Venturing into Racial Diversity on Startup Boards

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Abstract

We present a comprehensive description of diversity on startup boards. We use image recognition and extensive manual review to build the first large database of board diversity in startups. Startups have lower diversity relative to both public firms and the general population. By 2019, Black, Hispanic, and Female directors comprised only 1.6%, 1.8%, and 16.0% of all startup director appointments, respectively. In response to the George Floyd social justice movement (GF), these numbers increased to 3.1%, 2.5%, and 20.0% by 2021. In contrast, public firms increased the fraction of Black, Hispanic, and Female director appointments from 7.1%, 2.5%, and 44.4% in 2019 to 28.7%, 5.6%, and 47.0% in 2021. The lack of diversity on startup boards is concentrated among investor directors, such as venture capital partners. Startups with more diverse employees and those close to an IPO or raising private capital were more responsive to GF. This suggests that capital market frictions and institutional barriers, such as the lack of diversity within venture capital firms, are critical for understanding the low diversity in startup boards. We find no evidence that underqualified diverse directors are appointed following GF.

JEL: G30, G34, J15, J16, J71, L26, M13, M14

Keywords: Board of Directors, Race, Social movements, Startups, George Floyd, Image Classification

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Abstract

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I. Introduction

Corporate boards play a central role in governance but often lack racial diversity, raising concerns about systemic bias and suboptimal talent allocation (Hsieh et al., 2019). Such concerns intensified following the George Floyd social justice movement (GF), which brought heightened scrutiny from regulators, investors, and policymakers. Most of what we know about board diversity relates to public companies. However, given the importance of startups in driving economic growth, innovation, and employment, it is surprising how little attention has been given to the racial diversity of startup boards.[1]

In this study, we extend the focus on board diversity to private firms, with an emphasis on venture capital (VC) backed startups. Our study combines image-recognition techniques with an extensive manual review to build the first large database of board diversity for startup firms. Previous work on private firm boards centers largely on investor/founder dynamics over the life cycle of the firm (Ewens and Malenko, 2022). In contrast, our study has three objectives. First, we offer a comprehensive description of startup board diversity. Second, we leverage a shock to the demand for diversity to identify the effect of supply constraints on the appointment of diverse directors. Third, we uncover which types of firms are more responsive to the shock by testing the importance of external factors (e.g., customers, regulations, capital market frictions) and internal factors (e.g., pressure from the startups' investors or employees) in the response. In interpreting our results, we compare the percentage of diverse directors in startups pre and post GF to the numbers for public firms.

Startup boards have very little diversity relative to either public firms or the general population. In our sample of startups in 2019, before GF, 1.6% of appointed directors are Black, 1.8% are Hispanic, and 16.0% are women, compared to 7.1%, 2.5%, and 44.4% in public firms. Meanwhile, Blacks, Hispanics, and women represent 14%, 19%, and 51% of the general population, respectively. Together, these three categories of directors are

[1] See, e.g., Puri and Zarutskie (2012); Haltiwanger et al. (2013); Lerner and Nanda (2020); Gornall and Strebulaev (2021).

underrepresented among startups and public firms.[2]

After the GF shock, there is a large increase in board diversity for public firms, but the response is much smaller for startups. By 2021, Blacks and Hispanics represent 34.3% of new board members in public firms compared to only 5.6% in startups. Appointments of women also increase in public and startup firms, to 47% and 20% of the total, respectively. Once again, the response among startups, while significant, is much smaller.[3]

Our results are based on a sample of around 131,000 startup directors collected from PitchBook.[4] While the PitchBook dataset does not cover the entire universe of startups, its coverage is relatively thorough and does not appear to be a direct function of race.[5] To classify directors, we rely primarily on machine-learning algorithms, using a combination of image and name processing. We also conduct an arm's-length extensive manual review.[6] For public firms, we use directors in BoardEx and gather director race from ISS. The result is a new large database of startup director characteristics.

Our rich dataset allows us to dig deeper into the determinants of board diversity in startups and the response to GF. We find that the lack of diversity is concentrated among investor directors. For example, post GF, we see 7% and 21% increases in Black appointments among executive and independent directors, respectively, but no increase among investor directors. Our analysis supports the role of institutional constraints in hiring underrepresented directors, given the lack of diverse partners in VC firms (Gompers and Wang, 2017). Since investor directors account for 35% of startup directors, their appointments are crucial in shaping overall board diversity.

Diverse VC partners are also crucial because they are more likely to recruit other

[2] We focus on Black and Hispanic directors, whom we collectively refer to as "minority." In our sample, Asian directors are overrepresented compared to their U.S. population share.

[3] The comparison between public boards' and startups' directorships seems relevant, as 48.4% of directors on public boards have also had a director role on a startup board.

[4] Ewens and Malenko (2022) show that PitchBook coverage is incomplete. We supplement PitchBook by scraping start/end dates from directors' LinkedIn profiles and Form D.

[5] To address concerns about PitchBook's coverage, we validate our data by matching startups in our sample to LinkedIn and to the corporate registry of firms registered in Massachusetts. We find that PitchBook covers about 96% of the directors listed on LinkedIn or on startups' certificates of incorporation.

[6] See Appendix B.1 for more details on our image-classification process. Our out-of-sample cross-validation tests confirm that our classification algorithms perform quite well.

diverse board members. In their absence, the homophily among VC partners, who tend to recruit from their own networks, is likely to perpetuate the lack of diversity among executive and independent directors (Ewens and Townsend, 2020; Gompers et al., 2017).

To explore which kinds of firms respond to the shock, we test whether diverse appointments are related to external forces such as customer pressure, regulation, and capital market frictions. We find that post GF, companies headquartered in California (where a law requires that at least one director on the board of a public firm headquartered in the state be from an underrepresented group) appoint more women and Hispanics as directors but fewer Blacks. Furthermore, startups that are approaching a funding round or IPO react to the GF shock by making more diverse appointments; the reaction of startups approaching an IPO is almost five times larger than the response of startups raising funding in private markets. The proximity to fundraising is important because startups often change their board structure following funding rounds (Ewens and Malenko, 2022). Overall, private and public capital market frictions appear to be first-order determinants of startup board diversity post GF.

We also consider whether internal pressure from investors and employees affects startups' demand for board diversity following GF. Startups that raise capital from Black and Hispanic investment firms are more diverse but do not react differently to GF than other startups. On the other hand, startups with more diverse employees have a stronger response to GF. Again, this response is concentrated in the ranks of inside and outside directors but not investor directors.

The demand shock from GF may have led to short-term supply constraints, potentially resulting in the appointment of less-qualified minority directors. To test this, we compare the qualifications of underrepresented and non-underrepresented directors appointed before and after GF. We follow Ahern and Dittmar (2012) by focusing on observable characteristics such as age, work experience, and education, which are related to the quality of directors' advice. We find that underrepresented directors appointed pre GF have better observable characteristics than those appointed post GF. However, pre GF, underrepresented director appointments have stronger observable characteristics

than their non-underrepresented counterparts, while post GF, there are no significant differences between these groups. In other words, the drop in quality is entirely due to underrepresented directors having better observables than non-underrepresented directors before GF; the playing field becomes more equitable afterward.[7]

In our final tests, we explore whether diversity during a firm's private phase matters for its public phase. We observe that board diversity—when it exists—persists strongly when firms transition from private to public. VC-backed firms, particularly those that lack diversity while private, are less likely to appoint racially diverse directors after their IPOs, making their pre-IPO appointments critical. This persistence means that lower board diversity in startups likely has negative long-run implications for board diversity in public firms, underscoring the importance of understanding the causes of the former.

Our findings shed light on talent allocation in a critical, albeit small, labor market. If board member talent is randomly assigned, characteristics like gender and race should mirror the general population. However, research indicates that talent misallocation not only occurs but also has significant economic consequences (Hsieh et al., 2019). If bias reduces the demand for director diversity, firms are likely to deviate from value-maximizing choices. We show that a social movement can mitigate such value-destroying decisions, especially when firms engage with capital markets. Another factor behind startups' limited board diversity could be the small pool of diverse directors due to sociological factors like education access and skills training. Our study leverages a demand shock to show that even when firms seek to increase diversity, supply-side constraints can be limiting. Our findings suggest that a lack of diversity in venture capital investment firms may constrain progress in startups' board diversity.

Our paper makes a number of contributions. Currently, the literature on board diversity offers mixed conclusions on a wide range of topics. Previous studies highlight the role of enhanced networking (Agarwal et al., 2016) but also note the stark disparity in leadership roles (Field et al., 2020). Adams and Ferreira (2009) show that diversity drives

[7] Of course, we cannot dismiss the possibility that underrepresented directors differ from non-underrepresented ones in unobserved ways. Our conclusion assumes that unobserved characteristics positively correlate with those observed.

better monitoring, but they observe no difference in firms' financial outcomes. Both Kim and Starks (2016) and Bernile et al. (2018) argue that Female directors enhance firm value and lower risk, but Ahern and Dittmar (2012) suggest that diversity mandates lower directors' experience levels. Gow et al. (2023) find that while institutional investors do not oppose diverse appointments, they fail to champion them through their voting behavior. Gormley et al. (2023) explore the influence of large institutional investors on firms' director appointments and find that these efforts increase gender diversity without lowering quality. While the above studies all pertain to the boards of public firms, Lowry (2022) shows that private firms' governance structures, especially VC-backed firms', increasingly resemble those of public firms. Our study contributes to this literature by documenting diversity on startup boards and relating public firms' board diversity to that of private firms. We show that board diversity responds to the GF demand shock, but much more so in public firms. Furthermore, the response to the shock does not lead to the appointment of underqualified Black directors to startup boards. Due to the recency of the GF movement and the infrequency of valuation observations for private firms, the question of whether the increased diversity in startup boards impacts firms' performance is currently beyond our scope.

Our study also speaks to the nascent literature on startup boards. Ewens and Malenko (2022) show the role of independent directors in mediating the shift of control from founders to VCs. Ewens and Sosyura (2023) find that the unexpected loss of an investor director lowers firm value. Montag (2021) shows that experienced directors facilitate startup growth. We contribute to this literature by providing the first evidence on the level and evolution of racial and gender diversity on startup boards. We also document differences in how startups respond to the public pressure for increased diversity following GF.

Our remaining contributions fall within the burgeoning literature on the George Floyd social justice movement (Bogan et al., 2021; Pajuste et al., 2024; Balakrishnan et al., 2023). Balakrishnan et al. (2023) show that public firms with more exposure to diversity tend to appoint Black directors and do so without experiencing any difference in quality.

We contribute to this line of work by showing that the reaction to GF is much lower among startup firms than public ones, likely reflecting institutional constraints among investment firm partners. Consistent with the Balakrishnan et al. (2023) findings in public firms, we find no evidence that minority directors appointed to startups following GF have worse observable characteristics than the non-minorities appointed over the same period.

The plan for the rest of the paper is as follows: Section II describes how we construct the data. Section III outlines our empirical strategy. We present our key findings in Section IV. Section V concludes.

II. Sample Construction

Our goal is to understand the evolution of racial and gender diversity on startups' boards, to interpret the changes in startups' racial and gender diversity over time, and to understand how board diversity during a startup's private phase relates to board diversity following the firm's change in listing status. Our primary source for startup directors is PitchBook. We use BoardEx for public-firm directors.

For race and gender data on public firm directors, we merge BoardEx with ISS. For startup directors, we use PitchBook for gender data and classify race ourselves (as no database contains race for startup directors). We classify race using a combination of image- and name-processing algorithms combined with extensive manual review (see Cook et al. (2022) for a similar implementation). In the sections to come, we describe how we construct the samples used in our analysis.

A. Boards of Directors in Startups

While no existing dataset offers comprehensive coverage of boards for the universe of private companies, we rely on PitchBook to identify board member appointments in startups. Specifically, we extract the years when directors are initially appointed and when they leave the board. To augment this data, we collect LinkedIn URLs for these board members from PitchBook and supplement any missing URLs through extensive

manual searches.

We use public LinkedIn profiles for three purposes. First, we use resumes to fill gaps in PitchBook on the start and end dates of the director tenures. This effort increases our coverage of start dates for director appointments from 69.5% to 81.9%. Second, we collect resume data on director education and work history. We can use this data to test whether changes over time in the qualifications of newly appointed directors vary by race. Third, as PitchBook does not provide the race of directors, we use director pictures from LinkedIn to classify race. We use the start and end dates for each director-startup pair to construct a firm-year panel. In robustness tests, we focus on director appointments, keeping only firm-years with new appointments.

A.1. Classifying Race of Directors of Startups

As noted above, PitchBook includes individual gender data but not race. Thus, a key contribution of our paper is the classification of startup directors by race. While name-based estimations of race are commonly employed and may be suitable for some minority groups, they are less effective for others. Cook et al. (2022) show that using names alone yields many false negatives for Black individuals, and that incorporating images significantly improves accuracy. Nevertheless, even when images and names are used in combination, at least a few individuals are misclassified.

We therefore adopt a hybrid approach that combines an image and name algorithm with manual review. Overall, we process 131,178 unique directors appointed to boards between 2000 and 2021.[8] For brevity, we outline our approach here and defer a detailed description to Appendix B.

We initially classify directors using an algorithmic approach that combines director images and names (see Cook et al. (2022) for more details). To improve the accuracy of our classifications, we hire three UpWorkers for image review. We select UpWorkers who self-identify as Hispanic, Black, or Asian American, as we hypothesize that they can more

[8] This number exceeds the count in our sample of startups, as the PitchBook data includes directors appointed after the firm becomes publicly traded. We leverage this overlap in sample to validate our approach by comparing our classifications with those of ISS. We discuss the results of this validation exercise in Appendix B.1.

accurately identify individuals of their own ethnic groups (Ma et al., 2021). To facilitate the review, we provide them with both the profile picture and the director's name.

To reduce errors, the UpWorkers conduct three full reviews for each director, with a fourth review of those proposed as Black or Hispanic. Lastly, two of the authors independently verify all director classifications.

Figure 1 shows the distribution of directors by race. Panel A shows the exact counts, while Panel B compares the proportions of each race to their respective population shares according to the 2020 U.S. Census. Compared to their population shares, Black and Hispanic directors are underrepresented, while Asian and White directors are overrepresented.

[INSERT FIGURE 1 ABOUT HERE.]

A.2. How Good Is PitchBook's Coverage of Startup Directors?

One concern is whether PitchBook has good coverage of startup directors and, thus, whether our race data cover a representative cross-section of them. Panel A of Table 1 shows our initial sample of 243,213 director appointments across 139,657 firm-years. Of these, we successfully identify director race for 196,464 appointments, resulting in an 81% coverage rate. In 112,115 firm-years, we know the race of at least one director appointed to a board.

Panel B of Table 1 summarizes our sample of public firms, which relies on ISS data. The table highlights the low coverage of race for directors in public firms in the early part of the sample. In fact, our startup data have better coverage of race in all years except for the 2020-2021 period.

[INSERT TABLE 1 ABOUT HERE.]

To facilitate comparisons with board diversity in public firms, we restrict our main analysis to startup-years from 2013, when race coverage among public firms is at least 50%.

A.2.1 Validating PitchBook's Coverage Using External Sources

While it is reasonable to assume there are gaps in PitchBook's coverage of startup boards, we operate under the assumption that the coverage that exists is not a function of race.

Nonetheless, we do two validation exercises to assess the reliability of our sample. First, we match our startups directly to the universe of public profiles on LinkedIn, which we acquire from the data aggregator CoreSignal. For the 4,890 companies we match, we search for directors appointed between 2013 and 2021 among all current and former employees associated with the company according to LinkedIn.[9] As shown in Table A1, Panel A, PitchBook covers approximately 96% of the directors we find on LinkedIn. Furthermore, we find no strong evidence that we are undercounting racial minorities, although we have slightly lower coverage of insider directors than of outsider and investor directors.

Our second approach focuses on startups headquartered in Massachusetts, as firms there are required to make yearly public state filings that include a list of their directors and executive officers.[10] We use the startups' websites to collect directors' images. We keep the 128 startups whose websites display images of all the 454 directors listed on filings.[11] Panel B of Table A1 reports the racial composition of directors in our sample versus those from this sample. While the PitchBook sample has a slightly lower percentage of non-white directors, the representation is relatively similar.

B. Startup Director Appointments by Director Type

In Table 2, we decompose director appointments by director type, following the classification in Ewens and Malenko (2022). This classification identifies three director types: insiders, who are company executives; outsiders, who are usually independent and unaffiliated with the company or its investors; and investors, who typically secure board seats

[9] We search for job titles indicating a director role. We use LinkedIn profiles of directors in our PitchBook sample to isolate titles associated with director roles.

[10] We search for companies in the spring of 2024 using this link and extract individuals listed as directors on each startup's filing.

[11] We classify the race of these directors following the procedure described in subsection II.A.1.

as part of their investment in the firm (Amornsiripanitch et al., 2019; Gompers et al., 2020).

Panel A shows the count of newly appointed directors in each role who are Black, Hispanic, Asian, or Female, while Panel B shows the proportions relative to all director appointments. We see that Black, Hispanic and Female directors have the least representation among investor directors. By contrast, Asians have a high representation across all director types, with their lowest representation among outsider directors. These statistics are consistent with the literature highlighting the underrepresentation of Blacks, Hispanics, and Females in the private equity industry (Gompers and Wang, 2017; Cassel et al., 2022).

[INSERT TABLE 2 ABOUT HERE.]

C. Startup Employees

To understand the relationship between employee diversity and board diversity, we classify startup employees by race. We use CoreSignal data from 2017 to 2023 to identify the employees. CoreSignal provides a historical record of all U.S. employees with public LinkedIn profiles. The company began collecting this data in 2017, so we start the employee sample in that year to avoid survivorship bias. Using the employment start and end dates, we create a dataset of the number of employees by race at each firm in a given year.

To classify the race of these employees, we follow the process outlined in II.A.1, with two exceptions: 1) we use only employee images from LinkedIn, and 2) we do only one round of manual review due to the large number of employees (about 1 million).

Table A2 summarizes board and employee diversity at the firm-year level, the unit of our main analysis. Panel A presents statistics for the full sample, Panel B for insider directors, Panel C for outsider directors, and Panel D for investor directors. We have data for 395,291 firm-years from 2013 to 2022. Of these, we know the race of at least ten employees for 34,586 firm-years from 2018 to 2022.

D. *Black and Hispanic Ownership of the Investment Firm*

One of the hypotheses in this paper involves whether, in VC firms, the racial composition of the ownership correlates with board diversity. To test this hypothesis, we incorporate a measure of whether the VC firm is Black and Hispanic (B&H)-owned. We rely on the classification of private capital groups from Cassel et al. (2022), which defines a group as B&H-owned if at least 50% of its founders or most of its senior partners are Black or Hispanic.[12]

E. *Board of Directors in Public Firms*

For public firms we use BoardEx, which maintains a comprehensive dataset of public boards' directors. We combine the BoardEx datasets on director committees and individual directors' employment tenures on specific boards. We aggregate board director positions at the firm level, resulting in a firm-year panel dataset containing the roster of directors as of each firm's annual-report date.

We merge BoardEx with ISS to get director race. See Appendix A for details on how we merge ISS to BoardEx.

E.1. *Identifying Previously Venture-Backed Public Firms*

The final part of our analysis explores how the lack of racial diversity on startup boards affects board diversity when these startups transition to public markets. As part of this analysis, we examine whether board diversity is different for public firms that received VC funding before their IPO. We rely on the classifications by Gornall and Strebulaev (2021) to determine whether public firms were VC-backed. We are grateful to the authors for making this data available.

[12] The list of B&H-owned private capital groups we use is available here: `https://eyimfor.com/docs/MinorityGroupList.xlsx`.

III. Empirical Strategy

A. *How Did Board Diversity Change post George Floyd?*

To analyze the impact of social movements on the racial diversity of startup boards, we use our sample of startup-years to estimate the following regression via pooled OLS:

$$\textit{Board Diversity}_{it} = \alpha_1 + \beta_1 \textit{I(Post GF)} + \beta_2 \textit{Ln(Board Size)}_{it} + \gamma_f + \lambda_s + \epsilon_{it}, \quad (1)$$

where $\textit{Board Diversity}_{it}$ is the fraction of board members in firm i in year t that are Black, Hispanic, Asian, or Female. $\textit{Ln(Board Size)}_{it}$ is the log of the number of directors on the board as of year t, and γ_f and λ_s are firm and state (where the firm is headquartered) fixed effects. To avoid collinearity, we will use either state or firm fixed effects, but not both. *I(Post GF)* is an indicator for 2020-2022. The sample period runs from 2013 to 2022. We are primarily interested in β_1, which captures the effect of the George Floyd (GF) social movement on board diversity.

A.1. Identification Assumption

In estimating (1), our primary identifying assumption for β_1 is that the GF social movement causally affects board diversity, conditional on the size of the board and state (or firm) fixed effects.

A.2. Threats to Identification

Given that the variation we are exploiting is at the year level, threats to identification come from other macro events coinciding with the murder of George Floyd. These events (such as the COVID-19 pandemic) would have to explain the increased likelihood of diverse-director appointments through channels unrelated to the GF social movement.

A.3. Mitigating Threats to Identification

We take several steps to mitigate identification threats. First, we compare the magnitude of the change in Black directors (Blacks being the racial group most strongly affected by the GF social movement) to the change in other groups. Intuitively, we would

expect Hispanic and Asian representation among directors to be less impacted by GF. In contrast, any confounding events should be less likely to affect specific racial groups.

Second, we test whether the demand shock generated by GF is less likely to affect director types where there is a low supply of diverse directors. Note that in these cross-sectional analyses, any confounding macro variables must now explain both how the change in diverse appointments differs across racial groups *and* which director types are most affected.

Third, we use a difference-in-differences strategy to control directly for confounding time trends within each director type and racial group. We use the pre-GF characteristics of firms that might be more (less) exposed to the pressure generated by the social movement to define our treated and control groups. A key assumption of this strategy is that, absent the GF incident, treated and control groups would have had similar trends in board diversity.

B. *Differences-in-Differences Estimation*

For our difference-in-difference strategy, we estimate the following equation at the firm-year level using pooled OLS:

$$\begin{aligned} \textit{Board Diversity}_{it} = \alpha_1 + \quad & \beta_1 \textit{Post GF} \times \textit{I(Treated)} + \\ & + \beta_2 \textit{I(Treated)} + \gamma_i + \eta_t + \Gamma X_{i,t} + \epsilon_{it}, \end{aligned} \tag{2}$$

where $I(Treated)$ is a pre-GF firm characteristic that increases the firm's exposure to the effects of GF. These pre-GF characteristics include exposure to public and private capital markets, industry sector, location, investment from a minority investment firm, and employees' racial composition. We will discuss them in detail in the results section.

C. *What Are the Qualifications of Diverse Directors Recruited post George Floyd?*

At the director level, we examine how the observable characteristics of minority (Black or Hispanic) startup directors compare to those of non-minority startup directors before and after George Floyd. One hypothesis is that the sudden increase in demand for diverse directors might lead to the appointment of less-qualified minority directors post GF. We test this hypothesis by running the following director-level regression:

$$\text{Characteristic}_{it} = \beta_0 + \delta_i \times \text{I(Minority Director)}_i + \epsilon_{it}, \tag{3}$$

where Characteristic_i is related to the personal characteristics (e.g., age, education, professional experience) of director i appointed at time t, which likely directly affect the director's ability to advise the firm (Ahern and Dittmar, 2012). *I(Minority Director)*$_i$ is an indicator for Black or Hispanic directors. We run this regression separately for directors appointed pre and post GF to compare GF's impact on the observable characteristics of appointed directors.

D. *Racial Diversity When Startups Change Listing Status*

We conclude our analysis by examining whether the racial representation on startups' boards is related to the racial representation on public firms' boards. Specifically, within our sample of public-firm years, we estimate the following cross-sectional regression via pooled OLS:

$$\textit{Board Diversity}_{it} = \alpha_1 + \beta_1 \textit{VC Backed}_i + \lambda_s + \eta_t + \epsilon_{it}, \tag{4}$$

where *VC Backed*$_i$ is an indicator for startups that were VC-backed before they went public, and λ_s and η_t are state and year fixed effects.

IV. Results

We initially highlight the very modest representation of Black, Hispanic, and Female directors on startup boards. We then look at how the demand for underrepresented directors changes following George Floyd, and how the change varies by director race and type. Next, we compare how the post-GF demand for underrepresented directors differs between startups and public firms, and we explore the extent to which external and internal factors influence the startups' response. We then test whether directors from underrepresented groups are of lower quality than other directors, pre and post GF. Finally, we examine whether racial and gender diversity in a firm's private phase is related to the firm's racial diversity after the firm goes public.

A. Board Diversity in Public and Startup Firms

We begin by documenting the level of diversity on startup boards and contrasting it with the boards of public firms. Figure 2 presents the average level of board diversity by year, and these data are also tabulated in Table A3.

We observe an increase over time in the proportion of Female, Black, Hispanic, and Asian directors on the boards of both startups and public firms. By 2021, 1.6% of startup directors are Black, 1.7% Hispanic, 12.1% Asian, and 11.6% Female. This contrasts with public firms, where 9.5% of directors are Black, 2.9% Hispanic, 5.3% Asian, and 26.5% Female. Meanwhile, according to the U.S. 2020 Census, Blacks, Hispanics, Asians, and women account for 14.2%, 18.7%, 7.2%, and 50.9% of the general population, respectively. These categories are generally underrepresented on startup boards, with the exception of Asians, who are overrepresented.

[INSERT FIGURE 2 ABOUT HERE.]

To capture the pace of change, Figure A1 and Table A4 show yearly changes in the diversity of newly appointed directors. The increase in Female appointments accelerates in 2017, coinciding with the "Me Too" movement. Startups appointed 11.0% women in

2016, nearly doubling to 20.0% by 2021. This resembles the pace in public firms, where the fraction of female appointments almost doubled from 24.5% in 2016 to 47.0% in 2021.

The increase in racially diverse directors is concentrated in the period following George Floyd (GF), particularly for Black directors. On startup boards, the proportion of Black directors appointed nearly doubled from 1.6% in 2019 to 3.1% in 2021. While significant, this pales compared to the response among public firms, where the proportion of Black director appointments quadrupled from 7.1% in 2019 to 28.7% in 2021. This striking difference in the response is notable, given that public firms started from a much higher base level.

The differences between public and private firms may not be surprising, as public firms are subject to regulation and greater public scrutiny.[13] Balakrishnan et al. (2023) find that firms more exposed to racial issues reacted more strongly to GF, while Bogan et al. (2021) conclude that the increase in board diversity among public firms was largely driven by societal pressure following the GF movement. Furthermore, startup boards are typically small (Ewens and Malenko, 2022), and we show in Table A5 that the response to GF is stronger for larger boards.

Nevertheless, the level of board diversity in public firms serves as a useful benchmark. Furthermore, Table A6 shows a significant overlap between these two markets: 48.4% of directors in public firms serve on startup boards at some point, with 17.6% starting their director career at a startup. This suggests that promoting diversity on startup boards may have long-term effects on the supply of diverse directors for public boards.

We therefore continue our analysis by exploring factors that may limit startups' ability to increase their board diversity. We next turn to tests that help us determine whether the increased board diversity we document is a response to the GF movement.

[13] Regarding regulation, California signed two board diversity rules into law in 2018 and 2020, requiring diverse directors from 2021. These laws were ruled unconstitutional in 2022 and 2023. The Nasdaq's board diversity rule, approved by the Securities and Exchange Commission in 2020 and in effect since the end of 2023, requires firms to have diverse board members or explain why they are unable to comply. Since 2019, the NYSE Board Advisory Council has provided assistance in identifying diverse candidates.

B. *Startups' Response to George Floyd*

As a starting point for exploring the evolution of startup board diversity, we test whether the increase in racial and gender representation on boards following GF is statistically significant. In Table 3 we show the results of estimating equation (1). The sample period is from 2013 to 2022. We measure racial and gender diversity at the firm-year level as the proportion of board directors of a given race or gender. The dependent variable is the board's proportion of Black directors in Column (1), Hispanic directors in Column (2), Asian directors in Column (3), and Female directors in Column (4). In Panel A, we include fixed effects for the state where a startup is located, and in Panel B we include firm fixed effects. The number of observations is lower in Panel B because startups without any within-variation (startups with only one observation) drop out of the regression.

[INSERT TABLE 3 ABOUT HERE.]

The estimated coefficient on the *Post GF* indicator is positive and statistically significant across all columns in Panel A, reflecting an increase in minority and Female directors over time.

When we focus on within-startup variation in Panel B, we find a statistically significant effect post GF for Black and Female directors. The startup fixed effect explains almost all variation in the boards' race and gender diversity, leaving little room for omitted variables to influence our estimates. The coefficients in Columns (1) and (4) of Panel B imply that the fraction of Black (Female) directors on the board increases by 0.11 (0.54) percentage points following GF. In this regression specification, 1.37% (10.27%) of all startup board directors are Black (Female). The estimates therefore imply an 8% (5%) increase in Black (Female) director representation following GF. We do not find any change for Hispanic and Asian directors.

These estimates focus on the fraction of diverse board members. As an alternative, in Table A7, we replace the dependent variable with the fraction of diverse members among the newly appointed directors and find results consistent with the main specification.

To attribute the increase in board diversity to the GF movement, we require that

no confounding macro factors (such as the COVID-19 pandemic) explain them. Such an event would need to explain not only the increase in the level of Black and Female directors but also the lack of change in the level of Hispanic and Asian directors. To explore which director type saw the biggest increase in Black and Female directors, and to set a higher threshold for macroeconomic confounders, we decompose the effect of GF by director type in the next section.

C. Heterogeneity by Director Type

To determine whether the post-GF increase in board diversity is concentrated among director roles where there is a higher pre-GF supply of diverse directors (which would be consistent with supply-side constraints impairing firms' response to the GF movement), we next investigate how the increase in board diversity varies across director types.

We present our estimates for board diversity by director type in Table 4. Panel A focuses on inside directors, Panel B on outside directors, and Panel C on investor directors.[14] Each panel includes all firm-years with at least one director of that type. We restrict our sample to startups that have raised at least some VC funding, to ensure that startups with investor directors are similar to those with insider and outsider directors. Thus, in addition to controlling for the log of the board size, we can now control for the log of the cumulative amount of funding the startup has raised to date.

[INSERT TABLE 4 ABOUT HERE.]

It is clear from the table that the response to GF is not the same among all director types. The estimates from Panel A show that the fraction of Black inside directors increases by 7% (=0.102/1.49) post GF, while the fraction of Female inside directors increases by 4% (=0.484/11.99). Panel B suggests that the increases are even larger in magnitude for outside directors: 21% for Blacks and 11% for Females. By contrast, Panel C suggests that there is no change in the fraction of Black investor directors post GF,

[14] See section II.B for the director type classification.

while Female investor directors increased by 3%. Table A8 shows similar results for Blacks and Females for new director appointments following GF.

Recall, from Table 2, that Black and Female representation is lowest among investor directors. These results are consistent with the notion that institutional factors such as low diversity among venture capital partners may contribute to the underrepresentation of minority and Female directors on startup boards (Gompers and Wang, 2017; Cassel et al., 2022).

D. External and Internal Factors Influencing the Startups' Response

We now move to a differences-in-differences specification estimated using equation (2). This approach allows us to explore the mechanisms driving the change in diverse director representation post GF while making it more difficult for simultaneous macroeconomic events to explain our results. By including year fixed effects, we directly control for time trends and exploit heterogeneity in firms' exposure to public pressure, as captured by the *I(Treated)* term in equation (2).

We examine the influence of external and internal factors on startups' increase in racial and gender representation post GF. We begin with the influence of internal stakeholders such as investors and employees, then investigate the influence of external factors such as capital markets, customers, and regulation.

D.1. Internal Factors

To maintain consistency in our analysis of the internal motivations for post-GF racial and gender diversity, we restrict our analysis to 2018-2022, the period for which we have data on startup employees' racial diversity.

D.1.1 Racial Diversity of the Investment Firm

We begin by investigating how racial diversity among the decision-makers at the investment firms funding a startup relates to the startup's board diversity and response to GF. Prior research shows that diverse partners are more likely to fund diverse entrepreneurs (Cook et al., 2022; Cassel et al., 2022). We therefore expect startups that receive funding

from investment firms with diverse partners to have more diverse groups of inside directors. We also expect that diverse partners and entrepreneurs are more likely to recruit new directors from underrepresented groups in their network, leading to a multiplier effect. As our proxy for the investment firms' racial diversity, we use the list of private capital groups owned by Blacks and Hispanics (B&H) from Cassel et al. (2022) to calculate the fraction of diverse investors in the startup, *F(Minority VCs)*. Table A9 confirms that startups invested in by B&H VCs are associated with race and gender diversity in *all* director categories.

We next investigate whether startups that are funded by investment firms with racially diverse partners pre GF respond more strongly to the GF movement. The dynamic is unclear ex ante. On the one hand, having networks of racially diverse investors might allow these startups to respond more strongly. On the other hand, if these startups had already begun diversifying their boards as a result of the investment firms' influence, then the post-GF response might be concentrated in startups with non-racially-diverse boards (which would be under greater external pressure to diversify).

We use the fraction of B&H VCs invested in the startup pre GF as our *I(Treated)* group in equation (2) to test whether startups with B&H partners are more likely to appoint diverse inside directors (Panel A), outside directors (Panel B), and investor directors (Panel C) post GF. We present the results in Table 5.

[INSERT TABLE 5 ABOUT HERE.]

Across all panels, we find no evidence that startups backed by B&H VCs are any more or less likely than other startups to appoint Black and Female directors post GF. Thus, while B&H VCs invest in startups with more diverse boards, the increase in Black and Female representation following GF does not appear to represent in-group sympathy from Black and Hispanic investors.

D.1.2 Racial Diversity of the Startup's Employees

We next explore the potential effect of internal pressure from another stakeholder: employees. We estimate equation (2) using the proportion of employees who are Black or

Hispanic in 2019 as our treatment variable. This allows us to test whether startups with more racially diverse workforces do more than other firms to diversify their boards following GF.

Figure 3 and Table A2 document the racial composition of employees in our sample. We limit our sample to startups with at least 10 employees in 2019.[15] As a consequence, the number of observations is lower than in the table on the racial composition of the investment firm partnership (Table 5). 4% of startup employees are Black and 6% are Hispanic.

[INSERT FIGURE 3 ABOUT HERE.]

We estimate the impact of employees in Table 6. Panel A shows results for inside directors, Panel B for outside directors, and Panel C for investor directors. We make one change to the dependent variables in this table: we omit "Asian" and instead include the proportion of B&H directors on the board as the dependent variable in Column (3). The reason for this is the lack of an effect for Asian directors in all previous analyses.

The point estimates in Column (1) indicate that in startups with an average number of Black employees, the racial diversity of inside directors and outside directors increases by 0.11 percentage points (=0.04 X 2.789) and 0.17 percentage points (=0.04 X 4.369), respectively. These magnitudes are economically meaningful, as they imply changes of 9% and 11% relative to the unconditional means of 1.27% and 1.48%. Consistent with the overall response to GF in Table 4, we do not find an effect for investor directors.

[INSERT TABLE 6 ABOUT HERE.]

In addition to having a stronger response to GF, Table A10 shows that firms with more diverse employees typically have more diverse boards.

D.2. External Factors

For our analysis of external factors, we begin with startups' exposure to capital markets. We then test whether a startup's location and industry influence its response to

[15] See section II.C for details on matching the startups in PitchBook to CoreSignal, where we identify the employees.

GF.

D.2.1 Board Diversity and Capital Markets

Startups must periodically raise capital to continue growing. In this section, our goal is to understand whether the startups that had to raise capital post GF were more likely to respond to GF by increasing the racial and gender diversity on their boards. We construct measures for startups' pre-GF exposure to both public and private capital markets.

For private capital markets, we leverage the fact that startups typically raise a new round of funding every 18 to 24 months and that director appointments typically take place following the funding rounds (Ewens and Townsend, 2020). In Figure 4, we show that there is little variation in time between funding rounds by industry. We assume that the timing of the startup's most recent pre-GF funding round is independent of GF. Thus, using the data on a startup's last round of funding pre GF, we can predict whether the startup would have needed to fundraise post GF.

To implement this intuition, we create an indicator, *Predicted Fundraising*, that equals one for startups that are likely to fundraise post GF. For each startup that raised a round of funding pre GF, we use the average number of months between funding rounds for other startups that raised the same funding round and then raised a subsequent funding round within the previous five years. 36% of startups that raised a round of funding pre GF are predicted to fundraise post GF.

[INSERT FIGURE 4 ABOUT HERE.]

For public capital markets, we aim to capture startups that are close to an IPO. To do this, we first measure the amount of funding a startup raised pre GF. The intuition is that startups that have raised abundant capital have fewer suitors for an acquisition and are instead likely to go public. We define an indicator that is equal to one for startups in the top decile of pre-GF funding raised within their industry, *Raised a lot*.

Our first identifying assumption ("first stage") is that we can use these two measures of capital market exposure to predict which startups will raise post-GF funding in private markets and which will go public.

In Table 7, we validate these assumptions by regressing whether a startup actually raised funding (Columns (1) to (3)) or went public post GF (Columns (4) to (6)) on our measures of exposure to private and public capital markets. The first three columns show that the startups that we predict would raise funding in private markets post GF, *Predicted Fundraising*, indeed are more likely to do so. The estimate in the most restrictive specification, Column (3), implies that startups predicted to fundraise post GF are 20% more likely to do so than the average startup (=0.044/0.2160). The last three columns validate the assumption for public capital markets by showing that startups that raised a lot of funding are indeed more likely to go public post GF. The estimate in Column (6) implies a 566% higher likelihood of an IPO post GF for startups in the top decile of pre-GF fundraising, relative to the average startup (=0.034/0.006).

[INSERT TABLE 7 ABOUT HERE.]

Our second identifying assumption is that absent the GF event, trends in Black and Female director representation for startups predicted to raise funding in private markets post GF and startups predicted to go public post GF would have been similar.

With our first stage in hand, we estimate equation (2). We present the results in Table 8 using, as our treated variables, startups predicted to raise funding in private markets post GF (Panel A) and startups predicted to go public post GF (Panel B). Given that this test conditions on pre-GF fundraising, it has fewer observations than Table 3. However, it has the added advantage of allowing us to condition on both board size and the cumulative amount of funding raised to date.

We find a strong effect of capital markets on Black and Female board diversity post GF, especially for startups predicted to go public. The estimates in Panel A imply that startups predicted to fundraise from private markets, on average, increase the fraction of the board that is Black by 0.12 percentage points more than other startups. This is an economically meaningful number, as it represents 10% of the unconditional average proportion of Black directors. The increase in the proportion of Female directors is 0.33 percentage points higher than other startups, which represents 3% of the unconditional average.

In Panel B, we see an even stronger effect for being close to public capital markets: startups predicted to go public increase the fraction of Black board members by 0.66 percentage points more than other startups, or 55% of the unconditional average. The corresponding number for Hispanic directors is 0.11 percentage points (7% of the unconditional average). For Female directors, it is 2.76 percentage points (27%).

[INSERT TABLE 8 ABOUT HERE.]

These results are consistent with pressure from the capital markets having a strong effect on racial and gender representation post GF. Consistent with our previous results, we find that the strongest response is among Black directors, supporting the notion that startups respond to GF.

Requirements by investment banks could be one mechanism through which capital markets exert pressure on startups that are preparing to go public. In July 2020, for example, Goldman Sachs, a leading IPO underwriter, announced that it would only take companies public in the U.S. and Europe if they had at least one diverse board member. In 2021, Goldman Sachs increased the requirement to two members, including at least one woman.[16]

D.2.2 Board Diversity and Geography

In Panel C of Table 8 we re-estimate equation (2) using an indicator for startups located in California as our treated variable. California passed Senate Bill (SB) 826 in 2018, which required all publicly traded firms headquartered in the state to have at least one woman on their boards by the end of 2019 and at least two women by the end of July 2021. This was followed by the California Assembly Bill (AB) 979, passed in 2020, which required at least one director from an underrepresented community by the end of 2021, and at least two (three) for boards between four and eight (nine or more) directors from the end of 2022. This regulatory pressure might have driven California-based startups to

[16] The announcement of this initiative can be found here.

diversify their boards. Twenty-nine percent of startups in our sample are headquartered in California.

Interestingly, we find that a firm being located in California negatively affects Black director representation but positively affects Female director representation. The proportion of Black directors in California-based startups decreases by 0.07 percentage points relative to non-California startups post GF, while the proportion of Female directors increases by 0.50 percentage points (equal to 5% of the unconditional mean of Female directors). Bogan et al. (2021) find similar results for California-based public firms. In terms of Female director representation, the California companies' response is almost twice as large as the baseline estimate in Table 3.

D.2.3 Board Diversity and Industry

The last external factor we consider is the role of startup customers. Ideally, we would use the racial composition of the customers as a proxy for whether the customer base explains the startups' response to GF. Unfortunately, we do not observe the racial composition of the startups' customers. Instead, in Panel D of Table 8, we define a startup as treated if it is in a business-to-consumer sector (B2C). Our assumption is that if the pressure to diversify comes from customers, then startups that are customer-facing will do more to increase the racial and gender representation on their boards. Consistent with this general idea, Figure A2 shows that B2C industries have the highest fraction of Black and Hispanic directors. Seventeen percent of all startups in our sample are in the B2C sector.

We do not find any evidence to support the customer pressure channel. In sum, the evidence in this section is consistent with capital markets being a first-order external driver of startup board diversity post GF.

E. Did Increased Board Diversity Lead to Talent Misallocation?

One frequently cited reason for the low racial and gender representation on startup boards is a limited supply of qualified directors from underrepresented groups. Using the GF movement as a shock to the demand for diverse directors, we test whether the sudden

increase in demand led to the appointment of lower-quality directors. If the supply-side argument for racial and gender underrepresentation on startup boards is binding, then the diverse directors who were appointed post GF will have qualifications inferior to those of directors from groups that are not underrepresented.

E.1. Qualifications of All Minority and Non-Minority Directors

To assess the directors' qualifications, we rely on resume data from LinkedIn profiles. We follow Ahern and Dittmar (2012) by focusing on observable director characteristics such as age, work experience, and education, which the authors show are related to the quality of directors' advice. To avoid look-ahead bias, we only consider information on the director's LinkedIn profile as of the year preceding their appointment to a startup's board. The unit of observation is a director-appointment; thus, a director who serves on multiple boards may appear in the data multiple times. The sample comprises 25,942 directors appointed to boards between 2013 and 2021.

We separately estimate equation (3) for the pre- and post-GF periods, where post-GF encompasses all appointments in 2020 and 2021. Since we estimate each characteristic separately, we standardize all variables to have a mean of zero and a standard deviation of one so that we can easily compare relative effects across the different covariates.

Panel A of Figure 5 presents our results for the pre-GF period. This figure plots the estimated effects of various job and educational characteristics on the likelihood that a director is Black or Hispanic. The black and gray dots represent the estimated coefficients, with horizontal lines indicating the 95% confidence intervals.

[INSERT FIGURE 5 ABOUT HERE.]

From the figure, we see that before GF, Black and Hispanic directors are more likely to have attended an Ivy League school (*Attended Top School*), have worked at other startups (*Former Startups*), have a computer science or engineering degree (CS/Engineering Degree), have an advanced degree (*Master's Degree*), have been a startup founder (*Is Founder*), and have more total degrees (*Total Degrees*). Pre GF, Black and Hispanic

directors tend to have fewer years of work experience, likely because they are younger.[17]

In Panel B of Figure 5, we present characteristics of directors appointed following GF. We see that the qualifications of Black and Hispanic directors appointed post GF are lower than those for Black and Hispanic directors appointed pre GF, but not significantly different from those for non-Black or non-Hispanic directors appointed post GF.

To the extent that these observable characteristics serve as good proxies for unobserved quality, the evidence presented in this section undermines the supply-side argument, which holds that the low number of minority directors pre GF was primarily due to a lack of qualified candidates. The sudden increase in demand for diverse directors triggered by the GF movement does not seem to have compromised the quality of board appointments, as the newly appointed directors from underrepresented groups are of no lower quality than their counterparts. Balakrishnan et al. (2023) similarly show that the qualifications of Black directors appointed to public firm boards following GF are not of lower quality.

F. Board Diversity among VC-Backed Public Firms

We close by testing the hypothesis that the racial and gender diversity of a public firm's board of directors is related its pre-IPO board diversity. Figure 6 provides an initial look at the persistence in board diversity. We split firms by whether they have at least one Black or Hispanic (minority) director on the board prior to the IPO, and plot the fraction of minority directors in the first five years following the IPO. The figure documents a remarkable persistence in board diversity.

[INSERT FIGURE 6 ABOUT HERE.]

Next, we examine whether VC-backed firms on the public market have lower board diversity. The notion that VC backing would have a negative effect on board diversity

[17] For the subsample of directors for whom we have the undergraduate graduation year, we proxy for age by using the number of years from graduation to the director appointment. This measure suggests that Black and Hispanic directors are three years younger than non-Black, non-Hispanic directors at the time of their appointment. Panel A of Figure 5 shows that Black and Hispanic directors have a 0.07 lower standard deviation in work experience pre GF. Given that a standard deviation of work experience pre-GF is about 9.65 years, this difference implies that Black and Hispanic directors have less than one year less work experience at the time they are appointed. Thus, all the difference in work experience can be explained by the three-year difference in age.

is plausible, given the low levels of board diversity in startups' private phase and the existing evidence of the VCs' enduring influence on firms after they go public (Hochberg, 2012; Celikyurt et al., 2014; Iliev and Lowry, 2020).

Our empirical estimation of equation (4) uses panel data on board appointments at public firms. The sample consists of 29,087 firm-years, comprising 4,708 unique firms.

[INSERT TABLE 9 ABOUT HERE.]

Panel A of Table 9 presents the results from estimating equation (4). Across all columns, we see that VC-backed firms have fewer Black and Hispanic directors but just as many Female directors. Column (1) suggests that, relative to the unconditional mean, VC-backed firms have 27% fewer Black directors on their boards and 45% more Asian directors on their boards. These statistics are consistent with the racial composition of startups we document.

One hypothesis is that VC-backed firms have a high demand for other (non-Asian) racial minorities, but these minorities lack the qualifications to become directors. If this hypothesis explains the wedge between VC- and non-VC-backed public firms, then VC-backed firms should react less to the post-GF demand for racial diversity due to the supply constraints. However, from Column (1) of Panel B, we see that VC-backed firms are just as likely as other firms to appoint Black directors to their boards following GF. Thus, the lack of racial diversity on startup boards is potentially relevant for how racial diversity evolves on the boards of public firms, especially given the growing number of public firms that were previously VC-backed (Gornall and Strebulaev, 2021).

V. Conclusion

This paper sheds light on board diversity in startups, with a focus on the economically important subset of firms backed by venture capital. We assemble the first dataset with racial information on startup directors and document how racial and gender diversity on startup boards differ in the cross-section and evolve over time, particularly following the George Floyd social justice movement. While the 2020 movement increased diversity

in both public and startup firms, the public firms' response was significantly stronger than the startups', which led to an even wider gap in board diversity between public and private firms.

Our findings point to institutional barriers as the key drivers of the cross-sectional distribution of racial diversity on startup boards, and to capital market frictions as the strongest influence on the response to GF. While the fraction of Black directors appointed in startups more than doubled following the GF movement, the base level was very low and the gains were largely confined to the executive director and independent director roles (with investor directors showing no improvement). The scarcity of minority investor directors is greatest in startups backed by venture capital firms that lack minority partners.

Although the governance structures in private firms increasingly align with those of public firms (Lowry, 2022), our study suggests that startups are less responsive to societal demands for diversity. Rather, external capital markets—especially the public market—seem to have a first-order effect on startups' response to a social movement. Our finding that the level of board diversity in startups persists after they transition to the public market highlights the importance of understanding the evolution of diversity during the private phase.

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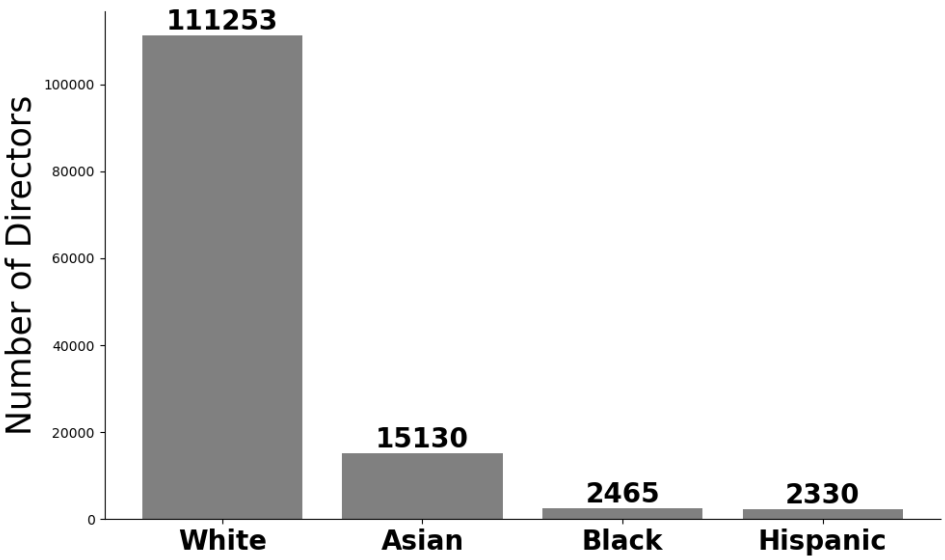
(a) Number of Startup Directors by Race



(b) Proportion of Startup Directors by Race

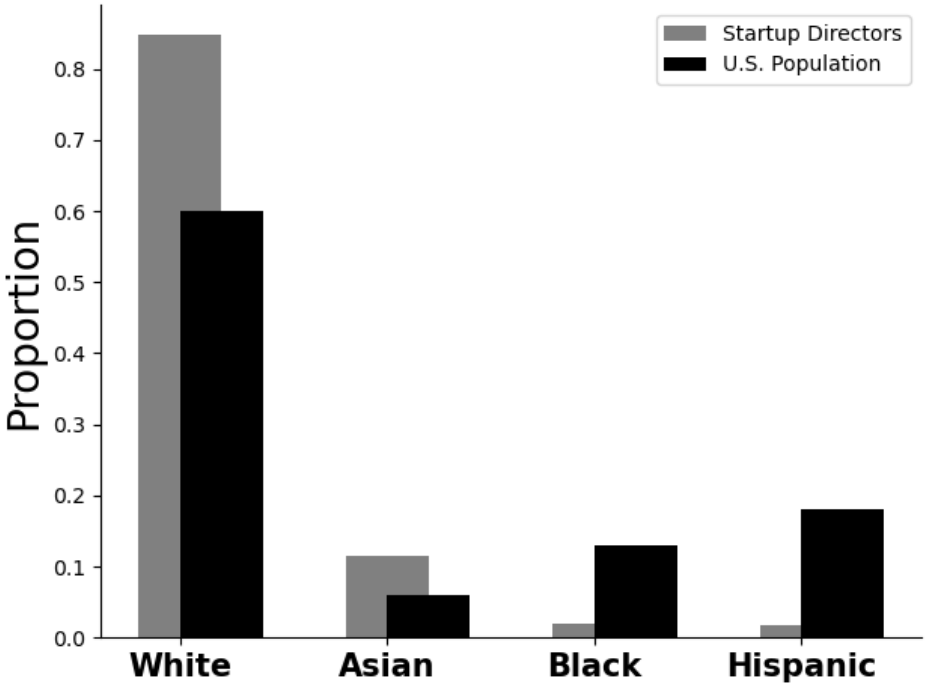
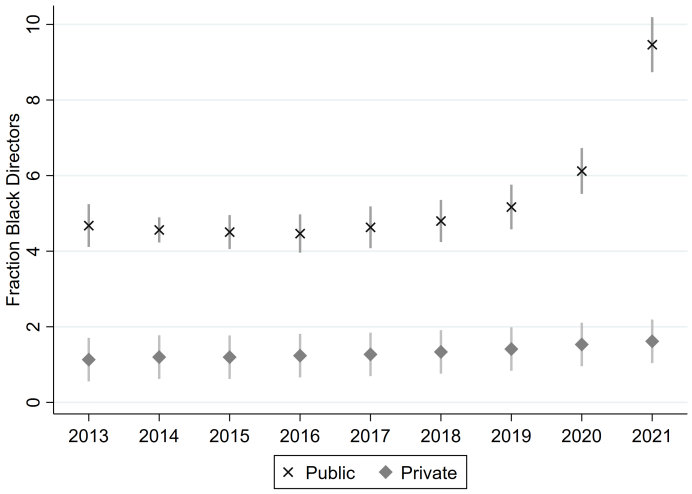
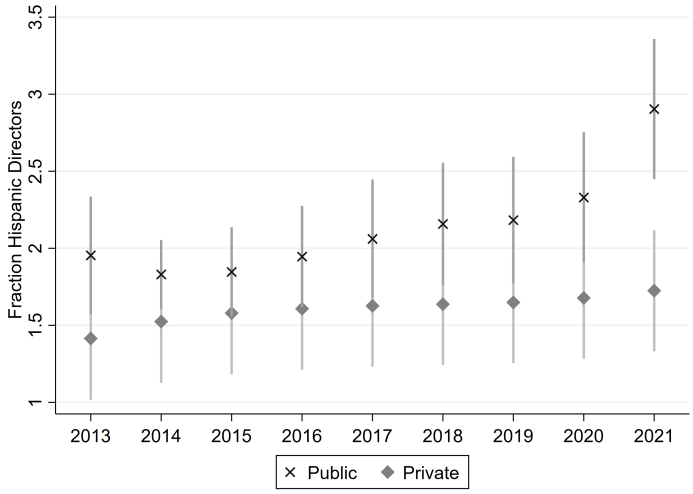


Figure 1: Startup Board Directors by Race

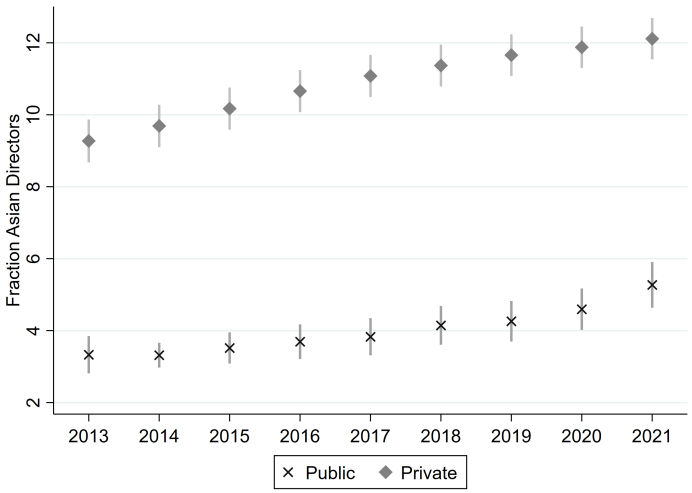
This figure plots the prevalence of directors on startup boards by race. Panel A documents the number of directors of each race in our sample, while Panel B shows the proportion of startup directors in light grey. The darker bars in Panel B represent the proportion of each race in the population according to the 2020 U.S. Census.



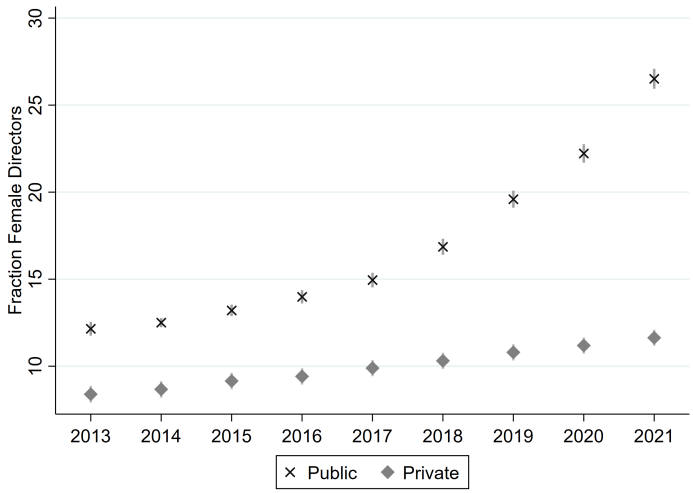
(a) Black Directors



(b) Hispanic Directors



(c) Asian Directors

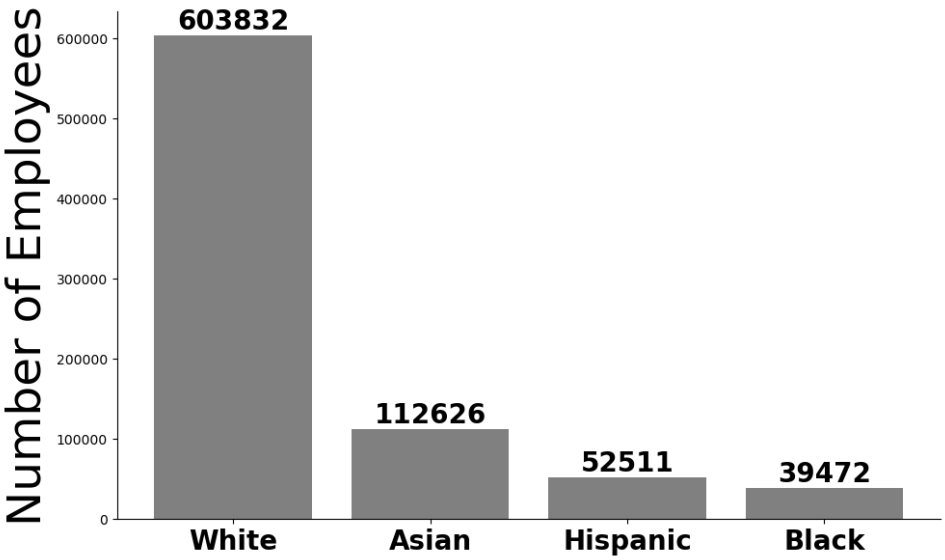


(d) Female Directors

Figure 2: Board Diversity in Levels – Public vs. Private

This figure shows board diversity in public firms and startups from 2013 to 2021. The subfigures display the average fraction of board members who are (a) Black, (b) Hispanic, (c) Asian, and (d) Female. Averages are calculated across firms and consider only directors whose race or gender is known. The lines around the dots represent 95% confidence intervals, estimated from OLS regressions that interact an indicator for whether a company is publicly traded or privately held with year indicators. Only firm-years with at least one director of known race are included. Each regression has 380,285 observations. We cluster standard errors by the firm.

(a) Number of Startup Non-Director Employees by Race



(b) Proportion of Startup Non-Director Employees by Race

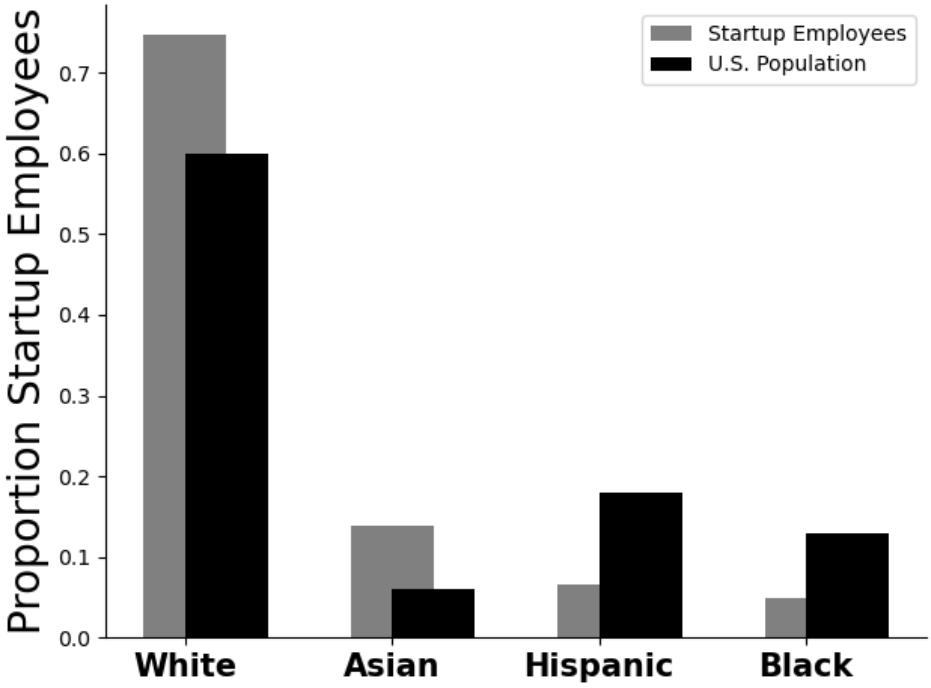


Figure 3: Startup Employees by Race

This figure plots the number (Panel A) and proportion (Panel B) of startup non-director employees by race. In Panel B, the darker bars are the proportion of the race in the population according to the 2020 U.S. Census.

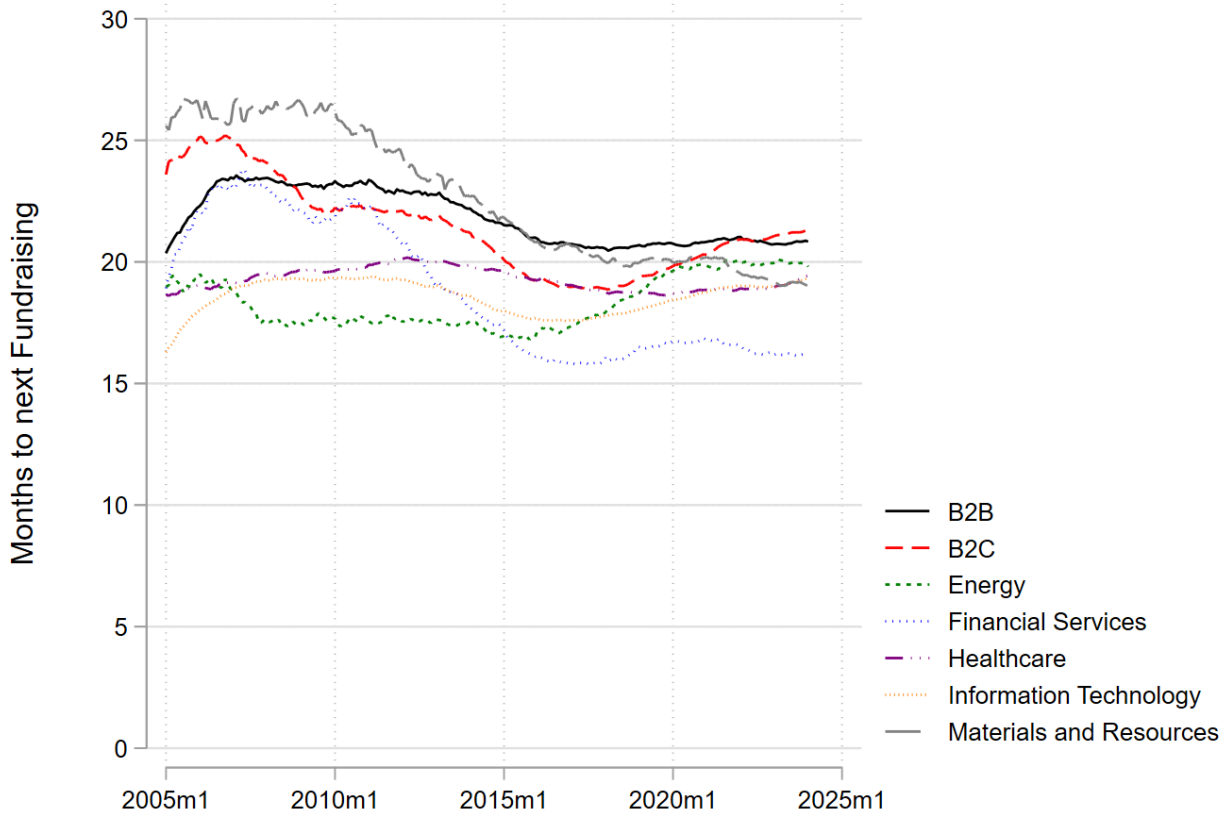
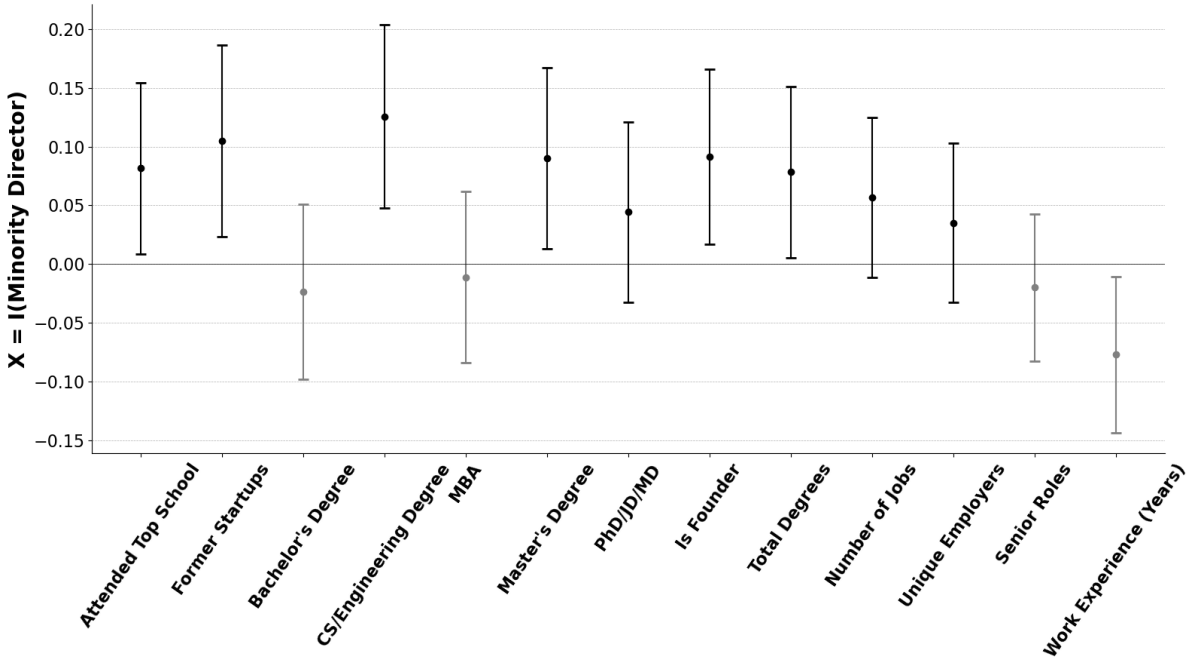


Figure 4: Time Between Funding Rounds

This figure plots the the moving average of the number of months between funding rounds across seven industry classifications. The moving average is calculated at a monthly level by averaging the time between funding rounds for follow-on funding rounds concluded in the past 60 months. We calculate this average at the industry-deal type level. We use these moving averages to predict the timing of the next fundraising in Tables 7 and 8. For example, consider a startup in Healthcare that raises a Series A round in January 2020. We generate a prediction of the time to next fundraising by considering all Series B rounds of Healthcare-focused startups that concluded between January 2015 and December 2019. For each of these startups, we measure the number of months between the Series A funding round and the Series B funding round. We then calculate the average number of months between those two funding rounds.

(a) Director Characteristics (Pre-GF)



(b) Director Characteristics (Post-GF)

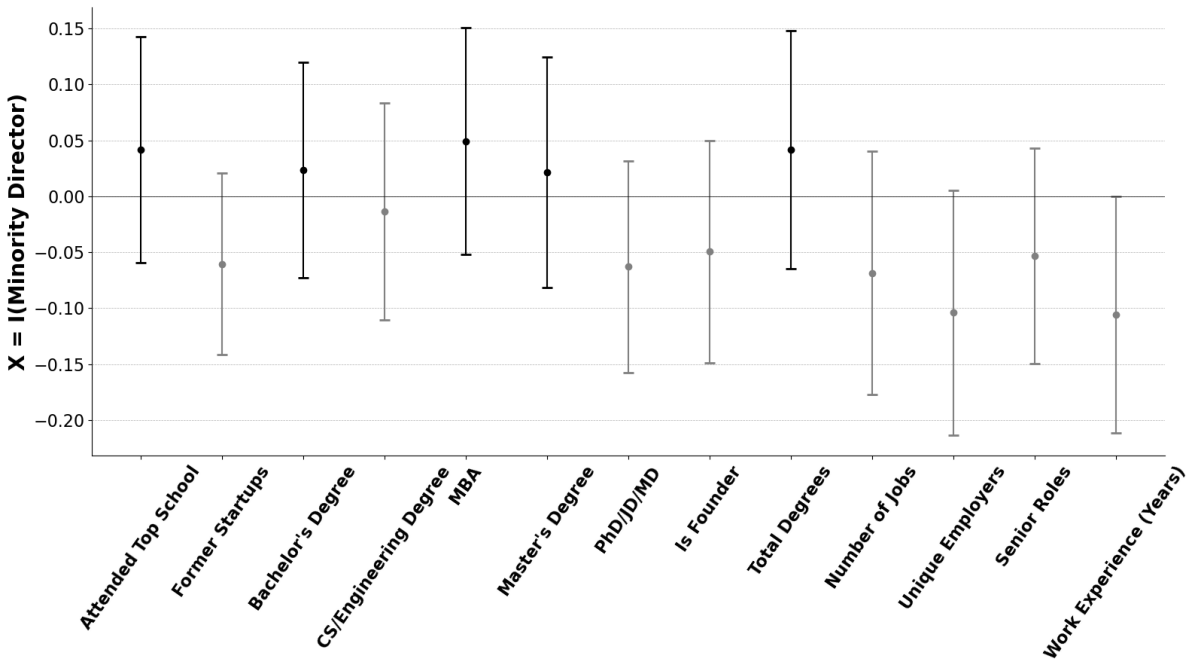


Figure 5: Director Characteristics by Race Pre and Post GF

This figure plots the estimated effects of a regression of various job and education characteristics on an indicator for whether a director is Black or Hispanic (*Minority Director*). Panel A covers director appointments from 2013 to 2019, while Panel B includes appointments in 2020 and 2021. The dots represent the estimated coefficients, with the lines around the dots indicating 95% confidence intervals. We estimate the following regression specification for each director characteristic X: $X_{d,t,f} = \beta_i + \delta_i \times \text{I(B\&H)}_{d,f} + \epsilon_{d,t,f}$, where d stands for a director appointed to firm f at time t. We standardize all characteristics to have a mean of zero and a standard deviation of one to ease the comparison of relative effects across rows.

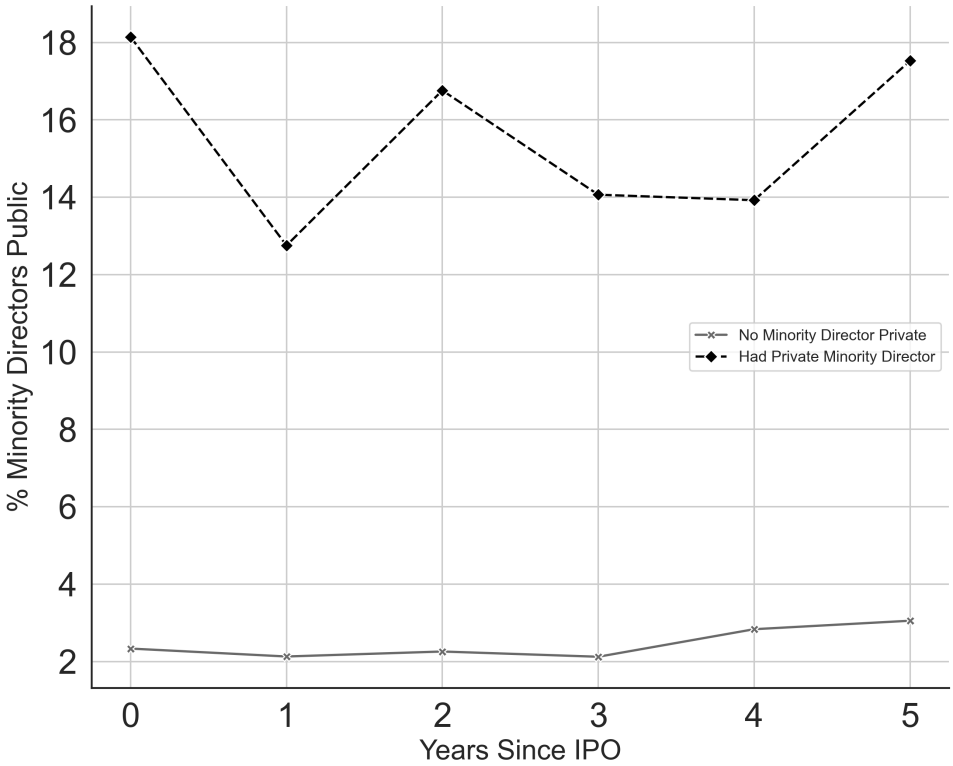


Figure 6: Association between Pre- and Post-IPO Board Diversity

This figure shows the average percentage of Black and Hispanic (*minority*) directors appointed to the board of a company in the five years following its initial public offering (IPO). The data is split by whether the company had at least one Black or Hispanic director in the year before the IPO (*Had Private Minority Director*). This figure is based on 711 companies. We source pre-IPO board diversity data from our startup sample and post-IPO board diversity data from ISS.

Table 1: Board Diversity – Descriptive Statistics

This table presents the fraction of newly appointed board members that are Black, Hispanic, Asian, or Female. Panel A presents this for startups, while Panel B focuses on publicly traded firms. We include all firm-years in which at least one new director is appointed to the board of directors. The table presents the average number of directors joining the board, the fraction of these directors with data on race, and, among firms with at least one director appointment with race or gender, the fraction of directors that are Black, Hispanic, Asian, or Female. Race data comes from ISS for public firms and from our own classification for startups. See Appendix A and B for details on how we identify each director's race. The results are presented for four-year time windows, with the exception of the 2020 to 2021 cluster, which is the post–George Floyd period.

Panel A: Private Firms

Year Bin:	2000 - 2003	2004 - 2007	2008 - 2011	2012 - 2015	2016 - 2019	2020 - 2021
# Directors Joining	1.40	1.64	1.75	1.81	1.74	1.76
with Race	81.6%	81.9%	81.6%	81.2%	80.9%	77.9%
Firm-Years	5,689	12,161	22,052	38,746	41,272	19,737
Among firm-years with at least one director with race						
Fraction Female	7.3%	7.4%	8.0%	9.8%	13.4%	18.3%
Fraction Black	0.9%	0.9%	1.0%	1.2%	1.4%	2.9%
Fraction Hispanic	0.7%	1.1%	1.4%	1.7%	1.7%	2.1%
Fraction Asian	8.2%	8.5%	9.0%	11.1%	13.1%	13.9%
Firm-Years	4,785	9,853	17,273	30,037	33,511	16,656

Panel B: Public Firms

Year Bin:	2000 - 2003	2004 - 2007	2008 - 2011	2012 - 2015	2016 - 2019	2020 - 2021
# Directors Joining	1.62	1.62	1.64	1.61	1.64	1.61
with Race Information	14.9%	15.5%	21.1%	52.0%	72.0%	79.5%
Firm-Years	2,653	7,753	6,808	6,671	6,996	2,841
Among firm-years with at least one director with race						
Fraction Female	21.0%	20.0%	18.1%	22.1%	33.5%	45.2%
Fraction Black	10.9%	6.7%	4.5%	4.5%	6.4%	19.8%
Fraction Hispanic	3.3%	2.1%	2.8%	2.6%	2.6%	4.2%
Fraction Asian	3.1%	3.1%	4.6%	3.6%	5.2%	8.0%
Firm-Years	572	1,746	1,988	4,189	5,652	2,440

Table 2: Board Diversity by Director Type

This table presents the distribution of director types by race and gender for our sample of startups. Only director appointments from 2013 to 2022 are included. We classify directors as "Insiders" if they are executives of the company according to PitchBook. We classify directors as "Investors" if they are on the board representing an investment firm that PitchBook classifies as "Venture Capital," "Private Equity," "Angel Group," or "Limited Partner." We classify directors as "Outsiders" if they are neither Insiders nor Investors. Panel A presents the number of unique directors in each role that are Female, Black, Hispanic, or Asian. Panel B reports the fraction of diverse directors for each role and the total fraction of diverse directors for all roles combined.

Panel A: Number of Directors

Director Role:	Insider	Investor	Outsider	Type not Known	Total
Female	5,056	3,364	4,858	1,442	14,720
Black	727	363	540	142	1,772
Hispanic	745	470	514	171	1,900
Asian	4,694	4,695	2,891	1,596	13,876
All Directors	34,753	34,119	27,240	12,655	108,767

Panel B: Fraction of Diverse Directors

Director Role:	Insider	Investor	Outsider	Type not Known	Total
Fraction Female	14.5%	9.9%	17.8%	11.4%	13.5%
Fraction Black	2.1%	1.1%	2.0%	1.1%	1.6%
Fraction Hispanic	2.1%	1.4%	1.9%	1.4%	1.7%
Fraction Asian	13.5%	13.8%	10.6%	12.6%	12.8%

Table 3: Board Diversity in Startups

This table presents coefficients from OLS regressions of board diversity in startups, with standard errors reported in parentheses. The unit of observation is a firm-year between 2013 and 2022. The dependent variable is the fraction of board members who are Black, Hispanic, Asian, or Female, with fractions calculated only among directors whose race or gender is known. The key independent variable is *Post GF*, an indicator that equals one for the period 2020-2022 and zero for earlier years. All models control for *ln(Board Size)*, which is the log of the number of directors on the board. Panel A includes *State FE*, an indicator for the state where the firm is headquartered, while Panel B includes *Firm FE*. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors by the firm.

Panel A	Black	Hispanic	Asian	Female
Post GF	0.355***	0.131***	1.424***	1.813***
	(0.035)	(0.037)	(0.087)	(0.085)
Observations	395,291	395,291	395,291	395,291
Adjusted R^2	0.004	0.006	0.032	0.006
State FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	1.38%	1.63%	11.14%	10.27%

Panel B	Black	Hispanic	Asian	Female
Post GF	0.105***	-0.015	0.035	0.537***
	(0.016)	(0.018)	(0.044)	(0.046)
Observations	392,204	392,204	392,204	392,204
Adjusted R^2	0.935	0.928	0.938	0.923
Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	1.37%	1.63%	11.15%	10.27%

Table 4: Board Diversity in Startups by Director Type

This table presents coefficients from OLS regressions of board diversity at startups, with standard errors reported in parentheses. The unit of observation is a firm-year between 2013 and 2022. The dependent variable is the fraction of board members of a given director type who are Black, Hispanic, Asian, or Female. Panel A focuses on insider directors, who are executives of the company. Panel B focuses on outsider directors, who are not affiliated with the startup or its investors. Panel C focuses on investor directors, whose primary affiliation is with an investor in the startup. A firm-year is included if we observe at least one insider director (Panel A), one outsider director (Panel B), and one investor director (Panel C). The key independent variable is *Post GF*, an indicator that equals one for directors appointed in 2020 or later. All models include firm fixed effects, as well as controls for the log of VC funding raised up until that year and the log of the board size. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors at the startup level.

Panel A: Insider Directors	Black	Hispanic	Asian	Female
Post GF	0.102***	-0.017	0.022	0.484***
	(0.024)	(0.023)	(0.045)	(0.056)
Observations	156,225	156,225	156,225	156,225
Adjusted R^2	0.963	0.973	0.979	0.967
Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	1.49%	1.96%	12.49%	11.99%

Panel B: Outsider Directors	Black	Hispanic	Asian	Female
Post GF	0.249***	0.011	-0.057	1.234***
	(0.040)	(0.037)	(0.090)	(0.111)
Observations	104,734	104,734	104,734	104,734
Adjusted R^2	0.912	0.924	0.933	0.903
Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	1.17%	1.45%	9.76%	11.09%

Panel C: Investor Directors	Black	Hispanic	Asian	Female
Post GF	0.037	-0.032	0.136*	0.223***
	(0.024)	(0.026)	(0.071)	(0.064)
Observations	122,090	122,090	122,090	122,090
Adjusted R^2	0.944	0.931	0.941	0.928
Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	0.88%	1.22%	12.53%	7.90%

Table 5: Board Diversity post George Floyd – Impact of Racially Diverse Investors

This table presents coefficients from OLS regressions of board diversity at startups, with standard errors reported in parentheses. The unit of observation is a startup-year between 2018 and 2022 for startups that have received VC investment. The dependent variable is the fraction of board members of a given type that are Black, Hispanic, Asian, or Female. Panel A focuses on insider directors, Panel B on outsider directors, and Panel C on investor directors. A firm-year is included if we observe at least one director of that type on the board. The key independent variable is *F(B&H VCs) (2019)*, which measures the fraction of VCs invested in the company as of 2019 that are classified as a Black and Hispanic VC (*B&H VC*) following the classification in Cassel et al. (2022) (i.e., at least 50% of the founders or senior partners of the VC are Black or Hispanic). All models include year and firm fixed effects, as well as controls for the log of VC funding raised up until that year and the log of the board size. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors by the firm.

Panel A: Insider Directors	Black	Hispanic	Asian	Female
F(B&H VCs) (2019) × Post GF	-0.163	-0.013	0.081	-0.332
	(0.233)	(0.241)	(0.355)	(0.624)
Observations	54,614	54,614	54,614	54,614
Adjusted R^2	0.974	0.977	0.984	0.973
Year FE?	X	X	X	X
Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	1.25%	2.04%	14.71%	11.91%

Panel B: Outsider Directors	Black	Hispanic	Asian	Female
F(B&H VCs) (2019) × Post GF	0.229	-0.490	-1.606	2.809
	(0.906)	(0.423)	(2.537)	(2.681)
Observations	38,986	38,986	38,986	38,986
Adjusted R^2	0.933	0.936	0.946	0.923
Year FE?	X	X	X	X
Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	0.94%	1.42%	10.75%	11.86%

Panel C: Investor Directors	Black	Hispanic	Asian	Female
F(B&H VCs) (2019) × Post GF	-0.589	-0.264	2.001	0.631
	(0.891)	(0.529)	(1.443)	(0.758)
Observations	56,794	56,794	56,794	56,794
Adjusted R^2	0.962	0.947	0.960	0.940
Year FE?	X	X	X	X
Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	0.76%	1.26%	13.87%	8.40%

Table 6: How Is Employee Diversity Related to Board Diversity?

This table presents coefficients from OLS regressions of board diversity at startup firms, with standard errors reported in parentheses. The unit of observation is a firm-year between 2018 and 2022 for startups that have received VC investment and where we observe at least 10 employees in 2019. The dependent variable is the fraction of board members that are Black, Hispanic, Black & Hispanic, or Female. Panel A focuses on insider directors, Panel B on outsider directors, and Panel C on investor directors. A firm-year is included if we observe at least one director of that type on the board. The key independent variables are the racial composition of employees as of 2019, measured either as the fraction of *Black Employees (2019)*, *Hispanic Employees (2019)*, or Blacks and Hispanics (*B&H Employees (2019)*). All models include startup and year fixed effects, as well as controls for the log of VC funding raised up until that year and the log of the board size. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors at the startup level.

Panel A: Insider Directors	Black	Hispanic	Black & Hispanic	Female
Black Employees (2019) × Post GF	2.789***			
	(1.001)			
Hispanic Employees (2019) × Post GF		-0.576		
		(0.735)		
B&H Employees (2019) × Post GF			1.913**	-1.492
			(0.966)	(1.491)
Observations	18,109	18,109	18,109	18,109
Adjusted R^2	0.921	0.961	0.943	0.950
Year & Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	1.27%	1.61%	2.87%	11.83%

Panel B: Outsider Directors	Black	Hispanic	Black & Hispanic	Female
Black Employees (2019) × Post GF	4.369*			
	(2.427)			
Hispanic Employees (2019) × Post GF		-0.705		
		(1.280)		
B&H Employees (2019) × Post GF			2.980*	2.759
			(1.794)	(3.176)
Observations	14,673	14,673	14,673	14,673
Adjusted R^2	0.838	0.906	0.875	0.895
Year & Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	1.48%	1.48%	2.95%	16.59%

Panel C: Investor Directors	Black	Hispanic	Black & Hispanic	Female
Black Employees (2019) × Post GF	0.833			
	(0.992)			
Hispanic Employees (2019) × Post GF		0.056		
		(0.683)		
B&H Employees (2019) × Post GF			0.772	-2.050
Observations	20,028	20,028	20,028	20,028
Adjusted R^2	0.939	0.921	0.931	0.925
Year & Firm FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	0.99%	1.05%	2.04%	7.99%

Table 7: Predicting Capital Market Exposure

This table reports estimates from OLS regressions predicting capital market outcomes for startups in the period post George Floyd (PGF). The unit of observation is a startup. In Columns (1) through (3), the dependent variable is *I(Raised Funding PGF)*, an indicator for whether the startup raised funding between June 2020 and December 2021. In Columns (4) through (6), the dependent variable is *I(IPO PGF)*, an indicator for whether the startup went public between June 2020 and December 2021. The key independent variables are *Predicted Fundraising* and *Raised a Lot*. *Predicted Fundraising* is an indicator for whether the startup is predicted to raise a follow-on round PGF, based on the timing of its latest funding round pre GF and the average time between funding rounds for other startups in the same industry and deal stage over the previous five years (see Figure 4 for details). *Raised a Lot* is an indicator for whether the startup is in the 90th percentile of cumulative funding raised within its industry in the pre-GF period. For each startup, we consider the most recent deal closed prior to (but not including) May 2020. The models include a combination of fixed effects for the year of the deal, the industry of the startup, and the deal type. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors at the startup level.

Dependent Variable:	I(Raised Funding PGF)			I(IPO PGF)		
Predicted Fundraising	0.040***	0.044***	0.044***			
	(0.004)	(0.004)	(0.004)			
Raised a Lot				0.031***	0.031***	0.034***
				(0.002)	(0.002)	(0.002)
Observations	87,328	87,328	87,328	87,328	87,328	87,328
Adjusted R^2	0.074	0.094	0.130	0.016	0.019	0.027
Year FE?	X	X	X	X	X	X
Industry FE?		X	X		X	X
Deal Type FE?			X			X
Y Mean		21.6%			0.6%	

Table 8: Which Startups Responded to George Floyd?

This table presents coefficients from OLS regressions of board diversity at startup firms, with standard errors reported in parentheses. The unit of observation is a startup-year between 2013 and 2022 for startups that have received VC investment. The dependent variable is the fraction of board members that are Black, Hispanic, Asian, or Female. We only include startup-years where we observe the race of at least one director on the board. Each panel represents an estimation of how the response to GF differs depending on a cross-sectional split. In Panel A, we include an indicator for whether the startup is predicted to fundraise after GF, specifically in the period from June 2020 to December 2021. This prediction is based on the timing of the startup's latest funding round pre GF and the average time between funding rounds for other startups in the same industry and deal stage over the previous five years (see Table 7 for details). Panel B examines the reaction of companies that are "close to public markets," defined as being in the 90th percentile of cumulative funding raised within their industry. Panel C tests whether companies headquartered in California respond differently. Finally, Panel D focuses on business-to-consumer (B2C) companies. To ensure that the prediction for fundraising exists, only startups that received at least one financing round in 2019 or earlier are included. All models include year and startup fixed effects, as well as controls for the log of VC funding raised up until that year, the log of the board size, and, in Panel D, an indicator for whether a startup has *raised a lot.* $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors at the startup level.

Panel A: Predicted to Fundraise	Black	Hispanic	Asian	Female
Predicted Fundraising × Post GF	0.120***	-0.046	-0.069	0.330**
	(0.045)	(0.051)	(0.128)	(0.129)
Observations	231,575	231,575	231,575	231,575
Adjusted R^2	0.930	0.921	0.936	0.917

Panel B: Close to Public Markets	Black	Hispanic	Asian	Female
Raised a Lot × Post GF	0.662***	0.111**	0.043	2.757***
	(0.073)	(0.056)	(0.150)	(0.171)
Observations	231,575	231,575	231,575	231,575
Adjusted R^2	0.930	0.921	0.936	0.917

Panel C: California Company	Black	Hispanic	Asian	Female
California HQ × Post GF	-0.077**	0.108**	-0.206	0.496***
	(0.039)	(0.053)	(0.141)	(0.134)
Observations	231,575	231,575	231,575	231,575
Adjusted R^2	0.930	0.921	0.936	0.917

Panel D: B2C Company	Black	Hispanic	Asian	Female
B2C Business × Post GF	0.037	0.042	-0.114	-0.339*
	(0.063)	(0.062)	(0.143)	(0.179)
Observations	231,575	231,575	231,575	231,575
Adjusted R^2	0.930	0.921	0.936	0.917
Year FE?	X	X	X	X
Startup FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	1.21%	1.60%	11.78%	10.24%

Table 9: Board Diversity – Influence of VC-Backed Public Firms

This table presents coefficients from OLS regressions of board diversity at publicly traded firms, with standard errors reported in parentheses. The unit of observation is a firm-year between 2013 and 2021. The dependent variable is the fraction of board members that are Black, Hispanic, Asian, or Female. The key independent variable is *VC Backed*, an indicator that equals one if the company received VC financing prior to its IPO, using the classification compiled by Gornall and Strebulaev (2021). All models include controls for the log of the board size, as well as year and state fixed effects, with *State FE* indicating the state where the firm is headquartered. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors by the firm.

Panel A	Black	Hispanic	Asian	Female
VC Backed	-1.424***	0.082	1.770***	0.389
	(0.480)	(0.375)	(0.559)	(0.428)
Observations	29,087	29,087	29,087	29,087
Adjusted R^2	0.062	0.015	0.028	0.205
Year FE?	X	X	X	X
State FE?	X	X	X	X
Controls?	X	X	X	X

Panel B	Black	Hispanic	Asian	Female
VC × Post GF	0.031	-0.480	0.562	3.127***
	(0.473)	(0.351)	(0.542)	(0.468)
VC Backed	-1.429***	0.167	1.670***	-0.166
	(0.496)	(0.401)	(0.575)	(0.435)
Observations	29,087	29,087	29,087	29,087
Adjusted R^2	0.062	0.015	0.028	0.206
Year FE?	X	X	X	X
State FE?	X	X	X	X
Controls?	X	X	X	X
Y Mean	5.25%	2.11%	3.96%	16.60%

Venturing into Racial Diversity on Startup Boards

Internet Appendix

Appendix A. Matching Directors in BoardEx to ISS

Our dataset of directors in public firms comes from BoardEx, which lacks information about the ethnicity of directors. We supplement it with ISS, which has data on the ethnicity of board directors. This appendix details our process for matching directors in BoardEx to ISS and verifying the accuracy of our matches.

We begin by matching companies in both datasets on CIK (the Central Index Key—a firm-specific identifier given to the firm by the Securities and Exchange Commission)—and then match the directors at that company. This initial step ensures that we do not accidentally match two different directors with similar names, by requiring that they are listed as being on the same company's board according to both BoardEx and ISS.

Second, we match directors associated with the matched firm pair using two textual analysis methods: fuzzy name matching on cleaned names, and matching on common nicknames plus surnames.

We combine these two approaches because BoardEx and ISS list director names inconsistently. While ISS typically lists individuals with their legal first and last names, BoardEx commonly uses nicknames and often includes honorary titles and suffixes. For example, Benjamin Cravatt is on the board of directors of Fibrogen, Inc. In ISS, he appears as "Benjamin Cravatt", while BoardEx lists him as "Professor Doctor Ben Cravatt III". While Ben and Benjamin are close enough for fuzzy matching to work reasonably well, other common nicknames are less similar (e.g., "Bob" for "Robert", or "Bill" for "William").

Our name cleaning consists of removing punctuation; standardizing special characters; removing common honorary titles, prefixes, suffixes, initials, and family name prepositions (e.g., "de", "la", "von"); and removing single-letter initials. To identify common honorary titles, prefixes, and suffixes, we manually inspect the 500 most commonly occurring words among director names in BoardEx and ISS.

Then, we calculate two fuzzy name matching scores. One is based on directors' cleaned

names, and the other on the original name entry. We consider pairs of directors with fuzzy name matching scores exceeding 95% to be a match. To further remove false positives, we manually inspect every match with a score below 100%. The manual inspection validates that the 95% threshold avoids all false positives. Recall that directors pairs eligible for matching must be listed as directors for the same firm in BoardEx and ISS. While there are some valid matches with lower fuzzy matching scores, the number of false positives rapidly increases below the 95% threshold.

To reduce false negatives (unmatched directors that are the same person), we focus on directors whose surnames are the same. Unlike first names, BoardEx does not replace surnames with variations, so surnames are broadly comparable across the two datasets. However, as certain surnames are common, relying solely on surnames may yield false positives. We therefore incorporate the nicknames from BoardEx in our process. Specifically, we consider two directors a match if they match exactly on surnames, and if the nickname variation of their first name (based on our database on nicknames) in ISS matches their nickname in BoardEx.[18] We manually inspect each proposed match, comparing dates at which ISS and BoardEx claim the director worked for the company to ensure an accurate match. For suspicious cases, we manually inspect that the director actually goes by their nickname in BoardEx.

For remaining cases where there is a match on surnames, but we have neither a nickname match nor a fuzzy matching score on first names above 95, we inspect each potential match to identify a threshold of fuzzy matching that is sufficiently good. We find that, generally, if the fuzzy matching on the full name exceeds 80 when the surnames match perfectly, it is almost always a match. We include all these matches except for four incorrect matches where multiple family members had worked in the same firm.[19]

[18] We get our database of nicknames from https://github.com/carltonnorthern/nicknames (accessed on July 29, 2022), which was initially generated by mining a genealogy page. As it was mined from a genealogy page consisting primarily of old nicknames, we manually complement this list with common nicknames in BoardEx. Please contact the authors for additional details on the process of matching on nicknames.

[19] These incorrect matches are: William Peterffy being matched with Tom Peterffy at Interactive Brokers; Zachary Jaindl and Mark Jaindl at American Bank; Ryan Ruhlman and Randy Ruhlman at Preformed Line Products; and Ronald Lauder and Leonard Lauder at Estée Lauder.

When a director in BoardEx matches to multiple directors in ISS, we inspect all matches manually to keep the best match. To resolve ties, we rely on a nickname match if available, and, in the absence of a nickname match, we resolve any remaining cases by retaining the match with the highest overall fuzzy matching score.

ISS classifies race/ethnicity by one of the following eight categories: 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. As ISS race classifications have more categories than our PitchBook classification of directors, we map ISS classifications into our four categories as follows: We map"Black/African American" to "Black"; "Hispanic/Latin American" to "Hispanic"; "Indian/South Asian", "Asian (exclude Indian/South Asian)", and "Native Hawaiian/other Pacific Islander" to "Asian." We map all other categories to "White."

If a director is matched between ISS and BoardEx and has specified race/ethnicity, we apply this race/ethnicity data to all boards on which the director sits, according to BoardEx.

Appendix B. Board of Directors in Private Firms

Our data on private company directors comes from PitchBook, providing start and end dates of the director's tenure at a given company. To understand diversity of private company directors, we need to overcome three hurdles. First, PitchBook does not collect data on director race. One of our contributions is therefore to collect this information for all directors. While we take great care to correctly classify directors, a potential concern is that we can only retrieve the race for a small subset of those directors. Second, PitchBook may not capture all director appointments, as private firms are not required to publicly disclose director appointments. These two points would call into question the external validity of our findings. Third, PitchBook may lack data on the start and/or end date of a director's appointment (Ewens and Malenko, 2022). The start date is important as a

focus of this paper is to understand how diversity evolves over time.

From our initial set of directors, PitchBook lacks a start date in 31.5% of all director appointments. We complement missing start and end dates by merging directors to their LinkedIn profiles and by merging the startup to its Form D filings, when available. One limit to this approach is that PitchBook does not always have a LinkedIn profile link for directors. To mitigate this limitation, we do an extensive search for LinkedIn profiles of directors without a LinkedIn profile in PitchBook.

We use PitchBook's start and end years for a director's tenure whenever available. For missing cases, we complement the start year with the first year they are associated with the firm according to their LinkedIn profile and use the last year they are associated with the firm as the end year. If they are still associated with the firm (according to both their LinkedIn profile and PitchBook), we assume that the director is still on the firm's board. Through this process we improve our coverage of start dates from 69.5% to 81.9% of all director appointments.

Panel A of Table 1 shows the total number of private firm-years with at least one director appointment, and the average number of directors appointed, aggregated in four-year buckets. The panel further shows the fraction of director appointments for which we have director race data. To make the comparison to our public firm coverage of director race, Panel B presents similar statistics for public firms. Overall, we have director race for 80.8% of director appointments in our private-firm sample, which compares to 40.9% for public firms. Coverage of race in director appointments in public firms improves over time, but remains lower than that of our sample of private company directors until 2020-2021.

Section A.2.1 outlines our approach for validating the coverage of directors on startup boards, with results presented in Table A1. We find that PitchBook covers 95% of all directors we can identify from searching for directors among all employees in LinkedIn. While we do not assume that PitchBook has complete coverage of boards, we work under the assumption that its coverage is not a function of race. While we have slightly fewer non-white directors, we do not find strong evidence refuting this assumption.

Appendix 1. Details on Process to Classify Directors' Race

We classify the race of directors, following the U.S. Census, into the following categories: Hispanic, Black, Asian, and White. Our approach combines two algorithmic approaches with manual review. Our first algorithmic approach uses a machine learning algorithm to predict directors race from profile pictures, which we complement with an algorithmic prediction based on the first and last name of the director (see Cook et al. (2022) for details on the algorithmic classification). Since we require both a name and a picture for each director, we are unable to classify a director when we cannot find an image for them. Whenever available, we rely on the director's LinkedIn profile picture. If missing, we search for a picture using the startup's website, or use alternative online sources if the director is clearly identified as a director of the firm in question.

Following the algorithmic classification, we hire three UpWorkers to review all classifications. One UpWorker self-identifies as Asian American, one as Hispanic, and one as Black. Our hope, backed by research (Ma et al., 2021), is that each UpWorker is better suited to identify members of their group. We provide the UpWorkers with the names and profile pictures of all directors, and ask for their classification of the directors. If all three UpWorkers agree on a classification, we leave the director in that category. Any remaining discrepancies are resolved by one of the authors.

After this first pass we do two full additional reviews. As before, we hire three UpWorkers to review the initial algorithmic predictions and the classifications of the previous batch of UpWorkers. We ask each of these UpWorkers to first focus on the group they identify with and remove images of directors they believe have been incorrectly placed in that group. When they remove a director, we ask them to propose the racial or ethnic category they believe best identifies the director. After that, we ask the same UpWorker to review all directors classified as a different race and ask whether any of these directors should be in the group the UpWorker identifies as. For example, we ask the Hispanic UpWorker to propose director images we should exclude from the set of directors preliminary classified as Hispanic. We then ask this Hispanic UpWorker to search for potential Hispanic directors among directors classified as any other race (White, Black, and Asian).

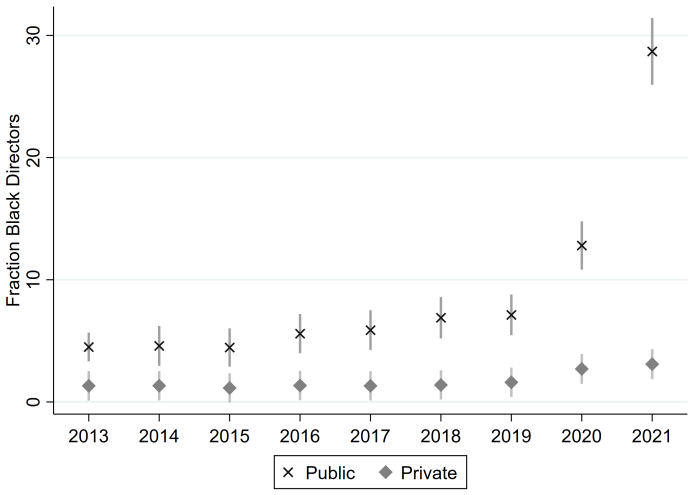
We repeat this step twice, with one of the authors reviewing every proposed change.

We do one additional review focused on identifying potential false positives, where the UpWorker focuses on identifying incorrectly classified directors from their group.[20] For any proposed incorrect classification at this stage, one of the authors searches for information on LinkedIn, interviews of the director, newspaper coverage, or additional information corroborating the original classification. If we do not find any corroborating information, the director is categorized into the group proposed by the UpWorker. Finally, two of the authors independently conduct a full manual review of all director classifications.

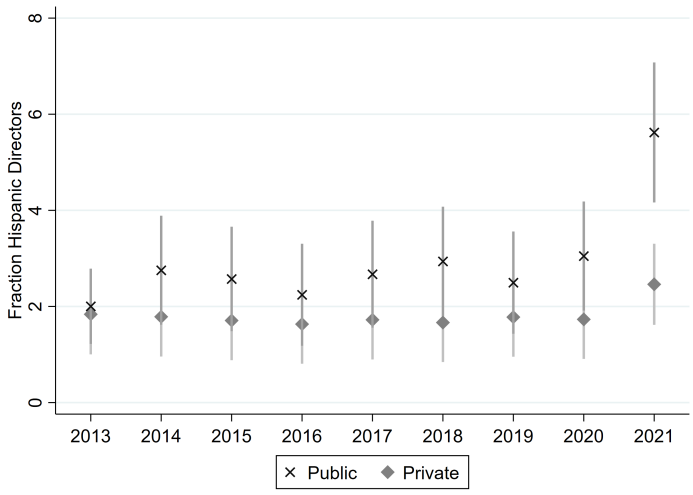
We gather director appointments in PitchBook for all directors associated with the startups in our sample. As some of these firms go public, we end up classifying race for a subset of directors that are also covered by ISS. We leverage this overlap to validate our approach by comparing our classifications with those of ISS. To do so, we match directors by fuzzy matching on their names within each company, and gather the classifications of all overlapping directors in Table A11. When we classify directors as Black, ISS almost always agrees. There is less overlap for those we classify as Hispanic or Asian, but ISS agrees with the majority of our classifications.[21]

[20] At this stage we only hire two UpWorkers, one who identifies as Black and one that identifies as both Hispanic and Asian American.

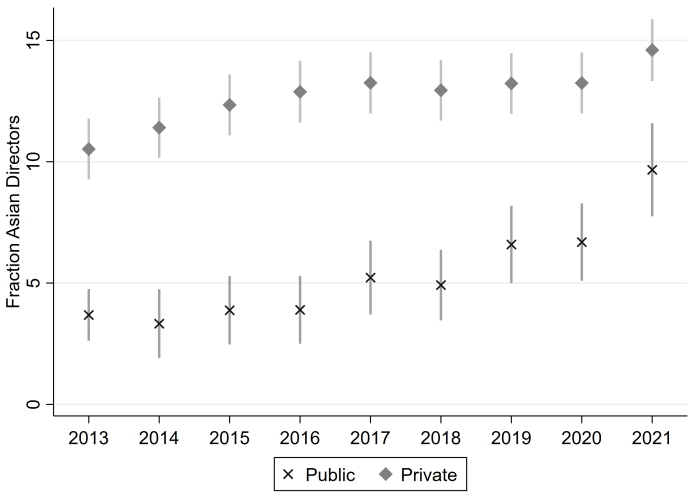
[21] Due to the fuzzy matching on director names, it is possible that some of the discrepancies are due to incorrectly matched directors.



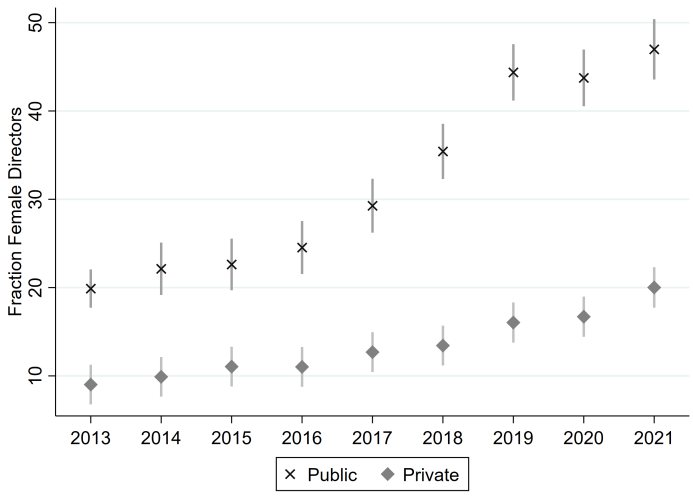
(a) Black Directors



(b) Hispanic Directors



(c) Asian Directors



(d) Female Directors

Figure A1: Board Diversity in Appointments - Public vs. Private

This figure shows board diversity in appointments in public and private firms from 2013 to 2021. The subfigures display the average fraction of newly appointed board members who are: (a) Black, (b) Hispanic, (c) Asian, and (d) Female. Averages are calculated across firms, considering only new directors whose race or gender is known. The lines around the dots represent 95% confidence intervals, estimated from OLS regressions that interact an indicator for whether a company is publicly traded or privately held with year indicators. Each regression has 85,212 observations. We cluster standard errors by the firm.

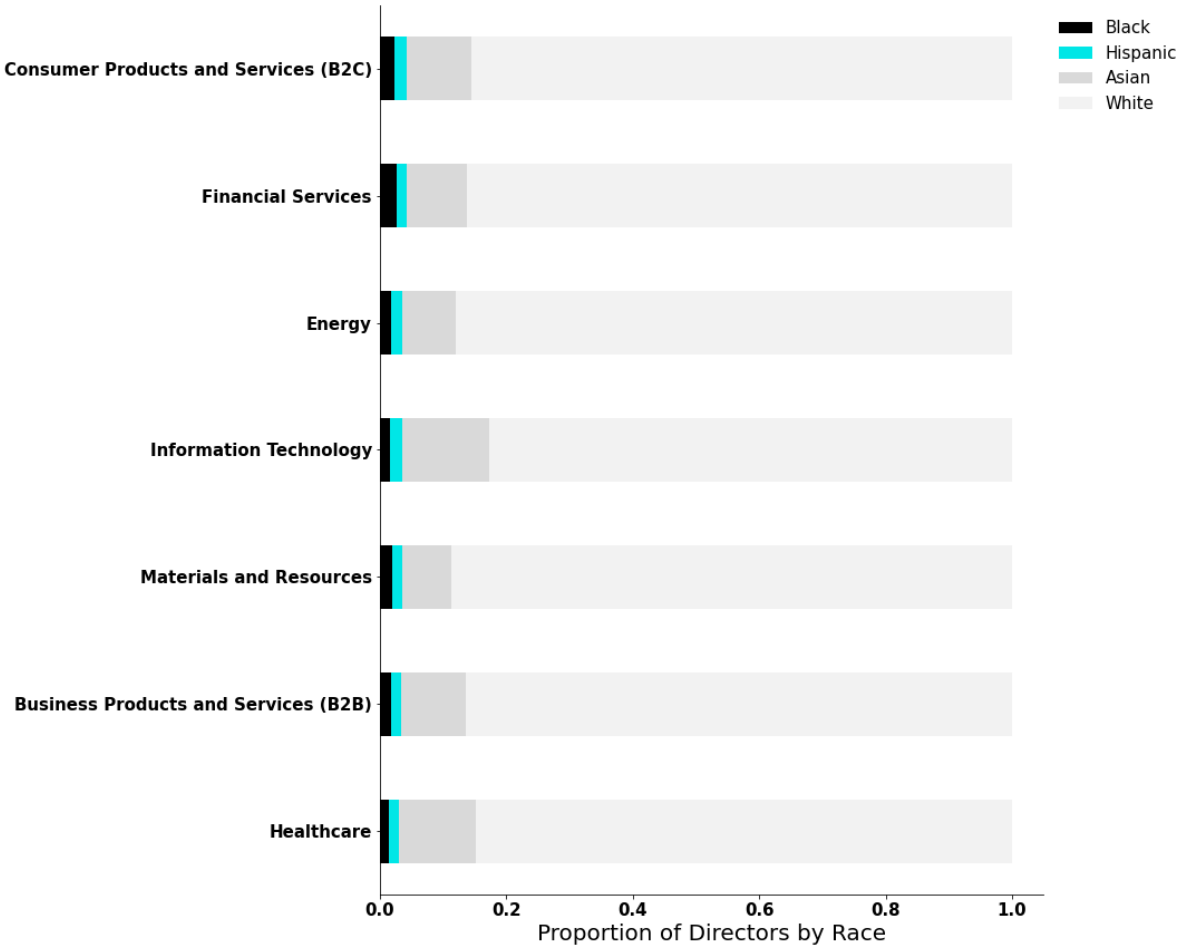


Figure A2: Startup Racial Diversity by Industry Sector

This figure documents racial representation among board of directors in startups by industry sectors. The industries are sorted in descending fraction of Black and Hispanic directors on the board.

Table A1: Validating PitchBook's Coverage of Startup Directors

This table tabulates the coverage of directors by PitchBook relative to two other datasets for our sample of private firms. In Panel A, we compare PitchBook's coverage to directors in LinkedIn for directors appointed between 2013 and 2021. In Panel B, we compare it to all directors identified through state filings with the Massachusetts corporate division. As this is a small sample, we include all director appointments for the private firms in our sample between 2000 to 2022. To identify directors in LinkedIn, we consider all individuals associated with a firm in LinkedIn, and extract potential directors of the board by processing their job titles. The sample consists of companies in our sample of private companies that we match to LinkedIn through fuzzy name matching. As a fuzzy name matching may generate multiple matches in LinkedIn for a given company name in PitchBook, we require that at least one of the directors associated with that firm in PitchBook is identified among the employees in the LinkedIn dataset, either as a director or as a senior executive. Individuals are matched through their LinkedIn URLs. The total number of unique companies is 4,890 in Panel A. In Panel B, we use the set of startups headquartered in Massachusetts to search for the directors (see search link) and officers listed on their most recent filing with the state. We then collect images for these directors from the startups' websites, and restrict our list to startups with 100% coverage of all directors on the state filings. Next, we merge these companies to PitchBook to compare coverage of firms in both datasets. The total number of unique companies is 128. Note that the number of directors covered by PitchBook may exceed that in the filing as the PitchBook coverage is a time-series, whereas the filings in Massachusetts state filings are snapshots.

Panel A: PitchBook vs. LinkedIn

	Director Race				
Directors in LinkedIn	White	Black	Hispanic	Asian	# Directors
All Directors	84.34%	1.22%	1.42%	13.02%	15,139
Insider Directors	83.71%	1.39%	1.79%	13.10%	3,518
Outsider Directors	86.58%	1.73%	1.27%	10.42%	4,328
Investor Directors	83.32%	0.84%	1.32%	14.52%	7,286
Directors in PitchBook	White	Black	Hispanic	Asian	# Directors
All Directors	84.34%	1.14%	1.38%	13.13%	14,520
Insider Directors	83.92%	1.17%	1.72%	13.20%	3,084
Outsider Directors	86.39%	1.74%	1.30%	10.56%	4,241
Investor Directors	83.31%	0.78%	1.29%	14.62%	7,195

Panel B: PitchBook vs. Massachusetts state filings

	Director Race				
Directors in Massachusetts	White	Black	Hispanic	Asian	# Directors
All Directors	81.50%	1.32%	1.98%	15.20%	454
Directors in PitchBook	White	Black	Hispanic	Asian	# Directors
All Directors	83.76%	0.96%	1.45%	13.83%	622

Table A2: Summary Statistics on Board and Employee Diversity

This table reports summary statistics for our sample of private firms between 2013 and 2022. A firm-year is included if we can observe the race of at least one director on the board. Panel A presents statistics for all directors. Panel B focuses only on *Insider Directors*, defined as directors that are employed at the firm at the time of their board appointment. Each panel also presents the composition of employees in year $t-1$. The variables we summarize are: *Board Size*, which is the number of directors on the board; *Black Directors*, *Hispanic Directors*, *Asian Directors*, and *Female Directors*, which are the percentage of directors on the board of a given race/gender. For the employee data, we only include firm-years for which we observe at least 10 employees and only the years 2018 through 2022. *Black Employees*, *Hispanic Employees* and *Asian Employees* are presented as the percentage of employees of a given race.

Panel A: All Directors

	Full Sample		**2013–2019**		**2020-2022**	
	N = 395,291		**N = 260,005**		**N = 135,286**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Board Size	2.29	1.83	2.21	1.75	2.44	1.97
Black Directors (%)	1.38	9.99	1.26	9.75	1.60	10.50
Hispanic Directors (%)	1.63	10.67	1.59	10.61	1.72	10.76
Asian Directors (%)	11.15	27.00	10.66	26.65	12.07	27.46
Female Directors (%)	10.27	25.16	9.62	24.75	11.52	25.83

	2018-2022		**2018–2019**		**2020-2022**	
Employee Data	**N = 34,586**		**N = 14,801**		**N = 19,785**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Number of Employees	43.67	111.81	39.20	120.10	47.01	105.06
Black Employees (%)	4.03	5.83	3.96	6.15	4.08	5.57
Hispanic Employees (%)	6.02	6.53	5.96	7.07	6.06	6.10
Asian Employees (%)	14.79	13.92	14.97	14.77	14.65	13.24

Panel B: Insider Directors

	Full Sample		**2013–2019**		**2020-2022**	
	N = 254,210		**N = 163,370**		**N = 90,840**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Board Size	2.49	1.98	2.35	1.86	2.75	2.15
Black Directors (%)	1.54	11.41	1.39	10.98	1.81	12.17
Hispanic Directors (%)	1.89	12.54	1.84	12.46	1.97	12.66
Asian Directors (%)	11.87	30.37	11.39	29.96	12.75	30.95
Female Directors (%)	11.78	29.43	11.22	29.05	12.78	30.06

	2018-2022		**2018–2019**		**2020-2022**	
Employee Data	**N = 22,951**		**N = 9,649**		**N = 13,302**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Number of Employees	47.28	129.15	41.61	140.24	51.39	120.29
Black Employees (%)	4.03	5.76	3.95	6.12	4.08	5.48
Hispanic Employees (%)	5.95	6.55	5.89	7.17	5.99	6.06
Asian Employees (%)	14.95	13.82	15.21	14.87	14.76	12.99

Table A2: *Continued*

This table reports summary statistics for our sample of private firms between 2013 and 2022. A firm-year is included if we can observe the race of at least one director on the board. Panel C focuses only on *Outsider Directors*, which are directors unaffiliated with both the firm and investors in the firm. Panel D presents statistics for *Investor Directors*, which are board members working for an investor in the firm. Each panel also presents the composition of employees in year $t-1$. The variables we summarize are: *Board Size*, which is the number of directors on the board; *Black Directors*, *Hispanic Directors*, *Asian Directors*, and *Female Directors*, which are the percentage of directors on the board of a given race/gender. For the employee data, we only include firm-years for which we observe at least 10 employees and only the years 2018 through 2022. *Black Employees*, *Hispanic Employees* and *Asian Employees* are presented as the percentage of employees of a given race.

Panel C: Outsider Directors

	Full Sample		**2013–2019**		**2020-2022**	
	N = 148,845		**N = 96,763**		**N = 52,082**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Board Size	3.21	2.30	3.08	2.20	3.46	2.45
Black Directors (%)	1.30	9.97	1.15	9.54	1.57	10.72
Hispanic Directors (%)	1.51	10.92	1.44	10.80	1.62	11.16
Asian Directors (%)	9.44	26.88	9.12	26.66	10.02	27.33
Female Directors (%)	11.24	27.93	9.95	26.66	13.62	29.97

	2018-2022		**2018–2019**		**2020-2022**	
Employee Data	**N = 17,591**		**N = 7,405**		**N = 10,186**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Number of Employees	51.33	140.75	46.49	155.56	54.85	128.81
Black Employees (%)	3.85	5.61	3.76	5.83	3.92	5.44
Hispanic Employees (%)	5.81	6.00	5.74	6.45	5.85	5.65
Asian Employees (%)	15.53	13.78	15.55	14.45	15.52	13.28

Panel D: Investor Directors

	Full Sample		**2013–2019**		**2020-2022**	
	N = 160,318		**N = 102,966**		**N = 57,352**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Board Size	3.24	2.18	3.17	2.10	3.37	2.31
Black Directors (%)	0.97	8.72	0.88	8.29	1.14	9.43
Hispanic Directors (%)	1.22	9.53	1.18	9.36	1.29	9.86
Asian Directors (%)	11.49	27.84	10.74	26.88	12.84	29.33
Female Directors (%)	7.42	22.62	6.51	21.17	9.05	24.91

Employee Data	**2018-2022**		**2018–2019**		**2020-2022**	
	N = 17,591		**N = 7,405**		**N = 10,186**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Number of Employees	45.52	119.27	41.42	134.45	48.57	106.45
Black Employees (%)	3.67	5.33	3.56	5.63	3.75	5.10
Hispanic Employees (%)	5.92	6.34	5.82	6.85	6.00	5.92
Asian Employees (%)	15.81	13.94	16.07	14.88	15.63	13.19

Table A3: Summary Statistics - Levels of Board Diversity by Year

This table reports summary statistics at a yearly level for our sample of public and private firms. Panel A presents it for private firms, while Panel B presents it for public firms. We present the statistics as averages at the level of the full board. The variables summarized are *Board Size*, which is the number of directors on the board; *Appointments*, which is the number of newly appointed director in the year; and *Black Directors*, *Hispanic Directors*, *Asian Directors*, and *Female Directors*, which are the percentage of directors on the board of a given race/gender.

Panel A: Private Firms

				Directors (%)			
Year	N	Board Size	Appointments	Black	Hispanic	Asian	Female
2013	29,223	2.0	0.4	1.1	1.4	9.3	8.4
2014	32,470	2.1	0.4	1.2	1.5	9.7	8.7
2015	35,278	2.2	0.4	1.2	1.6	10.2	9.2
2016	37,428	2.2	0.3	1.2	1.6	10.7	9.4
2017	39,854	2.2	0.3	1.3	1.6	11.1	9.9
2018	42,068	2.3	0.3	1.3	1.6	11.4	10.3
2019	43,684	2.4	0.3	1.4	1.6	11.7	10.8
2020	45,178	2.4	0.3	1.5	1.7	11.9	11.2
2021	46,015	2.5	0.3	1.6	1.7	12.1	11.6
2022	44,093	2.4	0.1	1.7	1.8	12.2	11.8
Total	395,291	2.3	0.3	1.4	1.6	11.1	10.3

Panel B: Public Firms

				Directors (%)			
Year	N	Board Size	Appointments	Black	Hispanic	Asian	Female
2013	2,895	9.1	0.8	4.7	2.0	3.3	12.2
2014	3,219	8.9	0.9	4.6	1.8	3.3	12.5
2015	3,509	8.8	0.8	4.5	1.8	3.5	13.2
2016	3,576	8.6	0.8	4.5	1.9	3.7	14.0
2017	3,557	8.5	0.8	4.6	2.1	3.8	15.0
2018	3,413	8.4	0.8	4.8	2.2	4.1	16.9
2019	3,308	8.4	0.8	5.2	2.2	4.3	19.6
2020	3,112	8.3	0.8	6.1	2.3	4.6	22.2
2021	2,498	8.6	0.8	9.5	2.9	5.3	26.5
Total	29,087	8.6	0.8	5.2	2.1	4.0	16.6

Table A4: Summary Statistics - Diversity in Board Appointments by Year

This table reports summary statistics at a yearly level for our sample of public and private firms. Panel A presents it for private firms, while Panel B presents it for public firms. We present the statistics as averages at the level of new director appointments. Only firm-year with at least one newly appointed director are included. The variables summarized are *Board Size*, which is the number of directors on the board after the ones appointed in the year; *Appointments*, which is the number of newly appointed director in the year, with a minimum of 1; and *Black Directors*, *Hispanic Directors*, *Asian Directors*, and *Female Directors*, which are the percentage of newly appointed directors that are of a given race/gender.

Panel A: Private Firms

				Directors (%)			
Year	N	Board Size	Appointments	Black	Hispanic	Asian	Female
2013	7,159	2.7	1.6	1.3	1.8	10.5	9.0
2014	8,137	2.8	1.7	1.3	1.8	11.4	9.9
2015	8,156	2.9	1.7	1.1	1.7	12.3	11.0
2016	7,679	3.0	1.7	1.3	1.6	12.9	11.0
2017	8,290	3.0	1.7	1.3	1.7	13.3	12.7
2018	8,777	3.2	1.7	1.4	1.7	12.9	13.4
2019	8,663	3.4	1.6	1.6	1.8	13.2	16.0
2020	8,465	3.5	1.7	2.7	1.7	13.2	16.7
2021	8,144	3.8	1.8	3.1	2.5	14.6	20.0
2022	3,481	4.0	1.6	3.1	1.8	15.1	20.0
Total	76,951	3.2	1.7	1.8	1.8	12.9	13.7

Panel B: Public Firms

				Directors (%)			
Year	N	Board Size	Appointments	Black	Hispanic	Asian	Female
2013	1,044	10.0	1.7	4.5	2.0	3.7	19.9
2014	1,247	9.9	1.8	4.6	2.8	3.3	22.1
2015	1,359	9.8	1.8	4.5	2.6	3.9	22.6
2016	1,390	9.6	1.7	5.6	2.2	3.9	24.5
2017	1,373	9.6	1.7	5.9	2.7	5.2	29.3
2018	1,448	9.5	1.7	6.9	2.9	4.9	35.4
2019	1,441	9.4	1.7	7.1	2.5	6.6	44.4
2020	1,366	9.4	1.7	12.8	3.0	6.7	43.7
2021	1,074	9.6	1.6	28.7	5.6	9.7	47.0
Total	11,742	9.6	1.7	8.6	2.9	5.3	32.3

Table A5: Summary Statistics - Diversity in Board Appointments by Board Size

This table reports summary statistics of board diversity in appointments by board size for our sample of public and private firms. Panel A presents data for private firms in the pre-GF period, while Panel B presents data for private firms in the post-GF period. Panels C and D present data for the pre- and post-GF period for public firms. We present the statistics as averages at the level of new director appointments. Only firm-years with at least one newly appointed director are included. The variables we summarize are: *Black Directors*, *Hispanic Directors*, *Asian Directors*, and *Female Directors*, which represent the percentage of newly appointed directors of a given race/gender. We present the statistics by *Board Size*, which is the number of directors on the board after the newly appointed director(s). The final row in Panels A and B includes boards with more than eight directors.

Panel A: Private Firms (2013-2019)

		Directors (%)			
Board Size	N	Black	Hispanic	Asian	Female
1	16,937	1.8	2.1	13.3	11.1
2	13,384	1.2	1.7	12.6	11.3
3	9,106	0.9	1.7	12.2	10.8
4	6,021	0.9	1.5	11.9	11.7
5	4,160	1.0	1.5	11.3	14.0
6	2,721	1.6	1.2	11.2	14.8
7	1,745	1.5	1.1	11.8	15.8
≥ 8	2,787	1.8	1.5	11.3	17.7
Total	56,861	1.4	1.7	12.4	12.0

Panel B: Private Firms (2020-2022)

		Directors (%)			
Board Size	N	Black	Hispanic	Asian	Female
1	4,321	1.8	2.2	14.9	13.0
2	3,809	2.6	2.1	14.5	15.0
3	3,264	2.8	1.7	13.7	16.5
4	2,520	2.4	2.5	13.6	19.3
5	1,885	2.9	1.6	13.8	21.3
6	1,383	3.1	1.5	13.9	22.6
7	1,023	4.8	2.6	12.6	27.4
≥ 8	1,885	6.0	2.0	14.2	31.0
Total	20,090	2.9	2.0	14.1	18.6

Table A5: *Continued*

This table reports summary statistics of board diversity in appointments by board size for our sample of public and private firms. Panel C presents data for public firms in the pre-GF period, while Panel D presents data for public firms in the post-GF period. We present the statistics as averages at the level of new director appointments. Only firm-years with at least one newly appointed director are included. The variables we summarize are *Black Directors*, *Hispanic Directors*, *Asian Directors*, and *Female Directors*, which represent the percentage of newly appointed directors of a given race/gender. We present the statistics by *Board Size*, which is the number of directors on the board after the newly appointed director(s). The first row in Panels C and D includes boards with five or fewer directors while the last row includes boards with twelve or more directors.

Panel C: Public Firms (2013-2019)

		Directors (%)			
Board Size	N	Black	Hispanic	Asian	Female
≤ 5	415	2.0	1.3	4.8	19.7
6	620	2.7	1.2	5.5	25.6
7	1,021	3.0	1.4	5.4	27.5
8	1,317	3.0	2.3	4.6	29.2
9	1,388	3.9	2.1	3.8	29.1
10	1,301	6.2	2.7	4.6	30.6
11	1,041	7.4	3.0	4.7	31.9
≥ 12	2,199	9.9	3.8	4.3	29.4
Total	9,302	5.7	2.5	4.6	28.9

Panel D: Public Firms (2020-2021)

		Directors (%)			
Board Size	N	Black	Hispanic	Asian	Female
≤ 5	154	6.2	3.1	9.7	45.7
6	186	8.4	1.6	9.4	51.3
7	275	13.8	3.6	11.6	52.3
8	353	18.5	3.6	7.0	46.8
9	349	24.0	3.4	8.9	46.4
10	301	27.5	5.0	6.8	42.9
11	253	22.3	5.2	8.5	43.8
≥ 12	569	23.2	5.5	5.8	39.7
Total	2,440	19.8	4.2	8.0	45.2

Table A6: Overlap among Directors in Startups and Public Firms

This table presents the overlap in directors sitting on the board of startups and public firms. The table presents count at the individual director-level for directors appointed between 2013 and 2021. We present the number of directors that have only been on public boards (*Public Firm Only*), only on startup boards (*Startup Only*), or had roles on both. For those that have held positions on startup and public firm boards, we categorize them depending on whether their first director position was on a board of a public firm (*Public Firm First*) or a startup board (*Startup First*). If they joined both a startup and a public firm board at the same year, we categorize that as *Public & Private Same Year*. To map to the sample of the paper, only directors with appointments between 2013 to 2021 are included in the tabulation. However, all classifications are based on the full sample from 2000 to 2021. Panel A presents the count of the number of unique directors in each category that are either Black, Hispanic, Asian, White, Female, Male, and whether race and gender information is missing. Panel B reports the fraction of diverse directors in each category. These fractions are only calculated among directors with known race or gender. We merge directors between PitchBook and BoardEx/ISS through two steps. First, for firms with a mapping between PitchBook's companyid and a firm's CIK, we match director names within those two firms using fuzzy matching. For most firms we do not have such a mapping. In that case, we match all these directors in BoardEx to all remaining directors in PitchBook via fuzzy matching. We require an exact match on the last name, and either a match on "nicknames" for the first name, or a fuzzy matching score above 95 if there is no nickname match. To ensure that we do not end up with erroneous matches, we require that at least one of the publicly traded companies the individual has been a director with is listed on the LinkedIn profile of any proposed match. We have LinkedIn URLs from PitchBook. We do the matching between LinkedIn and the public firms through fuzzy matching on company names, requiring a fuzzy matching score above 95.

Panel A: Number of Directors

Director of:	Public Firm Only	Startup Only	Public Firm First	Startup First	Public & Startup Same Year
All Directors	16,845	76,879	6,193	5,740	3,849
	15.4%	70.2%	5.7%	5.2%	3.5%
Black	423	926	137	77	150
Hispanic	128	1,104	71	52	38
Asian	442	7,765	268	415	193
White	5,634	47,681	3,982	4,145	2,047
Missing Race	10,218	19,403	1,735	1,051	1,421
Female	3,199	9,590	1,162	907	1,191
Male	12,966	66,850	5,017	4,815	2,650
Missing Gender	680	439	14	18	8

Panel B: Fraction of Diverse Directors in Each Category

Director of:	Public Firm Only	Startup Only	Public Firm First	Startup First	Public & Startup Same Year
Black	6.4%	1.6%	3.1%	1.6%	6.2%
Hispanic	1.9%	1.9%	1.6%	1.1%	1.6%
Asian	6.7%	13.5%	6.0%	8.9%	7.9%
Female	19.8%	12.5%	18.8%	15.9%	31.0%

Table A7: Board Diversity in Private Firms (Appointments)

This table presents coefficients from OLS regressions of board diversity at private firms, with standard errors reported in parentheses. The unit of observation is a firm-year in the period 2013 to 2022. A firm-year is included only if at least one new board member is appointed. The dependent variable is the fraction of newly appointed board members that are either Black, Hispanic, Asian, or Female. The key independent variable is *Post GF*, an indicator that equals one for 2020 and later years, following the George Floyd social justice movement. As controls we include *ln(Board Size)*, which is the log of the number of directors on the board, as well as *State FE* in Panel A, which is the state the firm is headquartered in, and *Firm FE* in Panel B. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors by the firm.

Panel A	Black	Hispanic	Asian	Female
Post GF	1.535***	0.317***	1.936***	6.018***
	(0.116)	(0.105)	(0.262)	(0.270)
Observations	77,101	77,101	77,101	76,899
Adjusted R^2	0.007	0.003	0.026	0.017
State FE?	X	X	X	X

Panel B	Black	Hispanic	Asian	Female
Post GF	2.266***	0.257	0.360	5.653***
	(0.219)	(0.183)	(0.445)	(0.496)
Observations	50,778	50,778	50,778	50,587
Adjusted R^2	0.049	0.034	0.155	0.088
Firm FE?	X	X	X	X

Table A8: Board Diversity in Private Firms by Director Type (Appointments)

This table presents coefficients from OLS regressions run at the firm-year level, with standard errors reported in parentheses. The unit of observation is a startup-year between 2013 and 2022. The dependent variable is the fraction of newly appointed board members of a given type that are either Hispanic, Black, Asian, or Female. A startup-year is included if at least one director of a given type is appointed in that year. Panel A focuses on Insider Directors, defined as a director that works for the startup. Panel B focuses on Outsider Directors. An outside director is neither affiliated with the startup nor its investors. Panel C focuses on Investor Directors, which is an appointed director who works for an investor in the firm. The key independent variable is *Post GF*, which is an indicator that equals one for directors appointed in 2020 or later. All models include firm fixed effects. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors at the startup level.

Panel A: Insider Directors	Black	Hispanic	Asian	Female
Post GF	2.687***	1.145	-0.339	8.246***
	(0.959)	(0.834)	(1.675)	(2.361)
Observations	3,501	3,501	3,501	3,501
Adjusted R^2	0.027	-0.015	0.110	0.066
Firm FE?	X	X	X	X

Panel B: Outsider Directors	Black	Hispanic	Asian	Female
Post GF	3.490***	0.785	1.863*	4.554***
	(0.622)	(0.509)	(1.109)	(1.498)
Observations	8,957	8,957	8,957	8,957
Adjusted R^2	-0.017	0.003	0.055	0.051
Firm FE?	X	X	X	X

Panel C: Investor Directors	Black	Hispanic	Asian	Female
Post GF	0.568*	-0.905**	1.395	4.965***
	(0.340)	(0.383)	(1.157)	(1.131)
Observations	11,943	11,943	11,943	11,943
Adjusted R^2	0.036	0.010	0.128	0.056
Firm FE?	X	X	X	X

Table A9: Board Diversity in Private Firms - Impact of Racially Diverse Investors

This table presents coefficients from OLS regressions run at the firm-year level, with standard errors reported in parentheses. The unit of observation is a startup-year between 2013 and 2022. The dependent variable is the fraction of board members that are either Black, Hispanic, Asian, or Female. Panel A presents results for the full sample of all directors. Panel B focuses on Insider Directors. Panel C focuses on Outsider Directors. Panel D focuses on Investor Directors. For Panels B through D, a firm-year is included if we observe at least one insider director (Panel B), one outsider director (Panel C), and one investor director (Panel D). The key independent variable is *F(Minority VCs)*, which measures the fraction of VCs invested in the company that are minority-owned (have a Black or Hispanic Founder or Senior Partner), following the classification in Cassel et al. (2022). All models include year and state fixed effects. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors at the startup level.

Panel A: All Directors	Black	Hispanic	Asian	Female
F(Minority VCs)	16.555***	4.702***	-1.372	12.418***
	(2.063)	(1.288)	(2.120)	(2.328)
Observations	163,108	163,108	163,108	163,108
Adjusted R^2	0.027	0.010	0.044	0.018
Year FE?	X	X	X	X
State FE?	X	X	X	X

Panel B: Insider Directors	Black	Hispanic	Asian	Female
F(Minority VCs)	14.472***	0.715	-0.958	17.568***
	(2.816)	(1.194)	(3.143)	(3.667)
Observations	95,058	95,058	95,058	95,058
Adjusted R^2	0.018	0.010	0.043	0.019
Year FE?	X	X	X	X
State FE?	X	X	X	X

Panel C: Outsider Directors	Black	Hispanic	Asian	Female
F(Minority VCs)	6.590***	0.740	-5.214*	9.569**
	(2.455)	(1.125)	(3.006)	(3.751)
Observations	73,768	73,768	73,768	73,768
Adjusted R^2	0.007	0.007	0.019	0.017
Year FE?	X	X	X	X
State FE?	X	X	X	X

Panel D: Investor Directors	Black	Hispanic	Asian	Female
F(Minority VCs)	20.652***	10.254***	-1.947	4.150*
	(3.408)	(2.430)	(3.100)	(2.476)
Observations	109,153	109,153	109,153	109,153
Adjusted R^2	0.033	0.009	0.037	0.010
Year FE?	X	X	X	X
State FE?	X	X	X	X

Table A10: How is Employee Diversity Related to Board Diversity?

This table presents coefficients from OLS regressions run at the firm-year level, with standard errors reported in parentheses. The unit of observation is a startup-year between 2013 and 2022, for startups that have received VC investment and that we observe at least 10 employees in 2019. The dependent variable is the fraction of board members that are either Black, Hispanic, Black & Hispanic, or Female, and we only include startup-years where we observe the race of at least one director on the board. We relate the fraction of the workforce that is of a given race in year $t-1$ to the to the fraction of that race among the board of directors in year t. *B&H Employees* is the fraction of employees that are either Black or Hispanic. All models includes year and state fixed effects, which indicates the state the firm is headquartered in. We also include controls for the log of VC funding raised up until that year and the log of the board size. $^{***}p < 0.01$ denotes significance at the 1% level, $^{**}p < 0.05$ denotes significance at the 5% level, and $^{*}p < 0.10$ denotes significance at the 10% level. We cluster standard errors at the startup level.

Panel A: Insider Directors	Black	Hispanic	Black & Hispanic	Female
Black Employees ($t-1$)	8.215***			
	(6.410)			
Hispanic Employees ($t-1$)		7.311*		
		(4.201)		
B&H Employees ($t-1$)			12.991***	16.707***
			(4.218)	(5.825)
Observations	18409	18409	18409	18,409
Adjusted R^2	0.022	0.008	0.014	0.017
Year & State FE?	X	X	X	X

Panel B: Outsider Directors	Black	Hispanic	Black & Hispanic	Female
Black Employees ($t-1$)	8.964***			
	(3.053)			
Hispanic Employees ($t-1$)		6.295*		
		(3.565)		
B&H Employees ($t-1$)			7.829***	18.534***
			(2.849)	(5.694)
Observations	15,138	15,138	15,138	15,138
Adjusted R^2	0.030	0.012	0.031	0.055
Year & State FE?	X	X	X	X

Panel C: Investor Directors	Black	Hispanic	Black & Hispanic	Female
Black Employees ($t-1$)	5.156**			
	(2.599)			
Hispanic Employees ($t-1$)		1.862		
		(1.968)		
B&H Employees ($t-1$)			2.148	0.638
			(1.914)	(3.531)
Observations	20,482	20,482	20,482	20,482
Adjusted R^2	0.040	0.005	0.023	0.010
Year & State FE?	X	X	X	X

Table A11: Validation of Director Race Classification - Our Classification vs. ISS

This table shows a two-way contingency table of the count of directors classified as "White," "Black," "Hispanic," and "Asian," according to ISS ("ISS Directors") and PitchBook ("PitchBook Directors"). Panel A presents the total count of directors in each cell. Panel B calculates the proportion of the ISS director classifications that match our classification using PitchBook. For example, of the 361 directors we identify as Black, ISS agrees with our classification 97.5% of the time. We classify directors by race following the process outlined in Section II.A.1 and Appendix B.1. To match directors in PitchBook to our BoardEx/ISS sample, we first match companies by CIK. Within each CIK, we then conduct a fuzzy matching on names. We follow the name-matching procedure outlined in Appendix A to determine the best match for each director. Finally, to create this table we use the intersection of matched directors with race in both PitchBook and ISS. In total, we match 7,890 unique directors. As ISS race classifications have more categories than our PitchBook classification of directors, we map ISS classifications into our four categories as follows: We map"Black/African American" to "Black"; "Hispanic/Latin American" to "Hispanic"; "indian/south asian" to "asian (exclude indian/south asian)", and "native hawaiian/other pacific islander" to "Asian"; We map all other categories to "White." Although we do not report statistics on gender, the overlap between gender classifications in BoardEx and PitchBook is 99.8%.

Panel A: Counts

	PitchBook Directors				
ISS Directors	White	Black	Hispanic	Asian	Total ISS
White	6,435	6	44	147	6,650
Black	188	352	0	22	562
Hispanic	85	0	79	8	172
Asian	83	3	3	416	506
Total PitchBook	6,810	361	126	593	7,890

Panel B: Proportion Correctly Classified

	F(ISS Directors' Race)				
PitchBook Directors	White	Black	Hispanic	Asian	F(PitchBook)
White	94.8%	2.8%	1.3%	1.2%	86.3%
Black	1.7%	97.5%	0.0%	0.8%	4.6%
Hispanic	34.9%	0.0%	62.7%	2.4%	1.6%
Asian	24.8%	3.7%	1.3%	70.2%	7.5%