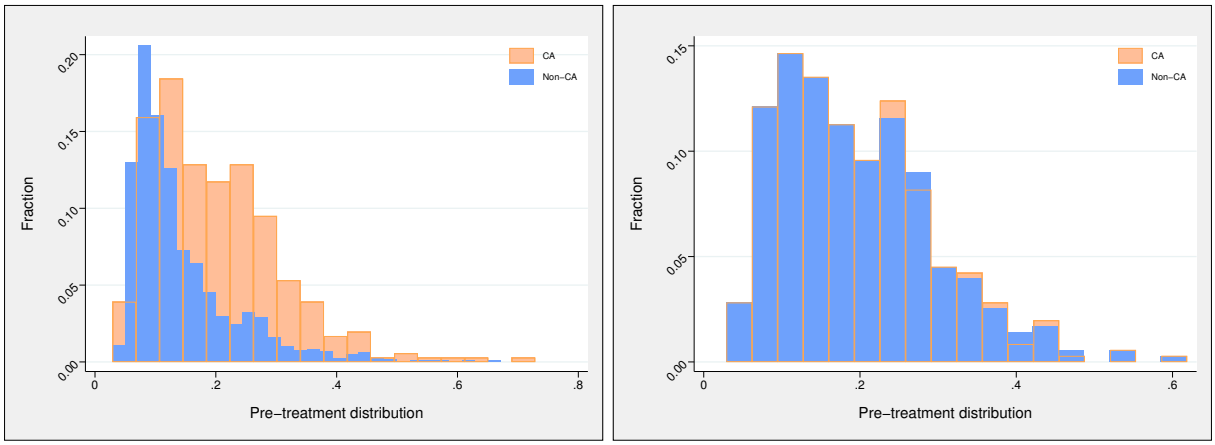
(d) ln(TobinsQ)

(e) ROA

(f) Risk

Fig. IA.2. California law – Common support between California and non-California firms

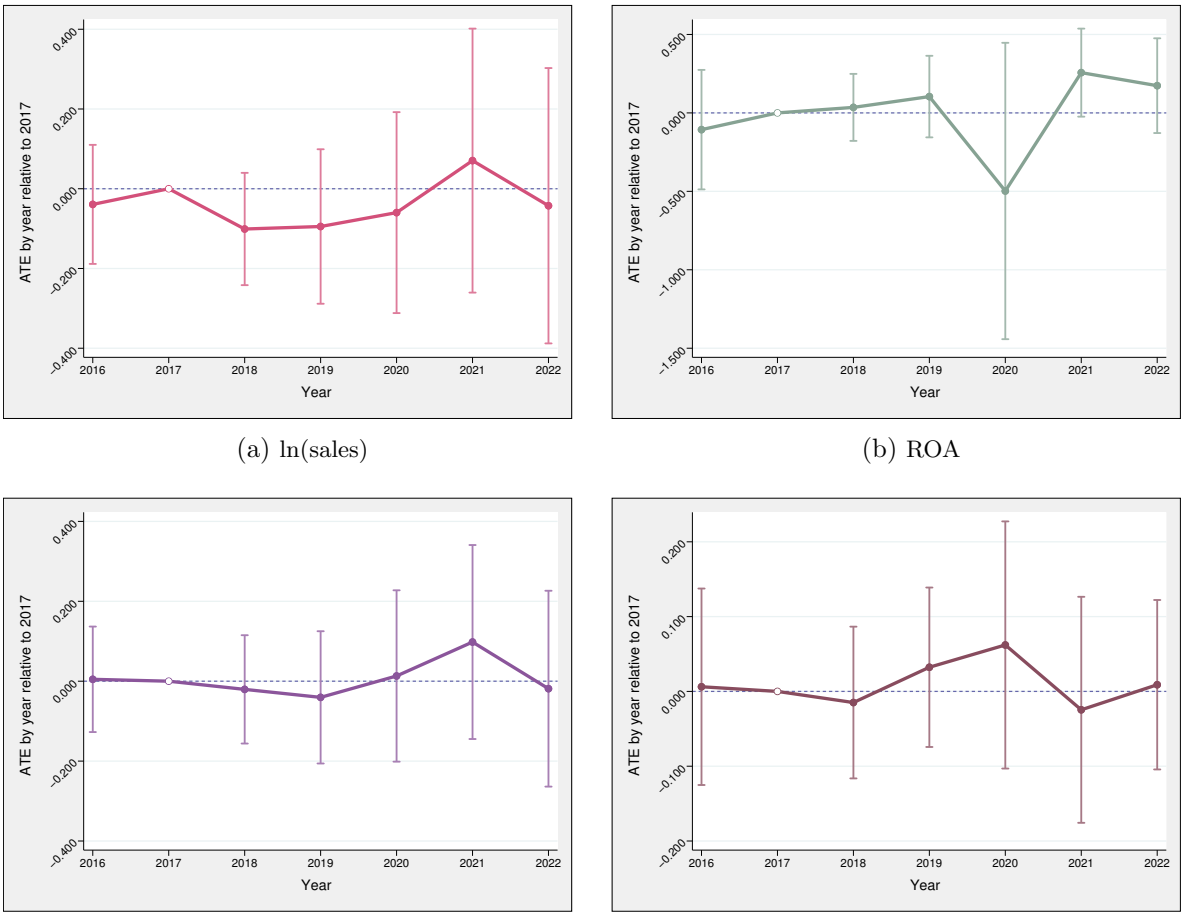
The figure shows histograms depicting the distribution of several firm characteristics at the end of each sample firm's 2017 fiscal year for firms headquartered in California in orange and firms outside California in blue.



(a) Full sample (b) Matched sample

Fig. IA.3. California law – Common p-score support before and after matching

The figure shows histograms depicting the distribution of the propensity score for firms headquartered in California in orange and firms outside California in blue. Panel (a) shows the distribution of the full sample at the end of 2017 and Panel (b) shows the distribution for the subsample matched on the propensity score.



(a) ln(sales)

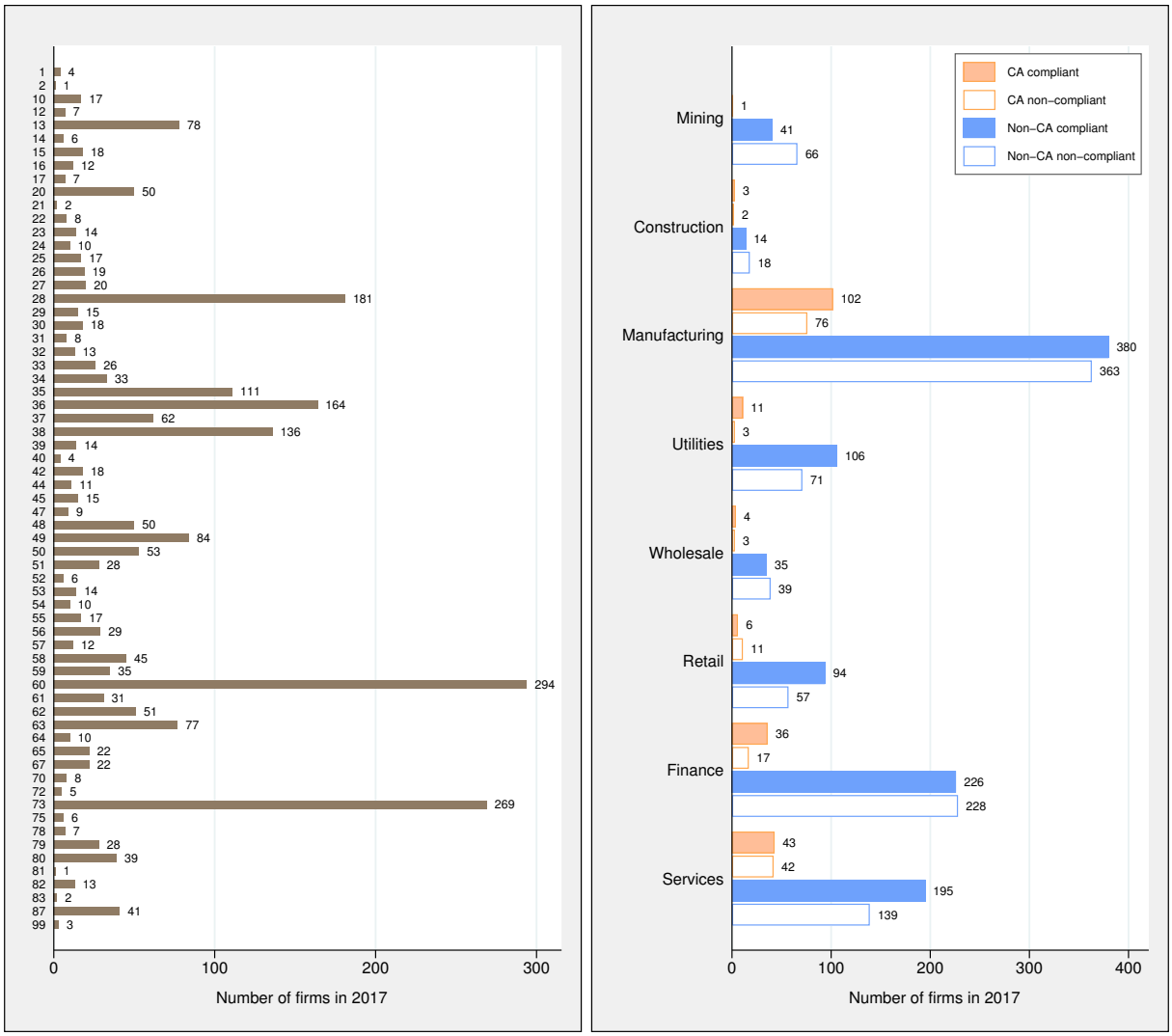
(b) ROA

(c) Tobin's Q

(d) Risk

Fig. IA.4. California law – PSM sample: Tests of parallel trends in differences

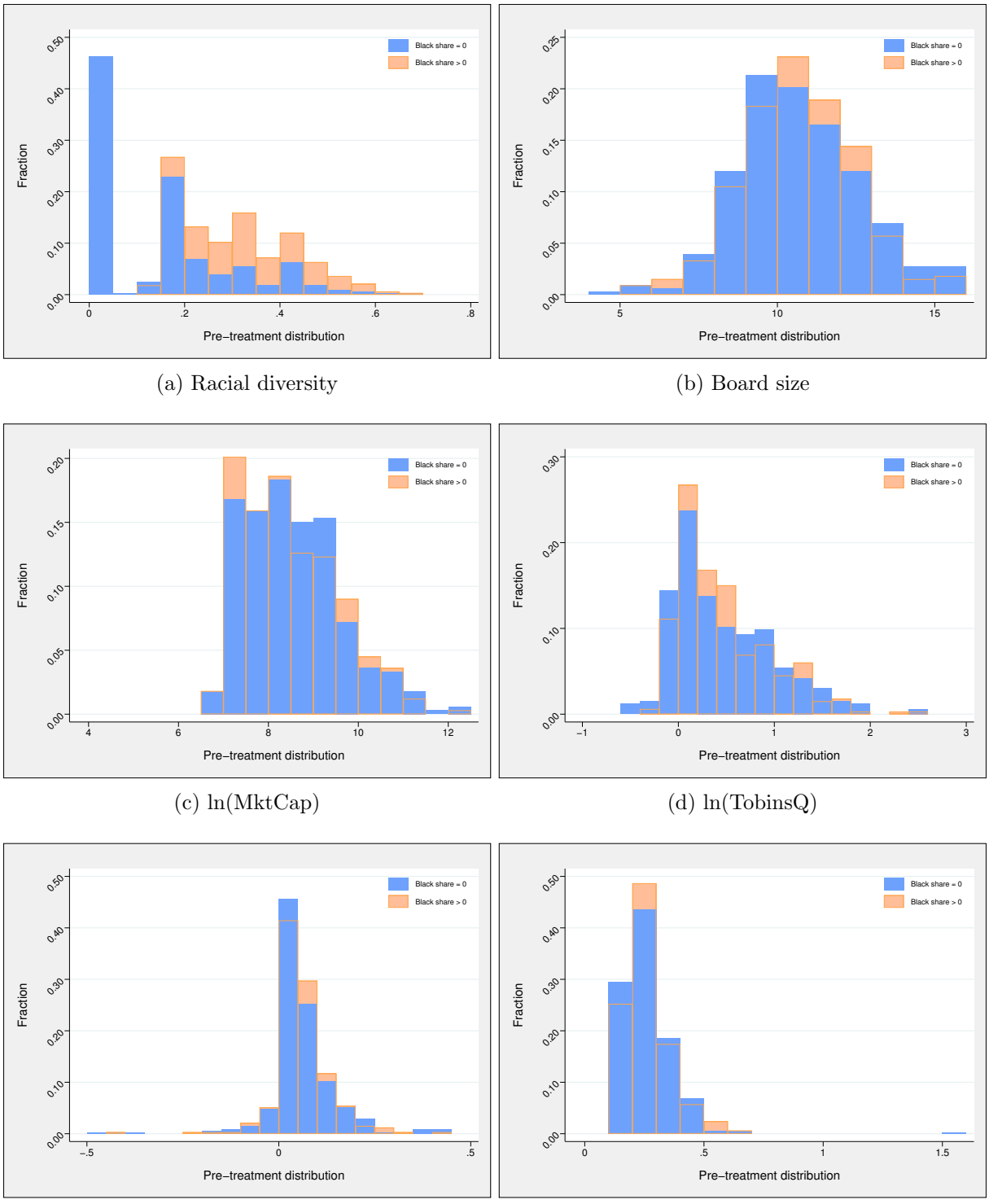
These figures show the results of tests of the parallel trends in differences assumption, plotting the estimates of the β_t's from Equation (2) and their 95% confidence intervals based on robust standard errors clustered by firm where ln(sales), ROA, Tobin's Q, and Risk are the dependent variables in Panels a, b, c, and d, respectively. The sample includes the set of firms matched on the propensity score, shown in Table A3 for the years 2016 through 2022. We omit β_{2017} from the regression model, so that all estimates are relative to 2017.



(a) Two-digit SIC groups (b) Major divisions

Fig. IA.5. California law – Industry breakdown

The figure in Panel (a) shows the two-digit SIC industry classification of firms in the 2017 sample from Table 1. The figure in Panel (b) plots the SIC major industry division classification of these firms grouped according to state of incorporation and compliance status. This figure excludes eight firms in the Agriculture and Public Administration major divisions, shown in SIC groups 1, 2, and 99 in Panel (a), as they constitute only 0.32 percent of the sample.



(a) Racial diversity

(b) Board size

(c) ln(MktCap)

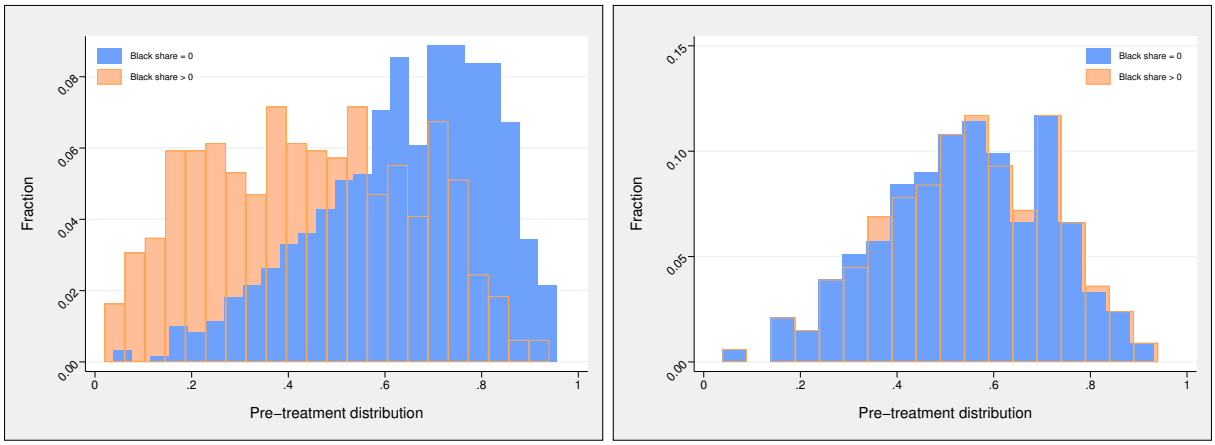
(d) ln(TobinsQ)

(e) ROA

(f) Risk

Fig. IA.6. IV – Common support between firms with and without Black directors

The figure shows histograms depicting the distribution of several firm characteristics at the end of each sample firm's 2018 fiscal year for firms with no Black directors in blue and firms with at least one Black director in orange.



(a) Full sample (b) Matched sample

Fig. IA.7. IV – Common support before and after matching

The figure shows histograms depicting the distribution of the propensity score for firms no Black directors in blue and firms with at least one Black director in orange. Panel (a) shows the distribution of the full sample at the end of 2018 and Panel (b) shows the distribution for the subsample matched on the propensity score.

Table IA.1: The evolution of board racial diversity

This table provides an overview of board racial diversity throughout our sample period. It lists the average percentage of directors that belong to one of the nine identified racial or ethnic categories in each year. The table also shows the evolution of the average board racial diversity index with annual changes.

	2017	2018	2019	2020	2021	2022
Asian	0.03	0.03	0.03	0.03	0.03	0.04
Black	0.03	0.04	0.04	0.05	0.07	0.08
Hispanic	0.02	0.02	0.02	0.02	0.03	0.03
Indian	0.02	0.02	0.02	0.02	0.03	0.03
Middle-eastern	0.01	0.01	0.01	0.01	0.01	0.01
Native American	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00
Native Hawaiian	0.00	0.00	0.00	0.00	0.00	0.00
White	0.89	0.88	0.88	0.87	0.84	0.82
Racial diversity	0.16	0.17	0.18	0.20	0.24	0.28
Racial diversity change	0.01	0.01	0.01	0.02	0.04	0.03
Observations	2,440	2,419	2,272	2,164	2,042	1,958

Table IA.2: Board racial diversity and initial Black board share: single instrument

This table reports first-stage regression results from estimating Equation (3) using the sample of firm-year observations from 2018 to 2022 outlined in Section 3.2. The dependent variable is board racial diversity. For brevity, only λ_t and ω_t estimates are reported for the two variables where the *Post* interaction terms take the value of one from 2020 to 2022 and zero otherwise. All models include firm and industry by year fixed effects using two-digit SIC code classifications. In column(s) 2 (3 and 4) the sample includes firms whose initial market capitalization is below (above) the median in the sample. Results reported in column 5 include a propensity-score-matched sample, which is constructed through one-to-one matching without replacement using the model shown in column 4 of Table A6 in the Appendix to match firms to those without Black directors in 2018. The matching is done once in 2018 and matched firms are included throughout the sample period. We include year by industry fixed effects using the two-digit SIC classification. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels, and t-statistics shown in parentheses are based on standard errors clustered at the firm level. We report the Montiel Olea and Pflueger (2013) effective F statistic for the excluded instruments and 5% critical values for the null hypothesis that the respective Nagar (1959) bias exceeds 10% of the worst-case benchmark.

	(1) All	(2) Small	(3) Large	(4) Large	(5) Large PSM
IBBS × Post	-0.233^{***}	-0.139^{**}	-0.252^{***}	-0.232^{***}	-0.288^{***}
	(-6.069)	(-1.993)	(-5.414)	(-5.114)	(-4.704)
IMBS × Post	-0.284^{***}	-0.224^{***}	-0.363^{***}	-0.347^{***}	-0.357^{***}
	(-11.303)	(-6.874)	(-10.572)	(-10.792)	(-7.808)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year × Industry FE	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	No	No
Observations	9,955	4,563	5,355	5,355	3,230
R-squared	0.868	0.845	0.865	0.864	0.862
Effective F statistic	36.831	3.948	29.261	26.114	22.055
Critical value (α=5%, τ=10%)	23.109	23.109	23.109	23.109	23.109

Table IA.3: IV estimates of the effect of board racial diversity on firm performance, value, and risk: single instrument

This table reports the relationship between board racial diversity and firm outcomes by showing OLS estimates (Panel A), structural IV estimates (Panel B), and reduced form estimates (Panel C) using the sample of above median size firms from columns 3-5 in Table IA.2. Each of the panels displays estimates using our baseline model that includes controls, the baseline model without controls, and the sample matched on the propensity score (PSM) for each of our four main dependent variables. All models include firm fixed effects and industry by year fixed effects. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels, and t-statistics shown in parentheses are based on standard errors clustered at the firm level.

Panel A: OLS

	ln(Sales)			ROA			ln(Tobin's Q)			Risk		
	(1) Large	(2) Large	(3) PSM	(4) Large	(5) Large	(6) PSM	(7) Large	(8) Large	(9) PSM	(10) Large	(11) Large	(12) PSM
Racial diversity	0.013	0.024	0.026	0.000	−0.001	0.020	0.039	0.032	0.045	−0.044**	−0.052**	−0.074***
	(0.179)	(0.313)	(0.243)	(0.017)	(−0.039)	(0.926)	(0.767)	(0.615)	(0.681)	(−2.006)	(−2.378)	(−2.655)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year × Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No
Observations	5,355	5,355	3,230	5,355	5,355	3,230	5,355	5,355	3,230	5,355	5,355	3,230

Panel B: Two-stage least squares

	ln(Sales)			ROA			ln(Tobin's Q)			Risk		
	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM
Racial diversity	0.718	1.658**	0.353	0.119	0.053	0.069	0.283	0.034	0.714	0.141	0.304	0.200
	(1.210)	(2.285)	(0.505)	(1.054)	(0.405)	(0.544)	(0.679)	(0.079)	(1.518)	(0.770)	(1.496)	(0.894)

Panel C: Reduced form

	ln(Sales)			ROA			ln(Tobin's Q)			Risk		
	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM	Large	Large	PSM
IBBS × Post	−0.181	−0.385***	−0.102	−0.030	−0.012	−0.020	−0.071	−0.008	−0.206	−0.036	−0.071	−0.058
	(−1.280)	(−2.662)	(−0.517)	(−1.064)	(−0.404)	(−0.543)	(−0.679)	(−0.079)	(−1.574)	(−0.781)	(−1.580)	(−0.915)

Table IA.4: California law – Newly appointed director characteristics

This table shows director-level characteristics for newly appointed directors in 2021. The first three columns show mean values for non-compliant (NC) and compliant (C) California firms and differences; columns four to six show mean values and differences for firms outside California. The final columns shows differences between differences across California and non-California firms. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels.

	California			Non-California			Differences
	NC	C	Diff (1)	NC	C	Diff (2)	(1 – 2)
Announced	0.223	0.254	−0.031	0.289	0.273	0.016	−0.047
Age	54.730	55.807	−1.077	55.373	56.338	−0.964	−0.113
Female	59.712	58.772	0.940	41.365	39.678	1.687	−0.747
Independent	52.518	59.649	−7.131	56.627	61.394	−4.768	−2.364
Board Experience							
Concurrent boards	0.626	0.509	0.117	0.404	0.520	−0.116**	0.233**
Previous boards	1.007	1.000	0.007	1.026	1.103	−0.077	0.084
Education							
Business	52.000	50.459	1.541	53.362	53.736	−0.373	1.915
MBA	37.600	37.615	−0.015	40.998	40.517	0.481	−0.495
Law	7.200	11.009	−3.809	12.581	14.368	−1.786	−2.023
Medical	12.000	2.752	9.248***	2.820	3.161	−0.341	9.589***
Science	52.800	49.541	3.259	45.119	48.851	−3.731	6.990
Art	30.400	32.110	−1.710	32.755	33.908	−1.153	−0.557
Graduate degree	61.600	66.972	−5.372	68.547	65.805	2.742	−8.115
PhD	9.600	5.505	4.095	6.508	5.460	1.048	3.048
Ivy League	22.400	28.440	−6.040	22.343	29.310	−6.968**	0.927
Work experience							
Finance	27.338	31.579	−4.241	28.630	29.700	−1.070	−3.170
STEM	17.986	17.544	0.442	13.701	11.444	2.257	−1.816
Marketing	11.511	13.158	−1.647	13.088	14.714	−1.626	−0.021
Sales	15.827	8.772	7.055*	13.906	12.262	1.644	5.411
HR	4.317	5.263	−0.947	2.249	3.270	−1.020	0.074
DEI	0.719	1.754	−1.035	1.431	1.090	0.342	−1.377
ESG	0.719	2.632	−1.912	1.022	1.362	−0.340	−1.572
Law	5.755	9.649	−3.894	9.816	7.902	1.914	−5.808
Entrepreneurship	8.633	8.772	−0.139	5.726	6.540	−0.814	0.675
Strategy	18.705	9.649	9.056**	14.724	11.172	3.552	5.504
Academic	11.511	13.158	−1.647	7.975	8.174	−0.199	−1.448
CEO	38.129	42.105	−3.976	41.104	45.504	−4.400	0.424
CFO	17.266	14.912	2.354	16.564	15.804	0.761	1.593
Committees							
Audit	21.583	21.053	0.530	28.313	29.223	−0.909	1.439
Nominating	20.144	21.053	−0.909	23.695	18.767	4.928*	−5.837
Compensation	20.863	22.807	−1.944	19.880	23.592	−3.713	1.769
Governance	19.424	21.053	−1.628	22.691	18.499	4.192	−5.820
Risk	9.353	9.649	−0.297	9.639	14.477	−4.839**	4.542
Health & safety	2.878	2.632	0.246	2.410	1.340	1.069	−0.823
Sustainability	2.878	3.509	−0.631	7.430	6.971	0.459	−1.090
Committee chair	6.475	2.632	3.843	5.422	2.949	2.473*	1.371

Table IA.5: IV – Newly appointed director characteristics

This table shows director-level characteristics newly appointed directors before and after the surge of the BLM movement. The first two columns show mean values for newly appointed white and minority directors in 2018 and 2019, and the second two columns show mean values for those directors in between 2020 and 2022. The final columns shows differences between white and minority director characteristics and differences between these two differences. Statistical significance is denoted by *, **, and *** at the 10%, 5%, and 1% levels.

	2018 – 2019		2020 – 2022		Differences			
	White	Minority	White	Minority	(2 – 1)	(4 – 3)	(D-i-D)	N
Announced	0.236	0.277	0.318	0.284	0.041*	−0.034*	−0.076**	4,776
Age	57.203	55.454	57.270	55.245	−1.749***	−2.025***	−0.276	4,734
Female	37.352	44.208	36.705	41.913	6.856**	5.208***	−1.648	4,776
Independent	54.630	59.102	55.780	62.426	4.471*	6.646***	2.174	4,776
Board Experience								
Concurrent boards	0.672	0.757	0.688	0.676	0.085	−0.012	−0.097	4,524
Previous boards	1.753	1.687	1.745	1.374	−0.067	−0.371***	−0.304*	4,524
Education								
Business	55.276	59.326	56.357	56.250	4.050	−0.107	−4.157	4,358
MBA	40.321	48.964	40.670	46.563	8.642***	5.892***	−2.750	4,358
Law	9.783	14.767	8.665	13.958	4.983***	5.293***	0.309	4,358
Medical	1.887	2.073	1.392	3.750	0.186	2.358***	2.173**	4,358
Science	42.907	49.223	44.592	47.083	6.316**	2.491	−3.824	4,358
Art	36.897	31.865	31.942	31.979	−5.032*	0.037	5.069	4,358
Graduate degree	61.915	79.016	60.215	76.458	17.101***	16.243***	−0.858	4,358
PhD	5.660	10.363	4.301	8.542	4.702***	4.241***	−0.462	4,358
Ivy League	25.507	37.306	24.605	30.208	11.799***	5.604***	−6.195**	4,358
Work experience								
Finance	33.852	28.354	34.386	26.256	−5.498**	−8.130***	−2.632	4,493
STEM	13.947	17.722	15.431	19.897	3.774*	4.466***	0.692	4,493
Marketing	15.708	18.481	13.852	14.051	2.773	0.200	−2.574	4,493
Sales	14.353	12.152	13.123	12.410	−2.202	−0.712	1.489	4,493
HR	2.640	4.051	2.734	3.897	1.410	1.164	−0.247	4,493
DEI	0.203	0.506	0.182	2.564	0.303	2.382***	2.079***	4,493
ESG	0.745	2.025	0.911	2.462	1.281**	1.550***	0.270	4,493
Law	6.906	12.911	6.561	11.795	6.006***	5.234***	−0.772	4,493
Entrepreneurship	5.416	6.329	3.888	6.154	0.913	2.266***	1.353	4,493
Strategy	12.187	17.215	13.244	14.872	5.028***	1.628	−3.401	4,493
Academic	8.802	12.911	7.655	13.026	4.110**	5.371***	1.261	4,493
CEO	57.684	49.367	57.290	40.923	−8.317***	−16.367***	−8.050**	4,493
CFO	21.192	14.430	20.778	12.410	−6.761***	−8.367***	−1.606	4,493
Committees								
Audit	30.578	34.043	30.116	32.249	3.465	2.133	−1.332	4,776
Nominating	18.210	18.676	16.763	23.373	0.466	6.610***	6.144**	4,776
Compensation	21.131	17.021	20.000	18.935	−4.110*	−1.065	3.045	4,776
Governance	18.024	18.676	16.532	23.176	0.653	6.644***	5.991**	4,776
Risk	0.124	0.000	13.526	13.708	−0.124	0.182	0.306	4,776
Health & safety	0.062	0.000	4.855	4.931	−0.062	0.075	0.138	4,776
Sustainability	0.062	0.000	9.711	13.905	−0.062	4.194***	4.256***	4,776
Committee chair	4.661	2.364	3.815	1.183	−2.297**	−2.632***	−0.334	4,776