What Drives Racial Diversity on U.S. Corporate Boards? Mandates or Movements

Vicki L. Bogan
Duke University
vicki.bogan@duke.edu

Ekaterina Potemkina
Indiana University
kpotemki@iu.edu

Scott E. Yonker
Cornell University
sey8@cornell.edu

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Abstract

Using comprehensive data on U.S. public firms from 2013 through 2022, we document the existence of racial disparities in the labor market for U.S. corporate directors. Through 2019, the underrepresented minority (URM) share of new directorships was around 8%, which was about 50% lower than their share of the managerial labor force. However, after 2020 we document a change in firm appointment behavior such that URMs were not underrepresented among new appointments during the final three sample years, though they remain underrepresented across boards overall. These changes coincide with the acceleration of the racial justice movement, the passage of the California board diversity law, and the implementation of the Nasdaq diversity rule. We find a 185% increase in Black director appointments following the murder of George Floyd during 2020 and that the mandates by California and the Nasdaq increased appointments of minority groups that are not traditionally underrepresented. Firm size, local talent pools, and the racial composition of boards are key predictors of minority director appointments. Our analysis suggests search frictions, inattention, and racial bias are important mechanisms causing the racial disparities that we document in the director labor market.

Key words: board diversity, board of directors, quotas, mandates, racial bias
JEL classifications: G34, J71

1. Introduction

Over the past two decades, governments around the world have primarily focused on increasing female representation on corporate boards of directors. Since 1999, when Israel passed the first board gender quota, eighteen other countries have followed suit. Quotas in these countries range anywhere from requiring one female director (Israel, India, Pakistan) to 40% female representation (Norway, Spain, Iceland). In North America, quotas are less pervasive among public firms, with only the state of California (temporarily) mandating female representation on public boards.[1] Not surprisingly, the academic literature on board diversity has mirrored these government policies, focusing mainly on gender.[2] Hence, while the causes and consequences of gender diversity have been studied and debated extensively in the literature, limited attention has been given to another important dimension of demographic board diversity – race.

Data limitations have contributed to the understudied nature of racial issues in the boardroom. Until recently, comprehensive data on the racial and ethnic backgrounds of directors were lacking. Utilizing a new dataset covering 95% of U.S. firms, we can now track trends in the racial composition of directors. Our comprehensive data reveal that at the end of 2012, around 55% of U.S. public companies had no racial minorities represented on their boards of directors, and fewer than 20% had more than one minority director. By 2022, almost 50% of firms had at least two minorities on their boards, while about 20% of firms still were composed solely of white directors (See Figure 1).

To illustrate the relative racial representation of employees within U.S. firms, Figure 2 presents the average minority share across different job categories. It indicates a consistent decrease in minority representation as one progresses up the corporate ladder. Panel (a) of Figure 3 underscores that this trend is particularly noteworthy for individuals belonging to traditionally underrepresented groups (URMs, hereafter). In 2013, URMs constituted 30% of all employees, about 15% of managers, less than 8% of executive and senior managers, less than 5% of directors,

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[1]On May 13, 2022, a Los Angeles Superior Court Judge issued a ruling that California Corporations Code Section 301.3 (SB 826), which requires publicly listed corporations in California to have women on their boards, violates the Equal Protection Clause of the California Constitution (Fortt et al., 2022).

[2]Knyazeva et al. (2021) provide a comprehensive overview of much of the board diversity literature and its significant focus on gender.

and about 2% of CEOs. In contrast, the employment shares of minorities not historically classi-fied as underrepresented (NURMs, hereafter) remain relatively consistent across different job classifications (Panel (b)).[3]

While the legacy of limited diversity in corporate America spans decades, the issue of insuffi-cient racial diversity on corporate boards has recently become a focal point in the corporate world as social justice movements, like Black Lives Matter (BLM, hereafter), gain global momentum and traction. Concurrently, government policies such as California's board racial diversity mandate in 2020, and private sector rules such as Nasdaq's "comply or explain" board diversity listing requirement have amplified attention on this issue. Concerns extend beyond the potential risks of homogeneous boards, which may become insular due to homophily (Westphal and Zajac, 1995) and may be ill-equipped to navigate the dynamic global environment marked by shifting workforce demographics (Russell, 2009). Equally critical to how companies operate within spe-cific communities and society at large are broader societal considerations of equity, inclusion, and social justice.[4]

As companies increasingly acknowledge the importance of addressing the needs of all stake-holders, not just shareholders, the significance of corporate governance structures has become more salient. Governments, customers, employees, and the communities in which companies operate are challenging firms to engage more deeply with diversity issues, underscoring the relevance of several open and critical questions. Do racial disparities exist in the director labor market? If so, what are the root cause(s) of these disparities? What impact do policies, like board diversity mandates, have on firms and the director labor market? Do social movements influence the composition of company boards? In addressing these questions, our study yields findings that are relevant to the research areas of labor economics, discrimination, and corporate finance.

Our research has several objectives. We aim for this work to serve as a foundational point for future researchers, facilitating a deeper comprehension of the causes and implications of racial diversity within boardrooms. We outline the trends in boardroom racial diversity over

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[3]There is limited evidence suggesting abnormal minority director exit activity contributing to this overall pattern. Minority directors are less likely to leave in all years except for 2020 (See Appendix Figure A.1).

[4]For example, using three-level hierarchical linear models estimated on a data set drawn from 2000 U.S. Census data, Cohen and Huffman (2007) show that the presence of high-status female managers reduces gender wage inequality.

time and evaluate whether these patterns reveal a substantial underrepresentation of minorities. Our findings support the assertion that minorities are insufficiently represented on corporate boards. We also uncover insights into the reasons behind this underrepresentation. As noted by Bertrand and Duflo (2017), "there has been a disproportionate focus on measuring discrimination through field experiments, with limited attention to creatively documenting its consequences or strategies to counteract it" (p. 382). Recent initiatives advocating for racial diversity on boards provide a unique opportunity for researchers to analyze efforts in this regard. Our examination of the effectiveness of two distinct types of diversity initiatives, mandates and movements, not only sheds light on the root causes of the observed limited diversity but also enhances our understanding of the efficacy of methods aimed at addressing the lack of racial diversity in boardrooms.

To our knowledge, our paper employs the most extensive data set on board racial diversity in the literature. Our data cover nearly 2,800 U.S.-based firms annually from 2013 to 2022, with approximately 22,000 new director appointments over the ten-year period. We begin our analysis by testing whether racial disparities exist in the board of directors labor market. To achieve this, we devise a firm-level metric of new director relative representation, calculated as the firm-level difference in the minority share of new directors and a designated benchmark for minority share. A crucial aspect of our metric is the determination of the benchmark. Ideally, it should accurately reflect the racial composition of the potential director labor pool, which is inherently unobservable. Consequently, we make assumptions about the minimum skills required to hold a directorship and the geographic proximity within which firms recruit directors. These assumptions lead us to use as our benchmark the minority share of managers within the same Core-Based Statistical Area (CBSA, hereafter) as the firms' headquarters, constructed from publicly available data from the Equal Employment Opportunity Commission (depicted as "all managers" in Figures 2 and 3).

Overall, we document that minorities are significantly underrepresented on boards for the entirety of our sample period, but that racial disparities in hiring practices shifted towards the end of the sample period. We show that until 2020, URM groups consistently faced nearly 50%

underrepresentation in the new director labor market. The URM share of new directors lagged by over 7 percentage points compared to their representation in the managerial labor force, which stood at around 15%. However, in the final three years of the sample, URMs were not underrepresented among newly appointed directors. By 2021, the URM share of new directorships surpassed their representation in the managerial labor force by nearly eight percentage points. While NURM groups were not underrepresented pre-2020, they still witnessed an increase in their share of new directorships in 2021 and 2022.

After establishing the existence of racial disparities in the director labor market, our focus shifts to identifying the mechanisms that underlie them. Three mechanisms are frequently offered to explain racial disparities in corporate board representation. First, search frictions and homophily-based networks could perpetuate "in-group" selection (Jacquemet and Yannelis, 2012). Agarwal et al. (2016) provide evidence of this in director labor markets by demonstrating that women who play golf, a male-dominated sport, are more likely to secure appointments to corporate boards. Second, limited racial diversity on boards may result from an insufficient supply of qualified minority director candidates to meet the demand. Ahern and Dittmar (2012) cite this as the reason for the underrepresentation of women on Norwegian boards prior to the implementation of a board gender quota in that country. For racial minorities, this could be true if they face greater barriers than others in obtaining the requisite human capital (Benoît, 1999) or encounter obstacles to career advancement (Powell and Butterfield, 2002; Rosette et al., 2008). Finally, the absence of racial diversity on boards might be caused by racial bias, reflecting broader trends in favoritism or discrimination in labor markets (Bertrand and Mullainathan, 2004; Lang and Manove, 2011; Daskalova, 2018). Indeed, empirical evidence supports discrimination on corporate boards, with Field et al. (2020) concluding that discrimination is the primary reason why female and minority directors are less likely to hold leadership positions on boards.

To gain insights into the potential mechanisms behind racial disparities in director representation, we employ various methodologies. Using firm size as a proxy for search frictions, we investigate whether racial disparities in director representation vary with firm size. In line with

the search cost mechanism, we find that URM racial disparities in large firms (with above the median book assets) are approximately half the size of the small firm disparities.

Next, we conduct an analysis of conditional, cross-sectional correlations between firm characteristics and the minority share of new directors. For this analysis, we divide our sample into two periods: the period of persistent racial disparities in hiring (2013-2019) and the subsequent period when these hiring disparities were absent (2020-2022). Changes in correlations during these periods can provide insights as to what was driving the disparities and what lead to their decrease. Prior to 2020, four main firm characteristics predicted minority director hiring practices: the minority-group share of the local talent pool (+), the majority-group share of the board (−), firm size (+), and growth opportunities (+). While these findings align with the presence of search frictions, the negative loading on the majority-group board share also could indicate the existence of racial bias. The most noteworthy change among these predictors during the post-2019 period is that the coefficient estimate on majority-group board share changes from negative to positive. This transition is consistent with homophily-based networks and/or racial bias shaping this connection before 2020, whereas companies actively began to pursue racial diversity on their boards post-2019. Additionally, we demonstrate that the annual loadings on the majority-board share exhibit a unique dynamic pattern of racial disparities which mirrors the URM director hiring trends. The majority-board share coefficients were negative before 2020. The coefficient was positive in 2020 and 2021, then zero in 2022.

The post-2019 timing of changes in firm behavior coincides with the implementation of board racial diversity mandates by California and the Nasdaq, along with the acceleration of the racial justice movement. Evaluating the effectiveness of each initiative in influencing firm behaviors offers insights into the root cause(s) of the lack of board diversity. If bias is the primary factor contributing to this lack of diversity, social movements that bring attention to or alter societal perceptions of race and racial discrimination should enhance diversity. Mandates (quotas), aimed at increasing racial diversity, may achieve efficiency gains only if labor market frictions have hindered the appointment of qualified minority candidates to boards. Conversely, if there is

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a limited supply of qualified minority director candidates, these mandates may result in the appointment of minority directors with weaker credentials.

To assess the impact of the racial justice movement on director appointments, our analysis focuses on the years 2019 and 2020. The BLM movement gained momentum after the tragic murder of George Floyd in May 2020, marked by over six thousand nationwide protests in June of 2020. If the racial justice movement influenced firms' decisions to appoint Black directors, we would expect to observe a significant surge in the appointments of Black directors following the racial justice movement, with no discernible impact on other minority groups. Our conservative estimate indicates a 185% increase in the number of Black directors appointed in the latter half of 2020 compared to the same period in 2019. This suggests that racial bias (due to discrimination or limited attention) played a central role in the lack of racial diversity on corporate boards.

We evaluate the impact of board racial diversity mandates through a triple difference model. The California board racial diversity law increased minority representation on the boards of non-compliant California-based firms. Unlike the racial justice movement, which boosted URM (predominately Black) director numbers, this mandate primarily benefited NURMs, with URMs witnessing no corresponding increase. While the compliance period for the Nasdaq rule did not start during our sample period, similar results to the California law are emerging, with only NURM groups experiencing gains.[5] Both mandates allow directors from any non-White race to satisfy the quota, emphasizing the need to consider key nuances in developing specific racial diversity mandates. Depending on the mandate objective, viewing races that are not traditionally underrepresented as "diverse" may lead firms to substitute for URM directors, further exacerbating URM underrepresentation.

Finally, we leverage the demand shocks caused by racial diversity mandates and movements, to test the limited labor supply mechanism. Ahern and Dittmar (2012) present evidence that, if set too high, quotas can result in the appointment of less qualified directors. Our analysis explores how the characteristics of minority directors evolve following these demand shocks,

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[5]Notably, we found NURMs were underrepresented among California firms but not among Nasdaq firms. Also, the 2023 Nasdaq requirements affected very few firms (about 15% of Nasdaq-listed firms) and these firms also can comply with the rule by adding women to their boards. Using the 2025 requirements to capture compliance yields no significant changes in board diversity through 2022.

using observable measures of director skills and training. Contrary to the argument that limited board diversity stems from an inadequate supply of minority directors, our findings indicate that the quality of newly appointed minority directors is not significantly lower than that of previously appointed minority directors. Thus, our results are inconsistent with the notion that the supply of minority directors has been insufficient to meet the demand.

Our study is related to the extensive literature on corporate board diversity which covers various dimensions such as structural diversity, task-related diversity, and non-task-related diversity (Adams et al., 2015; Knyazeva et al., 2021). Focusing specifically on race, our research aligns closely with studies of non-task-related or demographic diversity that primarily center on gender (i.e., Adams and Ferreira (2009); Adams and Kirchmaier (2016); Agarwal et al. (2016)). Our use of policy initiatives to understand the mechanisms driving the lack of racial diversity on corporate boards complements research on gender diversity that explores the impacts of government policies on firms (Ahern and Dittmar, 2012; Matsa and Miller, 2013; Bertrand, 2019; Bøhren and Staubo, 2016; Ferreira et al., 2017; Greene et al., 2020; Hwang et al., 2020; vonMeyerinck et al., 2021; Gertsberg et al., 2021).

Our paper also contributes to the literature by establishing foundational facts regarding racial diversity on U.S. corporate boards which can serve as a basis upon which future researchers can build.[6] We document the existence of racial disparities in representation in the director labor market and estimate their magnitudes and dynamics. We also offer insights into the mechanisms likely driving these racial disparities through a series of tests using structural changes in the functioning of the director labor market.

Additionally, our work is part of an emerging literature focusing on the effects of the BLM movement on short-term and long-term firm outcomes. Pajuste et al. (2022) and Balakrishnan et al. (2023) both provide evidence of an increase in Black director appointments following the murder of George Floyd and mixed evidence on the value effects.[7] Similar to Giannetti and Wang

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[6]Since Carter et al. (2003), there has been limited work focusing on racial diversity. Using cross-sectional tests, Carter et al. (2003) concludes that more minority directors lead to higher valuations. They report that the minority board share for a sample of roughly 800 large firms was about 6% in 1999.

[7]Balakrishnan et al. (2023) develops a measure of "diversity exposure" using textual analysis of conference call topics and concludes that firms with greater exposure experienced lower three-day abnormal returns around the murder of George Floyd. In contrast, Pajuste et al. (2022) finds that firms with black directors experienced short-term

(2023) who show that increased public attention on gender equality resulted in greater board gender diversity, our study illustrates that a racial justice movement can highlight social costs to boards that previously may have focused only on private costs to their firm. Correspondingly, our paper connects with the "in-group" selection literature (Dickinson et al., 2018; Agarwal et al., 2016; Jacquemet and Yannelis, 2012) by demonstrating evidence of social costs associated with in-group favoritism.

Overall, the pattern of facts we uncover is most consistent with low board racial diversity levels being due to search frictions, racial bias from limited attention, and/or taste-based discrimination (Becker, 1957). This lack of board racial diversity reflects broader trends of inequity in labor markets (Bertrand and Mullainathan, 2004; Lang and Manove, 2011), but due to the compounding effects of inequalities (Benoît, 1999; Powell and Butterfield, 2002; Rosette et al., 2008), the issue is more acute in the boardroom and the C-suite.[8] While there have been historical affirmative action efforts to address discrimination in hiring and employment (Holzer and Neumark, 2000; Darity and Mason, 1998), these initiatives have not been significantly extended to one of the most important arenas for corporate governance—the boardroom. By showing that defining race broadly in mandates can exacerbate racial disparities among already underrepresented groups, our results also highlight key nuances policymakers should consider when designing mandated quotas.

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positive reactions around the murder of George Floyd but no longer-term effects for their sample of S&P 500 firms. Other recent attempts at assessing the impact of racial diversity on firm value yield mixed results using a variety of techniques and data (Bermiss et al., 2023; Ba et al., 2023).

[8]This literature shows that minorities face greater barriers to advancement than others. For example, Benoît (1999) shows that universities often determine the qualifications of applicants based on results of statistically biased tests in which members of disadvantaged groups tend to score worse than equally qualified members of other groups. Further, Powell and Butterfield (2002) show that, for promotion review, applicants' race and gender influence promotion referral decisions to the advantage of female applicants and to the detriment of African American male applicants, with the effects unexplainable by differences in applicant qualifications. Using an experimental approach, Rosette et al. (2008) finds that "being white" is perceived to be an attribute of the business leader prototype, where participants assume that business leaders more than non-leaders are white. Moreover, Lang and Manove (2011) demonstrates that the black-white wage differential is the result of the labor market, not premarket factors. They show blacks earn significantly less than whites with the same levels of education and cognitive abilities (as measured by the Armed Forces Qualification Test (AFQT)).

2. Background

Our study examines the effect of two different types of events that could potentially influence board racial diversity: mandates and movements. In this section, we provide background information on the specific initiatives studied.

2.1. California racial diversity law

On February 21, 2019 Assembly Bill No. 979 was first read in the California State Legislature. The bill was created as a follow-up measure to California's board gender diversity mandate to stimulate diversity on the basis of race/ethnicity among corporate boards of publicly traded firms based in California. The mandatory rule set forth by the bill states that all firms with their principal executive office in the state of California, listed on a major stock exchange, were to have at least one "underrepresented community" on their board by the end of 2021. In the context of the bill, the term "underrepresented community" referred to individuals who self-identify as Black, African American, Hispanic, Latino, Asian, Pacific Islander, Native American, Native Hawaiian, or Alaska Native, as well as LGBTQ+ persons.[9] More stringent requirements were to be imposed by the end of 2022. Firms with five to eight board members were to have at least two diverse directors on their boards, while firms with nine or more board members were to have at least three diverse directors. Similar to the gender diversity law, non-compliance with the newly imposed standards would lead to monetary penalties. Assembly Bill No. 979 was met with very little opposition in the legislature prior to being signed into law by Governor Gavin Newsom on September 30, 2020.[10] This mandate was temporary. In April of 2022, this law was deemed unconstitutional by the Superior Court of California.[11]

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[9]Complete Assembly Bill No. 979 text is available here: `https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB979`

[10]The law passed the state senate by a margin of 26 to 8 on 8/29/2020 and the state assembly on 8/30/20 by a vote of 56 to 8.

[11]On 04/1/22, the California Superior Court ruled in favor of a group of California taxpayers represented by Judicial Watch. The group sued the California Secretary of State to prevent the state of California from using taxpayer funds to enforce Assembly Bill No. 979. The Superior Court declared the statute unconstitutional stating that it violated the Equal Protection Clause of the California Constitution. `https://www.jdsupra.com/legalnews/california-board-diversity-laws-struck-5886805/`

2.2. Nasdaq board diversity rule

On December 1, 2020, the Nasdaq filed a proposal with the SEC containing new board composition disclosure requirements for all Nasdaq-listed firms and on August 6, 2021, the SEC approved the Nasdaq board diversity rule.[12] The CEO of the Nasdaq, Adena Friedman, discussed the rule as an attempt to not only improve diversity, but also to improve transparency and foster economic growth.[13] The rule states that Nasdaq-listed firms would have to include at least one "diverse" director on their boards within two years after the SEC approval date, and two "diverse" directors within four or five years, depending on market tier. Since approval, these compliance dates have been set at December 31, 2023 and 2025 or 2026, depending on market tier.[14] In practice, the rule is a "comply or disclose rule," since firms can be deemed in compliance if they simply disclose why they are unable to meet the targets.

The rule addresses diversity along three dimensions: gender, ethnicity, and gender identity. This means that the term "diverse" can apply to women, "underrepresented minorities", or persons from LGBTQ+ communities. The Nasdaq rule considers an individual an "underrepresented minority" if his/her race is non-white. The specific race/ethnicities included are Black/African American, Hispanic/Latinx, Asian, Native American/Alaska Native, Native Hawaiian/Pacific Islander, two or more ethnicities, or a combination of the above. When requiring companies to have at least two diverse directors, the Nasdaq specifies that for most firms at least one of them has to self-identify as female, and at least one must be non-white or LGBTQ+. Non-US firms and small firms[15] are exceptions. Non-US firms can comply with the rule by having two female directors on their boards and small firms need only one "diverse" director to comply. Firms that

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[12]The SEC approval order can be found at `https://www.sec.gov/rules/sro/nasdaq/2021/34-92590.pdf`

[13]https://www.nasdaq.com/press-release/nasdaq-to-advance-diversity-through-new-proposed-listing-requirements-2020-12-01

[14]For firms listed on the Nasdaq Global Select Market and the Nasdaq Global Market, this time range is four years. For firms listed on the Nasdaq Capital Market, it is five years.

[15]Initially, small firms had the same requirements as large firms, but on February 26, 2021, Nasdaq filed an amendment to the initial diversity rule based on public reactions and comments to the rule. The most fundamental part of the amendment refers to small companies. According to the amendment, firms that have not more than five directors on boards, are able to satisfy the rule with only one diverse director - on the basis of gender, gender identity, or race/ethnicity. Compared to the initial rule, the amendment relaxes the more stringent requirement of having at least two diverse directors on the board. The amendment includes several more regulatory aspects that are immaterial for our study. Complete Amendment to the Nasdaq rule text is available here: `https://listingcenter.nasdaq.com/assets/Board%20Diversity%20Disclosure%20Five%20Things.pdf`

are unwilling or unable to follow the newly proposed diversity targets must present a formal statement of explanation or they face the threat of delisting. The rule also includes a provision to help certain listed firms identify and evaluate "board ready" diverse candidates by providing them with one year of complimentary access to board recruiting services. Additional details can be found in the formal description of the Nasdaq proposal.[16]

2.3. Acceleration of the racial justice movement

On May 25, 2020, in Minneapolis, Minnesota, Derek Chauvin and three other Minneapolis police officers tortured and extrajudicially executed George Floyd.[17] During the incident, a bystander filmed the incident and subsequently released the video. The video of George Floyd's killing shocked the world and prompted global protests of the abusive and excessive policing of Black people by law enforcement officers in the United States. Over the summer of 2020, mass BLM protests were held in every state in the U.S. with articulated demands for social justice ranging from firing specific police officers to defunding entire police districts.[18] Figure A.2 shows the enormity of the movement, displaying the number of demonstrations occurring each month in the U.S. split between those affiliated with the BLM movement and all others. BLM protests went from less than 1% of all protests in April of 2020, to nearly 90% of all protests in June of 2020, a month which totaled over 6,700 protests. The data also indicate that during June and May of 2020, the median state had over 100 BLM demonstrations. California had the most with over 800 during this period and North Dakota had the fewest with 17.

Over the course of 2020 and 2021, the social justice movement in the U.S. began to generate calls for increased equity and social justice beyond the realm of law enforcement. Societal pressure for businesses and business leaders to increase diversity efforts intensified. Corporations developed diversity, equity, and inclusion programs, updated vision and mission statements,

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[16]The complete text of the Nasdaq proposal is available here: `https://listingcenter.nasdaq.com/assets/RuleBook/Nasdaq/filings/SR-NASDAQ-2020-081.pdf`

[17]https://www.amnesty.org/en/latest/campaigns/2021/05/justice-for-george-floyd-a-year-of-global-activism-for-black-lives-and-against-police-violence/

[18]In February of 2021, the George Floyd Justice in Policing Act of 2021 was passed by the U.S. House of Representatives but the U.S. Senate did not move it forward.

and pledged billions to racial equity causes.[19] Corporate governance practices also came under scrutiny as diversity became a strategic imperative.[20]

3. Data and sample construction

3.1. Data sources

The data for our study come from five main sources: the Center for Research on Security Prices database (CRSP, hereafter), S&P's Compustat North America database (Compustat, hereafter), the Institutional Shareholder Services director diversity datafeed (ISS, hereafter), the S&P Capital IQ People Intelligence database (CapIQ, hereafter), and data from the U.S. Equal Employment Opportunity Commission's (EEOC, hereafter) Form EEO-1.

CRSP and Compustat are used to construct the sample of firms included in our study. CRSP is the source of data on stock returns, stock prices, stock listings, and share classifications. Compustat is used to construct firm-level control variables that are based on income and balance sheet items, as well as, industry classifications and headquarters locations.

ISS is primarily used to identify demographic characteristics of directors, namely race and gender. It includes information on over 325,000 directors working at over 32,000 public and private firms operating in 113 different countries around the world. The data begin in 2013 and are updated each day. The datafeed includes information on directors' affiliations (i.e. independent outsider, insider, etc.), start and end dates, committee assignments, equity and options holdings, voting outcomes, positions within firms, outside board activities, and importantly for our purposes, demographic information on race and ethnicity, gender, and age. Of the over 325,000 directors worldwide, race/ethnicity is identified for about 61,000 (almost 19%). About 65,000 of these directors sit on the boards of U.S.-based firms. In comparison, gender is identified for about 99% of the directors worldwide.[21]

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[19]https://www.nytimes.com/2021/04/20/us/george-floyd-protests-police-reform.html

[20]https://boardmember.com/will-social-justice-movements-change-governance-in-the-boardroom/

[21]Data on race and ethnicity is obtained through two main methods. The majority of these data are collected by ISS analysts who research directors. They identify race and ethnicity by searching news reports, reading biographies in annual filings, identifying internet sources for disclosures of race and ethnicity and manually inspecting photographs. ISS also sends surveys to companies asking them to disclose the racial/ethnic backgrounds of their executives, directors, and employees.

Director degree and educational institution information is from CapIQ. It covers over 2.4 million individuals worldwide including executives, board members, and investment professionals who work at both private and public companies. Matching algorithms based on name, birth year, and company are used to match directors in ISS with individuals in CapIQ.

We use data from the EEOC's Form EEO-1 to measure the racial composition of the local talent pool, which are the benchmarks used in our tests for racial disparities. This form is filed by all "private" (non-government entity) firms with one hundred or more employees. Firms with multiple sites file forms for each physical location describing the racial and gender composition of the site by job title. The EEOC provides annual aggregated data for different job descriptions at various geographic levels through 2021.[22] In 2021, the data covered over fifty-eight million U.S.-based employees. We combine these annual data to construct core-based statistical area-level (CBSA, hereafter) measures of the local director talent pool from 2012 to 2021. We match CBSAs to firms based on the CBSA of the firm's headquarters location.

3.2. Sample construction

We construct an annual panel of share-class-level observations from 2012 to 2022. This time period is determined by the availability of data on director race/ethnicity. Since the study focuses on board racial diversity in the United States, the initial sample includes ordinary common shares of firms (CRSP shrcd = 11 or 12) headquartered in the U.S. We focus on firms that are listed on the Nasdaq, the NYSE, and the NYSE - American. We identify all share classes in CRSP that meet these criteria at some point between December 31, 2012 and December 31, 2022 and then merge these share classes to Compustat North America using the CRSP/Compustat link file. Firms with multiple share classes are included only once in the firm-level analysis. During the sample period, there are, on average, 3,590 firms each year that meet these criteria.

Next we merge these data to ISS. Data on the racial/ethnic backgrounds of directors are available for most of the initial sample. Coverage averages 94% of firm-year observations or about 3,370 firms per year. Over the entire sample period, information on racial/ethnic background

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[22]The data are available at https://www.eeoc.gov/data/job-patterns-minorities-and-women-private-industry-eeo-1-0

is identified for over 93% of directors for the average firm. This figure is about 97% in the most recent year (See Panels (a) and (b) of Figure A.3 in the Appendix). However, for a few firms, coverage of directors' racial backgrounds is low. To reduce errors in our dependent variable, we only include firm-year observations with at least 75% coverage of director race in our final sample. This reduces the average number of firms in our sample each year to 3,240. Within this sample, over 29,500 new directors are elected to boards or about 2,950 each year (Panel (c) of Figure A.3 shows the number of new directors each year). Finally, we remove firm-year observations that are missing lagged firm-specific control variables. Our final "baseline" sample therefore includes roughly 2,800 firms per year from 2013-2022, including about 3,200 firms in 2022.

3.3. Variable construction

ISS uses the following nine categories to define race/ethnicity: Black/African American, Asian (excluding Indian/South Asian), Caucasian/White, Hispanic/Latin American, Native American/Alaskan Native, Indian/South Asian, Middle-Eastern/North African, Native Hawaiian/Other Pacific Islander, and Other. We aggregate race/ethnicities to capture different aspects of diversity. We define "minority" as any race that is not Caucasian/White. We further decompose this into: "URM", which includes underrepresented minority groups, and "NURM," which includes minority races that are not traditionally underrepresented. Race/ethnicities included in the URM category follow that used by a large university's diversity office.[23] Included races/ethnicities are Black/African American, Hispanic/Latin American, Native American/Alaskan Native, and Native Hawaiian/Other Pacific Islander. We include all individuals in these races/ethnicities regardless of citizenship status. The NURM subgroup includes Asian (excluding Indian/South Asian), Indian/South Asian, Middle-Eastern/North African, and Other.

Our main outcome variable is the percentage of a firm's new directors who are racial minorities ("Percent new directors minority"). This variable is set to missing for firms that do not elect directors during the year. We construct various forms of this variable based on different racial groups. Our focus on new directors is to capture the flow of director labor market activity since

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[23]Cornell University's Office of Diversity and Inclusion (D&I).

board composition itself is highly persistent. In our sample, board turnover is only 0.076% per year, indicating that it takes the average board about thirteen years to fully turnover. Additionally, the racial composition of retirements are largely determined by the existing racial composition of boards, which we show later is primarily white. However, in effort to maintain as balanced of a panel as possible in our triple difference analyses of the California board diversity law and the Nasdaq board diversity rule, we focus on changes in the racial composition of boards, which are driven by the races of both new and exiting directors.

Our main measure of the racial composition of the local director talent pool, "minority share of local managers," is the percentage of managers who are minorities in the firm's headquarters' CBSA lagged by one year. We define managers to include both "executive/senior level officials and managers" and "first/mid-level officials and managers."[24] We construct analogous measures for other racial subgroups (i.e. URM, NURM) and also other local labor market benchmarks based on only "executive/senior officials and managers" and on "all employees." Figures 2 and 3 display these benchmarks based on EEOC national employment data.

Firm-level control variables lagged by one year include "Majority-group board share" (the share of directors who are not in the minority group), "Minority-group share of local managers" (the share of local managers from the minority group), "ln(assets)" (the natural logarithm of the book value of assets), "ROA" (the sum of net income from the most recent four quarters divided by one year lagged book value of assets), "market-to-book" (market value divided by book value of the firm, where the market value of the firm is the sum of the value of long-term debt, preferred stock, and market capitalization minus deferred taxes), and indicator variables that indicate whether firms are headquartered in California, listed on the Nasdaq, or listed on the NYSE - American ("CA hq", "Nasdaq", and "NYSE - American," respectively).

Industries are identified using historical SIC codes found in CRSP/Compustat and are defined at the two-digit level. Firm headquarters location information is identified using historical header files from CRSP/Compustat. ZIP codes are merged to CBSAs (which include both micropolitan and metropolitan areas) using the ZIP code to CBSA crosswalk file provided by the U.S. Census

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[24]Details about form EEO-1 can be found `https://www.eeocdata.org/pdfs/2022_EEO_1_Component_1_Instruction_Booklet.pdf`.

Bureau. In some instances, we must define fixed effects as the interaction between CBSA and state, since CBSAs can span multiple states.

Characteristics of appointed directors come from a number of different sources. ISS includes data on birth year and from these data we construct the variable "age." "indep. dir." is an indicator variable that indicates if ISS classifies the director as independent.[25] Educational attainment variables, "MBA", "JD", and "PhD," are indicator variables that indicate each of these degrees. When no educational information is found, these variables are set to missing. Various director experience measures come from regulation S-K disclosures made by firms at the time of director appointments. ISS categorizes these skills into 16 different types of experience, which they call the "person skills matrix." These categories are very similar to those used in Adams et al. (2018), who analyze the impact of director skill sets on firm value.

Table 1 shows firm-level summary statistics for the sample period (2013-2022). The average board contains nine directors of which about 88% are white. About 50% of firms in any year elect at least one new director and 22% of new directorships were secured by minorities. Firms listed on the Nasdaq make up about 56% of firms and 17% of firms are headquartered in California.

4. Are minorities underrepresented on boards?

According to EEOC policy, underrepresentation occurs when a particular group is inadequately represented in the workforce of a particular activity. The EEOC uses the percentages of minorities in the labor market as benchmarks to determine minority underrepresentation.[26] Thus, "underrepresented" is defined relative to overall numbers of minorities "in particular grade levels and job categories." Against this backdrop, we analyze minority board of director representation, testing whether racial disparities exist in this labor market.

We define relative representation, $rr_{i,t}$, of newly appointed directors at firm i during year t as

$$rr_{i,t} = \%m_{i,t} - \%m_{i,t}^b, \tag{1}$$

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[25]An independent director is a member of the board of directors who does not have a material relationship with the company, is not part of its executive team, and is not involved in the day-to-day operations of the company.

[26]https://www.archives.gov/eeo/terminology.html

where $\%m_{i,t}$ is the percentage of newly elected directors who are minorities at the firm during the year and $\%m_{i,t}^b$ is the benchmark for minority representation. We then test for racial disparities each year by conducting univariate tests of $\overline{rr}_t \neq 0$. A positive estimate of our relative representation measure indicates that minorities are overrepresented relative to the benchmark, while an negative estimate indicates underrepresentation.

This analysis hinges on identifying an appropriate benchmark. Ideally, the benchmark would capture the racial composition of the potential director labor pool. Using the existing pool of directors for this purpose would be misleading if impediments to corporate advancement among individuals from certain racial groups cause them to be underrepresented among directors in the first place. Figures 2 and 3 illustrate that this is indeed the case. We therefore make assumptions about the minimum skills necessary to hold a directorship and the geographic proximity over which firms recruit directors. In terms of skills, we assume that, at minimum, a director must have management experience. Our data indicate that nearly 90% of new directors possess leadership experience. In terms of geographic reach, we focus on local director markets, those within the same CBSA as the firms' headquarters, since there is evidence that many directors live in close proximity to firm headquarters (Knyazeva et al., 2013).[27]

Utilizing the EEOC data, we define the director representation benchmark as the one-year lagged percentage of managers who are minorities in the CBSA of the firm's headquarters. We estimate average minority relative representation each year using the sample of firms that elect at least one new director during the year. The standard errors of our estimates are calculated using robust standard errors clustered by CBSA.

Figure 4 shows the annual coefficient estimates of relative representation of new minority directors each year and their 95% confidence intervals. The estimates presented in Panel (a) demonstrate that, prior to 2020, the minority share of new directors was persistently eight to ten percentage points lower than the minority share of the local managerial labor force (about 24%), indicating that minorities were underrepresented in the new director labor market by thirty to forty percent. However, in the last three years of the sample, minorities were not underrepresented

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[27]In unreported results, relaxing this assumption to allow for national benchmark does not materially change the results.

among directors hired. The minority share of new directorships peaked to over eleven percentage points higher than their representation in the managerial labor force and declined in 2022 to a level reflecting no over or underrepresentation.

Panel (b) of Figure 4 displays estimates of relative representation for both URM and NURM racial groups with analogous benchmarks to those in Panel (a) being created for each group. These estimates show divergent patterns between the URM and NURM groups. Prior to 2020, the URM share of new directors was persistently 7.5 percentage points lower than the URM share of the local managerial labor force (about 15.4%), indicating underrepresentation of nearly 50%. The new director share was statistically equal to the URM share of the local managerial labor force in 2020, peaked at nearly 8 percentage points higher than the URM share of the local managerial labor force in 2021, and returned to the 2020 level in 2022. The NURM group was not statistically underrepresented through 2020 but experienced an increase in representation in 2021 that continued in 2022.

To confirm that the post-2019 increase in minority relative representation in new directorships does not merely reflect a replacement of exiting minority directors, in Figure A.4 in the Appendix, we show analogous tests of relative representation of minority director exits. Here we alter Equation 1 by substituting $\%m$ with the percentage of the exiting directors at the firm who are minorities and the benchmark ($\%m^b$) with the lagged percentage of minorities on the board. The results show that minority directors do not exit at abnormal rates. In fact, URM directors exit at lower rates in all years other than 2020.

An important point to highlight is that these results reflect disparities in *hiring* practices. Given the historical deficits, minorities are underrepresented on boards overall for the entirety of our sample period. As board turnover averages about 7% per year, even at the current increased rate of minority board appointments, it would take over a decade for board representation to reflect the managerial labor market.

5. Why are minorities underrepresented on boards?

Thus far, our focus has been on highlighting the presence of racial disparities in director representation on corporate boards. In this section, our goal is to pinpoint the mechanisms behind these racial disparities.

To accomplish this, we employ several methodologies. First, we investigate whether racial disparities in director representation exhibit variations with firm size, using it as a proxy for search frictions. Second, we conduct an analysis of conditional, cross-sectional correlations between firm characteristics and the hiring of new minority directors. The analysis spans the period of persistent racial hiring disparities and the post-2019 period when these hiring disparities were mitigated. Examining changes in correlations during these two periods can provide insights into the primary drivers of the disparities. Next, we analyze the impact of mandated quotas and the influence of the racial justice movement in mitigating racial disparities in representation. We explore the implications of the limited labor supply mechanism through two distinct tests. We examine whether the observable characteristics of minority directors undergo changes in response to heightened demand for these directors. We additionally investigate how markets respond to the anticipation of firms appointing minorities to their boards.

5.1. Firm size and racial disparities

Costly search represents one potential factor contributing to the observed racial disparities in our study. Larger firms might be able to allocate more resources to director recruitment, possess more developed human resource policies, or offer financial and non-financial incentives that enhance the appeal of directorships. To investigate this, we segment our sample based on firm size (above and below the median) and conduct tests of racial disparities. The results, illustrated in Figure 5, align with the notion of search costs influencing racial disparities, as the disparities in large firms are approximately half the magnitude observed in small firms. Consistent with earlier findings, Panels (b) and (c) indicate that URMs primarily drive this outcome, while the relative representation of NURMs remains uncorrelated with firm size. These results support the idea

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that search frictions are a significant factor contributing to the underrepresentation of URMs in the new director labor market.

5.2. Firm characteristics and new minority directors

Our initial effort to understand the factors contributing to the racial disparities involves conducting firm-level Ordinary Least Squares (OLS) regressions. These regressions analyze the percentage of new directors who belong to minority groups, utilizing the same set of firms examined in our assessments of racial disparities. To capture potential drivers, we incorporate firm-level characteristics as covariates in our regressions.[28] Our regression model also includes covariates that serve as proxies for previously discussed mechanisms, along with industry by year fixed effects to control for time-varying heterogeneity at the industry level. The model we estimate is as follows:

$$
\begin{aligned}
\text{\% new directors minority}_{i,k,t} &= \beta_1 \times \text{minority-group share of local managers}_{i,t-1} \quad (2) \\
&+ \beta_2 \times \text{majority-group board share}_{i,t-1} \\
&+ \beta_3 \times \ln(\text{assets})_{i,t-1} + \mathbf{\Gamma}^{\mathsf{T}} \mathbf{x}_{i,t-1} + \delta_{k,t} + \epsilon_{i,k,t},
\end{aligned}
$$

where % new directors minority$_{i,k,t}$ is the percent of new directors who are minorities at firm i during year t; minority-group share of local managers$_{i,t-1}$ is the benchmark from our previous analysis, which is the share of local managers who are minorities, lagged one period; majority-group board share$_{i,t-1}$ is the proportion of the board that is not part of the identified minority group, lagged one period; ln(assets)$_{i,t-1}$ is the natural log of the book value of assets; $\mathbf{x}_{i,t-1}$ is a vector of lagged firm characteristics; and $\delta_{k,t}$ are industry by year fixed effects.

It is worth noting that in the context of Equation 2, we define the majority group in line with Dickinson et al. (2018). For each specification, the majority group comprises directors not belonging to the identified minority group. For instance, if the dependent variable is URM, then

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[28]We focus on new appointments instead of net flow as in Gormley et al. (2023) since as we show in Figure A.1 there is little variation through time in the percentage of minority director exits and exiting is dependent on being appointed in the first place.

the majority group consists of White and NURM. Our vector of lagged controls encompasses ROA to capture recent performance, and CA hq and Nasdaq to account for firms subject to diversity mandates.

A positive estimation of β_1 suggests that firms rely on the local director pool, indicating that search frictions may affect minority board appointments. A positive estimation of β_2 is consistent with firms actively pursuing diversity, as it indicates that companies with higher levels of racial homogeneity are more likely to appoint racially diverse directors. Conversely, a negative estimation of β_2 suggests a persistence in hiring majority-group directors (White in the case of all minorities). This could be due to the cost of searching outside existing networks driven by homophily, lack of attention, or racial bias. A positive coefficient on β_3 signals search frictions, particularly as smaller firms may face resource constraints.

The regression results in Table 2 show that, prior to 2020 (odd columns), four main firm characteristics predicted minority director hiring practices: the racial composition of the local talent pool, the racial composition of the board, firm size, and growth opportunities. Positive estimates of β_1 and β_3 align with search frictions impeding minority director appointments, while the negative estimate of β_2 may indicate search costs or racial bias. In the 2020-2022 period (even columns), firm size and growth remained significant factors for adding URM directors. We also see that firms became less reliant on local labor markets for URM directors. The post-2019 period also illustrates that racially homogenous boards started appointing URM directors.

The most noteworthy change is in the estimate of β_2. For the 2013-2019 period, majority-group board share is negatively correlated with the percentage of new directors who are minorities. Conversely, for the 2020-2022 period, majority-group board share is positively correlated with the percentage of new directors who are minorities. This shift is explored further in Figure 6, where annual estimates of β_2 show the dynamics of racial disparities. Panel (b) of Figure 6 highlights that the fluctuations were driven primarily by the URM appointments, as the NURM appointment β_2 coefficients were negative for the entire 2013-2022 period. The β_2 estimates for URM appointments were negative in the 2013-2019 period and became positive after 2019 (with all estimates significant except 2022).

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5.3. Estimating the impact of diversity mandates and movements

To enhance our understanding of the factors influencing racial diversity on corporate boards and to explore the effects of policies aimed at addressing racial disparities, we turn our attention to three significant events. We consider the emergence of the BLM racial justice movement as a transformative social force that raised awareness about race and racial injustice in America. The indication that this movement influenced corporate board appointments aligns with the possibility of heightened attention to these issues, or the presence of racial bias in the director labor market. The implementation of the California law and the Nasdaq rule required increased minority representation on corporate boards. From a policy perspective, we are keen to assess their effectiveness. Moreover, these "mandates" provide an opportunity to examine the limited labor supply mechanism. While we have previously demonstrated that minorities are underrepresented compared to a benchmark based on their composition in the managerial labor force, it remains possible that skills beyond managerial experience are necessary to become a director. These "mandates" allow us to directly test whether the observable skills of minority appointments by firms compelled to add minorities are weaker than the skills of minority appointments by firms not obligated to enhance minority representation (Ahern and Dittmar, 2012).

5.3.1. Estimating the impact of the racial justice movement

To lay the foundation for our subsequent analysis, Figure 7 underscores that the surge in Black director appointments preceded that of all other minority groups. Between 2019 and 2020, the share of new appointments for Black directors witnessed an increase of approximately 100%, rising from 6% to around 12%. In contrast, the shares of NURMs and non-Black URMs remained relatively constant during this period and only began to rise in 2021 when all minorities experienced increases in their shares of new directorships. Given the focused nature of the BLM movement on issues affecting Black individuals, this suggests that the rise of BLM potentially played a pivotal role in attenuating racial disparities in the labor market for new directors.

To quantitatively evaluate the impact of the racial justice movement on director appointments, we narrow our examination to the years 2019 and 2020. The BLM movement gained momentum

after the tragic murder of George Floyd in May 2020, marked by over six thousand nationwide protests in June of 2020. If indeed the racial justice movement influenced firms to hire Black directors, we would expect to find an increase in the Black director share of new directorships relative to other minorities during the second half of 2020.

Drawing inspiration from the analysis in Gormley et al. (2023), which leverages the timing of board gender diversity campaigns by large institutional asset owners, Figure 8 provides graphical evidence aligned with our hypothesis. It illustrates the share of newly appointed Black (Panel (a)) and non-Black minority (Panel (b)) directors on a monthly basis during 2019 and 2020. The figure demonstrates a substantial increase in the share of Black director appointments starting in July 2020, diverging significantly from any observed trends in 2019. In contrast, non-Black minorities showed no discernible differences in appointment shares between 2019 and 2020.

We formally estimate the impact of the racial justice movement on Black appointments by employing the following linear probability model:

$$
\begin{aligned}
\text{Black}_{j,k,t} &= \beta_1(\text{I}(2020)_{j,t} \times \text{I}(\text{June thru Dec})_{j,t}) + \beta_2(\text{I}(2020)_{j,t}) \\
&+ \beta_3(\text{I}(\text{June thru Dec})_{j,t}) + \gamma_k + \epsilon_{j,t}.
\end{aligned}
\tag{3}
$$

where $\text{Black}_{j,k,t}$ is one if director j is Black. I(June thru Dec) is an indicator variable that is one if new director j was appointed during the months of June through December and is zero otherwise. I(2020) is an indicator variable that is one if the appointment occurred during 2020. We include industry fixed effects (γ_k) and cluster standard errors by CBSA.

The treatment group comprises new directors appointed during 2020, and the control group includes new directors appointed during 2019. The treatment is associated with the murder of George Floyd in late May and the subsequent rise of the BLM movement. The average treatment effect is captured by the coefficient on the interaction term of I(2020) $\times$ I(June thru Dec), denoted as β_1. It represents the change in firms' propensity to appoint Black directors in the latter half of 2020 relative to 2019.

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In the first three columns of Table 3, we estimate Equation 3 with three different dependent variables: Black; Minority, non-Black; and URM, non-black. The latter two serve as counterfactuals since other minority groups were not the focus of the BLM movement. We estimate these models using the roughly 5,500 director appointments made by our sample firms during 2019 and 2020. The estimate of β_1 in column 1 is 11.7 with a t-statistic close to seven, indicating that appointments of Black directors increased 11.7 percentage points in the latter half of 2020. This represents a 185% increase relative to Blacks' baseline share of director appointments in 2019, which was 6.3%. Other minorities show no such increase. Estimates of β_1 for both counterfactual groups (columns 2 and 3) are indistinguishable from zero.

We next estimate the propensity to appoint Black directors within the sample of minority director appointments. The resulting estimates presented in Table 3 represent the Black share of minority appointments. In column 4, the sample is limited to all minority appointments, and in column 5, it is limited to URM appointments. The results indicate that the Black share of minority and URM appointments significantly increased in the latter half of 2020. In 2019, Black directors captured about 37 percent of all new minority directorships, and during the latter half of 2020, this rose by about 25 percentage points, or about 67 percent.

Given that the racial justice movement had no direct mechanism to compel firms to increase diversity standards, we posit that this evidence of the racial justice movement affecting board appointments is suggestive of racial bias in the appointment process. This evidence is also consistent with the racial justice movement illustrating the social costs of in-group favoritism (Dickinson et al., 2018) within firms, even in the absence of private firm costs.

5.3.2. *Estimating the impact of the California racial diversity law*

Both the California board racial diversity law and Nasdaq's board racial diversity rule offer opportunities for evaluating the effectiveness of "mandated" board racial diversity. To assess the

impact of the mandates, we employ a triple difference framework as follows:

$$
\begin{aligned}
\Delta(\% \text{ board minority}_{i,k,t}) \;=\; & \beta_1(\text{post}_t \times \text{treated}_i \times \text{non-comply}_i) && (4) \\
& +\; \beta_2(\text{post}_t \times \text{treated}_i) + \beta_3(\text{post}_t \times \text{non-comply}_i) \\
& +\; \beta_4(\text{non-comply}_i) + \beta_5(\text{treated}_i) + \delta_{k,t} + \epsilon_{i,t},
\end{aligned}
$$

where, $\Delta(\% \text{ board minority}_{i,k,t})$ represents the change in the percentage of minority directors on the board for firm i during year t. This dependent variable considers both incoming and outgoing directors, allowing for a more balanced panel. The "post" indicator variable denotes years after the law/rule implementation, and it is often disaggregated into individual years. The "treated" variable indicates whether the firm is subject to the mandate, encompassing California-based firms for the California mandate and Nasdaq-listed firms for the Nasdaq rule. The "non-comply" variable identifies firms not in compliance with the mandate, representing those in the treated jurisdiction expected to benefit from the mandate. Both "treated" and "non-comply," are time-invariant and constructed using firm-level data at the end of the calendar year preceding the first year of analysis (2017 for California and 2018 for Nasdaq). The model includes industry-by-year fixed effects denoted as $\delta_{k,t}$ to control for time-varying industry-level differences.

In this setting, β_1 captures the average treatment effect of the mandate, estimating the change in behavior of non-compliant firms relative to compliant firms around the treatment in the treated jurisdiction, with the change in behavior of non-compliant firms relative to compliant firms outside the treated jurisdiction serving as a counterfactual.

Using all firms in existence as of the end of 2017, we estimate Equation 4 by utilizing firm-year observations spanning from 2018 to 2022. The total number of firms subjected to our tests is approximately 2,500. Given that the California law was declared unconstitutional in early 2022, our primary assessments define adherence to the law based on the 2021 thresholds that required California firms to have at least one "diverse" director. We operationalize the indicator variable "non-comply CA 21" for firms lacking minority directors as of the end of 2017.

Panel (a) of Figure 9 illustrates the average percentage of minority directors for four distinct groups of firms within the California law triple difference framework (compliant California headquartered firms, non-compliant California headquartered firms, compliant non-California headquartered firms, and non-compliant non-California headquartered firms). In this setup, firms headquartered in California undergo treatment, with only non-compliant firms anticipated to benefit from the law. Conversely, none of the firms headquartered outside California are subject to the treatment. However, the triple difference framework mitigates changes in the racial composition of boards attributable to initial diversity levels.

The significance of this control mechanism becomes evident when considering non-compliant firms (depicted by solid lines), both in California (represented in black) and outside (depicted in grey). By construction, these firms start with no minority directors in 2017. The non-compliant firms within and outside of California experience comparable rises in racial diversity prior to the treatment. In 2021, there is an upturn in the racial diversity of non-compliant California firms relative to their non-California counterparts. This observation is particularly noteworthy as these are the firms expected to be directly impacted by the mandate. Non-compliant firms also exhibit a more substantial increase in minority directors through 2020 compared to compliant firms headquartered within or outside California. Compliant firms maintain relatively steady levels of minority directors during this period.

A key assumption of the triple difference setting is parallel trends in the ratios of non-compliant to compliant firms within the treated and control groups prior to the treatment (Olden and Møen, 2022). Panel (b) illustrates parallel trends, until 2020, in the ratio of minority directors for non-compliant to compliant California firms compared to non-California firms. From 2021 onwards, there is a noticeable relative increase in the ratio for California firms, supporting a causal interpretation of the results (Olden and Møen, 2022).

Table 4 presents the results of the triple difference tests. Columns 1, 3, and 5 illustrate changes in racial composition, while columns 2, 4, and 6 capture the cumulative effects of these changes by employing levels as dependent variables and incorporating firm-level fixed effects in the regressions. The findings indicate that the California mandate led to a 4.2 percentage point

increase in the representation of minorities on the average non-compliant California-based firm's board by the end of 2022 (refer to column 2). The majority of this increase occurred in the last year to comply with the 2021 thresholds, specifically in 2021. There was no increase in the percent of minority directors in 2022 most likely due to the fact that the law was deemed unconstitutional in April of 2022. Estimates in columns 3 through 6 reveal that NURMs experienced almost the entire benefit of this mandate, with a 4.1 percentage point increase in representation through 2022, while URMs saw no such benefit.

To comply with the mandate, California firms could opt to expand the size of their boards in order to add a new minority director. In columns 7 and 8, we examine whether the California mandate resulted in abnormal appointments or departures of directors. The results indicate that the mandate prompted the average firm to add an additional 0.15 directors in 2021, precisely when minority directors were added. While not all firms chose to comply by expanding their board sizes, a significant portion of non-compliant California firms did so.

Utilizing the 2022 mandated diversity thresholds to delineate compliance in our tests produces consistent but noisier results. The mandates are associated with increased minority representation, primarily benefiting NURMs. The variance in the estimates is likely attributable to the fact that California firms were never obligated to adhere to the 2022 thresholds, given the law's constitutional invalidation before these thresholds could take effect. The outcomes of these tests, along with summary statistics for the firms included, are detailed in Appendix Table A.1.

5.3.3. *Estimating the impact of Nasdaq board diversity rule*

We employ a similar methodology to assess the Nasdaq board diversity rule. In this case, our sample spans from 2019 through 2022 and includes all firms from our original dataset in existence at the end of 2018. Compliance with the rule is defined as of the end of 2018, and non-compliance is identified by the indicator variable "non-comply Nsdq 23," which aligns with the 2023 thresholds of compliance. Given that compliance by 2023 could be achieved through either gender or racial diversity, a substantial proportion of firms were already compliant with the rule at the end of 2018 (approximately 85% of Nasdaq firms and 92% of other firms). Our analysis

concentrates on the 2023 requirements since our data extends through 2022. However, we show results using the 2025 thresholds in Appendix Table A.2.

Figure 10 illustrates the progression of the average board racial composition for the four groups of firms in the Nasdaq analysis (compliant Nasdaq firms, non-compliant Nasdaq firms, compliant non-Nasdaq firms, non-compliant non-Nasdaq firms). The figure provides supporting evidence for our assumption of parallel trends in ratios concerning board composition with respect to the Nasdaq rule. In Panel (b), the figure demonstrates that these ratios largely exhibit parallel movement from 2017 through 2020, with divergent behavior emerging from 2021 onward. Specifically, non-compliant Nasdaq firms increase racial diversity relative to compliant Nasdaq firms at faster pace than do non-compliant firms listed on other exchanges relative to their compliant counterparts. Furthermore, Panel (a) indicates that it is the non-compliant Nasdaq firms, precisely those that stand to benefit from the rule, that experience an increase in racial diversity. Similar to the California mandate, this evidence enables us to draw causal conclusions (Olden and Møen, 2022).

Formal results of the triple difference tests are displayed in Table 5. While the compliance period for the Nasdaq rule had not yet commenced during our sample period, results similar to the California law are emerging. The results indicate that the Nasdaq rule has led to a 3.2 percentage point increase in the representation of NURM directors on boards through 2022, but it has had no discernible effect on increasing representation among URM directors. We also use the 2025 requirements to categorize compliance, since the 2023 requirements affect very few firms (about 15% of Nasdaq-listed firms) and these firms can also comply with the rule by adding women to their boards. However, using these more stringent requirements does not yield different results. These additional results are detailed in Appendix Table A.2.

Our initial univariate tests of underrepresentation suggested that URMs are underrepresented in the new director labor market, whereas NURMs are not. If the objective of the analyzed mandates was to alleviate labor market frictions contributing to underrepresentation, they appear, at first glance, to have fallen short. Both board racial diversity mandates succeeded in increasing representation among NURM directors but proved ineffective in boosting representation of URM

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directors. However, in California, we estimate that the local labor supply of NURM directors exceeds that of other regions by over three times (refer to Appendix Table A.1, Panel (c)). Consequently, we proceed to examine racial disparities specifically for subsets of California and Nasdaq firms.

In Panel (a) of Figure 11, it becomes evident that, similar to URM directors, NURM directors were underrepresented in California by approximately ten percentage points through 2020. However, in 2021, the NURM representation gap closed. It appears that the California mandate effectively helped reduce racial disparities for NURMs for California headquartered firms.

Conversely, Panel (b) of Figure 11 paints a different picture. NURMs were not underrepresented on corporate boards of Nasdaq firms, yet the rule prompted firms to add NURMs in greater numbers, leading to their overrepresentation in 2021 and 2022. Simultaneously, the racial justice movement seemed to temporarily reduce URM underrepresentation in Nasdaq firms, but by 2022, URMs were again underrepresented, albeit to a lesser extent than before 2020. To this point, the Nasdaq rule has been ineffective at reducing racial disparities among their listed firms, although compliance with the rule is not compulsory until 2025.

5.4. Assessing the depth of the minority director talent pool

We next consider if there is a limited supply of minority directors which contributes to the racial disparities that we document. One often-raised concern about mandates is the potential scarcity of qualified directors within the mandated subgroup. If supply constraints exist, the mandates prompting firms to appoint more minorities may result in appointments of less qualified directors. Consequently, we conduct tests to investigate whether this mechanism is in effect.

In Figure 12, we illustrate the percentage of minority representation (including subgroups) in the stock of new directors, comparing it with our benchmark derived from EEOC data on the minority share of managers. The new director stock represents the cumulative hiring of directors over the sample period. For example, the percentage in 2017 reflects the minorities hired as new directors from 2013 to 2017 who remain directors in 2017, and by 2022, it encompasses all hires over the ten-year span between 2013 and 2022 who are still directors in 2022. Panel (a) of

Figure 12 indicates that the minority composition in the hired director stock consistently lags behind the benchmark, indicating that the talent pool for minorities has not been fully utilized. Further analysis of subgroups reveals that both NURM and Black director stocks have recently approached their manager-based benchmarks, while the talent pool for non-Black URM directors remains relatively untapped. With this in mind, we do not anticipate discovering that recently hired minority directors are less qualified.

Prior research has shown that director quality decreased following mandated gender diversity in Norway (Ahern and Dittmar, 2012). Thus, we examine whether the qualifications of new minority directors underwent changes in the aftermath of the racial justice movement and the implementation of mandates in California and for the Nasdaq. Since quality is not directly observable, we run tests using observable director characteristics that are correlated with quality. We estimate changes in observable characteristics of racially diverse directors around mandates and the racial justice movement with the following equation:

$$
\begin{aligned}
\text{characteristic}_{i,j,k,l,t} \;=\; & \beta_1(\text{post}_t)(\text{Black}_{i,t}) + \beta_2(\text{post}_t)(\text{URMNB}_{i,t}) \qquad (5) \\
+\; & \beta_3(\text{post}_t)(\text{NURM}_{i,t}) + \beta_4(\text{Black}_{i,t}) + \beta_5(\text{URMNB}_{i,t}) \\
+\; & \beta_6(\text{NURM}_{i,t}) + \gamma_l + \delta_{k,t} + \epsilon_{i,j,k,t},
\end{aligned}
$$

where the characteristic is a trait or experience of appointed director i by firm j at time t, operating in industry k and headquartered in location l. "Post" indicates the time period after the initiatives (July 2020 onwards). "Black", "URMNB", and "NURM" are indicator variables that are one if the director is Black, non-Black URM, or NURM, respectively. $\delta_{k,t}$ represents industry by year fixed effects and γ_l is a headquarters location (CBSA) fixed effect.

The β estimates from Equation 5 for each director characteristic are presented in Table 6. These estimates utilize all new director appointments made by firms in our sample for the period from 2013 through 2022. The results do show that, prior to 2020, minority directors had slightly different backgrounds than White directors. For example, before 2020, Black and non-Black URM directors held positions on more boards than their counterparts, were more likely to possess

government, legal, human resources, and CSR experience, and were less likely to be a CFO or have industry experience. NURM directors were more likely to have a PhD and international experience, held positions on fewer boards, and were less likely to be a CEO or CFO.

Minority director characteristics changed very little after the demand shocks, which is consistent with our prior expectations. Post-2020, academic experience became more prevalent among Black and non-Black URM directors. However, Black and non-Black URM directors hired after 2020 were even less likely to have CEO experience. We do not interpret this as an indication of reduced quality since this relationship could be purely mechanical. As there was no increase in the percentage of minority CEOs during the racial justice movement (See Figure 3). NURM directors became more likely to hold an MBA but less likely to have a background in government during the post-period. The only indication consistent with a limited supply story is the reduction in financial expertise among directors in the non-Black URM category. While directors play many roles on boards, this could signal that the labor supply is thin among non-Black URM candidates with this particular expertise. Considering these minimal shifts in minority director characteristics, we conclude that there is scant evidence to suggest that the demand shocks from racial diversity initiatives led firms to appoint less qualified directors. Overall, our findings suggest that the limited labor supply mechanism is unlikely to be a significant factor driving the previously documented racial disparities.

5.5. Stock market reactions to mandates and movements

While we have demonstrated that the observable skills of minority directors did not diminish following the increased demand for minorities on boards, another method to assess changes in director quality is to analyze stock market reactions to the acceleration of the racial justice movement and the board racial diversity mandates.[29] We analyze stock market reactions to any changes to board racial diversity due to the racial justice movement and the board racial diversity mandates. Efficient markets are expected to react promptly and accurately to anticipated board

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[29]Billings et al. (2022) find the "MeToo" movement caused firms that historically have excluded women from their boards to experience negative abnormal market returns, while firms that historically embraced gender inclusion experienced positive abnormal returns.

composition changes. If the stock prices of firms that will add minority directors abnormally rise relative to those that will not, it could imply that the market believes diversity will lead to value creation. Therefore, we conduct event studies around the initial "announcements" of these events and examine abnormal stock returns of firms affected by these initiatives.

We estimate abnormal returns ($\hat{\alpha}_i$) on the event date as the actual return minus the predicted return under various asset pricing models, where our baseline model is the CAPM. Similar to Greene et al. (2020), factor loadings for the asset pricing models are estimated using daily returns over one year lagged by 20 trading days prior to the event and we drop firms with less than 30 daily returns in the estimation window.

Our tests of the California and Nasdaq mandates follow a similar spirit to the triple differences estimated earlier in Equation 4, specifically, we estimate:

$$
\begin{aligned}
\hat{\alpha}_{i,k,l} &= \beta_1(\text{treated}_i \times \text{non-comply}_i) + \beta_2(\text{treated}_i) + \beta_3(\text{non-comply}_i) \\
&+ \mathbf{\Gamma}^\mathsf{T}\mathbf{x}_i + \delta_k + \gamma_l + \epsilon_i.
\end{aligned}
\tag{6}
$$

where, $\hat{\alpha}_{i,k,l}$ is the estimated abnormal return of the stock of firm i, in industry k, located in location l, on the announcement day of the mandate ($t = 0$).[30] The "non-comply" indicator variable is defined using the long-term mandated diversity levels for each mandate, so for California and the Nasdaq it is based on the 2022 and 2025 thresholds, respectively. The "treated" indicator variable indicates California headquarters or Nasdaq listing, depending on the mandate. Firm-level control variables ($\mathbf{x}_i$), "non-comply," and "treated" are measured at the end of the quarter prior to the mandate announcement. The full model also includes location (γ_l) and industry (δ_k) fixed effects to control for differential returns on these dimensions. The coefficient of interest in Equation 6 is β_1, capturing the average abnormal returns of firms with boards that do not meet the announced diversity requirements and that are subject to them. The estimate represents the difference in returns between non-compliant and compliant firms in the treated

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[30]Announcement day returns are measured from the close of the previous trading day to the close of the announcement day.

jurisdiction using the difference in returns between non-compliant and compliant firms outside the treated jurisdiction as a counterfactual.

Analyzing the impact of the racial justice movement is more difficult, since unlike the board racial diversity mandates, the BLM movement was national in scope, implying that there is no "untreated" jurisdiction in the U.S. We showed earlier that this event was an exogenous shock to the demand for racially diverse, particularly Black, directors for all firms. We hypothesize that it was likely even stronger for firms that lacked Black directors on their boards. We therefore consider firms without Black directors as those that are not complying with societal norms ("non-comply"). We estimate the following regression equation, where all variables are defined as above and "No Black directors" indicates firms that had no Black directors on their boards as of the end of March 2020:

$$\hat{\alpha}_{i,k,l} = \beta_1(\text{No Black director}_i) + \mathbf{\Gamma}^\intercal \mathbf{x}_i + \delta_k + \gamma_l + \epsilon_i. \tag{7}$$

5.5.1. Stock market reactions to the California Assembly Bill No. 979

The California board racial diversity law was introduced as Assembly Bill No. 979 in the California Legislature on February 21, 2019. Thus, we use February 21, 2019 as the event date for our study. In the context of Equation 6, "non-comply" firms are those that do not meet the 2022 board diversity requirements (see Section 2.1) outlined by the original bill as of December 31, 2018. We create the variable "non-comply CA 22" to indicate these firms. Similarly, the "treated" variable is "CA hq," which is one if the firm is headquartered in the state of California. In this setting, we are comparing the difference in the abnormal announcement returns of non-compliant firms to compliant firms headquartered in California versus the difference in abnormal returns of these two groups of firms headquartered outside of California.

The estimates using eight different specifications are presented in Panel (a) of Table 7. Our baseline estimate of β_1 in column 4 is positive at 26 basis points, but it is not statistically different from zero. In column 5, where we eliminate firms with nominal prices below five dollars to reduce potential biases arising from low-price and illiquid stocks (Harris, 1990), we find that the

stock prices of non-compliant California-based firms saw, on average, abnormal increases of 31 basis points on the day of the bill introduction. However, this result is tenuous. In most other specifications, our estimates of β_1 are not statistically different from zero.

In Figure 13, we plot estimates of β_1 for cumulative abnormal returns out twenty days from the event. Panels (a) and (b) show that even if we conclude that the announcement returns were positive, they were also temporary, suggesting a possible behavioral reaction by investors to the news. This holds true when including all firms in the sample and when excluding firms with a nominal share price less than five dollars.

We also estimate our models using a continuous version of the non-compliance measure used in previous analysis, "Minority add by 22," which captures the number of minorities the firm must add to be in compliance with the 2022 California thresholds. Using this measure, we find similar non-results (See Table A.4, Panel (b)).

5.5.2. Stock market reactions to the Nasdaq board diversity rule

On December 1, 2020, the chairman of Nasdaq announced its proposed board diversity listing requirement. At the time of the announcement, the rule mandated that most firms comply with the rule by appointing two "diverse" directors, with at least one self-identifying as female and at least one as minority or LGBTQ+. Since our focus is on the racial diversity aspect, we emphasize the long-term racial diversity requirements of the rule. Therefore, we define non-compliance with the rule using the indicator variable "non-comply Nsdq 25," which identifies firms with no minorities on their boards as of the end of September 2020. The "treatment" variable is the indicator "Nasdaq," which identifies firms listed on the Nasdaq as of the end of September 2020. At this time, about 44% of Nasdaq firms did not meet the racial diversity requirements, while this figure was about 29% for firms listed on other exchanges.

Panel (b) of Table 7 displays our estimates of β_1. Unlike the response to the California Bill, non-compliant Nasdaq firms experienced negative abnormal returns. Our baseline estimate in column 4 implies that non-compliant Nasdaq firms experienced an abnormal return of -50 basis points. However, once we remove low-priced stocks, this negative result weakens to -38

basis points and is significant at the 10% level. Similar to the announcement effect in California, Panels (c) and (d) of Figure 13 show that the stock market response of non-compliant Nasdaq firms was also temporary. Cumulative abnormal returns do not stay significantly below zero beyond twelve trading days. It is also worth noting that the Nasdaq rule announcement came during a tumultuous time, with President Donald Trump challenging the legitimacy of the 2020 presidential election. Racial tensions were high, and on any given day, there were reports of both racist and anti-racist protests, introducing a number of potentially confounding, unobservable factors and events that could influence returns.

5.5.3. Stock market reactions to the racial justice movement

We use the murder of George Floyd as the catalyst for the acceleration of the racial justice movement. He was murdered on Sunday, May 25. We, therefore, set the event date to Monday, May 26, the first trading day after his murder. We estimate Equation 7 to assess the stock market reaction of firms most affected by the racial justice movement. Panel (c) of Table 7 displays the results. Without controls, firms that did not have Black directors underperformed those with Black directors by about 96 basis points. However, these firms differ on many dimensions, notably size. Including controls and fixed effects into the specification pushes these differences to 43 basis points (column 4), and removing low-priced stocks from the sample pushes the abnormal returns to be indistinguishable from zero.[31] Focusing on longer-term returns, Figure 13 shows that firms with no Black directors underperform those with Black directors over the next 20 trading days (Panel (e)), but once we remove stocks that have low prices, these return differentials are indistinguishable from zero (Panel (f)).

Overall, the evidence from these event studies is mixed. Markets reacted negatively to the prospect of firms adding minorities to their boards for both the Nasdaq rule announcement and the murder of George Floyd. The announcement day returns for firms headquartered in California were slightly positive or neutral. Commonality in the results emerges when looking out further in time. After twenty days, any abnormal returns that previously existed reverted

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[31]This was a time of immense volatility in markets. The average CAPM-adjusted return on that day was around 1.8%.

to zero. The passage of time will enable us to conduct a more thorough investigation of the performance effects of these demand shocks, allowing us to focus on accounting performance and other relevant measures.

6. Conclusion

Utilizing a comprehensive sample of U.S. firms, our study reveals the existence and persistence of racial disparities in the labor market for new directors through 2019. Notably, these disparities were unique to underrepresented minority (URM) racial groups, facing underrepresentation by nearly 50%. However, post-2019, both URM and NURM groups witnessed subsequent increases in representation.

We investigate three mechanisms contributing to these racial disparities: search frictions, bias, and a limited supply of minority directors. Our findings point to search frictions, racial bias, and inattention, as the primary factors driving the underrepresentation of URMs in the director labor market.

Several findings align with the search frictions channel. The racial disparities in URM director representation are approximately half as large among large firms compared to small firms. Furthermore, prior to 2020, firms with fewer URM directors on their boards were less inclined to appoint new URM directors, indicating a reliance on homophilic networks for candidate identification. However, after 2020, racially homogenous boards became more likely to hire URM directors, suggesting a shift in boards looking beyond their internal networks for candidates. This last finding is also consistent with the racial bias channel, indicating a preference for hiring "in-group" directors before 2019 and a willingness to hire outside the in-group thereafter. Additionally, the changing dynamics between non-URM board share and URM new director share suggest that boards may be altering their perspectives on race or paying increased attention to racial issues in the post-2019 period. Consistent with this, our estimates indicate a 185% increase in Black director appointments following the tragic murder of George Floyd, while other minority groups did not experience such increases.

We find no supporting evidence for the limited labor supply mechanism. Tests analyzing observable characteristics and credentials of directors indicate that minority directors hired before and after minority director demand shocks are quite similar. Moreover, event studies conducted around the announcements of these demand shocks do not validate the notion that markets perceive minority directors as less qualified. In general, there were no abnormal stock market reactions around these events for firms expected to add minorities to their boards due to the shocks. Lastly, when comparing the stock of new minority directors to a benchmark, it appears that the supply has still not been fully tapped, especially for non-Black URM directors.

Our examination of the effectiveness of mandates and movements reveals valuable insights from a policy perspective. We estimate that the racial justice movement initially had a significant impact on the appointment of URM directors, but not all years in the post-2019 period indicate the same level of increased appointments. An open question remains as to the persistence of the effect of movements on changes in hiring practices. Mandated diversity by the state of California and the Nasdaq also increased minority director appointments, for NURM directors, who were indeed underrepresented among California firms, but not among Nasdaq-listed firms. This underscores a crucial distinction in mandating race versus gender diversity, where policymakers can influence different outcomes based on their discretion in defining "diverse" groups. These definitions may vary depending on the motives of the institutions implementing board racial diversity mandates.

Despite the recent reduction in hiring disparities, we find minorities are still underrepresented on corporate boards due to historical deficits. Furthermore, even at the increased rate of minority board appointments, low rates of board turnover (about 7% per year on average) mean that it would take more than a decade for corporate boards to reflect the composition of the managerial labor market. The long-term effects of social movements and mandated corporate board racial diversity on U.S. firms remain an open question and depend on the chosen success metric (labor market efficiency, firm value, ESG, social justice). Our analysis of stock price reactions to minority director demand shocks provides inconclusive results regarding firm value. We acknowledge the limitations of our event studies in estimating these value effects, as they rely on

assumptions that markets swiftly and accurately anticipate the value impact of increased board racial diversity. Future research is imperative to quantify the long-term impacts of racial diversity on U.S. corporate boards.

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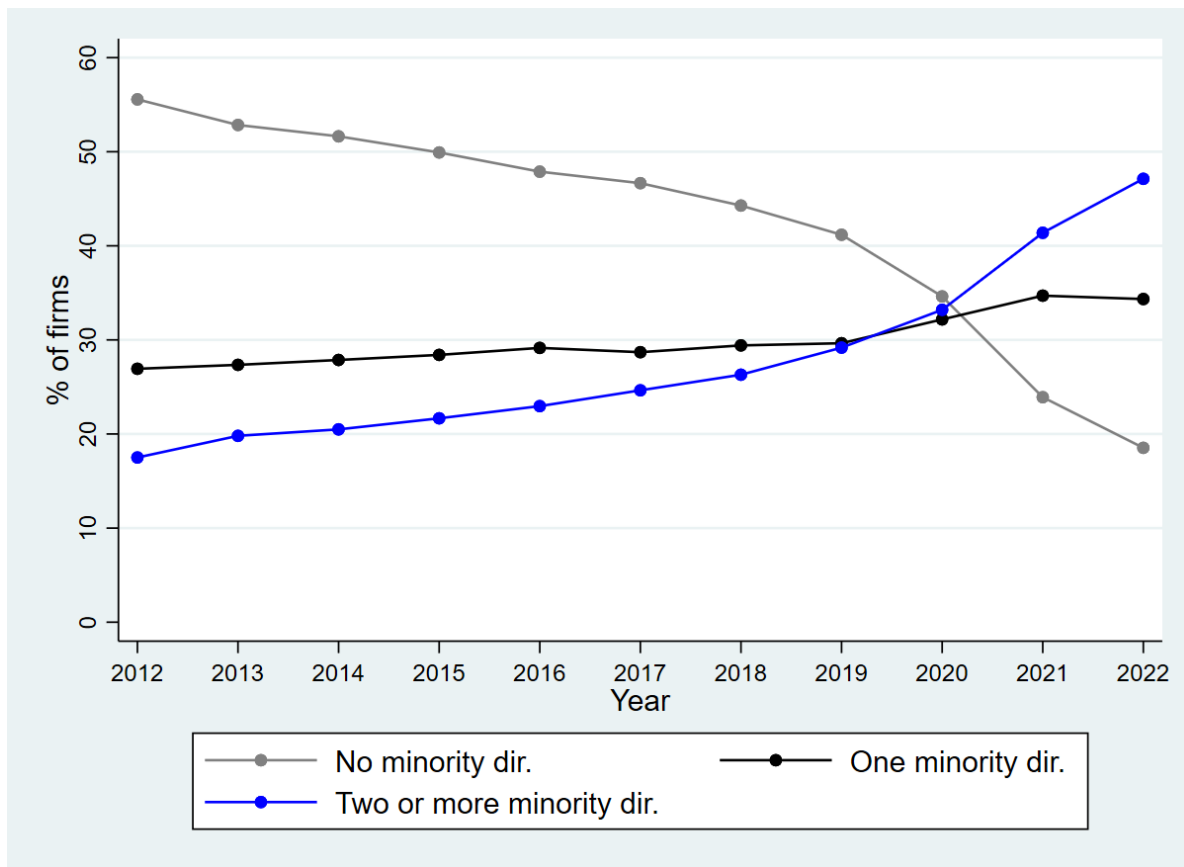
Fig. 1: Board racial composition through time

The figure illustrates the time series trends in the racial composition of boards from the sample of U.S.-based firms listed on the NYSE, Nasdaq, and NYSE - American discussed in Section 3.2 of the text. The percentage of firms with no minority directors, one minority director, and two or more minority directors over the sample period are shown.

Fig. 2: Minority representation by corporate role from 2013-2022

The figure plots time series trends of the percent of minorities employed in U.S. firms by job category. Solid lines use data from the sample of U.S.-based firms listed on the NYSE, Nasdaq, and NYSE - American discussed in Section 3.2 of the text. Dashed lines use national level data from Form EEO-1 of the EEOC. A description of these measures is discussed in Section 3.3 of the text.
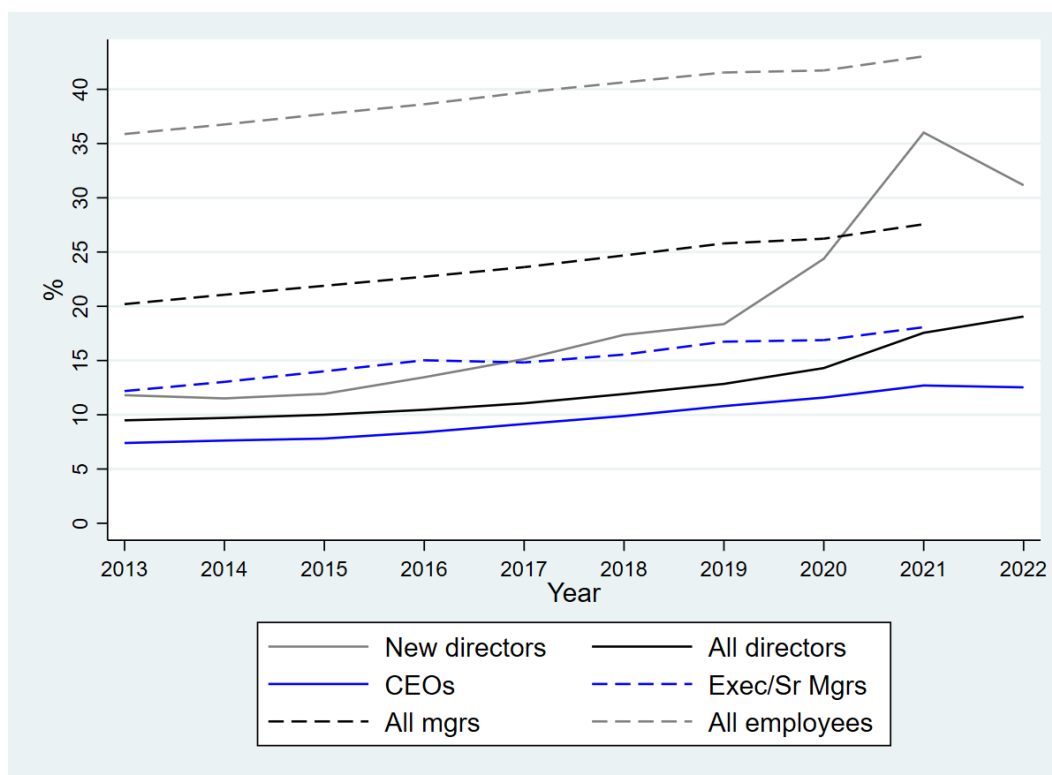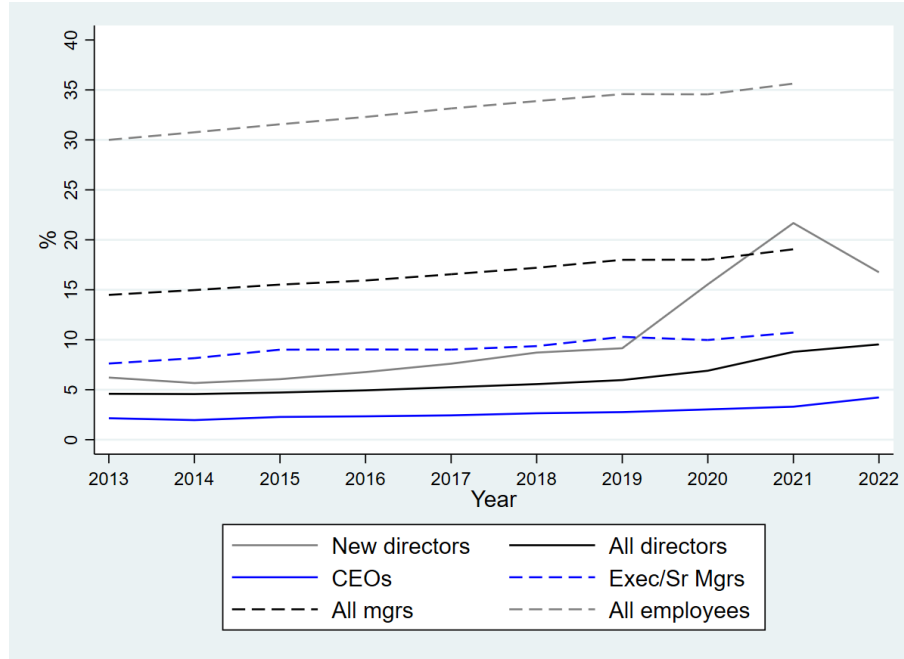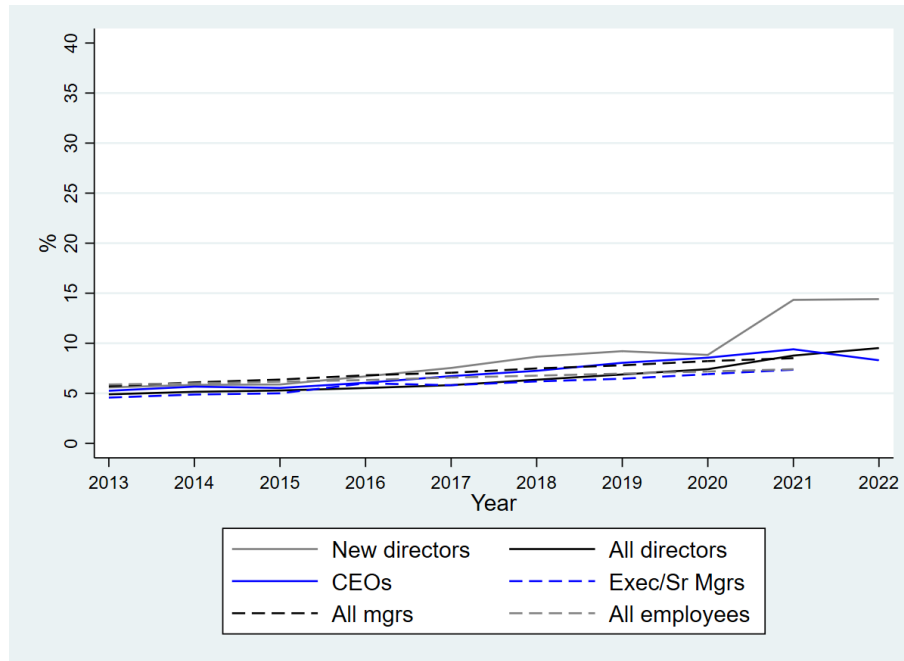
(a) URM

(b) NURM

Fig. 3: URM and NURM representation by corporate role from 2013-2022

The figure plots time series trends of the percent of URMs (a) and NURMs (b) employed in U.S. firms by job category. Solid lines use data from our sample of U.S.-based firms listed on the NYSE, Nasdaq, and NYSE - American discussed in Section 3.2 of the text. Dashed lines use national level data from Form EEO-1 of the EEOC. A description of these measures as well as, the races/ethnicities included in each group, is found in Section 3.3 of the text.
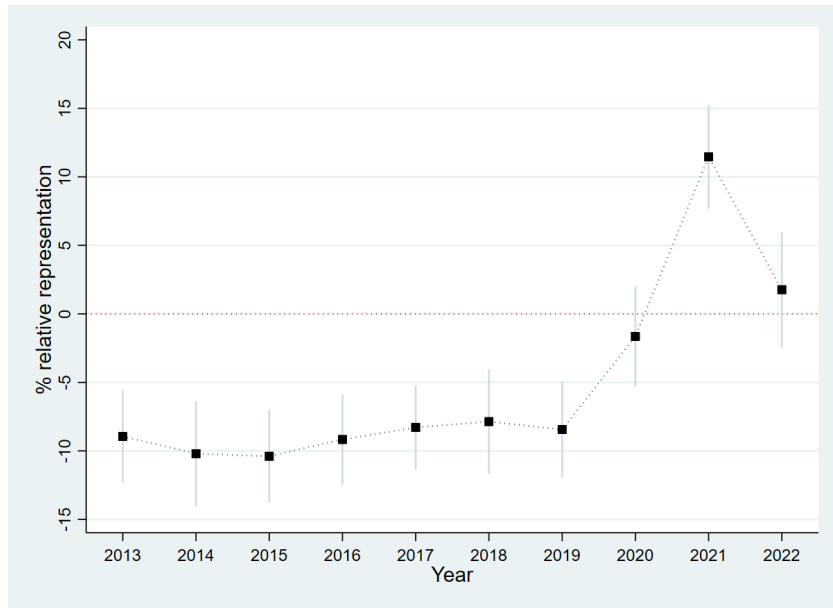
(a) Minority
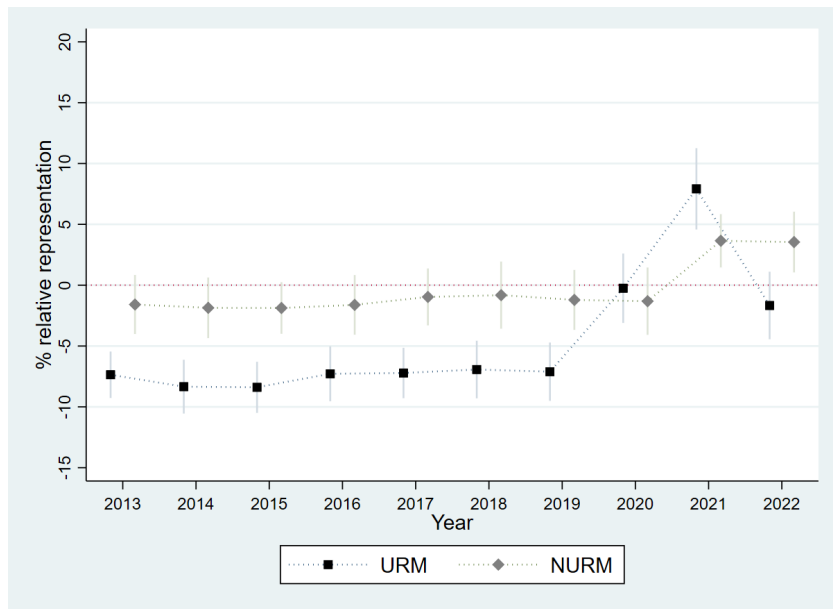
(b) URM and NURM

Fig. 4: Relative representation of new minority directors

The figure shows annual estimates and 95% confidence intervals of relative representation of minority new directors defined as the average difference between the minority share of new directors at the firm minus minus the percent of minority managers in CBSA of the firm's headquarters (See Eq. 1). Panel (a) shows estimates for minority directors and panel (b) shows estimates for both URM and NURM directors each year.
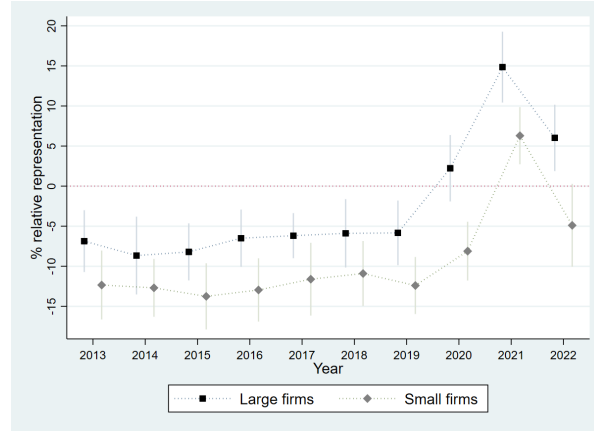
(a) Minorities
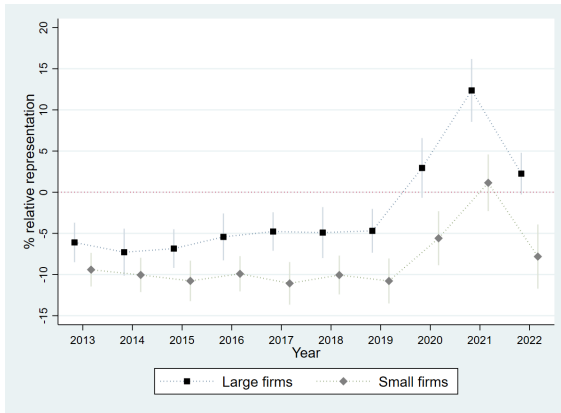
(b) URM
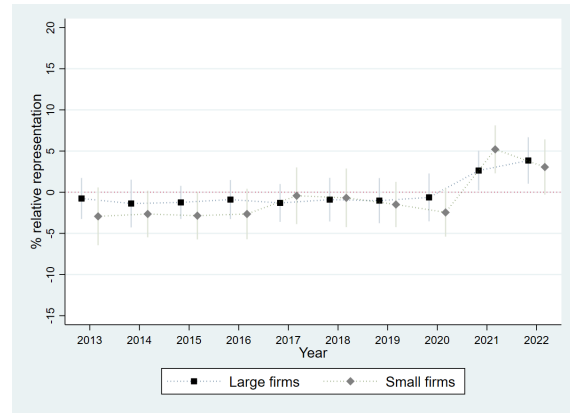
(c) NURM

Fig. 5: Relative representation of new minority directors by size

The figure shows annual estimates and 95% confidence intervals of relative representation of minority (a), URM (b), and NURM (c) new directors for subsamples split by firm size, where large firms are those above the median size each year.
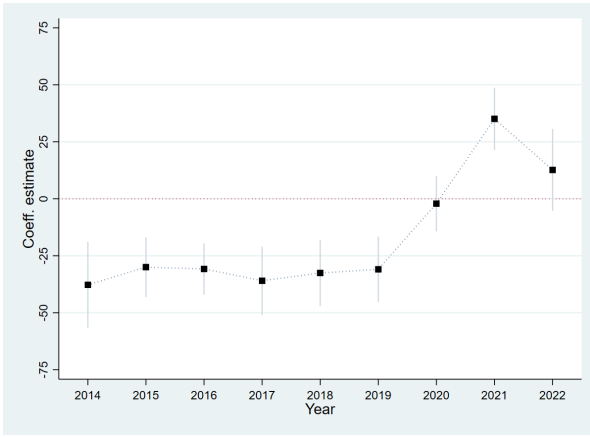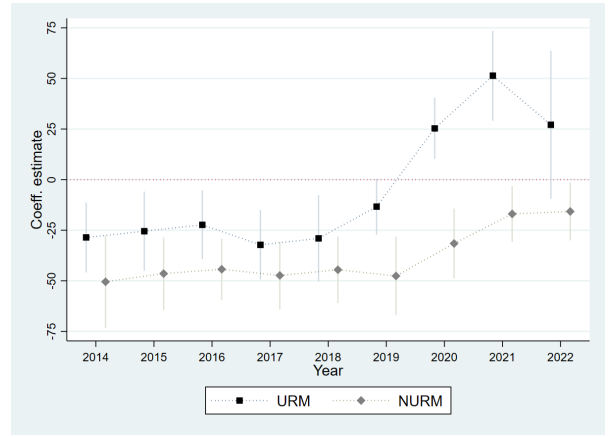
(a) Minority   (b) URM and NURM

Fig. 6: Board racial composition and new minority directors

The figure shows estimates and 90% confidence intervals of β_2 from equation (2) for subsamples of the sample used in Table 2 split by calendar year for minority, NURM, and URM appointments. β_2 is the coefficient on lagged majority-group board share. Confidence intervals are computed using robust standard errors clustered by industry.
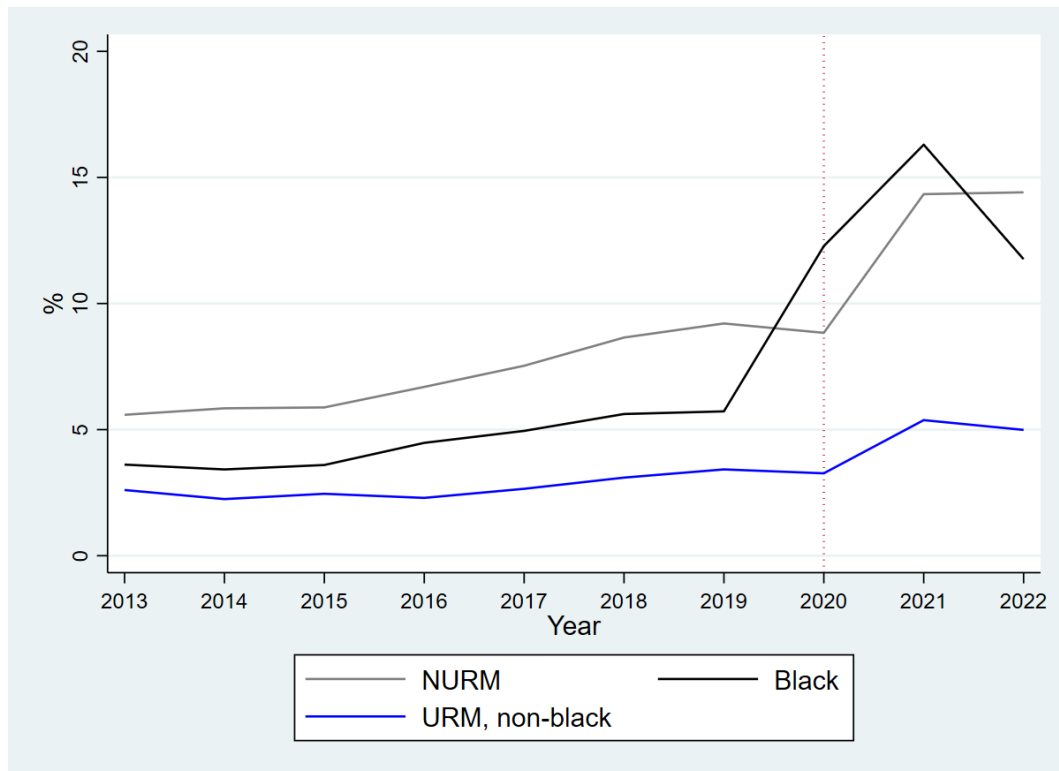
Fig. 7: Minority share of new directors by minority subgroup

The figure plots the annual time series of the average minority share of new directors by minority subgroups: Black, URM - non-black, and NURM.
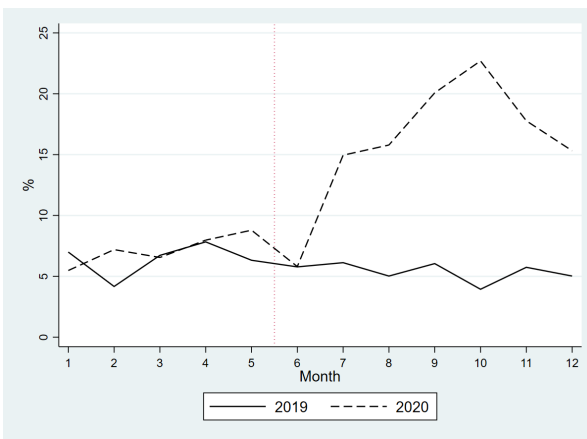
(a) Black new directors
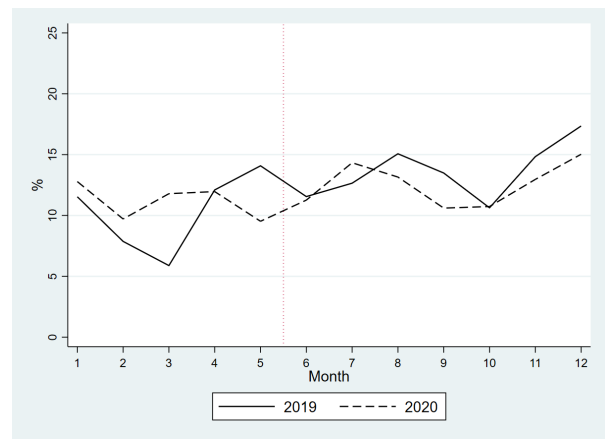
(b) Non-black, minority new directors

Fig. 8: Monthly minority share of new directors by minority subgroup - 2019 and 2020

The figure shows the monthly time series of the average minority share of new directors during 2019 and 2020. Panel (a) shows the Black share of new directors. Panel (b) shows non-Black, minority share of new directors, which includes NURMs and non-black, URMs.
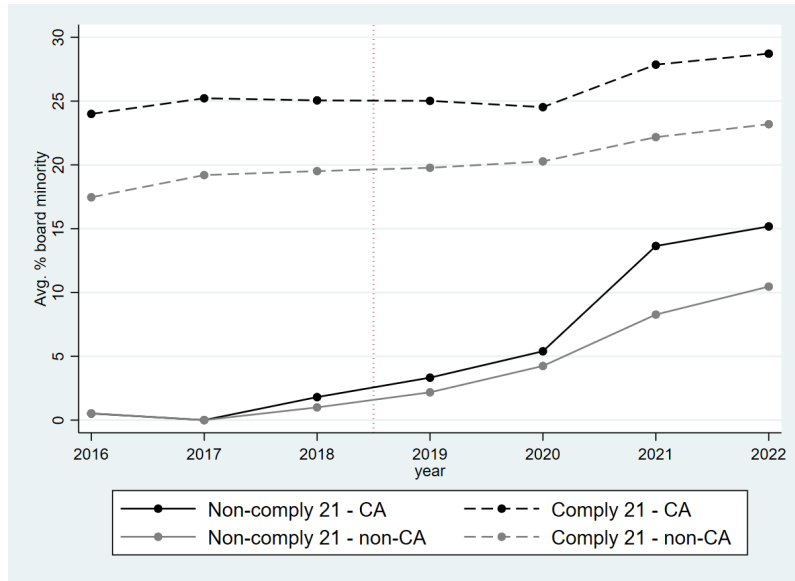
(a) Levels
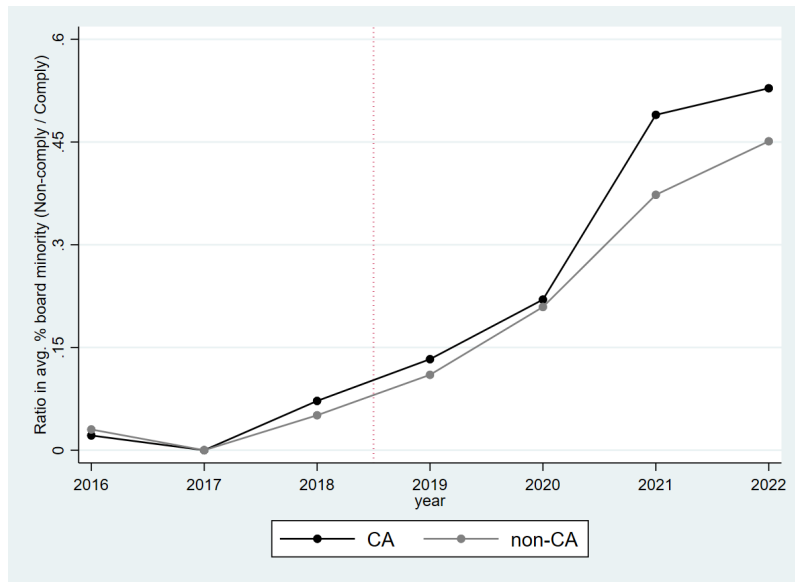
(b) Ratios

Fig. 9: Board racial composition by subgroup for the California triple difference tests

The figure illustrates the annual average minority board shares for the four subgroups of firms as part of the California triple difference tests explained in Section 5.3.2 of the text. In Panel (a), the average minority board share is depicted for firms falling into different categories: those headquartered in California that comply with the 2021 mandated thresholds (Comply 21 - CA), those headquartered in California that do not comply with the 2021 mandated thresholds(Non-comply 21 - CA), firms headquartered outside of California that comply with the 2021 mandated thresholds (Comply 21 - non-CA), and firms headquartered outside of California that do not comply with the 2021 mandated thresholds (Non-comply 21 - non-CA). The determination of compliance and headquarters locations is based on data as of the end of 2017. Panel (b) displays the (non-comply/comply) ratio of the minority board share for both California headquartered (CA) and non-California headquartered firms (non-CA).
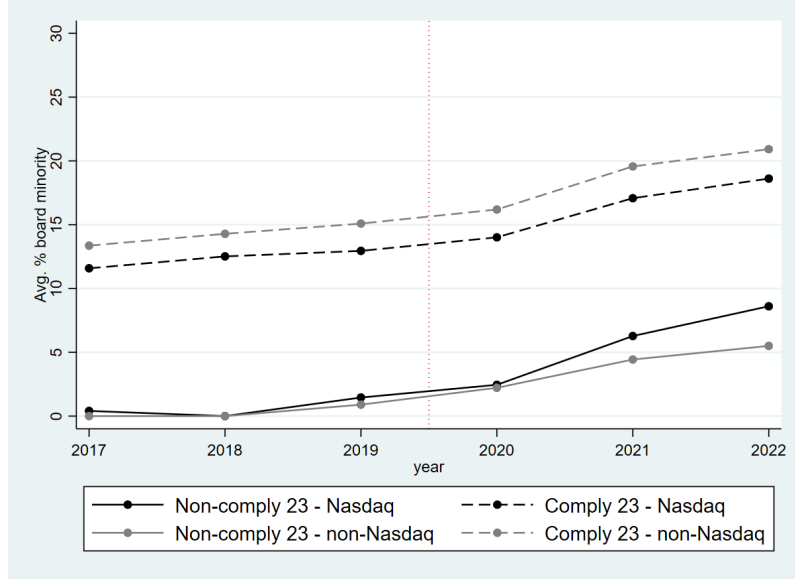
(a) Levels
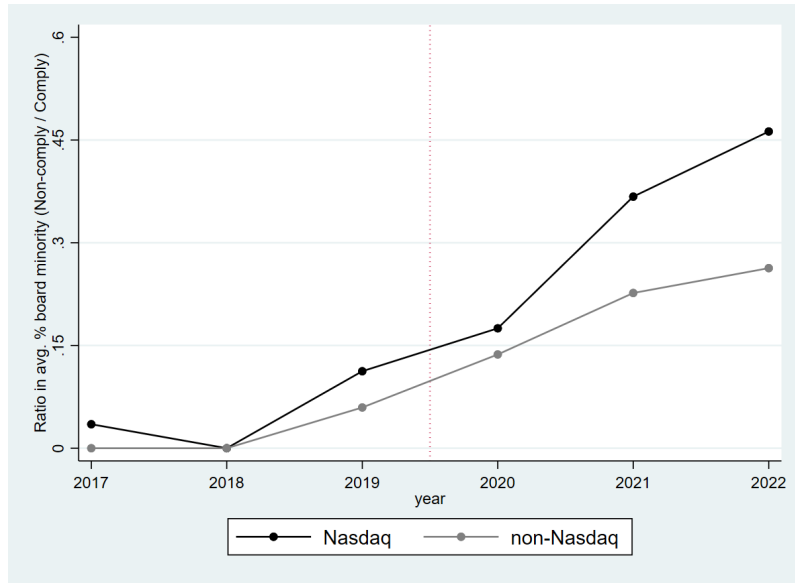
(b) Ratios

Fig. 10: Board racial composition by subgroup for the Nasdaq triple difference tests

The figure illustrates the annual average minority board shares for the four subgroups of firms as part of the Nasdaq triple difference tests explained in Section 5.3.3 of the text. In Panel (a), the average minority board share is depicted for firms falling into different categories: those listed on the Nasdaq that comply with the 2023 mandated thresholds (Comply 23-Nasdaq), those listed on the Nasdaq that do not comply with the 2023 mandated thresholds(Non-comply 23 - Nasdaq), firms listed on the Nasdaq that comply with the 2023 mandated thresholds (Comply 23 - non-Nasdaq), and firms listed on the Nasdaq that do not comply with the 2023 mandated thresholds (Non-comply 23-non-Nasdaq). The determination of compliance and listing location is based on data as of the end of 2018. Panel (b) displays the (non-comply/comply) ratio of the minority board share for both Nasdaq-listed (Nasdaq) and non-Nasdaq listed firms (non-Nasdaq).
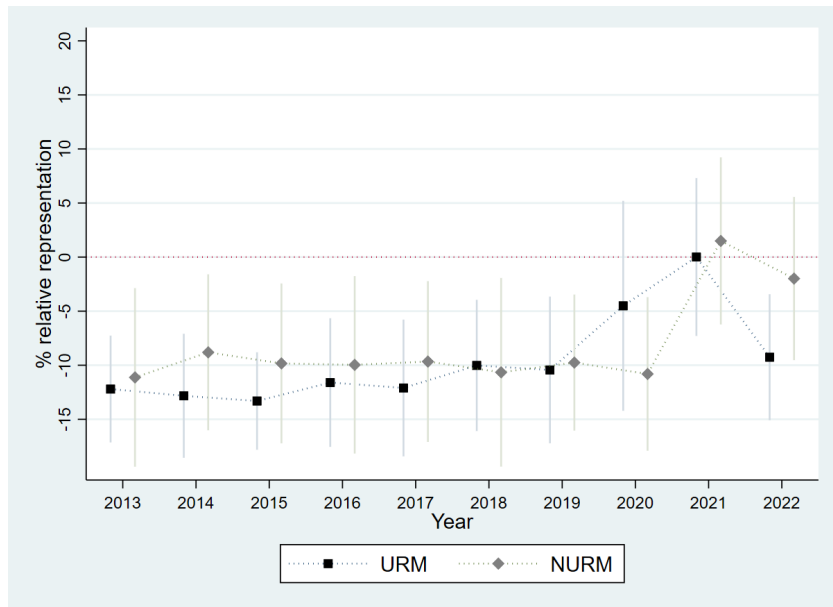
(a) California Firms
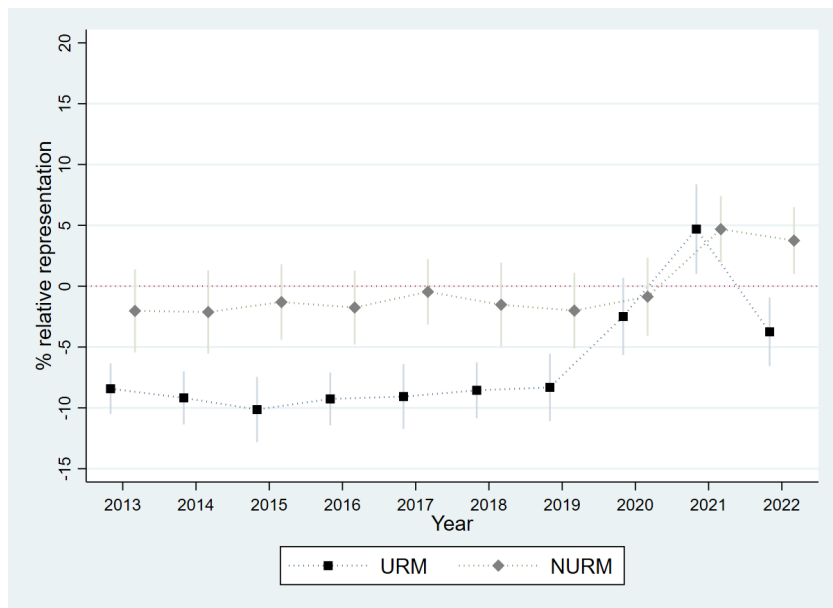
(b) Nasdaq Firms

Fig. 11: Relative representation of new minority directors for California and Nasdaq firms

The figure shows annual estimates and 95% confidence intervals of relative representation of URM, and NURM new directors for subsamples of firms headquartered in California (a) and listed on the Nasdaq (b).
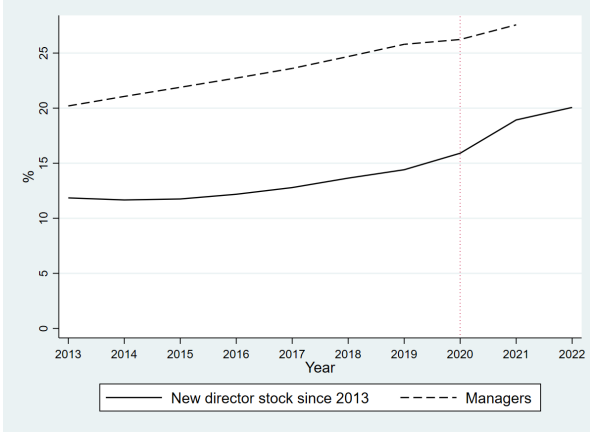
(a) Minority
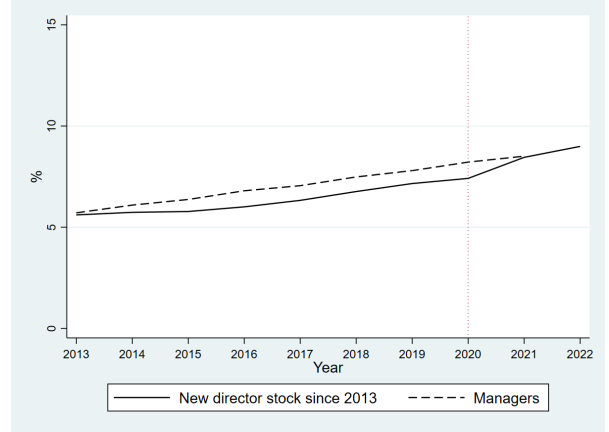
(b) NURM
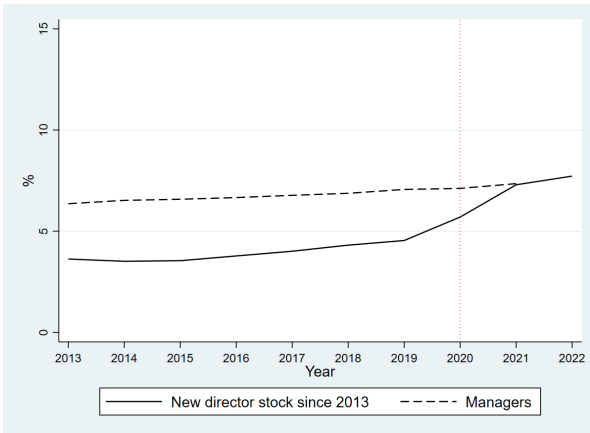
(c) Black
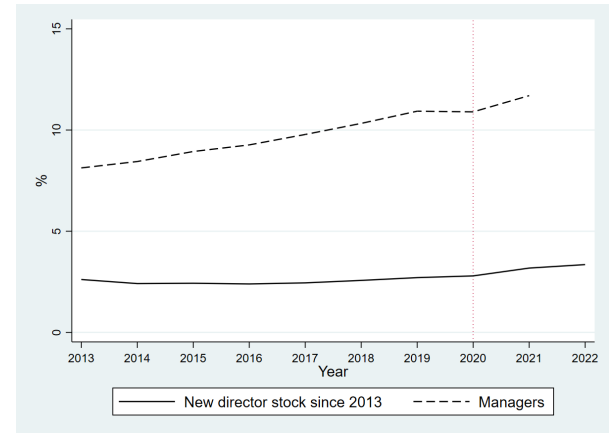
(d) Non-Black URM

Fig. 12: Minority share of new director stock

The figure shows the minority share of the new director stock hired since 2013 relative to a benchmark of the percentage of minority managers in the labor force from the EEOC data. Panels a, b, c, and d presents data for all minorities, the NURM subgroup, the Black subgroup, and the non-Black URM subgroup, respectively.
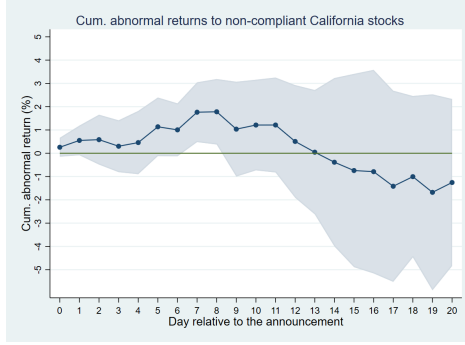
(a) California bill announcement (all firms)
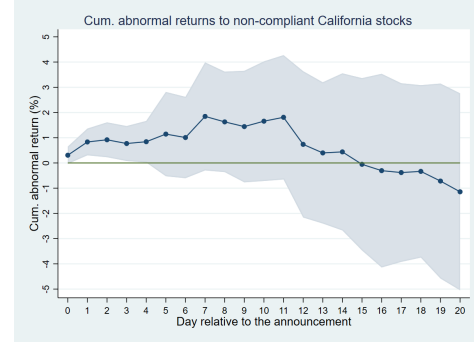
(b) California bill announcement (price > $5)
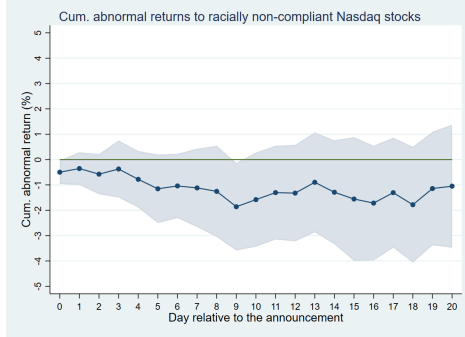
(c) Nasdaq rule proposal (all firms)
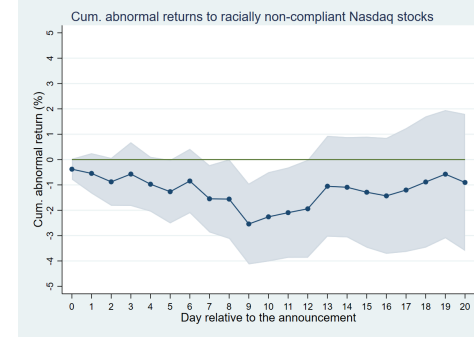
(d) Nasdaq rule proposal (price > $5)
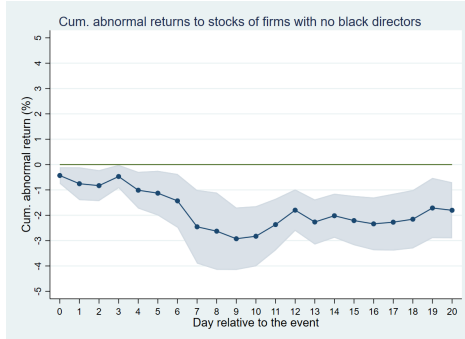
(e) Racial justice movement (all firms)
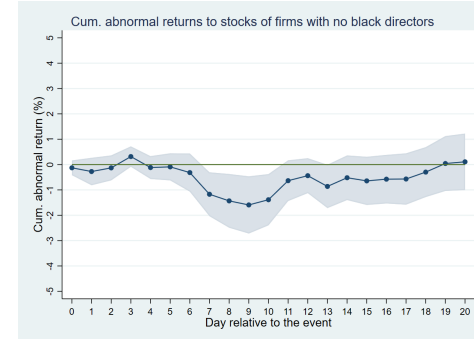
(f) Racial justice movement (price > $5)

Fig. 13: Cumulative abnormal announcement returns to mandates and movements

The figure illustrates the estimated average cumulative abnormal stock returns in response to the announcement of board racial diversity initiatives by firms that are anticipated to incorporate minority directors as a consequence of these initiatives on each trading day relative to the announcement. Panels (a) and (b) depict the response of non-compliant California-based firms to the introduction of California Assembly Bill No. 979 (Feb. 21, 2019). Panels (c) and (d) illustrate the reactions of non-compliant Nasdaq-listed firms to the announcement of the Nasdaq board diversity rule proposal (Dec. 1, 2020). Panels (e) and (f) showcase the reaction of firms lacking black directors to the murder of George Floyd (May 26, 2020). Panels (a), (c), and (e) encompass all sample firms, whereas panels (b), (d), and (f) include firms with a nominal price exceeding $5. The figure plots the estimates of β_1 and their 95% confidence intervals for these events from Equations 6 and 7 in the text. The regression models integrate industry and state fixed effects, along with control variables for ln(market cap), ROA, leverage, and market-to-book. All control variables and board compliance measures are derived using data at the quarter-end just prior to the event. Abnormal returns are computed using the Capital Asset Pricing Model (CAPM). Confidence intervals are established on robust standard errors clustered by industry, where industry is categorized by two-digit SIC codes.

Table 1: Summary statistics

The table displays summary statistics for the sample of firms listed on the NYSE, Nasdaq, and NYSE - American, headquartered in the U.S. from 2013 to 2022 discussed in Sections 3.2 and 3.3 of the text.

	Mean	Median	Std	5th	95th	N
At least one new director	0.495	0.000	0.500	0.000	1.000	27,811
Board turnover	0.076	0.000	0.113	0.000	0.286	27,811
Board size	8.761	9.000	2.566	5.000	13.000	27,811
% new directors minority	21.730	0.000	37.105	0.000	100.000	13,764
% new directors NURM	8.777	0.000	25.522	0.000	100.000	13,764
% new directors URM	12.953	0.000	30.061	0.000	100.000	13,764
Minority share of local mgrs	0.252	0.244	0.124	0.078	0.467	27,811
NURM share of local mgrs	0.088	0.067	0.081	0.012	0.261	27,811
URM share of local mgrs	0.163	0.157	0.084	0.053	0.296	27,811
White board share	0.883	0.900	0.149	0.625	1.000	27,811
ln(assets)	7.047	7.097	2.188	3.391	10.670	27,811
Market-to-book	2.219	1.512	1.915	0.865	6.127	27,811
ROA	-0.076	0.017	0.345	-0.720	0.175	27,811
CA hq	0.170	0.000	0.376	0.000	1.000	27,811
Nasdaq	0.564	1.000	0.496	0.000	1.000	27,811

Table 2: Determinants of new minority director share

The table displays firm-level regression results from OLS regressions of the percentage of new directors who belong to different minority groups (Minority, NURM, URM) on one-year lagged firm characteristics (Equation 3). The sample includes all firms in the sample of firms described in Table 1 that elected at least one director during the year. The dependent variables in columns (1) and (2) is "% new director minority," in (3) and (4) "% new director NURM", and in columns (5) and (6) "% new director URM." Odd numbered columns include observations from 2013 through 2019 and even numbered columns include observations during 2020 to 2022. Industry by year fixed effects are included, where industries are defined by 2-digit SIC codes. T-statics are displayed in parentheses below the coefficient estimates and are based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq 1\%$ are indicated by *, **, and ***, respectively.

	Minority		URM		NURM	
	(1) < 2020	(2) ≥ 2020	(3) < 2020	(4) ≥ 2020	(5) < 2020	(6) ≥ 2020
Minority-group share of local mgrs	12.997**	1.737	12.788***	1.257	13.380**	12.641**
	(2.63)	(0.18)	(3.38)	(0.10)	(2.35)	(2.01)
Majority-group board share	-31.910***	15.581**	-23.445***	35.316***	-46.073***	-21.481**
	(-6.20)	(2.44)	(-3.73)	(3.83)	(-7.90)	(-2.61)
ln(assets)	1.391***	3.287***	1.311***	3.722***	0.195*	-0.134
	(6.92)	(7.03)	(8.05)	(10.58)	(1.68)	(-0.60)
Market-to-book	0.469**	1.523***	0.373***	1.426***	0.114	-0.029
	(2.28)	(5.35)	(3.03)	(7.53)	(0.64)	(-0.11)
ROA	1.275*	1.386	0.936	1.128	0.298	0.911
	(1.79)	(0.86)	(1.65)	(0.85)	(0.76)	(0.54)
CA hq	1.100	5.547***	0.791	-3.724*	-0.433	5.732***
	(0.98)	(2.73)	(1.35)	(-1.91)	(-0.51)	(3.49)
Nasdaq	-0.161	2.003*	-0.742	-0.638	0.331	1.874*
	(-0.17)	(1.83)	(-1.04)	(-0.44)	(0.57)	(1.70)
Indus. by year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R-squared	0.04	0.08	0.05	0.09	0.05	0.05
N	9,181	4,555	9,181	4,555	9,181	4,555

Table 3: The racial justice movement and board racial diversity

The table displays results from director-level linear probability models predicting the race of new director shown in Equation (3) using appointments made by the sample of firms outlined in Table 1 during 2019 and 2020. In Columns 1 through 3, the model is estimated for the sample of all new directors. In columns 4 and 5 the equation is estimated within the set of new minority directors and new URM directors, respectively. All specifications include industry fixed effects and robust standard errors are clustered by CBSA. Significance levels of 10%, 5%, and $\leq 1\%$ are indicated by *, **, and ***, respectively.

	Black	Minority, non-black	URM, non-black	Black	
	(1)	(2)	(3)	(4)	(5)
$2020 \times$ Jun thru Dec	11.721***	-1.006	-0.554	24.817***	23.349**
	(6.93)	(-0.61)	(-0.51)	(3.36)	(2.31)
2020	1.028	0.359	0.074	2.300	1.301
	(0.79)	(0.35)	(0.11)	(0.43)	(0.19)
Jun thru Dec	-0.367	2.423**	1.516*	-5.539	-11.050
	(-0.37)	(2.02)	(1.91)	(-1.13)	(-1.52)
Constant	6.313***	10.974***	2.843***	37.092***	69.537***
	(9.12)	(11.49)	(6.01)	(10.87)	(14.65)
New dir. sample	All	All	All	Minority	URM
Indus. FE	Yes	Yes	Yes	Yes	Yes
Adj-R-squared	0.05	0.01	-0.00	0.10	0.05
N	5,460	5,460	5,460	1,209	735

Table 4: The effect of the California board racial diversity law on board racial diversity

The table presents estimates from firm-level triple difference regressions, examining changes in board racial composition (columns 1, 3, 5) and levels of board racial composition (columns 2, 4, 6) as influenced by the California board diversity law, defined in equation 4. In columns 7 and 8, the dependent variable is the number of director appointments and departures during the calendar year, respectively. The sample encompasses all firms existing in 2017 within the main sample, as outlined in Table 1. The variable "non-comply CA 21" identifies firms without minority directors as of the end of 2017 and "CA hq" indicates those that were headquartered in California as of the end of 2017. All specifications include industry by year fixed effects, and columns 2, 4, and 6 additionally incorporate firm fixed effects. T-statistics are presented in parentheses beneath the coefficient estimates, calculated based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq$ 1% are denoted by *, **, and ***, respectively.

	Minority		URM		NURM		All	
	(1) % chg	(2) % board	(3) % chg	(4) % board	(5) % chg	(6) % board	(7) Dir. appt.	(8) Dir. exit
y2020 × CA hq × non-comply CA 21	0.766 (0.76)	1.210 (1.26)	-0.169 (-0.48)	0.043 (0.11)	0.935 (1.07)	1.167 (1.28)	-0.032 (-0.44)	-0.018 (-0.31)
y2021 × CA hq × non-comply CA 21	3.527*** (3.66)	4.467*** (5.09)	1.445** (2.23)	1.149 (1.51)	2.082** (2.37)	3.318*** (7.12)	0.150*** (2.94)	0.073 (1.33)
y2022 × CA hq × non-comply CA 21	-0.237 (-0.35)	4.225*** (4.00)	-0.862 (-1.52)	0.096 (0.12)	0.624 (0.96)	4.129*** (4.98)	-0.052 (-0.77)	0.099* (1.82)
y2020 × CA hq	-1.148* (-1.69)	-0.986 (-1.59)	0.049 (0.15)	0.193 (0.64)	-1.197* (-1.81)	-1.179** (-2.10)	-0.022 (-0.54)	0.010 (0.20)
y2021 × CA hq	1.023** (2.31)	-0.074 (-0.09)	0.213 (0.41)	0.479 (0.74)	0.810** (2.04)	-0.553 (-1.24)	0.053 (1.41)	-0.016 (-0.32)
y2022 × CA hq	-0.406 (-0.82)	-0.189 (-0.27)	-0.048 (-0.11)	0.645 (1.05)	-0.358 (-1.01)	-0.834* (-1.90)	-0.083 (-1.65)	-0.080 (-1.41)
y2020 × non-comply CA 21	0.633** (2.08)	2.063*** (7.82)	0.396** (2.04)	1.107*** (5.77)	0.237 (1.16)	0.956*** (3.46)	0.059* (1.82)	-0.035 (-1.17)
y2021 × non-comply CA 21	1.103*** (3.14)	4.142*** (8.14)	0.465* (1.71)	2.031*** (5.98)	0.638** (2.29)	2.112*** (3.57)	0.041 (1.44)	-0.040 (-1.37)
y2022 × non-comply CA 21	0.383 (1.56)	5.270*** (8.64)	0.325* (1.83)	2.807*** (7.80)	0.059 (0.30)	2.462*** (3.35)	0.024 (0.76)	-0.017 (-0.61)
non-comply CA 21	0.773*** (4.66)		0.399*** (4.46)		0.374*** (3.19)		-0.065*** (-3.38)	-0.076*** (-3.60)
CA hq	0.371** (2.49)		0.155 (1.41)		0.216 (1.28)		0.034** (2.24)	0.003 (0.11)
Indus. by year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	No	Yes	No	No
Adj-R-squared	0.05	0.87	0.04	0.84	0.02	0.88	0.01	0.02
N	11,290	11,160	11,290	11,160	11,290	11,160	11,290	8,780

Table 5: The effect of the Nasdaq board diversity rule on board racial diversity

The table presents estimates from firm-level triple difference regressions, examining changes in board racial composition (columns 1, 3, 5) and levels of board racial composition (columns 2, 4, 6) as influenced by the Nasdaq board diversity rule, defined in equation 4. In columns 7 and 8, the dependent variable is the number of director appointments and departures during the calendar year, respectively. The sample encompasses all firms existing in 2018 within the main sample, as outlined in Table 1. The variable "non-comply Nsdq 23" identifies firms without women or minority directors as of the end of 2018 and "Nasdaq" indicates those listed on the Nasdaq as of the end of 2018. All specifications include industry by year fixed effects, and columns 2, 4, and 6 additionally incorporate firm fixed effects. T-statistics are presented in parentheses beneath the coefficient estimates, calculated based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq$ 1% are denoted by *, **, and ***, respectively.

	Minority		URM		NURM		All	
	(1) % chg	(2) % board	(3) % chg	(4) % board	(5) % chg	(6) % board	(7) Dir. appt.	(8) Dir. exit
y2020 × Nasdaq × non-comply Nsdq 23	-0.159	-0.257	-0.851	-0.851	0.692**	0.594	-0.006	0.077
	(-0.22)	(-0.32)	(-1.48)	(-1.41)	(2.22)	(1.59)	(-0.07)	(1.13)
y2021 × Nasdaq × non-comply Nsdq 23	1.568	1.782	-0.132	-0.792	1.700***	2.574***	0.155**	0.045
	(1.25)	(1.06)	(-0.12)	(-0.60)	(3.51)	(3.38)	(2.39)	(0.79)
y2022 × Nasdaq × non-comply Nsdq 23	2.541***	3.374*	1.473**	0.153	1.069**	3.221***	0.128**	0.065
	(3.37)	(1.70)	(2.22)	(0.11)	(2.02)	(3.16)	(2.23)	(1.19)
y2020 × Nasdaq	0.224	0.018	-0.048	0.066	0.272	-0.048	0.027	-0.039
	(0.54)	(0.06)	(-0.14)	(0.27)	(1.60)	(-0.18)	(0.97)	(-1.23)
y2021 × Nasdaq	0.184	-0.141	-0.067	-0.014	0.251	-0.127	0.029	-0.053*
	(0.24)	(-0.22)	(-0.13)	(-0.03)	(0.65)	(-0.46)	(0.56)	(-1.78)
y2022 × Nasdaq	0.003	0.001	-0.248	0.106	0.251	-0.105	-0.018	-0.013
	(0.01)	(0.00)	(-0.86)	(0.19)	(1.05)	(-0.27)	(-0.59)	(-0.52)
y2020 × non-comply Nsdq 23	-0.876	0.320	-0.119	0.417	-0.757*	-0.098	-0.046	-0.011
	(-1.23)	(0.57)	(-0.22)	(0.78)	(-1.94)	(-0.36)	(-0.67)	(-0.19)
y2021 × non-comply Nsdq 23	-1.916**	-0.828	-0.977	-0.141	-0.939**	-0.687	-0.218***	-0.030
	(-2.05)	(-0.76)	(-1.28)	(-0.14)	(-2.03)	(-1.49)	(-3.02)	(-0.50)
y2022 × non-comply Nsdq 23	-1.440*	-1.177	-0.886	-0.366	-0.554	-0.811	-0.085	-0.060
	(-1.73)	(-0.94)	(-1.46)	(-0.31)	(-0.95)	(-1.64)	(-1.44)	(-1.04)
non-comply Nsdq 23	0.810**		0.408*		0.402*		-0.016	-0.147***
	(2.16)		(1.69)		(1.83)		(-0.75)	(-5.44)
Nasdaq	-0.311		0.019		-0.331*		-0.057***	-0.026
	(-0.91)		(0.09)		(-1.73)		(-2.75)	(-1.21)
Indus. by year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	No	Yes	No	No
Adj-R-squared	0.02	0.87	0.02	0.85	0.01	0.89	0.01	0.02
N	9,413	9,283	9,413	9,283	9,413	9,283	9,413	9,413

Table 6: Changes in qualifications of minority directors around mandates and movements

The table displays regression results from director-level ordinary least squares regressions outlined in Equation 5, which estimate how these characteristics changed across racial subgroups before and after July of 2020. The data include all newly hired directors by firms in sample outlined in Table 1. All regressions include one-year lagged firm-level control variables and industry by year and CBSA by state fixed effects. Firm-level control variables include: ln(assets) and market-to-book. T-statics are displayed in parentheses below the coefficient estimates and are based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq 1\%$ are indicated by *, **, and ***, respectively.

	Black	Black $\times$ Post	URMNB	URMNB $\times$ Post	NURM	NURM $\times$ Post	N	Adj-R2
age	-0.082	-0.727	-0.790**	0.385	-4.434***	-0.451	24,384	0.055
	(-0.19)	(-1.63)	(-2.50)	(0.83)	(-13.49)	(-1.19)		
boards	0.141***	-0.085*	0.062**	-0.010	-0.158***	-0.009	24,566	0.039
	(4.16)	(-1.89)	(2.02)	(-0.20)	(-3.70)	(-0.17)		
mba	0.007	0.042	-0.011	0.020	0.024	0.050**	20,808	0.014
	(0.43)	(1.55)	(-0.41)	(0.58)	(1.34)	(2.18)		
jd	0.104***	-0.021	0.014	0.041	-0.042***	0.018	20,808	0.018
	(7.12)	(-1.08)	(1.05)	(1.42)	(-7.12)	(1.45)		
phd	0.017	-0.017	-0.008	0.032*	0.086***	-0.017	20,808	0.040
	(1.42)	(-1.37)	(-0.81)	(1.91)	(4.94)	(-1.37)		
skills	0.373***	-0.352*	0.505***	-0.399*	-0.044	-0.047	16,813	0.150
	(3.29)	(-1.79)	(3.36)	(-1.77)	(-0.45)	(-0.24)		
ceo	-0.125***	-0.048**	0.007	-0.080**	-0.049***	-0.043*	16,813	0.032
	(-8.88)	(-2.26)	(0.40)	(-2.26)	(-2.79)	(-1.72)		
cfo	-0.082***	0.003	-0.064***	0.022	-0.074***	0.040*	16,813	0.010
	(-8.50)	(0.13)	(-4.11)	(0.84)	(-4.34)	(1.81)		
international	0.041**	-0.029	0.157***	-0.047	0.135***	-0.016	16,813	0.116
	(2.28)	(-1.41)	(5.68)	(-1.19)	(7.62)	(-0.54)		
industry	-0.125***	-0.034	-0.095***	-0.042	-0.006	-0.053	16,813	0.075
	(-6.49)	(-1.43)	(-3.62)	(-1.34)	(-0.18)	(-1.52)		
financial	-0.038**	-0.012	-0.002	-0.090***	-0.033	-0.001	16,813	0.083
	(-2.52)	(-0.40)	(-0.09)	(-3.21)	(-1.60)	(-0.03)		
government	0.115***	-0.047***	0.068***	-0.009	-0.018*	-0.021	16,813	0.041
	(4.97)	(-2.64)	(3.76)	(-0.32)	(-1.92)	(-1.58)		
academic	0.022*	0.032**	-0.001	0.039*	0.046***	-0.012	16,813	0.040
	(1.81)	(2.20)	(-0.08)	(1.77)	(2.63)	(-1.02)		
legal	0.121***	-0.037	0.054***	0.005	-0.040***	0.020	16,813	0.099
	(4.85)	(-1.31)	(2.97)	(0.17)	(-3.11)	(0.90)		
hr	0.076***	0.024	0.037**	0.042	-0.018	0.020	16,813	0.096
	(4.20)	(1.16)	(2.42)	(1.35)	(-1.50)	(0.87)		
csr	0.118***	0.023	0.115***	-0.021	-0.028*	0.016	16,813	0.148
	(9.12)	(1.05)	(4.74)	(-0.57)	(-1.93)	(0.88)		

Table 7: Announcement-day returns to mandates and movements

The table presents Ordinary Least Squares (OLS) estimates derived from cross-sectional regressions examining abnormal stock market returns on the announcement day in relation to board racial composition measures for three events that heightened the demand for minority directors: A) California Assembly Bill No. 979, B) the Nasdaq board diversity rule, and C) the acceleration of the racial justice movement. The corresponding event days for these occurrences are 2/21/19, 12/1/2020, and 5/26/20, respectively. For additional details on these events, refer to Section 2. Panels A and B provide estimates for Equation 6, while Panel C displays estimates for Equation 7. The samples encompass all firms in the primary dataset outlined in Table 1 that were operational in the quarter preceding the announcement. Announcement-day returns are calculated from the closing price of the day prior to the announcement to the closing price on the announcement day. The dependent variables comprise various measures of abnormal returns adjusted according to the specified model (CAPM columns 1-5, FF3 column 7, FF4 column 8). Further elaboration on the construction of these measures is available in Section 5.5 of the text. Control variables, including ln(MktCap), ROA, Leverage, and Market-to-Book, are included where indicated and are measured at the end of the quarter preceding the event. Industry fixed effects, identified by 2-digit SIC codes, and state fixed effects are incorporated where specified. In column 5, the sample is restricted to firms with a nominal price exceeding \$5. T-statics are displayed in parentheses below the coefficient estimates and are based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq 1\%$ are indicated by *, **, and ***, respectively.

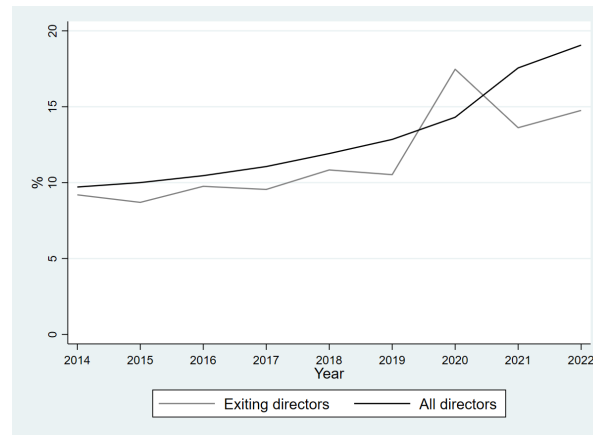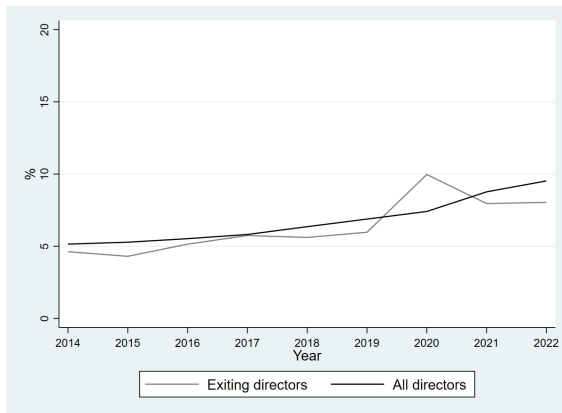|	CAPM-adj.					Raw ret.	FF3-adj.	FF4-adj.
Indus. FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes	Yes	Yes	Yes
Controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Price > 5	No	No	No	No	Yes	No	No	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Panel A: California Assembly Bill No. 979 - February 21, 2019

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
non-comply CA 22 × CA hq	0.282	0.372*	0.276	0.258	0.306*	0.281	0.231	0.232
	(1.11)	(1.80)	(1.31)	(1.27)	(1.79)	(1.36)	(1.08)	(1.10)
non-comply CA 22	-0.163	-0.190	-0.090	-0.088	-0.120	-0.081	-0.118	-0.119
	(-1.17)	(-1.60)	(-0.62)	(-0.63)	(-0.98)	(-0.58)	(-0.81)	(-0.82)
CA hq	-0.485**	-0.421**	-0.334*					
	(-2.27)	(-2.54)	(-1.95)					
N	3,269	3,264	3,255	3,254	2,624	3,254	3,254	3,254

Panel B: Nasdaq Board Diversity Rule - December 1, 2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
non-comply Nsdq 25 × Nasdaq	-0.087	-0.342	-0.524**	-0.498**	-0.380*	-0.527**	-0.567**	-0.568**
	(-0.32)	(-1.35)	(-2.18)	(-2.16)	(-1.85)	(-2.42)	(-2.48)	(-2.46)
non-comply Nsdq 25	0.007	0.209	0.481**	0.451*	0.210	0.465**	0.516**	0.524**
	(0.03)	(0.96)	(2.05)	(1.98)	(1.15)	(2.16)	(2.27)	(2.29)
Nasdaq	-0.474	-0.140	0.149	0.153	0.363***	0.153	0.280*	0.286*
	(-1.59)	(-0.73)	(0.92)	(1.01)	(2.98)	(1.04)	(1.96)	(1.96)
N	3,327	3,322	3,312	3,312	2,722	3,312	3,312	3,312

Panel C: Racial Justice Movement - May 26, 2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No Black directors	-0.956***	-0.585**	-0.493***	-0.432**	-0.128	-0.386**	0.097	0.141
	(-3.60)	(-2.54)	(-3.08)	(-2.65)	(-0.88)	(-2.26)	(0.56)	(0.86)
N	3,295	3,290	3,290	3,290	2,551	3,290	3,290	3,290

Appendix

(a) Minority

(b) NURM
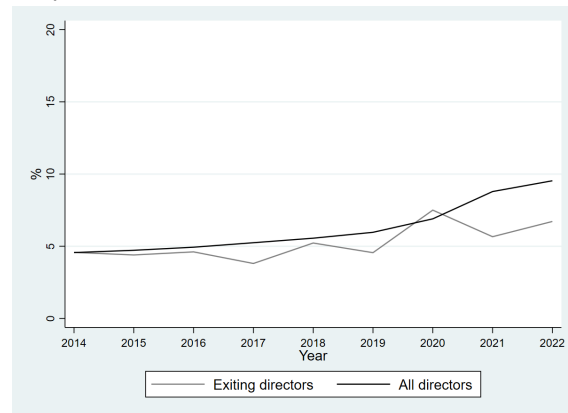
(c) URM

Fig. A.1: Minority share of director exits

The figure illustrates the percent of minority board of director exits and the percent of minority directors over time. Panel (a) shows the exits of minority directors. Panel (b) shows the exits of NURM directors. Panel (c) shows the exits of URM directors.
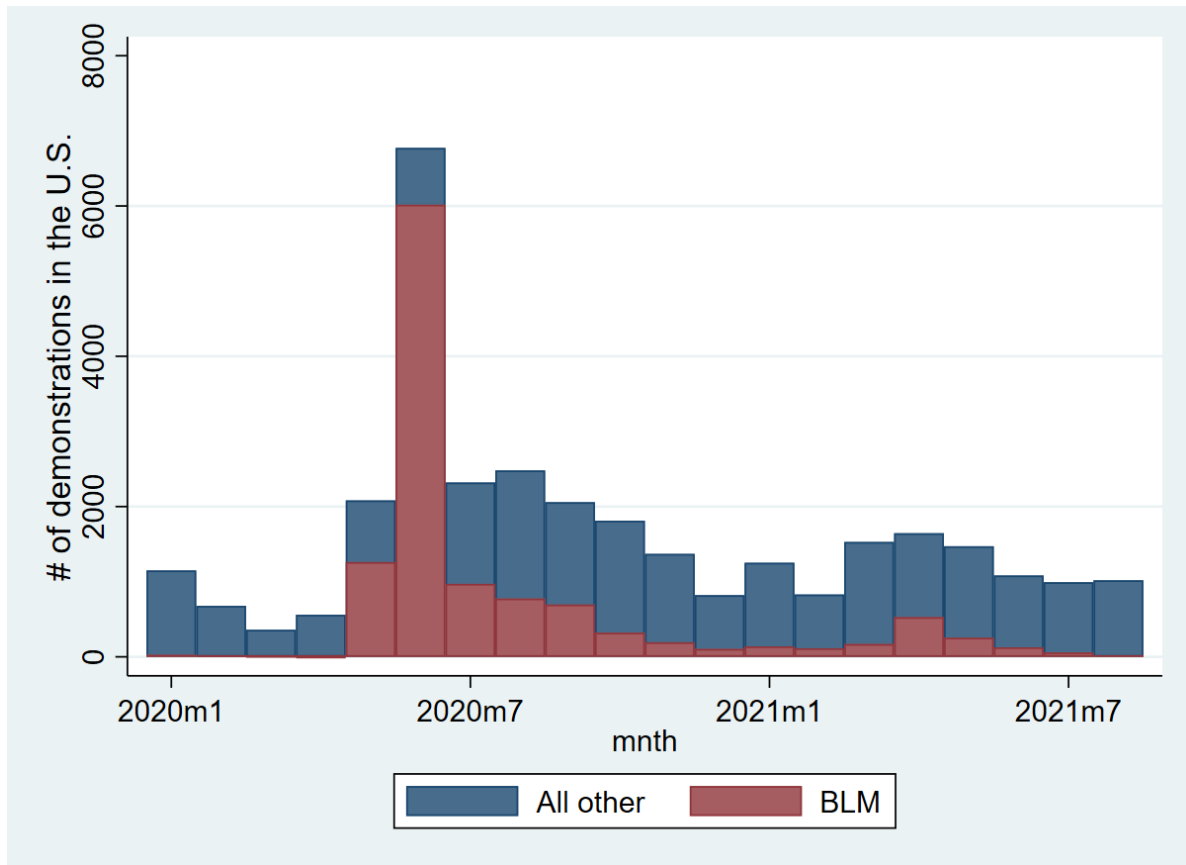
Fig. A.2: Black Lives Matter demonstrations in the U.S.

The figure shows the total number of demonstrations in the U.S. each month from January of 2020 through August of 2021 split between those affiliated with the Black Lives Matter movement and all other protests. Data on demonstrations are from the Armed Conflict Location & Event Data Project (ACLED); www.acleddata.com.
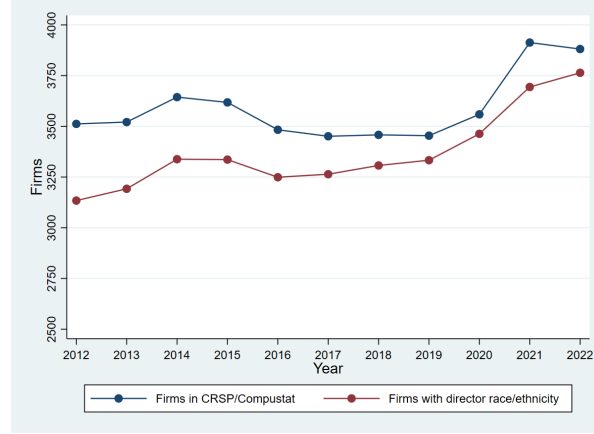
(a) CRSP/Compustat firms
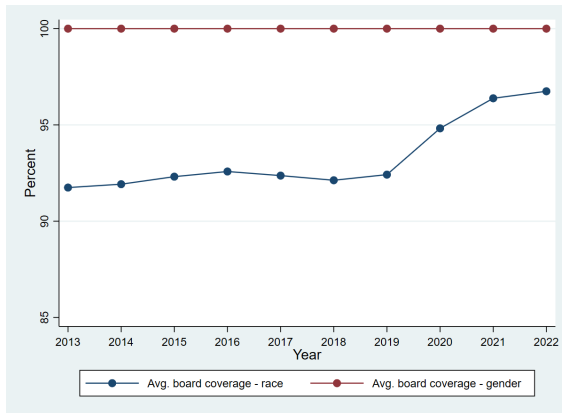
(b) Coverage of race/ethnicity and gender
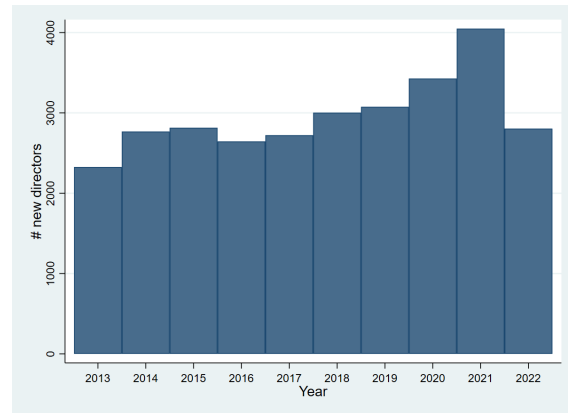
(c) Number of board appointments

Fig. A.3: Firm board composition and sample construction

The figures above illustrate the sample construction used in the study. Panel (a) displays the population of firms in each year covered by CRSP/Compustat that are headquartered in the U.S. and traded on the NYSE, NYSE - American, or Nasdaq exchanges and the number of firms each year for which at least one director's race/ethnicity is identified in the ISS data. Panel (b) displays the average percentage of a firm's board with non-missing gender and race data each year conditional on having at least one board member covered by ISS. Panel (c) shows the number of board appointments each year in the sample with non-missing race/ethnicity data. Board appointment data are through the end of 2022.
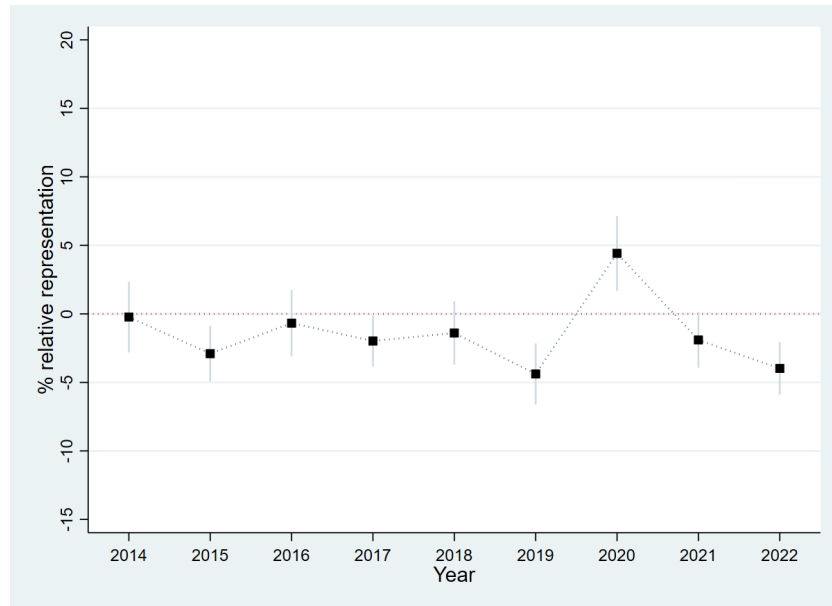
(a) Minority
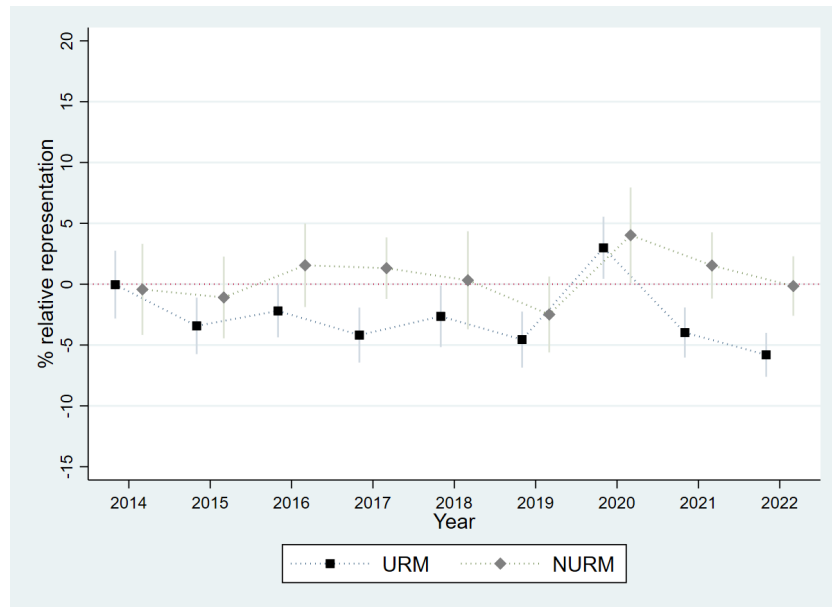
(b) URM and NURM

Fig. A.4: Relative representation of departing minority directors

The figure shows annual estimates and 95% confidence intervals of relative representation of minority exiting directors defined as the average difference between the minority share of departing directors at the firm minus the percent of minority board members at the firm in the previous year. Panel (a) shows estimates for minority directors and panel (b) shows estimates for both URM and NURM directors.

Table A.1: The California board racial diversity law - robustness

The table presents additional estimates of the models estimated in Table 4 of the main text using alternative measures of non-compliance. Estimates in Panels A and B use compliance measures based on the California board racial diversity law's 2022 thresholds. In Panel A, "Minority add 22" is a continuous variable that is the number of minority directors firms must add by 2022 to be in compliance with the California 2022 mandated thresholds. In Panel B, "non-comply CA 22" indicates firms that were not in compliance with the 2022 mandated diversity as of the end of 2017. Panel C displays summary statistics for California and non-California firms used in the tests as well tests of differences between these two groups. T-statistics are presented in parentheses beneath the coefficient estimates, calculated based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and ≤ 1% are denoted by *, **, and ***, respectively.

Panel A: California rule 2022 requirements - continuous

	Minority		URM		NURM		All	
	(1) % chg	(2) % board	(3) % chg	(4) % board	(5) % chg	(6) % board	(7) Dir. appt.	(8) Dir. exit
y2020 × CA hq × Minority add by 22	0.713 (1.24)	0.764 (1.48)	0.104 (0.54)	0.084 (0.33)	0.609 (1.19)	0.680 (1.37)	-0.010 (-0.34)	-0.021 (-0.89)
y2021 × CA hq × Minority add by 22	1.102*** (3.17)	1.754** (2.61)	0.521* (1.74)	0.450 (1.17)	0.581** (2.12)	1.304** (2.01)	0.066** (2.48)	0.059** (2.22)
y2022 × CA hq × Minority add by 22	-0.477 (-1.50)	1.388* (1.97)	-0.446 (-1.50)	-0.002 (-0.00)	-0.031 (-0.13)	1.390** (2.01)	-0.030 (-1.16)	0.026 (0.91)
y2020 × CA hq	-1.822* (-1.74)	-1.411 (-1.61)	-0.139 (-0.38)	0.171 (0.46)	-1.683* (-1.70)	-1.583* (-1.96)	-0.017 (-0.35)	0.027 (0.54)
y2021 × CA hq	1.009 (1.35)	-0.354 (-0.25)	0.143 (0.25)	0.517 (0.71)	0.866 (1.37)	-0.871 (-0.78)	0.028 (0.57)	-0.074 (-1.46)
y2022 × CA hq	0.218 (0.32)	0.038 (0.03)	0.260 (0.42)	0.943 (1.13)	-0.042 (-0.08)	-0.905 (-0.75)	-0.059 (-1.04)	-0.080 (-1.18)
y2020 × Minority add by 22	0.381* (1.84)	1.374*** (6.29)	0.314** (2.16)	0.696*** (6.56)	0.066 (0.54)	0.678*** (3.05)	0.036* (1.84)	-0.027 (-1.53)
y2021 × Minority add by 22	0.545*** (3.39)	2.600*** (7.59)	0.393** (2.60)	1.402*** (6.96)	0.152 (1.24)	1.198*** (3.76)	0.035*** (2.73)	-0.016 (-1.15)
y2022 × Minority add by 22	0.233 (1.57)	3.378*** (8.04)	0.199 (1.44)	1.878*** (7.99)	0.034 (0.34)	1.499*** (3.57)	0.019 (1.19)	-0.010 (-0.69)
CA hq	0.437*** (3.01)		0.182 (1.63)		0.255 (1.55)		0.034** (2.14)	0.007 (0.42)
Indus. by year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	No	Yes	No	No
Adj-R-squared	0.05	0.87	0.04	0.84	0.02	0.88	0.01	0.01
N	11,290	11,160	11,290	11,160	11,290	11,160	11,290	11,290

Panel B: California rule 2022 requirement - indicator

	Minority		URM		NURM		All	
	(1) % chg	(2) % board	(3) % chg	(4) % board	(5) % chg	(6) % board	(7) Dir. appt.	(8) Dir. exit
y2020 × CA hq × non-comply CA 22	2.570** (2.12)	2.000** (2.08)	0.645 (1.52)	0.330 (0.63)	1.925* (1.75)	1.670 (1.61)	0.062 (0.81)	-0.066 (-1.31)
y2021 × CA hq × non-comply CA 22	0.352 (0.26)	2.467 (1.12)	0.469 (0.67)	0.603 (0.71)	-0.116 (-0.10)	1.864 (0.89)	0.102 (1.21)	0.235*** (3.45)
y2022 × CA hq × non-comply CA 22	-0.929 (-1.54)	1.776 (0.82)	-0.664 (-1.03)	0.145 (0.16)	-0.264 (-0.44)	1.631 (0.68)	-0.058 (-0.80)	0.046 (0.87)
y2020 × CA hq	-2.866** (-2.45)	-1.984** (-2.11)	-0.541 (-1.33)	-0.038 (-0.09)	-2.325** (-2.01)	-1.946** (-2.11)	-0.083 (-1.27)	0.052 (0.94)
y2021 × CA hq	2.206 (1.53)	-0.049 (-0.02)	0.457 (0.63)	0.518 (0.59)	1.749 (1.48)	-0.567 (-0.30)	0.038 (0.48)	-0.170*** (-2.76)
y2022 × CA hq	0.229 (0.38)	0.329 (0.15)	0.121 (0.18)	0.630 (0.73)	0.107 (0.18)	-0.301 (-0.14)	-0.056 (-1.04)	-0.075 (-1.14)
y2020 × non-comply CA 22	0.107 (0.19)	2.430*** (5.12)	0.153 (0.36)	0.927*** (3.56)	-0.046 (-0.13)	1.503*** (2.73)	0.055 (1.36)	-0.010 (-0.31)
y2021 × non-comply CA 22	0.609 (1.11)	4.627*** (8.65)	0.505 (1.18)	2.068*** (4.67)	0.105 (0.28)	2.559*** (3.92)	0.059* (1.71)	-0.009 (-0.26)
y2022 × non-comply CA 22	0.420 (1.01)	6.405*** (8.26)	0.448 (1.09)	3.135*** (5.14)	-0.029 (-0.11)	3.270*** (3.83)	0.078* (1.94)	0.021 (0.62)
CA hq	0.414*** (2.83)		0.169 (1.51)		0.245 (1.50)		0.035** (2.21)	0.006 (0.38)
Indus. by year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	No	Yes	No	No
Adj-R-squared	0.04	0.86	0.03	0.84	0.02	0.88	0.01	0.01
N	11,290	11,160	11,290	11,160	11,290	11,160	11,290	11,290

Panel C: Summary statistics - 2017

	CA	non-CA	Diff	T-stat
non-comply CA 21	0.442	0.463	-0.021	-0.81
non-comply CA 22	0.786	0.848	-0.062**	-2.92
Minority add by 22	1.460	1.674	-0.214***	-4.23
% board minority	14.076	10.305	3.771***	4.03
% board NURM	10.221	4.362	5.859***	6.89
% board URM	3.855	5.943	-2.088***	-4.58
Minority share of local mgrs	0.412	0.221	0.191***	51.64
NURM share of local mgrs	0.213	0.064	0.149***	31.84
URM share of local mgrs	0.199	0.155	0.044***	11.23
ln(assets)	6.469	7.298	-0.829***	-7.29
Market-to-book	3.026	2.066	0.960***	8.21
Nasdaq	0.723	0.507	0.216***	8.93
Observations	430	2083	2513	2513

Table A.2: The Nasdaq board diversity rule - robustness

The table presents additional estimates of the models estimated in Table 5 of the main text using an alternative measure of non-compliance. Estimates in Panels A use compliance measures based on the Nasdaq's board diversity 2025 thresholds. In Panel A, "non-comply Nsdq 25" indicates firms that were not in compliance with the 2025 mandated diversity thresholds as of the end of 2018. Panel B displays summary statistics for Nasdaq-listed and firms listed on other exchanges used in the tests as well tests of differences between these two groups. T-statistics are presented in parentheses beneath the coefficient estimates, calculated based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and ≤ 1% are denoted by *, **, and ***, respectively.

Panel A: Nasdaq rule 2025 requirements

	Minority		URM		NURM		All	
	(1) % chg	(2) % board	(3) % chg	(4) % board	(5) % chg	(6) % board	(7) Dir. appt.	(8) Dir. exit
y2020 × Nasdaq × non-comply Nsdq 25	0.119	0.200	-0.452	-0.426	0.570	0.627	-0.025	-0.001
	(0.26)	(0.37)	(-1.23)	(-1.06)	(1.67)	(1.28)	(-0.56)	(-0.02)
y2021 × Nasdaq × non-comply Nsdq 25	-0.153	0.554	-0.564	-0.752	0.411	1.306	0.071*	0.021
	(-0.22)	(0.56)	(-1.18)	(-1.13)	(0.73)	(1.49)	(1.75)	(0.38)
y2022 × Nasdaq × non-comply Nsdq 25	0.889	0.498	0.576	-0.794	0.312	1.292	0.170***	0.064
	(1.59)	(0.37)	(1.53)	(-0.95)	(0.79)	(1.20)	(4.13)	(1.33)
y2020 × Nasdaq	-0.133	-0.475	-0.133	-0.074	0.000	-0.400	0.019	-0.020
	(-0.30)	(-1.12)	(-0.36)	(-0.27)	(0.00)	(-0.91)	(0.67)	(-0.58)
y2021 × Nasdaq	-0.082	-1.136	-0.156	-0.347	0.075	-0.789	-0.006	-0.052
	(-0.10)	(-1.66)	(-0.30)	(-0.64)	(0.15)	(-1.52)	(-0.11)	(-1.37)
y2022 × Nasdaq	-0.199	-1.068	-0.371	-0.250	0.171	-0.817	-0.074**	-0.030
	(-0.38)	(-1.27)	(-1.03)	(-0.44)	(0.54)	(-1.18)	(-2.11)	(-0.93)
y2020 × non-comply Nsdq 25	0.952*	1.942***	0.798**	1.279***	0.155	0.663*	0.076*	-0.035
	(1.93)	(3.98)	(2.32)	(3.71)	(0.50)	(1.78)	(1.80)	(-0.95)
y2021 × non-comply Nsdq 25	1.878***	4.518***	1.149**	2.730***	0.729*	1.788***	0.018	-0.030
	(4.04)	(9.05)	(2.61)	(4.71)	(1.88)	(3.51)	(0.45)	(-0.67)
y2022 × non-comply Nsdq 25	0.112	5.965***	-0.075	3.491***	0.187	2.474***	-0.069*	-0.049
	(0.25)	(9.28)	(-0.28)	(5.43)	(0.57)	(4.31)	(-1.73)	(-1.29)
non-comply Nsdq 23								
Nasdaq	-0.378		-0.021		-0.356*		-0.050**	-0.030
	(-1.04)		(-0.10)		(-1.79)		(-2.43)	(-1.47)
Indus. by year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	No	Yes	No	No
Adj-R-squared	0.04	0.87	0.03	0.85	0.02	0.90	0.01	0.02
N	9,413	9,283	9,413	9,283	9,413	9,283	9,413	9,413

Panel B: Summary statistics

	Nasdaq	non-Nasdaq	Diff	T-stat
non-comply Nsdq 23	0.156	0.078	0.078***	6.25
non-comply Nsdq 25	0.491	0.322	0.169***	8.82
% board minority	10.558	13.168	-2.610***	-4.58
% board NURM	6.569	4.665	1.905***	4.13
% board URM	3.988	8.503	-4.515***	-11.80
Minority share of local mgrs	0.265	0.259	0.006	1.28
NURM share of local mgrs	0.099	0.082	0.017***	5.43
URM share of local mgrs	0.164	0.176	-0.012***	-3.55
ln(assets)	6.452	8.132	-1.680***	-20.62
Market-to-book	2.208	1.794	0.414***	6.23
CA hq	0.222	0.108	0.114***	7.92
Observations	1419	1137	2556	2556

Table A.3: Summary statistics for the California event study

The table displays summary statistics for the sample of firms included in California Assembly Bill No. 979 event study analysis shown in Panel A of Table 7. The sample includes all firms in the main sample in existence as of 12/31/2018. Firm characteristics are measured as of this date. Return and abnormal returns are shown for the event date ($t = 0$), February 21, 2019, which is when California Assembly Bill No. 979 was first read. Panel A displays summary statistics. Panel B displays OLS estimates of Equation 6, where the dependent variables are various firm-level characteristics. State and industry fixed effects, defined by 2-digit SIC codes, are included where indicated. T-statics are displayed in parentheses below the coefficient estimates and are based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq 1\%$ are indicated by *, **, and ***, respectively.

Panel A: Summary statistics

	Mean	Median	Std	5th	95th	N
non-comply CA 22	0.881	1.000	0.324	0.000	1.000	3,268
CA hq	0.177	0.000	0.381	0.000	1.000	3,268
ln(market cap)	6.610	6.655	2.184	2.899	10.270	3,268
ROA	-0.024	0.003	0.107	-0.219	0.050	3,268
leverage	0.241	0.183	0.246	0.000	0.698	3,268
market-to-book	2.084	1.354	1.936	0.775	5.730	3,268
Raw return (% day 0)	0.112	0.257	2.863	-4.494	3.888	3,268
CAPM-adjusted abnormal return (% day 0)	-0.036	0.095	2.856	-4.585	3.720	3,268
FF3-adjusted abormal return (% day 0)	-0.327	-0.150	2.842	-4.905	3.369	3,268
FF4-adjusted abormal return (% day 0)	-0.330	-0.155	2.844	-4.920	3.340	3,268

Panel B: Differences in characteristics of treatment and control groups

	(1) ln(market cap)	(2) ROA	(3) leverage	(4) market-to-book
non-comply CA 22 × CA hq	0.501**	-0.022	0.040	0.448***
	(2.07)	(-1.64)	(1.29)	(2.80)
non-comply CA 22	-0.556***	0.012*	-0.009	-0.170
	(-3.12)	(1.75)	(-0.65)	(-1.03)
Constant	7.033***	-0.031***	0.244***	2.173***
	(52.98)	(-7.11)	(24.84)	(16.70)
Indus. FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Adj-R-squared	.11	.1	.12	.11
N	3,254	3,254	3,254	3,254

Table A.4: Announcement returns to the California board racial diversity bill - robustness

The table shows estimates of 4 for California Assembly Bill No. 979 using the same models as those displayed in Panel A of Table 7, but using a continuous measure of compliance based on the 2022 mandated thresholds. "Minority add by 22" is the number of minorities that the firm must add to its board to be in compliance with the 2022 mandated diversity thresholds in California. Control variables, including ln(MktCap), ROA, Leverage, and Market-to-Book, are included where indicated and are measured at the end of the quarter preceding the event. Industry fixed effects, identified by 2-digit SIC codes, and state fixed effects are incorporated where specified. In column 5, the sample is restricted to firms with a nominal price exceeding \$5. T-statics are displayed in parentheses below the coefficient estimates and are based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq 1\%$ are indicated by *, **, and ***, respectively.

	CAPM-adj.					Raw ret.	FF3-adj.	FF4-adj.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Minority add by 22 × CA hq	0.020	0.096	0.072	0.064	0.047	0.072	0.047	0.044
	(0.14)	(0.74)	(0.57)	(0.48)	(0.52)	(0.54)	(0.36)	(0.34)
Minority add by 22	0.033	-0.006	0.037	0.037	0.008	0.036	0.015	0.015
	(0.69)	(-0.13)	(0.68)	(0.62)	(0.15)	(0.61)	(0.25)	(0.26)
CA hq	-0.294	-0.269	-0.230					
	(-1.40)	(-1.52)	(-1.25)					
Indus. FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes	Yes	Yes	Yes
Controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Price > 5	No	No	No	No	Yes	No	No	No
Adj-R-squared	0.00	0.01	0.03	0.03	0.03	0.04	0.03	0.03
N	3,167	3,161	3,152	3,151	2,526	3,151	3,151	3,151

Table A.5: Summary statistics for the Nasdaq board diversity rule event study

The table displays summary statistics for the sample of firms included in the Nasdaq board diversity rule proposal event study analysis shown in Panel B of Table 7. The sample includes all firms in the main sample in existence as of 9/30/2020. Firm characteristics are measured as of this date. Return and abnormal returns are shown for the event date ($t = 0$), December 1, 2020, which is when the Nasdaq diversity rule proposal was first announced. Panel A displays summary statistics. Panel B displays OLS estimates of Equation 6, where the dependent variables are various firm-level characteristics. State and industry fixed effects, defined by 2-digit SIC codes, are included where indicated. T-statics are displayed in parentheses below the coefficient estimates and are based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq 1\%$ are indicated by *, **, and ***, respectively.

Panel A: Summary statistics

	Mean	Median	Std	5th	95th	N
non-comply Nsdq 25	0.386	0.000	0.487	0.000	1.000	3,336
Nasdaq	0.615	1.000	0.487	0.000	1.000	3,336
ln(market cap)	6.682	6.635	2.215	3.099	10.420	3,336
ROA	-0.025	0.002	0.100	-0.194	0.049	3,336
leverage	0.277	0.226	0.251	0.003	0.743	3,336
market-to-book	2.391	1.428	2.489	0.809	7.282	3,336
Raw return (% day 0)	0.599	0.701	3.590	-5.229	5.434	3,336
CAPM-adjusted abnormal return (% day 0)	-0.405	-0.253	3.579	-6.150	4.339	3,336
FF3-adjusted abormal return (% day 0)	-0.324	-0.232	3.513	-5.934	4.423	3,336
FF4-adjusted abormal return (% day 0)	-0.337	-0.224	3.517	-5.958	4.448	3,336

Panel B: Differences in characteristics of treatment and control groups

	(1) ln(market cap)	(2) ROA	(3) leverage	(4) market-to-book
non-comply Nsdq 25 × Nasdaq	0.771**	0.004	0.042***	-0.145
	(2.60)	(0.55)	(2.81)	(-0.99)
non-comply Nsdq 25	-1.821***	-0.008	-0.053***	-0.023
	(-10.34)	(-1.38)	(-3.72)	(-0.20)
Nasdaq	-1.349***	-0.010*	-0.082***	0.239**
	(-7.67)	(-1.96)	(-10.13)	(2.39)
Constant	8.006***	-0.017***	0.336***	2.290***
	(83.32)	(-4.78)	(61.77)	(36.70)
Indus. FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Adj-R-squared	.24	.13	.2	.13
N	3,312	3,312	3,312	3,312

Table A.6: Summary statistics for the racial justice event study

The table displays summary statistics for the sample of firms included in the Racial Justice Movement event study analysis shown in Panel C of Table 7. The sample includes all firms in the main sample in existence as of 3/31/2020. Firm characteristics are measured as of this date. Return and abnormal returns are shown for the event date ($t = 0$), May 26, 2020, which is the first trading day after George Floyd was murdered. Panel A displays summary statistics. Panel B displays OLS estimates of Equation 7, where the dependent variables are various firm-level characteristics. State and industry fixed effects, defined by 2-digit SIC codes, are included where indicated. T-statics are displayed in parentheses below the coefficient estimates and are based on robust standard errors clustered by industry. Significance levels of 10%, 5%, and $\leq 1\%$ are indicated by *, **, and ***, respectively.

Panel A: Summary statistics

	Mean	Median	Std	5th	95th	N
No Black directors	0.729	1.000	0.444	0.000	1.000	3,312
ln(market cap)	6.390	6.330	2.257	2.739	10.225	3,313
leverage	0.294	0.247	0.259	0.003	0.769	3,313
market-to-book	1.982	1.225	1.953	0.697	5.745	3,313
Raw return (% day 0)	2.936	2.689	4.915	-4.467	10.971	3,313
CAPM-adjusted abnormal return (% day 0)	1.798	1.561	4.870	-5.674	9.731	3,313
FF3-adjusted abormal return (% day 0)	0.314	0.258	4.592	-6.993	7.301	3,313
FF4-adjusted abormal return (% day 0)	0.321	0.381	4.660	-7.431	7.406	3,313

Panel B: Differences in characteristics of treatment and control groups

	(1) ln(market cap)	(2) leverage	(3) market-to-book
Black (#)	1.055***	0.031***	0.002
	(6.75)	(4.22)	(0.05)
Constant	6.022***	0.284***	1.981***
	(109.38)	(111.12)	(117.35)
Indus. FE	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Adj-R-squared	0.19	0.18	0.11
N	3,291	3,291	3,291