

## Racial diversity and inclusion without equity? Evidence from executive compensation\*

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Draft: February 27, 2024

### Abstract

The compensation structure of top managers (except CEOs) varies according to ethnicity/race. On average, Blacks, Hispanics, and Asians receive less equity-based pay than Whites in the same C-suite. When racial minority executives move from White-CEO-led-firms to ethnic-minority-CEO-led-firms, their racial pay structure similarity improves by 32%. Companies in high racism locations have more dissimilar racial pay structures. As the racial pay structure similarity improves, the pay gap between White and ethnic-minority executives decreases, and firms exhibit better stock market and accounting performance, less financial fraud, and lower CEO-to-median-worker pay ratios. Our evidence suggests that pay structure race-based disparities occur when a corporate culture tolerates *racial inequality* and not due to the *preferences* of racial minority executives.

**Keywords:** Race; Diversity, equity, and inclusion; Executive compensation; CEO pay ratio

**JEL codes:** M12, J31, J33, J41, G34, G30, G32, J16

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\* For helpful comments, we thank seminar participants at Deakin, Iowa, Queensland University of Technology, Nanyang Technological University, Singapore Management University, University of New South Wales, National University of Singapore, University of Melbourne, University of Sydney, University of Virginia, Virginia Tech, and Wake Forest. All errors are our responsibility.

## 1. Introduction

Sparked by global social movements, interest among investors in diversity, equity and inclusion (DEI) remains strong. Indeed, The Principles for Responsible Investment—a United Nations-supported international network of financial institutions that endorse companies making a positive impact on society—advise investors to include DEI in their investment decisions.<sup>1</sup> As a result, many firms are setting more targets around DEI,<sup>2</sup> and US regulators now mandate or are considering mandating diversity quotas in corporate managerial teams.<sup>3</sup> Notably, while diversity and inclusion often garner substantial attention, the “*equity*” part of DEI is often overlooked. In this paper, we fill this crucial gap and study the “*equity*” component by analyzing the pay structure of racial minority executives in US firms that have already achieved diversity and inclusion.

Throughout the paper, we use the terms “ethnic minority,” “racial minority,” and “non-White” to encapsulate Black, Hispanic (or Latino), Asian, and Native American executives. Yet, while we use “race/racial” and “ethnic/ethnicity” interchangeably, there are notable differences between these terms, which affect how researchers in specific disciplines classify the people they study.<sup>4</sup>

Companies structure executive pay to provide their top managers with incentives to improve firm performance and with the chance to maximize their own compensation. Therefore, we view the degree of *pay structure similarity* across racial dimensions as a proxy for the extent the firm’s *corporate culture* truly promotes *equity*. In our setting, equity refers to fair practices and policies that ensure all workers can succeed—irrespective of their demographic background.

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<sup>1</sup> See: [forbes.com/sites/bonniechiu/2022/03/01/investors-are-waking-up-to-market-potential-of-diversity-equity-and-inclusion/?sh=4d4f5f665597](https://forbes.com/sites/bonniechiu/2022/03/01/investors-are-waking-up-to-market-potential-of-diversity-equity-and-inclusion/?sh=4d4f5f665597)

<sup>2</sup> For example, while 2.5% of US companies linked pay provisions to workplace diversity in 2018, 11% did it in 2021 ([ft.com/content/86102111-3361-43e6-8e86-3dc6dfe7bb6f](https://ft.com/content/86102111-3361-43e6-8e86-3dc6dfe7bb6f)).

<sup>3</sup> In August 2021, the Securities and Exchange Commission approved Nasdaq rules that mandate companies listed on the exchange to staff their boards with at least two “diverse” directors.

<sup>4</sup> See, for example, Flanagin, Frey, and Christiansen (2021).

To measure pay structure similarity among White and non-White managers serving in the top executive team, we implement the two-step procedure outlined by Cabezón (2023). First, we create a vector consisting of the eight main components of total compensation: salary, restricted bonus, performance-based stock awards, restricted stock awards, option awards, non-equity incentives, other compensation, and change in pensions. Because we measure each component with a monetary value, the vector of payments is comparable across firms. We standardize each element by total compensation, such that the sum of all the elements of each vector equals one. Consequently, the vector measures the *structure* of the executive's pay rather than the level.

Initial vector analyses show that when compared to White executives, ethnic minority executives draw a higher fraction of their compensation in salary and bonuses and a lower fraction in equity compensation (i.e., equity and stock options). This evidence indicates that, on average, the compensation structure in the C-suite varies according to race/ethnicity, as ethnic-minority executives receive significantly less stock-based pay than their White counterparts. We find evidence of this disparity for all top executive positions except for that of CEOs.

Our baseline finding—showing that pay structure similarity in the C-suite varies by race—proves robust to numerous control variables and fixed effects. For example, the addition of position and business area fixed effects ensures that we compare executives in similar jobs and those working in the same areas. Likewise, adding firm fixed effects prevents the possibility that unobserved time-invariant firm-specific factors drive the results. Time-varying economic fundamentals and/or non-economic factors in an industry cannot explain our results either because our industry x year fixed effects absorb observed and unobserved time-varying heterogeneity across industries.

Next, we study whether the differences in ethnic pay structure are related to different pay levels. To do so, for every firm in each year, we evaluate the *similarity* between the average compensation structure vector for White executives and the average compensation structure vector for their ethnic-minority counterparts. Specifically, we calculate the dot product or *cosine similarity* score of the two vectors, which can take values from zero to one. At the extremes, two vectors with the same orientation have a cosine similarity score of one, while two orthogonal vectors have a similarity score equal to zero.

The results indicate an inverse association between pay structure similarity and the pay gap for ethnic minority executives. The estimates reveal that a one-standard-deviation decrease in racial pay structure similarity is related to an average increase of 10% in the ethnic-minority pay gap. This novel finding proves robust to several control variables as well as to the introduction of Industry, Year, Firm, and Industry by Year fixed effects in our regression analyses. Importantly, the inverse association between the ethnic-minority pay structure and the racial pay gap for top executives suggests that the deficit in equity incentives in the pay structure of non-Whites limits their opportunity to earn as much money as White executives working in the same firm, on average.

After finding that the structure of compensation among C-suite executives differs by ethnicity and that this difference is related to lower overall pay for racial minority executives, we study two hypotheses that could explain this racial-based disparity in pay structure. The first hypothesis states that racial minority executives prefer (and therefore receive) more cash and less equity-based pay than their Caucasian counterparts. Non-mutually-exclusive rationales for the *preferences hypothesis* include increased risk aversion from austere life experiences and limited expected employment duration. The latter issue could be due to the expected length of working permits in the US or to the likelihood of securing a better job in another firm seeking to increase its own racial

diversity. The second (alternative) hypothesis proposes that—in a firm’s culture in which *racial inequality* exists—Caucasian executives have better opportunities than racial minority executives.

To distinguish between our hypotheses, we start with two tests that exploit differences in pay structure similarity for the same executives that occur after the firm’s culture changes. In the first test, we find that racial pay structure similarity in the C-suite improves by 10.5% when the CEO belongs to an ethnic minority. In the second test, we find that when racial minority executives move from firms led by a White CEO to firms led by an ethnic minority CEO, their pay structure similarity improves by 32%. We repeat both tests and find similar results when, instead of tracking the CEO’s ethnicity, we use a dummy variable to indicate compensation committees staffed by at least one racial minority director. While all tests include firm and industry-by-year fixed effects, the second test also includes job position fixed effects and executive fixed effects. Consequently, aside from controlling for any time-variant industry characteristics, in the second test we compare executives with the same job position and control for any time-invariant executive characteristics.

The evidence in these tests does not support the *preferences hypothesis*, which posits that disparity in pay structure between White and racial minority executives occurs because of the minority executives’ preferences. Indeed, if the compensation preferences of racial minority executives are stable, their pay structure should be constant irrespective of the race of the CEO or the ethnic makeover of the board’s compensation committee. Consequently, our evidence is more supportive of the *racial inequality hypothesis*.

To further distinguish our hypotheses, we examine whether racial pay structure similarity varies according to the geography of racial inequality. To this end, we use two different measures of geographical racial inequality: the index of racial animus in US cities based on Google searches by Chae et al. (2015) and the SDG Racism Index developed by the United Nation’s Sustainable

Development Solutions Network. Both measures consider factors that are unlikely to be affected by a particular firm's actions and thus capture regional cultural variations that are plausibly exogenous to the firm. On average, firms headquartered in locations with higher levels of racial inequality or discrimination exhibit less racial pay structure similarity. Specifically, a one-standard-deviation increase in the racial animus is associated with an 18.5% decrease in ethnic pay structure similarity. Likewise, firms headquartered in states with an SDG racism index above the median exhibit a 4.5% lower racial pay structure similarity.

We also evaluate another hypothesis, rooted in agency theory, which proposes that ethnic minority executives are justly compensated and that White executives obtain excess pay when there are racial minority executives in the C-suite. Consistent with this agency hypothesis, we find that White executives in multiracial C-suites receive a greater fraction of their total pay in performance-based stock and restricted stock and a lower fraction in salary than White executives in White-only C-suites. Moreover, White executives serving in multiracial C-suites also enjoy higher total compensation. Importantly, this phenomenon occurs only in poorly governed firms (i.e., with an above-the-median Gompers, Ishii, and Metrick (2003) governance index).

It is possible that the differences in pay structure we uncover only affect the allocation of the overall executive compensation budget but not other firm activities. Alternatively, if the disparity in racial pay structure proxies for the extent of *corporate culture* inclusiveness, then such a culture may affect the firm in other contexts. Consistent with this conjecture, we find an inverse association between ethnic-minority pay structure similarity and the CEO-to-median-worker pay ratio. The estimates imply economically important effects. A one-standard-deviation increase in ethnic-minority pay structure similarity is associated with a 5% decrease in the CEO pay ratio.

If the similarity in pay structure among executives captures a corporate culture encouraging fair treatment, full participation, and access and advancement opportunities for *all* employees, then it is likely that workers in such an environment deliver greater contributions and higher output. Supporting this prediction, we find a positive association between ethnic minority pay structure similarity and (a) the market valuation of the firm (Tobin's Q), and (b) different accounting measures of firm performance and employee productivity. Our estimates imply that increasing ethnic minority pay structure similarity by a single standard deviation is related to a 1.3% increase in the market valuation of the firm, a 2.8% increase in return of assets (ROA), a 2.3% increase in return on equity (ROE), and a 2.8% increase in return on employees.

To assess the veracity of the aforementioned link between pay structure similarity and corporate culture, we also evaluate its association with financial misconduct. To do so, we flag firms that appear in an SEC Accounting and Auditing Enforcement Release (AAER) or in the list of "problem" restatements as classified by Audit Analytics.<sup>5</sup> According to our analyses, a one standard deviation increase in ethnic-minority pay structure similarity is related to a 0.5 percentage points decrease in the probability of financial misconduct. This drop is economically important when benchmarked against the 1.7% average likelihood of financial misconduct in our sample.

This paper contributes to several active research areas. First, we show that C-suite executives in some of the largest companies in the U.S. have compensation structures that vary by ethnicity or race. Our analyses reveal that ethnic-minority executives get substantially less equity-based pay than their White counterparts. We identify the inequality in pay structure as a mechanism

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<sup>5</sup> These restatements are related to fraud, misrepresentation, or an investigation by the Public Company Accounting Oversight Board (PCAOB) (see Armstrong, Larcker, Ormazabal, and Taylor (2013)).

underlying the racial pay gap affecting top executive teams. By doing so, we contribute to the rich literature documenting settings where disparities across races exist.<sup>6</sup>

Second, our findings indicate that, as a novel measure of corporate culture, pay structure similarity has a real and important association with various other facets of the firm. In particular, companies with similar racial pay structures exhibit higher stock market values and better operating performance. The same firms also exhibit a lower probability of committing financial fraud. Collectively, these findings advance the literature examining the benefits of racial diversity and the extensive body work on the impact of corporate culture.<sup>7</sup> Moreover, by identifying racial pay structure similarity in a firm's C-suite as a proxy for a corporate culture that truly fosters diversity, equity, and inclusion (DEI), our paper complements contemporaneous work by Edmans, Flammer, and Glossner (2023). They find that demographic measures of diversity do not really capture the benefits of DEI and develop a survey-based DEI measure that does.

Third, this paper also connects to studies that examine compensation inequality in publicly traded firms (e.g., Mueller, Ouimet, and Simintzi (2017); Frydman and Papanikolaou (2018); Pan, Pikulina, Siegel, and Wang (2022)). We advance this literature by showing that increasing ethnic-minority pay structure similarity in the C-suite is related to (i) a lower pay gap between CEOs and rank-and-file employees (i.e., the CEO pay ratio measuring within-firm pay inequality), and (ii) to less disparity in the pay structure for all other non-CEO members of the top executive team.

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<sup>6</sup> Recent work in this area includes Gerardi, Willen and Zhang (2023), Avenacio-León and Howard (2022), Bartlett, Morse, Stanton and Wallace (2022), and Hurtado and Sakong (2024).

<sup>7</sup> Research on the impact of diversity, which focuses mostly on gender, includes recent papers by Lins, Servaes and Tamayo (2017), Bernile, Bhagwat and Yonker (2018), and Calder-Wang and Gompers (2021). Please see Gorton, Grennan and Zentefis (2022) for a contemporaneous literature review on corporate culture.



Fourth, our paper advances the literature on racial discrimination practices by public firms. Most studies in this area show how racial discriminatory practices affect the financing activities of *external parties*.<sup>8</sup> In contrast with these studies, ours shows that some firms pursue racial discrimination practices that affect the compensation of their own employees, including those in the top-management team. In this vein, our work adds to the literature that considers the Black-White wage gap differential (e.g., Lang and Spitzer, 2020) and complements (a) the work by Kline, Rose, and Walters (2022) showing that firms are 2.1 percentage points less likely to contact job applicants with distinctively Black names relative to those with distinctively White names, and (b) the article by Field et al. (2020) showing that minority directors are less likely to assume leadership roles despite having stronger qualifications than non-minority directors.

## **2. Data and Methodology**

We obtain data on executive compensation from Execucomp, collected directly from each company's annual proxy (DEF14A SEC form). The dataset includes executives from firms in the S&P 500, S&P MidCap 400, S&P SmallCap 600, and many other firms covered by S&P. We use the compensation of all top-5 executives between 2006 and 2020.

We center the analysis on eight elements of compensation: salary, bonus, performance-based stock awards, restricted stock awards, option awards, non-equity incentives, other compensation, and change in pension value and non-qualified deferred compensation earnings. Salary and bonus reflect the amount received for the fiscal year. Both time-lapse restricted stock and performance-

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<sup>8</sup> Dougal, Gao, Mayhew, and Parsons (2019) find that historically Black colleges and universities (HBCUs) pay higher underwriting fees to issue tax-exempt bonds, than similar non-HBCUs. Fairlie, Robb and Robinson (2022) show that raising external debt is harder for Black-owned start-ups. Begley and Purnanandam (2021) find that the incidence of fraud by retail banks is higher in areas mostly populated by minority borrowers. Bayer, Ferreira, and Ross (2016) find that, among homeowners with similar credit scores and loan attributes, Black and Hispanics pay higher interest rates. Hurtado and Sakong (2024) report similar racial disparities in both credit cost and access.

based stock awards are evaluated using the grant-date market value. We identify performance-based stocks as the market value of stock awards that include a target in the Grants of Plan-Based Awards Table and define restricted stocks as the complement. Options awards are evaluated at grant-date value using the Black and Scholes (1973) formula. Non-equity incentives are evaluated at the target level (or the average of minimum and maximum if the target is not reported). Other compensation includes perquisites, signing bonuses, termination payments, and above-the-market interest paid on deferred compensation.

Accounting measures come from CRSP/COMPUSTAT. We merge the datasets using the Global Company Key —or GVKEY— firm identifier. We drop financial and utilities from our analysis and winsorize all variables at 5% and 95% levels to mitigate the influence of outliers.

## **2.1. Ethnicity**

Because we are interested in comparing White/Caucasian and ethnic minority executives, we only consider firms for which we can identify executives from both groups. By doing so, we analyze firms with observable diversity and inclusion in the C-suite. We begin with 26,104 unique executives covered by Execucomp between 2006 and 2020. We use unique executive identifiers to merge the Execucomp data with the ISS Directors and Executives database.<sup>9</sup> To establish the race/ethnicity of the executives not covered by ISS, we use numerous sources such as LinkedIn profiles, Bloomberg reports, Capital IQ bios, company provided bios, news portals, corporate filings with the SEC, stories in savoynetwork.com, and in other internet websites.

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<sup>9</sup> A large fraction of this database covers mostly directors. However, because some executives in our sample serve as directors in other companies at some point in time, the ISS database allows us to obtain their ethnicity.

Our final sample consists of 901 unique S&P 1500 firms with C-suites staffed by both White and ethnic minority executives. The race/ethnicity breakdown in our final sample consists of 9,614 unique C-suite executives is as follows: 1,274 Asian, 189 Black, 622 Hispanic, 4 Native American, and 7,525 White/Caucasian. We obtain the race/ethnicity for 4,374 unique executives from ISS and manually code it for 5,240.

While our final sample does not include all firms covered by Execucomp, it represents an important fraction of public firms. Indeed, our sample firms account for a total market capitalization of \$15.1 trillion. In addition, our sample of 901 firms spans 194 different SIC3 industries (out of 233 in the entire Execucomp sample) and all 63 SIC2 industries in Execucomp and resembles the S&P1500 regarding all standard firm characteristics, as Table 1 shows.

## **2.2. Summary statistics**

Table 1 reports summary statistics of the main variables in the sample of firms with at least one ethnic minority executive. The average firm has 9.1 billion in total assets, is 22.7 years old, has ROA of 12.7% and a Tobin's Q of 1.7. These values are similar to those for the average S&P1500 firm during our sample period.

The average executive gets nearly 29% of her total pay in salary, 3.6% in bonuses, just over 30% in stock awards (performance-based stock plus restricted stock), 11% in options, 6% in other compensation, and 2.7% in pensions. These summary statistics resemble those reported for the same variables in other studies (e.g., Murphy, 2013 and Edmans, Gabaix, and Jenter, 2017).

## **2.3. Methodology**

For every firm, we follow Cabezon (2023) to calculate the similarity in the average compensation structure for non-White and White executives. Specifically, for each executive, we

first create a vector that includes the eight primary pay components: salary, restricted bonus, performance-based stock awards, restricted stock awards, option awards, non-equity incentives, other compensation, and change in pensions. Because each of these elements is measured with a monetary value, the vector of payments is comparable across executives. We then scale each element by total compensation, such that the sum of all the elements of each vector equals one. By doing so, the vector measures the structure of the compensation plan rather than its level.

$$v_{it} = \left[ \frac{salary_{it}}{total_{it}}, \frac{bonus_{it}}{total_{it}}, \frac{perf\_stock_{it}}{total_{it}}, \frac{rest\_stock_{it}}{total_{it}}, \frac{options_{it}}{total_{it}}, \frac{non\_eq_{it}}{total_{it}}, \frac{other_{it}}{total_{it}}, \frac{pension_{it}}{total_{it}} \right], \text{ where}$$

$$total_{it} = salary_{it} + bonus_{it} + perf\_stock_{it} + rest\_stock_{it} + options_{it} + non\_eq_{it} + other_{it} + pension_{it}.$$

We then compute the similarity between the average compensation vector of ethnic-minority executives and White executives for every firm in each given year. To assess the similarity between two vectors, we calculate their dot product which can take values from zero to one. The dot product, also known as cosine similarity, is a popular way to estimate the proximity of two non-zero vectors.<sup>10</sup> Two vectors with the same orientation have a cosine similarity of one while two orthogonal vectors have a similarity of zero. In our setting, the lower this similarity, the higher the ethnic-minority gap in the compensation structure.

$$Racial\ pay\ structure\ similarity_t = \frac{\sum_{n=1}^8 v_{wt}^n v_{mt}^n}{\sqrt{\sum_{n=1}^8 (v_{wt}^n)^2} \sqrt{\sum_{n=1}^8 (v_{mt}^n)^2}},$$

Where  $v_{it}^n = n^{th}$  element of vector  $v_{it}$ ;  $v_{wt}$  = average compensation vector of White executives, and  $v_{mt}$  = average compensation vector of ethnic-minority executives.

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<sup>10</sup> See, for example, Bhattacharyya (1946); Salton (1983); Hoberg and Phillips (2016); Hegde, Herkenhoff, and Zhu (2023).

Figure 1 shows that racial pay structure similarity is very stable across firm size and slightly lower for innovative firms. It is also stable across industries, with its lowest levels in industries such as chemicals and telecommunication. We also notice an increase in C-suite ethnic minority pay structure similarity as the firm matures.

### **3. Baseline Result: Executive ethnicity and pay structure**

Executives typically draw their total compensation from eight different pay elements (i.e., salary, restricted bonus, performance-based stock awards, restricted stock awards, option awards, non-equity incentives, other compensation, and change in pensions). Perhaps the most important of these components are those that tie an executive's remuneration with the performance of the firm. Indeed, as the stock value of the company appreciates so do the equity-based components (performance-based stock awards, restricted stock awards, option awards) in an executive's pay contract. Consequently, remuneration arrangements structured around more equity-based pay provide executives with larger incentives and with more opportunities to boost their total compensation. In this section, we examine whether those opportunities vary by the executives' ethnic/racial status.

In Table 2, we regress the ratio of each compensation component on a dichotomous indicator set to one for executives that belong to a racial/ethnic minority and set to 0 for White executives. All tests include firm and year fixed effects. The regression estimates in Panel A of Table 2 document a racial disparity on the structure of pay, as ethnic-minority executives are paid differently than their White counterparts. Specifically, ethnic-minority executives draw a lower fraction of their total compensation in the form of equity-based pay and pensions than their White counterparts. On average, performance-based stock (options) [pensions] corresponds to an 7%

(11%) [8%] lower fraction of total compensation for ethnic-minority executives than for White executives. By contrast, salary (bonuses) corresponds to a 30% (3.7%) greater fraction of total compensation for ethnic-minority executives than for White executives.

Panel B shows that these results are robust to including job position (i.e., Chief, President, VP, other) and area (Operations, Marketing, Finance or Accounting, Information, other) fixed effects. This evidence suggests that performing different jobs in the C-suite does not explain the racial gap in the structure of pay for top executives. Nevertheless, the tests in Panel C, which consider only CEOs, indicate that the main components of the compensation structure for these executives do not vary by their ethnic/racial status. It is possible that this finding indicates that despite their race, all CEOs enjoy more similar compensation structures because of the visibility of their position.

Overall, our tests indicate that the structure of executive compensation varies according to ethnicity. Importantly, according to Panel B of Table 2, this finding is robust to the inclusion of (a) firm fixed effects (that compare executives in the same firm), (b) position and business area fixed effects (that compare executives in similar positions and those working in the same areas), and (c) industry-by-year fixed effects (that control for time-varying industry-level factors).

### **3.1. Pay structure similarity and the racial pay gap among C-suite executives**

The evidence in Table 2 shows that the pay structure of racial minority executives is different from the pay structure of their Caucasian counterparts. This result, however, does not reveal whether differences in ethnic pay structure are related to different pay levels. In this section, we explore this issue.

We define the racial total pay gap as the average total compensation of White executives divided by the average total compensation of executives from ethnic minorities. To calculate this

ratio, we use the Total Annual Compensation reported in Execucomp (TDC1). TDC1 aggregates Salary, Bonus, Non-Equity Incentive Plan Compensation, Grant-Date Fair Value of Option Awards, Grant-Date Fair Value of Stock Awards, Deferred Compensation Earnings Reported as Compensation, and Other Compensation.<sup>11</sup> The summary statistics in Table 1 indicate that firms in our sample exhibit an annual average racial total pay gap of 2. The gap decreases to 1.3 when we drop CEOs from the sample. Given this evidence, we now investigate whether ethnic minority pay structure similarity in the C-suite affects the racial pay gap among top executives.

The first three columns in Table 3 report the results of regressing the racial pay gap on ethnic minority pay structure similarity. The test in column (1) includes firm and year fixed effects. In column (2) we add control variables such as the logarithm of total assets, the logarithm of firm age, and the logarithm of the average C-suite total compensation. In column (3), we include industry-by-year fixed effects.<sup>12</sup> We cluster standard errors by firm.

Regression estimates document a negative association between ethnic-minority pay structure similarity and the C-suite racial compensation gap. The results imply that a one-standard-deviation decrease in ethnic-minority pay structure similarity is associated with a 10% increase in the racial compensation gap, on average. The estimates in columns (4)-(6), which exclude CEOs from both structure similarity and pay gap calculations, indicate that the same decrease in ethnic-minority pay structure similarity is associated with an 8.5% increase in the racial pay gap for all other C-suite members.<sup>13</sup>

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<sup>11</sup> We find similar results if we use TDC2 (TDC2 replaces the Black-Scholes value of options granted each year with the value of options exercised during that year) or “Total Compensation” in SEC Filings (Execucomp item: total sec).

<sup>12</sup> In the estimations with firm fixed effects, we drop 157 singleton observations. When adding the industry-by-year fixed effects, we discard 189 additional singleton observations.

<sup>13</sup> To mitigate potential endogeneity concerns associated with these findings, Appendix 3 presents consistent results using a plausibly exogenous variation in ethnic pay structure similarity.

## **4. Understanding the ethnic pay structure similarity**

Why does the structure of executive compensation vary according to ethnicity? To address this question, we examine two hypotheses. The first proposes that the *preferences* of ethnic minority executives differ from the preferences of White executives. Accordingly, minority executives prefer (and get) more cash and less equity-based pay than White executives. The alternative hypothesis postulates that—due to *racial inequality* ingrained in a firm’s culture—minority executives do not have the same chances as White executives. Under this view, some firms bestow different opportunities to different executives through dissimilar pay structure schemes.

### **4.1. Hypothesis 1: Executives’ preferences**

Ethnic minority executives may prefer more cash and less equity-based pay than White executives. This could happen, among other non-mutually-exclusive reasons, due to increased risk aversion stemming from life experiences, due to the expected length of their legal working status in the US, or due to the prospect of securing a job in another firm looking to boost its workforce diversity.

The ideal test of this hypothesis would disentangle ethnicity from preferences. Unfortunately, doing so is not possible as preferences do not vary over the sample period. Thus, we perform two tests that exploit differences in pay structure similarity for the same executives that occur after the firm’s culture changes. Thus, any change in ethnic pay structure similarity in these tests is more likely to be driven by changes in the firm’s culture and not by executive preferences.

To measure potential changes in corporate culture we use the CEO ethnicity of the firm. Theoretical work by Van den Steen (2010) suggests that CEOs largely dictate and influence corporate culture. Empirical work by Guiso et. al. (2015) suggests that CEOs play a large role in



establishing and maintaining a firm's integrity. In the context of our work, because racial status does not affect the pay structure of CEOs, it is possible that once they assume office, ethnic minority CEOs promote a more similar compensation structure for everyone else in the C-suite.

In our first test, we investigate whether the similarity in the racial pay structure improves in firms led by ethnic-minority CEOs. In columns (1) and (2) of Table 4, we regress ethnic-minority pay structure similarity on an indicator equal to one if the CEO belongs to a racial/ethnic minority. The regressions include firm and industry by year fixed effects. All tests control for firm size and firm age. We cluster the standard errors at the firm level. According to the estimates, ethnic minority pay structure improves by 10.5% when an executive from an ethnic/racial minority is the CEO. Notably, these results hold when we calculate ethnic-minority pay structure similarity, considering all executives in columns (1) and when the calculation excludes CEOs (columns (2)). In columns (3) and (4) we find similar results when, instead of the CEO's ethnicity, we set a dummy variable to flag cases where there is at least one ethnic minority director serving on the compensation committee.

The results in Table 4 suggest that the pay structure of racial minority and White executives is more similar in firms headed by a racial minority CEO. To explore this further, we study executives who change firms in our sample. For this purpose, we first calculate the average pay structure similarity of each executive's compensation to all White executives in the same C-suite (excluding the CEO). We then regress this similarity on an indicator variable that switches from zero to one when a given executive moves to a new firm. We interact the job-move indicator with a dummy that equals one if the CEO of the new firm is an ethnic minority and zero if it is White/Caucasian.

Panel A in Table 5 presents the results. In column (1), we only consider executives moving from a firm with a White CEO. The results in column (1) show that when an ethnic minority

executive moves from a company with a White CEO to a company led by an ethnic minority CEO, her pay structure becomes 32% more similar to that of her new White C-suite peers than if she moves to a company with a White CEO. This analysis includes executive fixed effects, position fixed effects, and industry-by-year fixed effects. Thus, it compares the same executive in the same position in two different firms in the same industry.

We find no change in ethnic pay structure similarity in the placebo test reported in column (2), where we only consider executives who move from a company led by an ethnic minority CEO. Thus, when an ethnic minority executive moves from a firm with a minority CEO to a new firm that also has a minority CEO, her pay structure similarity to White executives does not change. This placebo test suggests that the improvement in ethnic pay structure similarity for racial minority executives we find in column (1) is likely due to changing the CEO's ethnicity and not due to switching firms. Further supporting that these effects are driven by executive ethnicity and not by moving to a different firm, Panel B shows that none of these effects exist when we analyze the move of White executives. Columns (3) and (4) in both panels present similar results when, instead of CEO ethnicity, we use a dummy that equals one if the compensation committee includes an ethnic minority director and zero if it only has White/Caucasian directors.

To distinguish between our hypotheses, our tests control for time-invariant executive characteristics. The analyses in Table 4 achieve this by analyzing changes in the ethnic pay structure similarity in the same C-suite after changing the CEO and compensation committee ethnicity. The specifications in Table 5 accomplish this by comparing the same executive in two different firms. Thus, the findings suggest that differences in pay structure between White and ethnic minority executives are, to a large extent, explained by the firm's culture and not by the executives' preferences. Moreover, to the extent that the compensation preferences of a racial

minority executive are fixed, her pay structure should remain stable regardless of the ethnicity of the incumbent CEO or the ethnic composition of the compensation committee. The evidence, therefore, does not support the preferences hypothesis.

As mentioned earlier, aside from higher risk aversion, racial minority executives may prefer more cash and less equity-based pay than White executives due to the expected length of their legal working status in the US or due to the possibility of securing a job in another firm looking to boost its workforce diversity. In these cases, the expected length of employment would justify preferring more cash (and less equity-based pay). To test this possibility, we examine whether the tenure of non-CEO executives varies by their racial status. The results in Figure 2 show that the median tenure is 14 years for White executives and 13 years for ethnic minority executives. This one-year difference seems unlikely to explain the difference in pay structure we report. Moreover, the median tenure of minority executives can easily accommodate the vesting periods of multiple stock option awards which typically range from three to five years.

#### **4.2. Hypothesis 2: Racial Inequality**

The alternative hypothesis is that the dissimilar treatment between White executives and those from ethnic minorities is shaped by widespread cultural factors. To this end, we examine whether our racial pay structure similarity measure varies across geographic locations expected to have higher levels of racial inequality. We use two measures of racial inequality. The first is the index of racial animus in US cities based on Google searches by Chae et al. (2015). This index tracks the level of racial attitudes across different areas in the US by measuring the fraction of Google search queries that include racially charged language. The index ranges from 0 (low racial animus) to 250 (high racial animus).

Columns (1) and (2) of Table 6 present the results of regressing ethnic pay structure similarity on the racial animus index of the firm's headquarters city. Since companies do not change their headquarters location very often, we do not include firm fixed effects in these tests. Instead, we include industry-by-year fixed effects. In column (1), we consider all executives, whereas in column (2), we exclude CEOs from the pay structure similarity calculation. In both specifications, the racial animus index exhibits a negative and significant coefficient. According to the results in column (2), a one-standard-deviation increase in racial animus is associated with an 18.5% decrease in ethnic pay structure similarity, on average.

To complement the racial animus analyses with a different measure of racial inequality, we use the Sustainable Development Goals (SDG) Racism Index developed by the Sustainable Development Solutions Network; a non-profit group launched by the United Nations in 2012. The SDG index is built for every state in the US and consists of five dimensions: (1) residential segregation; and gaps in (2) incarceration rates; (3) educational attainment; (4) economic indicators; and (5) employment status (Bailey et al. (2017)).

Columns (3) and (4) present the results of regressing racial pay structure similarity on a dummy that equals one if the firm's headquarters are in a state with an SDG Racism Index above the median. Column (3) considers all executives, while column (4) drops the CEOs from the pay structure similarity calculation. In both specifications, we find a negative relation between a higher level of the racism index and racial pay structure similarity. Specifically, on average, firms headquartered in states with an SDG racism index above the median exhibit a 4.5% lower racial pay structure similarity (0.15 of a standard deviation).

It is important to note that both racial indices—the animus at the city level and the SDG at the state level—consider factors that are unlikely to be affected by a particular firm's actions and thus

capture cultural variations that are plausibly exogenous to the firm. In general, the results in Table 6 suggest that cultural biases toward race explain, at least in part, the differences in the compensation structure between White executives and their ethnic-minority counterparts.

#### **4.2.1 Hypothesis 2.1: Racial Inequality and Agency Problems**

So far, we find that the structure of compensation among C-suite executives differs by racial status and that this difference translates into lower total pay for racial minority executives. Even though our findings suggest that these differences are in a large part due to a corporate culture that fosters racial inequality and not by executive preferences, it is possible that ethnic minority executives are fairly compensated and that White executives are over-compensated. Under this agency-based alternative, it could be the case that White executives receive excess compensation when there are ethnic minority executives in the C-suite.

In line with the excess compensation possibility, the estimates in Panel A of Table 7 show that White executives receive more equity-based pay and less cash pay in firms with ethnic minority executives than they do in firms with only White executives. Furthermore, White executives in multiracial C-suites also receive higher total compensation. To obtain this result we consider only White executives and regress each of their compensation components (scaled by total pay) on a dummy that equals one if the C-suite has at least one ethnic minority executive and zero if it has only White executives. The results of this test show that White executives in multiracial C-suites receive a greater fraction of their total pay in terms of performance-based stock and restricted stock and a lower fraction in salary than White executives in C-suites that only have White executives. This test includes industry-by-year fixed effects and position and business area fixed effects. Thus, it compares White executives in the same industry, in the same position, and in the same area.

Next, we examine whether excess pay for White executives is more likely to occur in firms with agency problems. For this purpose, the tests in Panel B interact the indicator for minority executives in the C-suite with a dummy that equals one if the firm's Gompers, Ishii, and Metrick (2003) governance index (G-index) is above the median (i.e., poor governance).<sup>14</sup> We find that this interaction term accounts for all the effects reported in Panel A, as the results in Panel B of Table 7 show that excess pay for White executives only occurs in firms likely to have weaker governance.

## **5. Pay structure similarity and corporate culture**

If a firm has a budget to pay its C-suite members it is possible that the way this budget is shared among its executives does not affect other firms' actions. If this is the case, our evidence on ethnic pay structure similarity would be limited to pay fairness. Alternatively, under the racial inequality hypothesis, if the differences in racial pay structure we find result from a *corporate culture* that does not promote fair treatment, access, and advancement opportunities for all employees such a culture may affect the firm in other contexts. To evaluate this possibility, we examine whether our measure of ethnic pay structure similarity is associated (a) with the CEO-pay-to-worker ratio, (b) with firm performance, and (c) with the likelihood that the firm commits financial misconduct.

### **5.1. CEO pay ratio**

Akerlof and Yellen (1990) argue that rank-and-file employees compare their wages to those of their co-workers—including senior executives—to partly assess the fairness of their own pay. Workers' perceptions about pay fairness are important as they are likely to affect their effort and,

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<sup>14</sup> Because of changes in the ISS Governance Dataset that occur after 2006, we recreate the G-index based on the variables currently available in that dataset. These variables include classified board, poison pill, supermajority voting provision for mergers, supermajority voting provision to call special meeting, blank check preferred stock, dual-class stock, confidence vote, cumulative vote, Bylaw limitations, Charter limitations, fair-price provisions, resignation requirement, and unequal voting rights.

in turn, firm performance. In line with this conjecture, Pan, Pikulina, Siegel, and Wang (2022) find lower stock market returns when firms disclose higher CEO pay ratios (i.e., the ratio between CEO pay and median worker pay). Notably, a recent report by the Economic Policy Institute notes that in 2021, CEOs were paid 399 times as much as a typical worker, on average.<sup>15</sup> Among major US companies, the pay disparity is even greater. For example, in 2022, Walmart’s CEO C. McMillon, earned 1,013 times the \$25,335 median income of an employee of his firm. In 2021, Amazon.com’s CEO Andrew Jassy earned a total pay equal to 6,500 times the typical Amazon worker (\$32,855).<sup>16</sup>

With this information as a backdrop, we next study whether ethnic-minority pay structure similarity is associated with the CEO-pay-to-worker ratio. In the four OLS regressions reported in Panel A of Table 8, the dependent variable is the natural logarithm of the CEO-pay-to-worker ratio. We estimate this ratio by scaling the CEO’s total compensation by the pay of the median employee. These data are available since 2017, as mandated by the Securities and Exchange Commission (SEC) and Section 953(b) of the Dodd-Frank Act. The key independent variable in all tests is the ethnic-minority pay structure similarity. To calculate ethnic minority pay structure similarity, the tests in columns (1) and (2) consider all executives while those in (3) and (4) exclude CEOs.

The estimates in column (1) of Panel A show that a one-standard-deviation increase in ethnic-minority pay structure similarity is associated with a 4.5% decrease in the CEO-pay-to-worker ratio. This finding holds when we calculate ethnic-minority pay structure similarity using the compensation for all C-suite members (columns 1 and 2) and in one of the two regressions where we exclude CEOs from that calculation (columns 3 and 4).

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<sup>15</sup> See: <https://www.epi.org/publication/ceo-pay-in-2021/>

<sup>16</sup> See: <https://247wallst.com/special-report/2023/05/24/ceos-of-major-us-companies-who-are-paid-1000-times-more-than-their-employees/>

The tests reported in Panel B of Table 8, which use the C-suite pay gap as the dependent variable, are otherwise analogous to those in Panel A. We define the C-suite pay gap as the ratio of the highest to the lowest compensation in the team. The estimates indicate that a one-standard-deviation increase in ethnic-minority pay structure similarity is associated with a 15% decrease in the C-suite pay gap. In general, the results in Table 8 suggest that firms with a corporate culture that promotes equitable compensation for the members of the C-suite—despite their race—also promote pay fairness for the rest of the workforce.

## **5.2. Firm performance**

Based on the conjecture that racial pay structure similarity in the C-suite is a proxy for the extent the firm’s culture promotes DEI, we study whether pay structure similarity is associated with workers’ productivity and firm performance. The rationale for this analysis, which rests on the notion that employees deliver greater contributions in firms that foster fair practices, is similar to the hypothesis in Edmans (2011) that job satisfaction improves firm performance.

The dependent variables in Panel A-Table 9 are the firm’s Tobin’s Q (in columns (1) and (2)); Return on Assets (ROA) (in columns (3) and (4)); Return of Equity (ROE) (in columns (5) and (6)); Profit margin (in columns (7) and (8)); and Return on Employees (REMP) (in columns (9) and (10)). The key independent variable in all tests is the ethnic-minority pay structure similarity. All regressions control for firm size and firm age. The odd-numbered columns include firm- and year fixed effects, whereas the even-numbered include firm and industry-by-year fixed effects.

In all specifications, the ethnic-minority pay structure similarity variable earns a positive and statistically significant coefficient. The estimates imply that a one-standard-deviation increase in ethnic-minority pay structure similarity is related to increases of 1.3% in Tobin’s Q, 2.8% in ROA,



2.3% in ROE, 1.8% in profit margin, and 2.8% in REMP. The results in Panel B show that these findings are also obtained when we exclude CEOs from the analyses. These findings suggest that employees deliver better contributions in firms that embrace DEI values. This interpretation of our evidence is consistent with the findings in the corporate culture study by Guiso, Sapienza and Zingales (2015). They find that a firm's performance is stronger when its employees perceive top managers as trustworthy and ethical.<sup>17</sup>

### **5.3. Financial fraud**

To assess the veracity of the link between pay structure similarity and corporate culture, we examine its association with financial misconduct. The idea here, suggested by existing work, is that financial misconduct is likely associated with poor corporate culture [e.g., Liu (2016), Parsons, Sulaeman, and Titman (2018), Cline, Walkling, and Yore (2018), Graham, et al. (2022)].

We use two measures of financial misconduct that are common in the literature. Misconduct occurs if the firm appears in the SEC's Accounting and Auditing Enforcement Releases (AAER) or if it appears in the list of restatements classified by Audit Analytics as relating to fraud, misrepresentation, or an investigation by the Public Company Accounting Oversight Board (PCAOB).<sup>18</sup> This definition of misconduct is conservative since it considers any misstatements not identified by the SEC as non-misstatements. We create a dummy variable that equals one if the firm incurs financial misconduct and zero otherwise.

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<sup>17</sup> The performance improvement findings are also consistent with the recent results by Jeong, Mooney, Zhang, and Quigley (2023). They find positive and significant investor reactions when firms appoint Black CEOs.

<sup>18</sup> Our findings are robust to examining these two misconduct measures separately. Studies using AAER measure to proxy for financial misconduct include Erickson, Hanlon, and Maydew (2006), Dechow, Ge, Larson, and Sloan (2011), Armstrong, Larcker, Ormazabal, and Taylor (2013). Burns and Kedia (2006), Efendi, Srivastava, and Swanson (2007), Armstrong, Larcker, Ormazabal, and Taylor (2013) use restatements to proxy for financial misconduct.

Table 10 presents the results. The odd-numbered regressions include firm- and year fixed effects whereas the even-numbered regressions include firm- and industry-by-year fixed effects. Columns (3) and (4) exclude CEOs from the calculation of pay structure similarity. In all four specifications, we find a negative association between racial pay structure similarity and financial misconduct. According to the estimates, a one-standard-deviation increase in racial pay structure similarity is associated with a 0.5 percentage point decrease in the probability of financial misconduct. This decrease is economically important when benchmarked against the 1.7% average likelihood of financial misconduct in our sample.

The empirical evidence in this section suggests that pay structure similarity across racial dimensions captures whether the firm’s culture truly fosters equity not just in their C-suite, but throughout the entire organization. Our pay structure similarity construct is thus a novel measure of corporate culture, but since we focus on multiracial C-suites, it measures “equity” instead of diversity or inclusion. Furthermore, Appendix 5 shows that our focus on pay structure is superior to an alternative focus on, for example, the total pay gap or the percentage of minorities in the C-suite.

## **6. Conclusion**

We present robust evidence showing that the pay structure of top managers—except CEOs—differs according to their ethnicity/race whereby Blacks, Hispanics, Asians, and Native Americans get less equity-based pay than White executives working in the same firm. C-suites with less similar racial pay structures exhibit a higher ethnic pay gap.

To understand the disparity in racial pay structure affecting C-suite executives, we examine two hypotheses. The *preferences* hypothesis argues that minorities prefer, and therefore get, less

equity-based pay and more cash. The alternative proposes that the disparity in pay structure exists in firms with a corporate culture that tolerates *racial inequality*. We find that when racial minority executives move from White-CEO-led-firms to ethnic-minority-CEO-led-firms, their pay structure similarity improves by 32%. To the extent that compensation preferences remain stable regardless of the CEO's race, this finding does not support the preferences hypothesis. By contrast, we also find that the dissimilarity in racial pay structure is particularly drastic in firms headquartered in areas with an above average racism index. This last finding suggests that racial inequality is a mechanism underlying the differences in pay structure across race/ethnicity. Firms with more similar racial pay structures in their C-suite are also associated with higher market valuations, better operating performance, less financial fraud, and lower CEO-to-median-worker pay ratios. We also find support for an agency hypothesis, whereby White executives in C-suites with minority executives get a larger fraction of their total pay in performance-based stock and restricted stock than White executives in White-only C-suites. Notably, this result is only present in firms with weak corporate governance (coded with the Gompers, et al. 2003 governance index).

Overall, our results suggest that pay structure similarity across racial dimensions captures whether the firm's culture truly fosters diversity, equity, and inclusion practices not just in their C-suite, but throughout the entire organization. As such, our findings should be of particular interest to regulators, activists, policy groups, and investors debating the effect of DEI on public firms.

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Figure 1: Ethnic minority pay structure similarity and firm characteristics

Panel A of this figure shows the average ethnicity pay structure similarity across firm size quintiles, panel B across firm age quintiles, panel C across firms with and without R\&D expenditures, and panel D across Fama-French 12 industries.

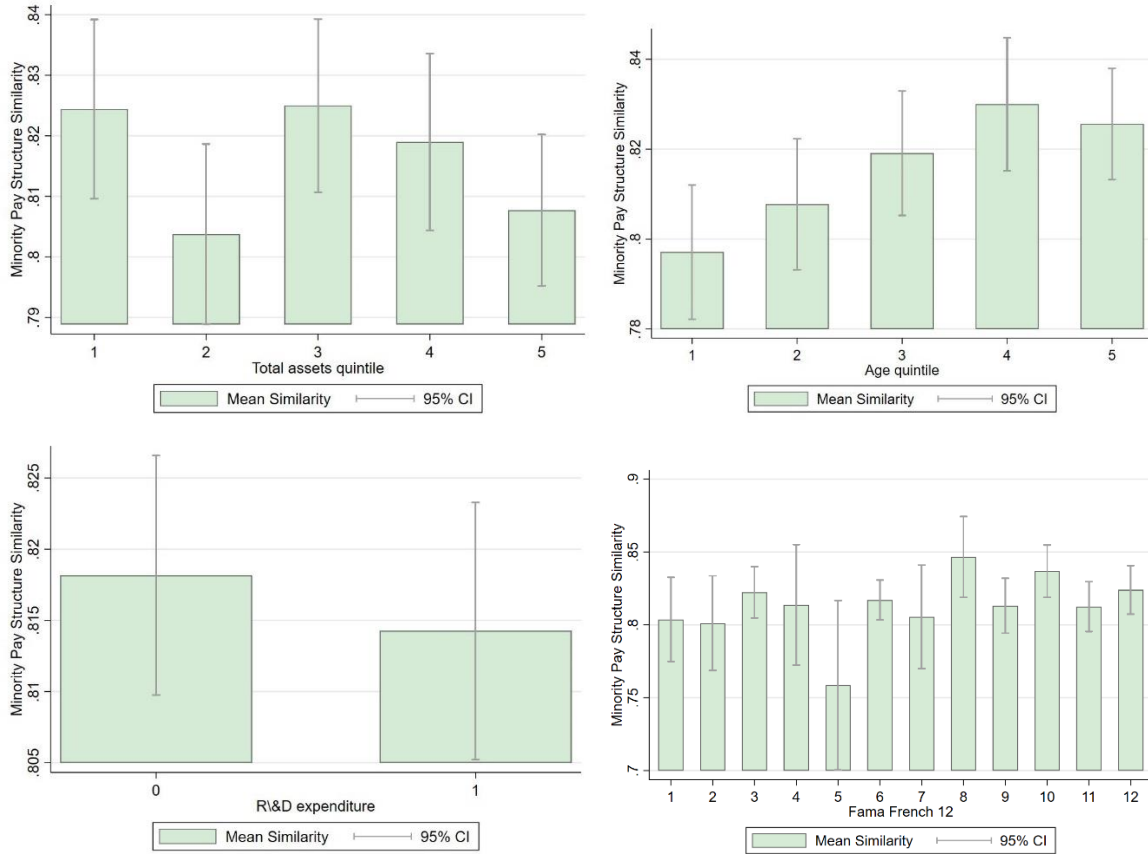


Figure 2: Ethnicity and tenure

This figure shows the median tenure with the firm for non-CEO executives according to their minority status.

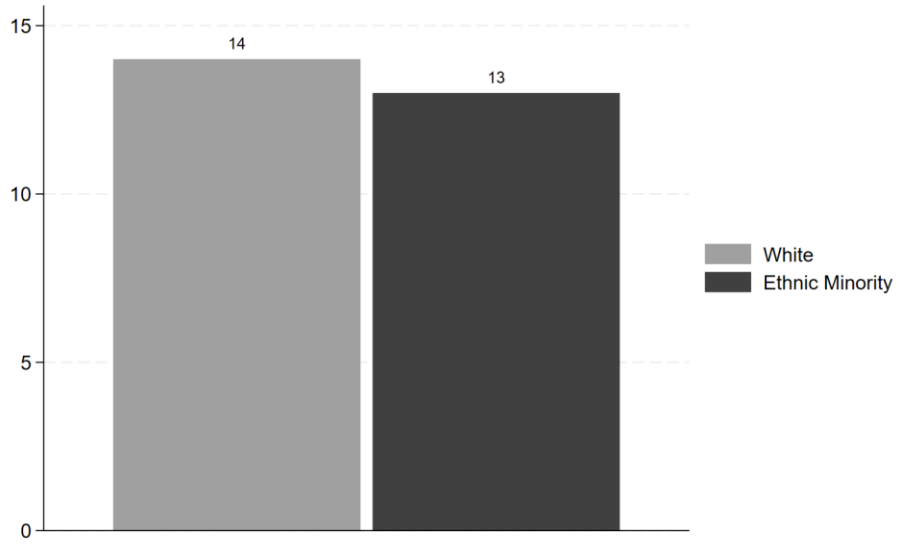


Table 1: Summary Statistics

This table presents summary statistics for the sample of firms with at least one ethnic minority executive. The sample runs from 2006 until 2020.

	Obs.	Mean	Std. Dev.	Min	Max
Total Assets	4,177	9092.3	15975.6	130.0	95905.0
Firm age	4,177	22.7	15.7	0.0	58.0
Tobin's Q	4,177	1.707	1.058	0.238	5.937
ROA	4,177	0.127	0.072	-0.075	0.294
ROE	4,177	0.176	0.111	-0.094	0.458
Profit Margin	4,177	0.167	0.118	-0.133	0.539
Return on employees	4,177	72.3	89.2	-42.4	617.9
Avg total comp top-5 executives	4,177	2989.7	2190.9	335.8	9698.5
Avg total comp white executives	4,177	4096.3	3463.1	354.1	16082.9
Avg total comp ethnic minority executives	4,177	2827.0	2746.0	248.9	14741.6
Avg white-to-ethnic minority pay ratio	4,177	2.0	1.5	0.2	6.4
Avg white-to-ethnic minority pay ratio (exc CEO)	2,700	1.3	0.9	0.3	5.6
C-suite pay gap	4,177	6.2	4.4	1.7	23.9
C-suite pay gap (exc CEO)	2,700	3.3	2.5	1.1	12.3
CEO pay-to-worker ratio	844	222.3	196.4	16.4	727.0
AAER fraud (dummy)	2,354	0.008	0.087	0	1
SEC fraud investigation (dummy)	3,242	0.012	0.109	0	1
Salary/total comp	4,177	0.289	0.173	0	1
Bonus/	4,177	0.036	0.082	0	0.777
Perf-based stock/total comp	4,177	0.154	0.165	0	0.996
Rest stock/total comp	4,177	0.161	0.156	0	0.963
Options/total comp	4,177	0.111	0.145	0	0.994
Non-eq incentives/total comp	4,177	0.162	0.136	0	0.968
Other comp/total comp	4,177	0.061	0.073	0	0.915
Change in pension/total comp	4,177	0.027	0.061	0	0.514





Table 3: Pay Structure Similarity and the Racial Pay Gap

This table reports the results of an OLS regression of the racial pay gap on the pay structure similarity. We define racial pay gap as the average compensation of White executives divided by the average compensation of ethnic minorities (Black, Hispanic, Asian, or Native American). Columns (1) to (3) consider all top-5 executives. Columns (4) to (6) exclude CEOs from the analysis. Pay structure similarities are standardized such that they have a mean of zero and a standard deviation of one. We cluster standard errors by firm, and report t-stats in parentheses. Significance levels are indicated: \*=10%, \*\*=5%, \*\*\*=1%.

	Dep Var: Racial Pay Gap					
	(1)	(2)	(3)	(4)	(5)	(6)
Ethnic pay structure similarity	-0.201*** (-6.353)	-0.195*** (-6.174)	-0.170*** (-5.265)	-0.118*** (-4.495)	-0.112*** (-4.329)	-0.089*** (-3.175)
Log of assets		0.037 (0.395)	0.046 (0.463)		0.066 (0.709)	0.099 (0.949)
Log of firm age		0.106 (0.921)	0.149 (1.174)		0.114 (1.158)	0.247** (2.510)
Log of avg c-suite total comp		0.396*** (5.830)	0.398*** (5.596)		0.181*** (3.006)	0.127** (2.039)
Observations	4,020	4,020	3,831	2,496	2,496	2,290
R-squared	0.613	0.622	0.669	0.483	0.491	0.580
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES		YES	YES	
SIC2xYear FE			YES			YES
Excluding CEO	NO	NO	NO	YES	YES	YES

Table 4: CEO and Board Ethnicity and Pay Structure Similarity

Columns (1) and (2) of this table report the results of an OLS regression of the similarity of pay structure on a dummy that equals one if the CEO's race belongs to an ethnic minority and zero if it is White/Caucasian. Columns (3) and (4) report the results of a regression of the similarity of pay structure on a dummy that equals one if the compensation committee includes an ethnic minority director and zero if it only has White/Caucasian directors. Odd columns consider all executives whereas even columns exclude the CEO's compensation from the structure similarity calculation. We cluster standard errors by firm and report t-statistics in parentheses. The symbols \*, \*\*, and \*\*\*, denote statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: Ethnic minority CEO

	Ethnic pay structure similarity			
	(1)	(2)	(3)	(4)
1 if ethnic minority CEO	0.054*** (2.678)	0.086*** (2.787)		
1 if ethnic minority comp committee			0.033* (1.930)	0.052* (1.661)
Log of assets	0.125 (1.563)	0.068 (0.612)	0.009 (0.316)	-0.006 (-0.152)
Log of firm age	0.009 (0.100)	0.027 (0.282)	0.064* (1.884)	0.126*** (3.316)
Log of avg c-suite total comp	-0.092* (-1.858)	-0.139* (-1.800)	-0.006 (-0.345)	-0.016 (-0.613)
Observations	3,831	2,290	2,372	1,368
R-squared	0.447	0.474	0.460	0.496
Firm FE	YES	YES	YES	YES
SIC2xYear FE	YES	YES	YES	YES
Excluding CEO	NO	YES	NO	YES

Table 5: Executive fixed effects and ethnic pay structure similarity

This table presents the results of an OLS panel regression using executive-year observations. The dependent variable is the average pay structure similarity of each executive’s compensation to all White executives in the same C-suite (excluding the CEO). In addition to executive fixed effects, position fixed effects, and industry-by-year fixed effects, we include three other control variables. The first control –called “Company change”– is a dummy variable that switches from zero to one when a given executive moves to a new firm (we only consider the first time an executive changes companies). The second control is a dummy variable that equals one if the CEO of the new firm is an ethnic minority and zero if it is White/Caucasian. In columns (3) and (4) we replace this variable with a dummy that equals one if the compensation committee includes an ethnic minority director and zero if it only has White/Caucasian directors. The third control is an interaction between the first two controls. In column 1 (3), we only consider executives who, when moving to a new company, had a White CEO (no minority in the compensation committee) in the previous firm. In columns 2 (4), we only consider executives who, when moving to a new company, had an ethnic minority CEO (minority in the compensation committee) in the previous firm. Panel A only considers ethnic minority executives. Panel B only considers White executives. We cluster standard errors by executive, and report t-stats in parentheses. Significance levels are indicated: \*=10%, \*\*=5%, \*\*\*=1%.

Panel A: ethnic minority executives

	DEP VAR: Pay structure similarity to White executives (exc CEO)			
	(1) White CEO previous firm	(2) Minority CEO previous firm	(3) No Minority comp comm previous firm	(4) Minority comp comm previous firm
(Company change) x (Minority CEO in new company)	0.262** (2.059)	0.002 (0.028)		
(Company change) x (Minority in comp comm in new company)			0.147* (1.785)	0.082 (1.001)
Company change	-0.094 (-0.633)	-0.334** (-2.390)	0.065 (0.529)	0.318 (1.541)
Minority CEO in new company	0.037 (1.004)	0.041 (1.182)		
Minority in comp comm in new company			0.012 (0.352)	0.017 (0.483)
Observations	3,206	2,798	1,827	1,760
R-squared	0.551	0.545	0.554	0.568
Executive FE	YES	YES	YES	YES
Position FE	YES	YES	YES	YES
SIC2xYear FE	YES	YES	YES	YES

Panel B: White executives

	DEP VAR: Pay structure similarity to White executives (exc CEO)			
	(1)	(2)	(3)	(4)
	White CEO previous firm	Minority CEO previous firm	No Minority comp comm previous firm	Minority comp comm previous firm
(Company change) x (Minority CEO in new company)	0.000 (0.002)	-0.071** (-2.120)		
(Company change) x (Minority in comp comm in new company)			0.012 (1.000)	0.007 (0.508)
Company change	-0.032*** (-2.861)	0.035 (0.492)	-0.025*** (-2.657)	-0.027* (-1.821)
Minority CEO in new company	0.000 (0.042)	0.001 (0.116)		
Minority in comp comm in new company			0.002 (0.556)	0.003 (0.700)
Observations	25,921	21,559	15,025	14,549
R-squared	0.442	0.432	0.459	0.465
Executive FE	YES	YES	YES	YES
Position FE	YES	YES	YES	YES
SIC2xYear FE	YES	YES	YES	YES

Table 6: Racial Inequality and Pay Structure Similarity

Columns (1) and (2) report the results of an OLS regression of the similarity of pay structure on the measurement of racial animus in cities based on Google searches by Chae et al. (2015) (standardized). Columns (3) and (4) report the results of a regression of the similarity of pay structure on a dummy that equals one if the firm's headquarters are in a state with an SDG Racism Index (Bailey et al (2017)) above the median. Odd columns consider all executives whereas even columns exclude the CEO's compensation from the pay structure similarity calculation. We cluster standard errors by firm and report t-statistics in parentheses. The symbols \*, \*\*, and \*\*\*, denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Ethnic pay structure similarity			
	(1)	(2)	(3)	(4)
Racial animus index	-0.025*	-0.150**		
	(-1.950)	(-2.291)		
SDG racism index			-0.021*	-0.035**
			(-1.693)	(-2.490)
Log of assets	0.026	-0.116	0.006	-0.001
	(1.265)	(-1.145)	(0.865)	(-0.153)
Log of firm age	0.015	0.059	0.013*	0.011*
	(0.992)	(0.790)	(1.894)	(1.825)
Log of avg c-suite total comp	0.005	0.001	-0.031**	-0.029**
	(0.160)	(0.010)	(-2.411)	(-2.049)
Observations	667	667	3,840	2,402
R-squared	0.351	0.335	0.135	0.167
SIC2xYear FE	YES	YES	YES	YES
Excluding CEO	NO	YES	NO	YES

Table 7: White executives in all White C-suites vs White executives in Multiracial C-suites

Panel A presents the results of an OLS regression of the fraction of each compensation component divided by total compensation. We use a dummy that equals one if the C-suite has at least one ethnic minority executive and zero if it has only White executives. Panel B interacts this variable with a dummy that equals one if the G-index of the firm is above the median (i.e., poor corporate governance). In both panels, the analysis only includes White non-CEO executives. We cluster standard errors by executive, and report t-stats in parentheses. Significance levels are indicated: \*=10%, \*\*=5%, \*\*\*=1%.

Panel A:									
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Salary /total	Bonus /total	Perf stock /total	Rest stock /total	Options /total	Non.Eq Inc /total	Other /total	Pension /total	Log (Total Pay)
1 if minority in the C-suite	-0.010*	-0.002	0.014***	0.012***	-0.006*	-0.009**	0.005**	-0.003	0.053*
	(-1.849)	(-0.937)	(3.128)	(3.011)	(-1.892)	(-2.399)	(1.984)	(-1.504)	(1.650)
Observations	29,057	29,057	29,057	29,057	29,057	29,057	29,057	29,057	29,057
R-squared	0.106	0.107	0.098	0.094	0.138	0.092	0.049	0.143	0.111
Position FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Business area FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
SIC2xYear FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Panel B: Poor governance index									
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Salary /total	Bonus /total	Perf stock /total	Rest stock /total	Options /total	Non.Eq Inc /total	Other /total	Pension /total	Log (Total Pay)
(1 if minority in the C-suite)	-0.030**	-0.006	0.019*	0.019*	-0.009	0.006	-0.000	0.002	0.192**
x (High G-index)	(-2.252)	(-0.955)	(1.684)	(1.841)	(-0.956)	(0.618)	(-0.070)	(0.282)	(2.201)
1 if minority in the C-suite	0.005	0.007	0.004	0.002	0.002	-0.016**	0.002	-0.006	-0.037
	(0.471)	(1.282)	(0.529)	(0.310)	(0.301)	(-2.233)	(0.323)	(-1.623)	(-0.790)
High G-index	0.048***	-0.007*	0.029***	0.004	0.003	0.005	-0.007*	0.022***	0.401***
	(7.049)	(-1.881)	(4.717)	(0.707)	(0.487)	(0.895)	(-1.936)	(6.334)	(10.63)
Observations	12,883	12,883	12,883	12,883	12,883	12,883	12,883	12,883	12,883
R-squared	0.142	0.131	0.122	0.117	0.185	0.132	0.076	0.196	0.172
Position FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Business area FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
SIC2xYear FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 8: Pay structure similarity and the CEO-pay-to-worker ratio

Panel A of this table reports the results of OLS regressions of the CEO-pay-to-worker ratio on the ethnic pay structure similarity. Columns (1) and (2) consider all executives whereas columns (3) and (4) exclude the CEO's compensation from the structure similarity calculation. In Panel B, the dependent variable is the ratio between the highest and the lowest compensation in the C-suite. We standardize the similarity of pay structure such that it has a mean of zero and a standard deviation of one. We cluster standard errors by firm and report *t*-statistics in parentheses. The symbols \*, \*\*, and \*\*\*, denote statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: CEO-pay-to-worker:

	Log of pay ratio			
	(1)	(2)	(3)	(4)
Ethnic pay structure similarity in t	-0.044* (-1.665)	-0.054* (-1.934)	-0.042 (-1.316)	-0.073** (-2.061)
Log of assets	0.150* (1.809)	0.023 (0.226)	0.351** (2.386)	0.153 (1.029)
Log of firm age	-0.205 (-0.678)	-0.313 (-1.245)	-0.256 (-0.632)	-0.540 (-1.166)
Log of avg c-suite total comp	0.001 (0.013)	0.048 (1.093)	0.033 (0.661)	0.038 (0.624)
Observations	800	739	461	403
R-squared	0.901	0.917	0.915	0.939
Firm FE	YES	YES	YES	YES
Year FE	YES		YES	
SIC2xYear FE		YES		YES
Excluding CEO	NO	NO	YES	YES



Panel B: C-suite pay gap:

	C-suite pay gap			
	(1)	(2)	(3)	(4)
Ethnic pay structure similarity	-0.816*** (-9.578)	-0.835*** (-9.112)	-0.522*** (-7.791)	-0.522*** (-7.229)
Log of assets	0.202 (0.685)	0.033 (0.103)	0.077 (0.300)	0.107 (0.369)
Log of firm age	0.443 (1.489)	0.455 (1.241)	0.064 (0.254)	-0.040 (-0.140)
Log of avg c-suite total comp	0.999*** (4.175)	0.924*** (3.519)	0.499*** (2.879)	0.327* (1.740)
Observations	3,963	3,778	2,460	2,254
R-squared	0.464	0.529	0.469	0.570
Firm FE	YES	YES	YES	YES
Year FE	YES		YES	
SIC2xYear FE		YES		YES
Excluding CEO	NO	NO	YES	YES

Table 9: Pay structure similarity and firm performance

This table reports the results of OLS regressions of firm performance on ethnic pay structure similarity. Panel A includes all executives, and Panel B excludes CEOs from the analysis. The dependent variables are Tobin's Q, ROA, ROE, profit margin, and return on employees. Pay structure similarities are standardized such that they have a mean of zero and a standard deviation of one. We cluster standard errors by firm and report t-stats in parentheses. Significance levels are indicated: \*=10%, \*\*=5%, \*\*\*=1%.

Panel A: All executives

VARIABLES	(1) Tobin's Q	(2) Tobin's Q	(3) ROA	(4) ROA	(5) ROE	(6) ROE	(7) Prof Mg	(8) Prof Mg	(9) REMP	(10) REMP
Ethnic pay structure similarity	0.021** (2.135)	0.025** (1.987)	0.003*** (3.196)	0.002** (2.319)	0.003** (2.578)	0.003** (2.143)	0.002** (2.153)	0.002* (1.856)	1.321* (1.844)	1.623* (1.962)
Log of assets	-0.334*** (-5.510)	-0.427*** (-7.650)	-0.018*** (-3.626)	-0.024*** (-4.835)	-0.013 (-1.508)	-0.020** (-2.069)	0.016** (2.237)	0.012 (1.639)	10.325** (2.096)	9.516* (1.896)
Log of firm age	-0.046 (-0.669)	-0.026 (-0.387)	0.002 (0.373)	0.006 (0.943)	0.005 (0.413)	0.008 (0.568)	-0.011 (-1.430)	-0.007 (-0.835)	-3.827 (-0.799)	-1.305 (-0.228)
Log of avg c-suite total comp	0.230*** (6.890)	0.243*** (6.787)	0.016*** (6.642)	0.016*** (6.604)	0.013*** (2.690)	0.015*** (3.444)	0.013*** (4.762)	0.014*** (4.535)	9.659*** (3.363)	10.375*** (3.269)
Observations	4,020	3,831	4,020	3,831	4,020	3,831	4,020	3,831	4,020	3,831
R-squared	0.817	0.854	0.735	0.785	0.735	0.779	0.833	0.859	0.826	0.851
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES		YES		YES		YES		YES	
SIC2xYear FE		YES		YES		YES		YES		YES

Panel B: Excluding CEOs

VARIABLES	(1) Tobin's Q	(2) Tobin's Q	(3) ROA	(4) ROA	(5) ROE	(6) ROE	(7) Prof Mg	(8) Prof Mg	(9) REMP	(10) REMP
Ethnic pay structure similarity	0.022** (2.006)	0.019 (1.412)	0.004*** (3.793)	0.003*** (2.681)	0.004** (2.337)	0.003 (1.460)	0.003** (2.259)	0.004** (1.998)	1.869* (1.869)	2.990** (2.490)
Log of assets	-0.241*** (-3.578)	-0.315*** (-4.159)	-0.014*** (-2.755)	-0.020*** (-3.722)	-0.016 (-1.540)	-0.022** (-2.053)	0.023*** (2.914)	0.019** (2.174)	14.471** (2.335)	13.372* (1.888)
Log of firm age	-0.091 (-1.141)	-0.075 (-0.887)	-0.002 (-0.307)	-0.002 (-0.213)	-0.009 (-0.729)	-0.012 (-0.859)	-0.024*** (-3.013)	-0.023** (-2.397)	-10.937** (-2.088)	-10.571 (-1.550)
Log of avg c-suite total comp	0.180*** (4.555)	0.188*** (4.081)	0.016*** (5.217)	0.015*** (4.631)	0.010 (1.447)	0.013** (2.080)	0.013*** (3.644)	0.012*** (3.075)	10.177** (2.459)	10.600** (2.232)
Observations	2,496	2,290	2,496	2,290	2,496	2,290	2,496	2,290	2,496	2,290
R-squared	0.854	0.886	0.759	0.807	0.764	0.813	0.852	0.879	0.827	0.854
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES		YES		YES		YES		YES	
SIC2x Year FE		YES		YES		YES		YES		YES

Table 10: Pay structure similarity and financial misconduct

This table reports the results of OLS regressions of the probability of financial misconduct on ethnic pay structure similarity. The dependent variable is a dummy variable that equals one if the firm involves in a misstatement and zero otherwise. A misstatement is defined as one if the firm appears in the SEC's Accounting and Auditing Enforcement Releases (AAER) (see Dechow, Ge, Larson, and Sloan (2011)) or if it appears in the list of restatements classified by Audit Analytics as relating to fraud, misrepresentation, or an investigation by the Public Company Accounting Oversight Board (PCAOB) (see Armstrong, Larcker, Ormazabal, and Taylor (2013)). Columns (1) and (2) consider all executives whereas columns (3) and (4) exclude the CEO's compensation from the structure similarity calculation. We standardize the similarity of pay structure such that it has a mean of zero and a standard deviation of one. We cluster standard errors by firm and report t-statistics in parentheses. The symbols \*, \*\*, and \*\*\*, denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Financial Misconduct			
	(1)	(2)	(3)	(4)
Ethnic pay structure similarity	-0.005* (-1.945)	-0.005** (-2.418)	-0.007* (-1.815)	-0.010** (-2.415)
Log of assets	0.047* (1.938)	0.056* (1.899)	0.020 (1.190)	0.014 (0.832)
Log of firm age	0.015 (0.824)	0.008 (0.432)	0.013 (0.933)	0.007 (0.441)
Log of avg c-suite total comp	-0.008 (-1.353)	-0.013* (-1.734)	-0.009 (-0.850)	-0.015 (-1.244)
Observations	3,132	2,985	1,983	1,804
R-squared	0.572	0.615	0.477	0.521
Firm FE	YES	YES	YES	YES
Year FE	YES		YES	
SIC2xYear FE		YES		YES
Excluding CEO	NO	NO	YES	YES

## Appendix A: Variable definitions

Racial pay structure similarity	Cosine similarity between the average compensation vector of White executives and the average compensation vector of ethnic minority executives.
Racial pay structure similarity (exc CEO)	Cosine similarity between the average compensation vector of White executives (excluding the CEO) and the average compensation vector of ethnic minority executives (excluding the CEO).
Log of Total Assets	$\text{Log}(1+at)$
Firm age	listing vintage from the first year the firm appears in the CRSP/COMPUSTAT merged database.
Tobin's Q	$(csho*prcc\_f+dlc+dltt+pstk1)/at$
ROA	$oibdp/at$
ROE	$oibdp/(at-dlc-dltt)$
Profit Margin	$oibdp/sale$
Return on employees	$oibdp/(\text{number of employees})$
Avg c-suite total comp	Average TDC1 of top five executives in Execucomp
Racial pay gap	$(\text{Avg total comp White executives})/(\text{Avg total comp ethnic minority executives})$
Avg white-to-ethnic minority pay ratio (exc CEO)	$(\text{Avg total comp White executives excluding the CEO})/(\text{Avg total comp ethnic minority executives excluding the CEO})$
C-suite pay gap	$(\text{Higher total comp across top five executives})/(\text{Lowest total comp across top five executives})$
C-suite pay gap (exc CEO)	$(\text{Higher total comp across top five executives excluding the CEO})/(\text{Lowest total comp across top five executives excluding the CEO})$
Financial misconduct (dummy)	Dummy that equals one if the firm appears in the SEC's Accounting and Auditing Enforcement Releases (AAER) or if it appears in the list of restatements classified by AuditAnalytics as relating to fraud, misrepresentation, or an investigation by the Public Company Accounting Oversight Board (PCAOB)

## Appendix 2: Falsification test

Table A.2: Ethnic Minority and Pay Structure

This table presents the results of an OLS regression of the fraction of each compensation component divided by total compensation. In panel A, we consider only White executives and randomly label 12% of them as belonging to an ethnic minority. In panel B, we consider only ethnic minority executives and randomly label 88% of them as White. We cluster standard errors by executives, and report t-stats in parentheses. Significance levels are indicated: \*=10%, \*\*=5%, \*\*\*=1%.

Panel A: Within White executives

VARIABLES	(1) Salary /total	(2) Bonus /total	(3) Perf stock /total	(4) Rest stock /total	(5) Options /total	(6) Non.Eq. Inc /total	(7) Other /total	(8) Pension /total
1 if (false) ethnic minority	-0.001 (-0.359)	-0.000 (-0.237)	0.002 (0.839)	-0.001 (-0.412)	-0.002 (-0.835)	0.000 (0.113)	0.001 (0.424)	0.001 (0.839)
Observations	47,316	47,316	47,316	47,316	47,316	47,316	47,316	47,316
R-squared	0.477	0.420	0.381	0.366	0.408	0.392	0.211	0.516
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
SIC2xYear FE	YES	YES	YES	YES	YES	YES	YES	YES

Panel B: Within ethnic minority executives

VARIABLES	(1) Salary /total	(2) Bonus /total	(3) Perf stock /total	(4) Rest stock /total	(5) Options /total	(6) Non.Eq Inc /total	(7) Other /total	(8) Pension /total
0 if (false) White	0.006 (0.887)	-0.000 (-0.012)	0.001 (0.128)	-0.004 (-0.685)	-0.003 (-0.482)	-0.002 (-0.505)	0.001 (0.326)	0.002 (0.748)
Observations	9,277	9,277	9,277	9,277	9,277	9,277	9,277	9,277
R-squared	0.566	0.482	0.463	0.436	0.437	0.470	0.329	0.601
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
SIC2xYear FE	YES	YES	YES	YES	YES	YES	YES	YES

### Appendix 3: Ethnic-minority pay structure similarity and racial pay gap. Identification strategy.

A challenge regarding inferences in our setting is that the negative association between ethnic-minority pay structure similarity and the C-suite racial pay gap does not really allow us to establish the direction of causality. Thus, while we argue that the structure of pay causes the racial pay gap among C-suite executives, causality could run in the opposite direction. For example, a corporate culture that fosters ethnic equality might increase racial pay structure similarity and reduce the racial pay gap simultaneously. Furthermore, Van den Steen (2010) notes that while corporate culture is frequently constant, it could considerably change after the appointment of a new CEO takes office. Under this possibility and in our setting, it could be that pay policy changes implemented by a new CEO drive our findings. We try to establish the direction of causality by exploiting a quasi-natural experiment that exogenously shocked the pay structure for the highest paid corporate executives.

#### **A3.1. Identification strategy: The 2017 Tax Reform and the \$1 million deductibility cap**

As part of the Omnibus Budget Reconciliation Act of 1993, Section 162(m) of the tax code defined compensation above \$1 million as unreasonable, thereby disallowing deductions for all compensation above this level for all employees. This rule applied only to public firms and to compensation disclosed in annual proxy statements paid to the five highest-paid executive officers, including the CEO—precisely, the executives we analyze in this study.

This rule, nevertheless, includes an exception. Specifically, only pay unrelated to productivity is considered unreasonable. That is, companies can still deduct performance-based compensation as a compensation expense, even if it is above the \$1 million cap. From 1993 to 2017, the definition of performance-based compensation included any pay based on the attainment of performance goals. However, the Tax Cuts and Jobs Act, signed into law in 2017, considerably expanded the

deductibility limitations under Section 162(m). In particular, it eliminated the exemptions for performance-related pay, implying that all compensation above \$1 million became nondeductible as a compensation expense.

Murphy and Jensen (2018) provide a detailed discussion of Section 162(m) and the \$1 million Deductibility Cap. They note that the compensation expense items that that were deductible before 2017 but that became “nondeductible” under the 2017 Tax Cut and Jobs Act are: payouts from non-equity plans, gains from exercising stock options, and the vesting value of all performance-based stock grants above \$1 million.

In the end, the 2017 Act reduced the deductibility benefits of performance-based pay. Therefore, we expect the proportion of the compensation items that become nondeductible to occupy a lesser weight in the overall executive compensation structure after the tax reform passed. The evidence in Figure 2, which provides a bar plot of the median total pay for C-suite executives, shows that this is indeed the case. Specifically, Figure 2 shows that the compensation items not affected by the tax reform occupy a larger proportion of total pay whereas the proportion of those affected decreases. A Mood’s test yields a chi-square of 46.7 indicating that the median of non-affected compensation items is statistically larger after 2017. Notably, the fact that Figure 2 also illustrates a secular increase in total executive pay from 2016 until 2020 indicates that the 2017 Act affected the structure of compensation but not the level of executive pay.

With the evidence in Figure A3.1 as a backdrop, we use the 2017 reform in difference-in-differences (DiD) analyses to study its impact on the racial pay gap among top executives. For every firm in our sample, we calculate the fraction of total compensation expenses that became nondeductible in 2017 and use that fraction as our treatment variable. The idea is that firms that



had a higher proportion of their compensation expenses affected by the 2017 Act are treated more intensively. Equation (1) presents our DiD regression.

$$Racial\ pay\ gap_{it} = \alpha_0 + \beta_1(Treatment_i)x(Post2017_t) + \delta Controls_{it} + \mu_i + \gamma_t + \epsilon_{it} \quad (1)$$

Our coefficient of interest is  $\beta_1$ . Equation (1) controls for the logarithm of total assets, the logarithm of firm age, the logarithm of the average C-suite total compensation and includes firm fixed effects and year fixed effects (or industry-by-year fixed effects). We cluster standard errors by firm. The pre-treatment period goes from 2014 to 2016 while the post-treatment period runs from 2017 until 2020.

Figure A3.1: Total C-suite compensation

This figure shows the median of total compensation received by C-suite executives each year. In in bar, we use light shade to identify the portion of total pay corresponding to the compensation items that became non-deductible in 2017 (i.e., affected by the reform). The proportion of pay that was not affected by the 2017 reform is shaded in dark grey.

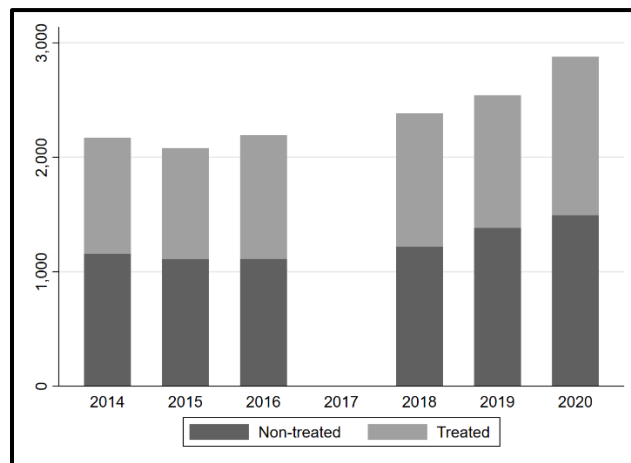


Table A3.1 reports the results of our estimation of Equation (1). Column (1) includes firm and year fixed effects whereas column (2) includes firm and industry-by-year fixed effects. In columns (3) and (4), we report similar regressions that exclude CEOs from the calculation of the pay gap. In all four regressions, the  $\beta_1$  coefficient is negative and statistically significant. These results indicate that the racial pay gap in the C-suite decreased after 2017. Depending on the specification, the DiD estimates imply that raising the share of compensation expenses that becomes nondeductible in 2017 by one standard deviation is related to a 2.9%-3.2% decrease in the racial pay gap among C-suite executives after the reform. The magnitude of this effect increases to 4.6%-4.7% when we exclude CEOs from the analysis. Given that 2017 Tax Reform shocked the structure of executive compensation but not the level of executive compensation and because the Act was not intended to affect racial inequality, the results in Table 4 suggest that the 2017 policy affected the racial pay gap *through* its direct effect on the pay structure. That is, the fact that the racial pay gap subsides after a tax shock improved racial pay structure similarity implies that differences in pay structure across race drive the gap. Consequently, the evidence in Table 4 reinforces the view that differences in the pay structure of Whites and ethnic minority executives *cause* (at least in part) the racial pay gap in the C-suite.

Table A3: Deductibility Limitation Reform: Pay gap

This table presents the results of an OLS estimation of equation 1. The dependent variable is the ethnic pay gap. Treatment is defined as the fraction of aggregate total executive compensation expense that was deemed “nondeductible” under the Tax Cut and Jobs Act of 2017 in 2017. Nondeductible pay before the 2017 reform includes the sum of base salaries, discretionary bonuses, and the vesting value of time-lapse restricted stock in excess of \$1 million. Nondeductible pay after the new rules includes salaries, bonuses, payouts from non-equity plans, gains from exercising stock options, and the vesting value of all stock grants in excess of \$1 million. The pre-treatment period goes from 2014 to 2016. The post-treatment period goes from 2017 to 2020. Columns (1) and (2) consider all executives in the C-suite. Columns (3) and (4) exclude CEOs from the analysis. Treatment is standardized such that they have a mean of zero and a standard deviation of one. We cluster standard errors by firm and report t-stats in parentheses. Significance levels are indicated: \*=10%, \*\*=5%, \*\*\*=1%.

	Dep Var: Ethnic Pay Gap			
	(1)	(2)	(3)	(4)
Treatment x Post2017	-0.063** (-1.973)	-0.057* (-1.736)	-0.060** (-2.584)	-0.061** (-2.346)
Log of assets	0.193 (1.163)	0.180 (1.113)	-0.006 (-0.039)	0.069 (0.378)
Log of firm age	0.139 (0.791)	0.172 (0.851)	0.476*** (2.645)	0.562** (2.266)
Log of avg c-suite total comp	-0.187* (-1.779)	-0.297*** (-2.607)	-0.099* (-1.694)	-0.091 (-1.308)
Observations	1,321	1,261	896	814
R-squared	0.759	0.797	0.655	0.714
Firm FE	YES	YES	YES	YES
Year FE	YES		YES	
SIC2xYear FE		YES		YES
Excluding CEO	NO	NO	YES	YES

### A3.2. Dynamic trends

The internal validity of the DiD models relies on the fulfillment of the parallel trends condition stating that in the absence of treatment, the difference between the ‘treatment’ and ‘control’ group is constant over time. Since our treatment is a continuous variable, we examine the incidence of the treatment three years before and three years after the reform. The idea of this test is that the

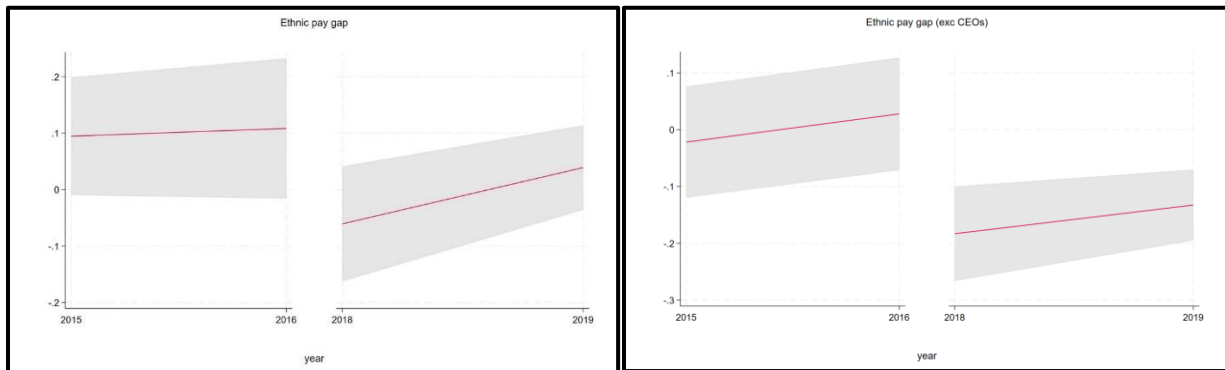
effect of the treatment should be constant (i.e., no pre-trends) during the years before the reform and change after the reform. Thus, we regress racial pay gap on the interaction terms of the treatment and dummy variables for each year, as equation (2) shows.

$$\begin{aligned}
 \text{Racial pay gap}_{it} = & \alpha_0 + \beta_{2015}(\text{Treatment}_i)x(2015) + \beta_{2016}(\text{Treatment}_i)x(2016) + \beta_{2017}(\text{Treatment}_i)x(2017) + \\
 & \beta_{2018}(\text{Treatment}_i)x(2018) + \beta_{2019}(\text{Treatment}_i)x(2019) + \delta\text{Controls}_{it} + \mu_i + \epsilon_{it}
 \end{aligned} \tag{2}$$

We then plot the coefficient of each interaction term in Figure A3.2. In the plot, we observe a stable value of the coefficient before the 2017 reform, followed by a significant drop afterwards. This graphical evidence suggests that our setting plausibly satisfies the parallel trend assumption.

Figure A3.2: Deductibility Limitation Reform: Coefficient dynamics

The figure illustrates the coefficient dynamics analysis using a 6-year event study window around the 2017 Tax reform. The figure plots the regression coefficients of the interaction terms between the treatment and the dummy variables of each year. The regressions include firm fixed effects and controls for the log of assets, the log of firm age, and the log of the average C-suite total compensation. The dependent variable is the ethnic minority pay gap. The top figure includes all executives whereas the bottom figure excludes CEOs from the analysis.



## Appendix 4: Data limitation robustness test

One data limitation of our analysis is that, for some firms, we could not reliably establish the ethnicity of all C-suite members. In firms where we only have the ethnicity of a few executives, we restrict our analysis to only those executives. However, this approach could potentially bias our findings if the missing executives have characteristics that consistently affect our results. To mitigate this concern, in this appendix, we replicate all our analyses using the subsample of firms for which we have the ethnicity of at least 4 executives (out of 5 in the C-suite). If the missing executives bias the results, the findings here should be different from our baseline findings. Tables A4.1 to A4.5 show that this is not the case, as all our results are robust to only considering the sample of firm with full (or almost full) C-suite coverage.

Table A4.1: Ethnic pay structure similarity and racial pay gap

	Racial pay gap	
	(1)	(2)
Ethnic Minority pay structure similarity in t	-0.158** (-2.510)	-0.115** (-2.225)
Log of assets	0.023 (0.157)	0.128 (1.218)
Log of firm age	0.030 (0.230)	0.097 (0.683)
Log of avg C-suite total comp	0.187* (1.790)	0.015 (0.169)
Observations	1,179	966
R-squared	0.758	0.594
Firm FE	YES	YES
Year FE	YES	YES
Excluding CEO	NO	YES

Table A4.2: CEO and Board Ethnicity and Pay Structure Similarity

VARIABLES	Ethnic pay structure similarity			
	(1)	(2)	(3)	(4)
1 if ethnic minority CEO	0.037 (1.587)	0.084** (2.236)		
1 if ethnic minority comp committee			0.056** (2.365)	0.066** (2.389)
Log of assets	0.051** (1.989)	0.043 (1.341)	0.006 (0.164)	-0.021 (-0.452)
Log of firm age	0.018 (0.584)	0.011 (0.321)	0.084* (1.719)	0.107** (2.303)
Log of avg C-suite total comp	-0.023 (-1.321)	-0.014 (-0.670)	0.014 (0.541)	-0.019 (-0.540)
Observations	1,368	1,173	720	581
R-squared	0.439	0.427	0.624	0.636
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Excluding CEO	NO	YES	NO	YES

Table A4.3: Racial inequality and ethnic pay structure similarity

	Ethnic pay structure similarity			
	(1)	(2)	(3)	(4)
Racial animus index	-0.003** (-2.193)	-0.013** (-2.021)		
SDG racism index			-0.027 (-1.692)	-0.028* (-1.758)
Log of assets	-0.045* (-1.733)	-0.136 (-0.862)	-0.005 (-0.472)	-0.001 (-0.108)
Log of firm age	0.079*** (2.879)	0.294** (2.011)	0.021** (2.100)	0.012 (1.214)
Log of avg C-suite total comp	0.055 (1.192)	0.129 (0.412)	-0.021 (-1.015)	-0.027 (-1.364)
Observations	208	208	1,327	1,152
R-squared	0.449	0.390	0.083	0.089
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Excluding CEO	NO	YES	NO	YES

Table A4.4: Ethnic pay structure similarity and the CEO-pay-to-worker ratio

	Log of pay ratio		C-suite pay gap	
	(1)	(2)	(3)	(4)
Ethnic Minority pay structure similarity in t	-0.163*	-0.302**	-1.191***	-0.811***
	(-1.750)	(-2.118)	(-5.191)	(-5.673)
Log of assets	0.213	0.414	-0.768	-0.606
	(0.937)	(1.651)	(-0.884)	(-1.303)
Log of firm age	0.410	0.610	-0.301	-0.755
	(1.209)	(0.768)	(-0.281)	(-1.357)
Log of avg C-suite total comp	0.445***	0.191	1.124**	0.693**
	(3.215)	(1.314)	(2.143)	(2.476)
Observations	190	143	1,157	950
R-squared	0.953	0.947	0.624	0.653
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Excluding CEO	NO	YES	NO	YES

Table A4.5: Pay structure similarity and firm performance

VARIABLES	Mkt/book		ROA		ROE		Fraud	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ethnic pay structure similarity	-0.045*	0.042**	0.003*	0.005***	0.007**	0.008***	-0.005	-0.018*
	(-1.808)	(2.258)	(1.850)	(3.089)	(2.261)	(2.833)	(-0.690)	(-1.756)
Log of assets	-0.414***	-0.319***	-0.026***	-0.019***	-0.015	-0.015	0.019	0.004
	(-3.190)	(-3.419)	(-3.696)	(-2.902)	(-1.402)	(-1.423)	(1.018)	(0.193)
Log of firm age	0.055	-0.044	0.012	0.005	0.011	0.003	0.003	0.013
	(0.569)	(-0.449)	(1.204)	(0.680)	(0.735)	(0.241)	(0.287)	(0.911)
Log of avg C-suite total comp	0.241***	0.146**	0.013***	0.012***	0.010	0.012	-0.013	-0.015
	(3.273)	(2.348)	(3.204)	(3.067)	(1.485)	(1.605)	(-0.592)	(-0.600)
Observations	1,097	1,173	1,368	1,173	1,368	1,173	947	788
R-squared	0.857	0.859	0.732	0.751	0.752	0.783	0.735	0.574
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Excluding CEO	NO	YES	NO	YES	NO	YES	NO	YES





Panel B: Excluding CEOs

VARIABLES	(1) Tobin's Q	(2) Tobin's Q	(3) ROA	(4) ROA	(5) ROE	(6) ROE	(7) Prof Mg	(8) Prof Mg	(9) REMP	(10) REMP	(11) Financial Misconduct	(12) Financial Misconduct
Racial pay gap	-0.016 (-0.913)	-0.010 (-0.520)	-0.001 (-1.081)	-0.001 (-0.336)	-0.006** (-2.055)	-0.005 (-1.565)	0.001 (0.291)	0.001 (0.609)	0.925 (0.679)	1.340 (0.758)	0.001 (0.341)	0.001 (0.210)
Log of assets	-0.238*** (-3.531)	-0.314*** (-4.140)	-0.014*** (-2.665)	-0.020*** (-3.711)	-0.015 (-1.492)	-0.022** (-2.045)	0.023*** (2.949)	0.019** (2.152)	14.575** (2.364)	13.246* (1.860)	0.019 (1.150)	0.013 (0.742)
Log of firm age	-0.088 (-1.092)	-0.072 (-0.847)	-0.002 (-0.261)	-0.001 (-0.174)	-0.008 (-0.676)	-0.011 (-0.773)	-0.024*** (-3.003)	-0.023** (-2.408)	-10.989** (-2.098)	-10.760 (-1.575)	0.012 (0.876)	0.006 (0.382)
Log of avg c-suite total comp	0.179*** (4.475)	0.187*** (4.041)	0.015*** (5.058)	0.015*** (4.588)	0.011 (1.573)	0.013** (2.220)	0.012*** (3.381)	0.011*** (2.910)	9.689** (2.350)	10.103** (2.132)	-0.008 (-0.685)	-0.014 (-1.120)
Observations	2,497	2,291	2,497	2,291	2,497	2,291	2,497	2,291	2,497	2,291	1,967	1,790
R-squared	0.854	0.886	0.758	0.806	0.765	0.813	0.852	0.879	0.827	0.854	0.475	0.519
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES		YES		YES		YES		YES		YES	
SIC2xYear FE		YES		YES		YES		YES		YES		YES

Table A5.2: Percentage of ethnic minorities and firm performance

VARIABLES	(1) Tobin's Q	(2) Tobin's Q	(3) ROA	(4) ROA	(5) ROE	(6) ROE	(7) Prof Mg	(8) Prof Mg	(9) REMP	(10) REMP	(11) Financial Misconduct	(12) Financial Misconduct
Racial pay gap	0.002 (0.041)	-0.015 (-0.313)	-0.003 (-0.746)	-0.003 (-0.911)	-0.003 (-0.465)	-0.004 (-0.576)	0.002 (0.397)	0.003 (0.509)	0.978 (0.214)	3.031 (0.677)	0.008 (0.640)	0.011 (0.787)
Log of assets	-0.248*** (-9.743)	-0.303*** (-11.186)	-0.009*** (-3.861)	-0.013*** (-5.519)	-0.004 (-1.049)	-0.009** (-2.334)	0.033*** (10.080)	0.027*** (8.732)	21.571*** (7.416)	18.509*** (6.675)	0.024*** (3.770)	0.025*** (3.600)
Log of firm age	-0.034 (-1.071)	-0.033 (-1.048)	0.003 (1.172)	0.005* (1.883)	0.004 (0.898)	0.005 (0.999)	-0.013*** (-3.597)	-0.011*** (-3.230)	-8.282** (-2.464)	-6.459* (-1.876)	-0.000 (-0.060)	0.001 (0.080)
Observations	19,249	19,220	19,249	19,220	19,249	19,220	19,248	19,219	19,249	19,220	15,599	15,578
R-squared	0.734	0.764	0.630	0.684	0.624	0.672	0.748	0.790	0.753	0.799	0.439	0.455
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES		YES		YES		YES		YES		YES	
SIC2xYear FE		YES		YES		YES		YES		YES		YES