

# Diversity matters/delivers/wins revisited in S&P 500® firms

Jeremiah Green  
Texas A&M  
[jgreen@mays.tamu.edu](mailto:jgreen@mays.tamu.edu)

John R. M. Hand\*  
UNC–Chapel Hill  
[hand@unc.edu](mailto:hand@unc.edu)

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## Abstract

In a series of influential studies, McKinsey (2015, 2018, 2020) report a statistically significant positive relation between the industry-adjusted EBIT margin of global samples of large public firms and the racial/ethnic diversity of their executives. However, when we revisit McKinsey's tests using recent data for US S&P 500® firms, we find statistically insignificant relations between McKinsey's inverse normalized Herfindahl-Hirschman measures of executive racial/ethnic diversity and not only industry-adjusted EBIT margin, but also industry-adjusted sales growth, gross margin, ROA, ROE, and TSR. Our results suggest that despite the imprimatur often given to McKinsey's (2015, 2018, 2020) studies, caution is warranted in relying on their findings to support the view that US publicly traded firms can deliver improved financial performance if they increase the racial/ethnic diversity of their executives.

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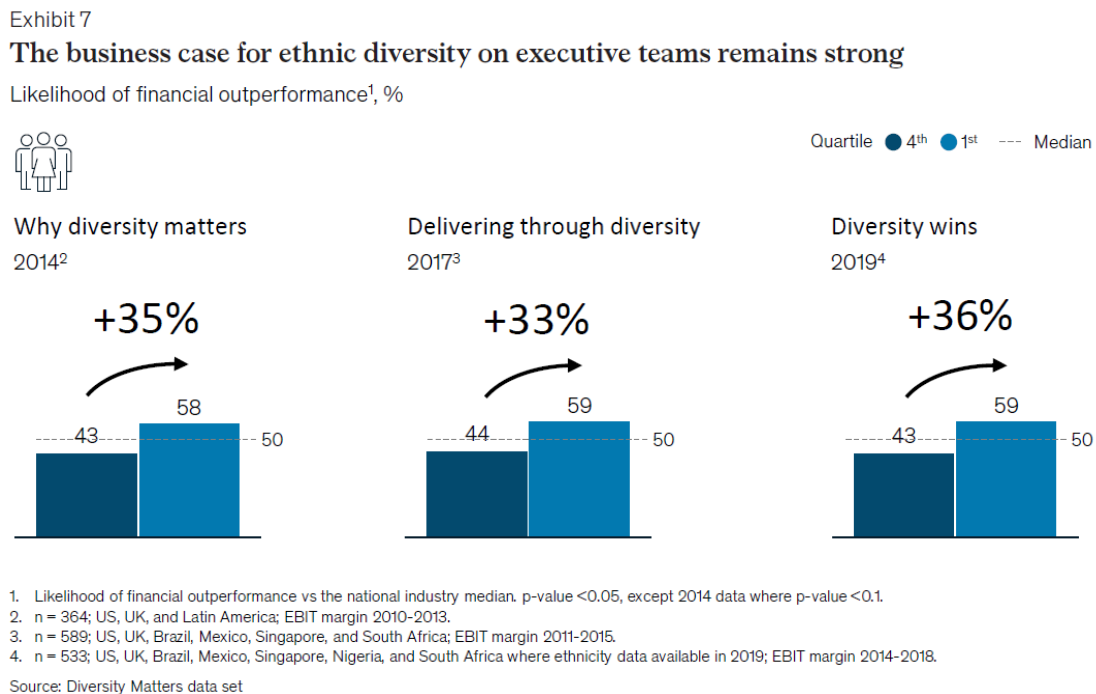
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## 1. Introduction and Summary of Results

Consultants, business leaders, and activists frequently promote the view that a strong and settled business case exists for firms to increase the racial/ethnic diversity of their employees.<sup>1</sup> The key piece of empirical evidence in support of this argument comes from McKinsey & Company, which in a series of three studies reports finding a statistically significant positive relation between the industry-adjusted EBIT margin (% of revenues) of global sets of large public firms and the racial/ethnic diversity of their executives. Exhibit 7 from McKinsey's 2020 study (p. 20) summarizes their results:



In discussing McKinsey's findings, Dame Vivian Hunt, McKinsey's managing partner in the UK and Ireland and a coauthor on all three of McKinsey's studies, crystalizes McKinsey's view that greater racial/ethnic diversity in a firm's executive team drives better firm financial performance:

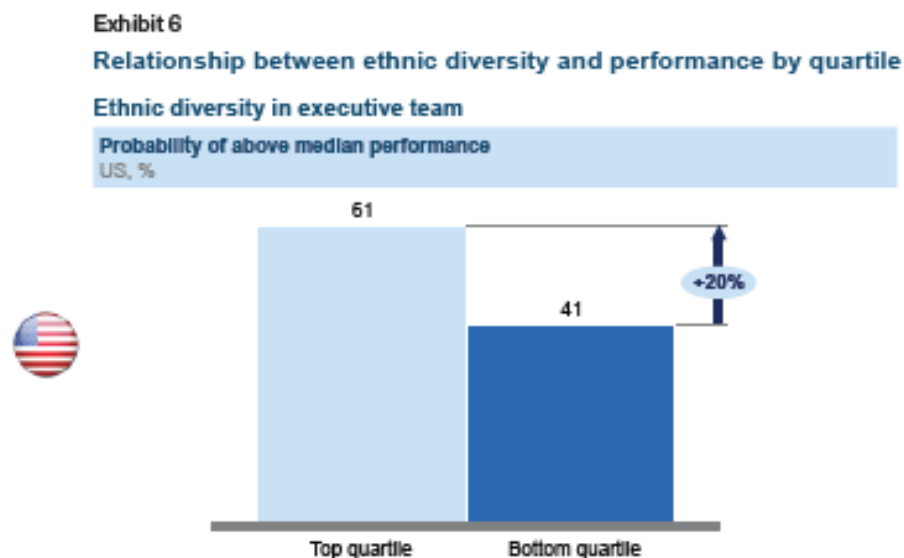
“What our data shows is that companies that have more diverse leadership teams are more successful. And so the leading companies in our datasets are pursuing diversity because it's a business imperative and driving real business results.”

[https://www.youtube.com/watch?v=xkvX-Yvk\\_mg](https://www.youtube.com/watch?v=xkvX-Yvk_mg)

<sup>1</sup> See Holger (2019), Lorenzo and Reeves (2018), Lorenzo et al. (2017, 2018), Richard, Triana, and Li (2020), and Wittenberg (2017). Other examples include the statement from an executive chairman of a diversified multinational that “the business case for diversity in the workplace is now overwhelming” (World Economic Forum, 2019). Activist and DEI advocate Kim (2018a, b) states, “If your boss is still asking about the ‘business case’ for diversity, your company's in trouble,” and “Here's all the data you need to put together the D&I ‘business case’ pitch deck. For the love of sweet baby goddess, stop wasting your precious time doing research that's been done too many times before.” Different or contrary views include those of Edmans (2018), Ely and Thomas (2020) and Levitt (2021).

Given the business and societal importance of determining whether greater racial/ethnic diversity in corporate executives does or does not positively correlate with higher firm financial performance, the goal of our paper is to revisit McKinsey's results through a series of stress tests. We do so by applying McKinsey's approach to the firms that were in the S&P 500® Index on 12/31/19. We focus on large public US companies because in their 2015 study, McKinsey presents results in which they report finding a statistically significant positive relation between the racial/ethnic diversity of the executive teams of 186 large public firms in the US + Canada (hereafter, "US firms") and the likelihood that these firms display financial outperformance.<sup>2</sup>

In their 2015 study, McKinsey measures the racial/ethnic diversity of executives in US firms using a Herfindahl-Hirschman index applied to eight racial/ethnic groups, where race/ethnicity is judged by McKinsey researchers using the photos and names of the executives found on the firms' 2014 websites. McKinsey defines financial outperformance as a firm's EBIT margin during the years 2010–2013 minus the firm's national median industry EBIT margin over the same period, and they compare the likelihood of financial outperformance in the top vs. bottom quartiles of their US firms ranked on the degree of executive racial/ethnic diversity. As reproduced below from their exhibit 6, McKinsey reports that 61% of US firms in the top McKinsey-measured quartile of executive racial/ethnic diversity had financial outperformance in 2010–2013, versus 41% in the bottom quartile. The difference of 20% is statistically significant based on the  $z$ -statistic of 2.0 ( $p$ -value = 0.04).<sup>3</sup>



<sup>2</sup> McKinsey also studies large companies in the Asia-Pacific region, Continental Europe, Latin America, Sub-Saharan Africa, and the UK. We focus on the US as racial and ethnic diversity is an ongoing and currently politically and socially important issue in the U.S. and collecting racial and ethnic background data is a highly time consuming task.

<sup>3</sup> McKinsey does not report a  $z$ -statistic in their exhibit 6. Our calculation assumes there are 47 firms in the top and bottom quartiles, leading to a  $z$ -statistic equal to  $20\% \div \text{square-root}\{(61\%*39\%/47) + (41\%*59\%/47)\} = 2.0$ .

The key takeaway of our study is that in contrast to McKinsey's results, we find no statistically significant difference between the likelihood of financial outperformance as measured by the industry-adjusted EBIT margin of S&P 500® firms during 2015–2019 in the top vs. bottom quartiles of S&P 500® firms ranked on McKinsey's executive racial/ethnic diversity metric. Instead, we find that 54.0% of S&P 500® firms in the top executive race/ethnicity-ranked quartile have a positive industry-adjusted EBIT margin vs. 51.2% in the bottom quartile, with the  $z$ -statistic on the difference of 2.8% being a statistically insignificant 0.5 ( $p$ -value = 0.65).<sup>4</sup>

Because our key finding diverges from McKinsey's and does not support McKinsey's general interpretation that greater racial/ethnic diversity in a firm's executives "is a business imperative that drives real business results," we expand our stress/robustness tests in several directions:

- We extend beyond the likelihood of financial outperformance per se by calculating the mean levels of industry-adjusted EBIT margin in the top and bottom executive racial/ethnic diversity-ranked quartiles. Here too we find a statistically insignificant difference between the top and bottom diversity quartiles. The mean industry-adjusted EBIT margin in the top racial/ethnic diversity quartile is 1.9% vs. 0.8% in the bottom quartile ( $t$ -statistic on the 1.1% difference in means = 0.9).
- We relax McKinsey's focus on only the top and bottom executive racial/ethnic diversity quartiles. Letting *DIV\_McK8* denote the degree of executive racial/ethnic diversity measured using eight racial/ethnic groups per McKinsey (2015) and using data on all S&P 500® firms, not just a subset, we find that *DIV\_McK8* is uncorrelated with the likelihood that a firm's industry-adjusted EBIT margin is positive (Pearson correlation coefficient PCC = 0.02,  $t$ -statistic = 0.5), and is also uncorrelated with firms' industry-adjusted EBIT margin (PCC = 0.02,  $t$ -statistic = 0.5).
- Since in their 2018 and 2020 studies McKinsey use a maximum of five racial/ethnic groups within a given geography to measure executive racial/ethnic diversity, including the US, we also repeat all our tests using *DIV\_McK5* instead of *DIV\_McK8*. We find correlations using *DIV\_McK5* that are almost uniformly even closer to zero than with *DIV\_McK8*.
- We evaluate five other measures of firm financial performance: sales growth, gross margin, ROA, ROE, and TSR, all on an industry-adjusted basis. For each, we repeat the tests described above based on industry-adjusted EBIT margin. This yielded 40 nonindependent  $z$ -statistics or  $t$ -statistics testing the null hypothesis that there is no relation between firm financial performance and McKinsey's metric for executive racial/ethnic diversity in US S&P 500® firms. Of the 40 test statistics, 37 are insignificant, one is reliably positive and two reliably negative.

Our results suggest that despite the imprimatur often given to McKinsey's (2015, 2018, 2020) studies, caution is warranted in relying on their findings to support the view that US publicly traded firms can deliver improved financial performance if they increase the racial/ethnic diversity of their executives. After detailing our data and analyses, we critique the pros and cons of McKinsey's methods. Lastly, we propose an approach to testing whether a causal, not correlational, relation exists.

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<sup>4</sup> We place all  $n = 127$  S&P 500® firms with zero executive racial/ethnic diversity in the bottom quartile and only the bottom quartile; the  $n = 124$  firms with the highest executive racial/ethnic diversity are in the top quartile.

## 2. Data and metrics

### 2.1 Firms and executives

We gathered data on the race, ethnicity, and other characteristics of all executives for all firms that were in the S&P 500® Index at 12/31/19.<sup>5</sup> We focus on S&P 500® firms because they are large and thus we believe reasonably comparable to the US firms in McKinsey's 2015, 2018 and 2020 studies, which McKinsey reports to have annual revenues of at least \$1.5 billion. We follow the website-disclosure approach of McKinsey (2015) by defining an executive as any individual who is publicly disclosed by a firm to be on its leadership team, most often on the firm's website. In the infrequent cases in which we found no executives on the firm's website, we took a firm's executives to be the employees listed on the firm's Bloomberg or Yahoo! Finance profile page, else the firm's annual report, else we judged them from among the employees on its comparably.com page.<sup>6</sup> Primarily from each firm's website, we then tracked down and where present captured in a screenshot the face photo of each executive, together with her or his first and last names.<sup>7</sup>

Table 1 presents our data availability waterfall. Based on our definition of an executive and the availability of individual data items, we arrived at 497 S&P 500® firms for which we were able to identify at least one named executive. In Table 2 we present descriptive statistics on the industry composition and selected financial characteristics of our sample firms at the most recent fiscal year-end on or prior to 12/31/19. Panel A reveals that in terms of Fama-French 12 industries classifications, S&P 500® firms are spread out, being most concentrated in Finance (20%) and Business Equipment (17%), and least concentrated in Consumer Durables (2%) and Telephone and Television Transmission (2%).<sup>8</sup> Panels B and C present descriptive statistics on key firm financial characteristics either at 12/31/19 or at the most recent fiscal year-end before 12/31/19. S&P 500® firms are typically large from a capital market and accounting perspective and in strong financial positions.

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<sup>5</sup> A full description of the executive characteristics that were coded is provided in appendix A. Many of the reported items do not pertain to this study but are relevant to other research projects.

<sup>6</sup> Yahoo! Finance's profile page lists up to five executives. Bloomberg's profile page typically lists 3–10 executives. Comparably.com lists up to 50+ people who work for the firm, only some of whom we judged to be executives.

<sup>7</sup> The bulk of the capturing of executive names and photos took place June 10–August 5, 2020. For documentation and authentication purposes, we saved all executive screenshots in a separate Word + PDF file for each firm.

<sup>8</sup> McKinsey includes seven industries in their studies: Finance, Insurance, and Professional Services; Heavy Industry; Healthcare and Pharmaceuticals; Telecom, Media, and Technology; Consumer Goods and Retail; Transportation, Logistics, and Tourism; and Energy and Basic Materials (e.g., McKinsey 2015, footnote #1, p. 2). We use the Fama-French 12-Industry classifications as a balance between McKinsey's seven industries on one end of the spectrum and the 83 2-digit Standard Industrial Classification (SIC) industry groups on the other end of the spectrum (setting aside the 416 3-digit SIC industry groups and 1,004 4-digit SIC industry groups).

McKinsey's primary measure of firm financial performance is the firm's average annual margin less the national median EBIT margin for the firm's industry.<sup>9</sup> The annual periods that McKinsey uses in its averaging are 2010–2013 in their 2015 study, 2011–2015 in their 2018 study, and 2014–2018 in their 2020 study. We follow McKinsey by making EBIT margin our primary measure of firm performance, and we use annual data over 2015–2019 and industries defined according to Fama-French's 12 industries classifications. However, as part of our subjecting McKinsey's approaches to stress tests, we also compute and evaluate five other measures of raw and Fama-French 12-industry-median-adjusted firm financial performance: Revenue growth, Gross margin, ROA, ROE, and TSR. In panel C of Table 2 we report the 5<sup>th</sup>, 50<sup>th</sup>, and 95<sup>th</sup> percentiles of each performance measure, noting that while median industry-adjusted firm financial performance is zero for all six measures, there is substantial variation across S&P 500® firms within each measure.

Table 3 reports descriptive statistics for selected non-race/ethnicity characteristics of the 7,246 executives we identified in S&P 500® firms. Panel A indicates that S&P 500® firms have on average 14.6 executives, and panel B shows that 76% (24%) of executives are male (female). Panel C presents the frequencies of different chief and officer-level positions. The most common executive positions are CEO, CFO, General Counsel, President, Corporate Secretary (often the same person as the General Counsel), Chief HR Officer, and COO. In terms of seniority, the most senior VP level of Senior EVPs plus EVPs slightly outnumber Senior VPs, who in turn outnumber VPs.

## 2.2 *Executive judged race/ethnicity*

In judging an executive's race/ethnicity, we follow McKinsey (2015) by visually studying each executive's photo and first and last names and classifying them into eight categories: African ancestry (aa), European ancestry (eur), Near Eastern (ne), East Asian (ea), South Asian (sa), Latino (lat), Native American (na), and Other (o). To ensure consistency, all race/ethnicity judgments were made by one coauthor. Because we stress test McKinsey's results in part by ascertaining the effects of shrinking the number of racial/ethnic categories, we also separately place executives into the five race/ethnicity categories used by the National Center for Educational Statistics' Integrated Postsecondary Education Data System (NCES IPEDS). The five IPEDS race/ethnicity categories are American Indian/Alaska

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<sup>9</sup> There are three exceptions to McKinsey's focus on EBIT margin. First, in their 2018 and 2020 studies, McKinsey reports using average ROE for financial companies in place of EBIT margin. Second, in their 2018 study, McKinsey reports the results of tests relating to executive and board member gender using economic profit margin defined as "Net Operating Profit Less Adjusted Taxes – [Invested Capital x Weighted Average Cost of Capital] ÷ Total Revenues" (McKinsey 2018, footnote #3, p. 5, p. 35). Since McKinsey uses and emphasizes EBIT margin in all three of their 2015, 2018, and 2020 studies, we conduct our stress tests using McKinsey's EBIT margin measure of firm financial performance.

Native (aian), Asian/Pacific Islander (api), Black (b), Hispanic (h) and White (w), where given the allocation of Other (o) into Pacific Islander (pi) and Alaska Native (an), we set  $aian = ai + an$ ,  $api = ea + sa + pi$ ,  $b = aa$ ,  $h = lat$ , and  $w = eur + ne$ . The five IPEDs categories appear to match closely with the race/ethnicity groups that McKinsey uses for the US firms in their 2018 and 2020 studies.

These methods enable us to judge the race/ethnicity of 6,931 of the 7,246 S&P 500® executives we identified as being in place in mid-2020. The top half of Table 4 classifies executives by the eight racial/ethnic categories in McKinsey (2015), while the bottom half classifies executives by the five NCES IPEDS race/ethnicity categories. Of executives, 0.01% are American Indian or Alaska Natives, 2.8% are East Asian and 4.4% are South Asian (total Asian/Pacific Islander is 7.2%), 3.5% are African ancestry/Black non-Hispanic, 2.1% are Latino/Hispanic, and 1.4% are Near Eastern and 85.8% are European ancestry (total White non-Hispanic is 87.2%).

### 2.3 McKinsey's executive racial/ethnic diversity metrics

McKinsey measures the racial/ethnic diversity of a firm's executives using an inverse normalized version of the Herfindahl-Hirschman Index (HHI) that they apply to the executives in the international sets of firms that they identified as being in place in 2014, 2017, and 2019. HHI is a standard measure of market concentration used to determine market competitiveness, such as before vs. after M&A transactions.<sup>10</sup> Let  $i = 1$  to  $N$  be mutually exclusive racial/ethnic groups into which an executive may be classified, and for any firm  $j$  let  $n_{ij}$  be the number of firm  $j$ 's executives that are classified in racial/ethnic group  $i$ . Further letting the racial/ethnic density of racial/ethnic group  $i$  in firm  $j$  be given by  $RAED_{ij} = \frac{n_{ij}}{\sum_{i=1}^N n_{ij}}$ , McKinsey defines  $HHI_j$  as:

$$HHI_j = \sum_{i=1}^N RAED_{ij}^2. \quad (1)$$

McKinsey then defines racial/ethnic diversity  $NHHI_j$  for firm  $j$  on an inverse and normalized basis:<sup>11</sup>

$$NHHI_j = 1 - \frac{HHI_j - N^{-1}}{1 - N^{-1}}, \quad (2)$$

<sup>10</sup> See [www.justice.gov/atr/herfindahl-hirschman-index](https://www.justice.gov/atr/herfindahl-hirschman-index) (July 31, 2018).

<sup>11</sup> McKinsey defines  $NHHI$  per equation (2) in their 2018 and 2020 studies (pp. 37 and 49, respectively). In their 2015 study, McKinsey defines  $NHHI_j = \frac{HHI_j - N^{-1}}{1 - N^{-1}}$ , that is, without applying an inverse by subtracting from one. McKinsey applies an inversion in their 2018 and 2020 studies in order that, per intuition,  $NHHI = 0$  indicates a firm whose executives are all in the same racial/ethnic group, and  $NHHI_j = 1$  indicates that firm  $j$ 's executives are exactly equally spread out across the  $N$  racial/ethnic groups  $s_{ij} = N^{-1} \forall i$ . The result of this inversion is that  $NHHI$  in equation (2) is increasing in McKinsey's definition of the degree of racial/ethnic diversity in a firm's executives.

where  $NHHI_j \leq 1$ . We follow McKinsey (2015) by using  $N = 8$  racial/ethnic groups in our main tests, leaving the less differentiated  $N = 5$  racial/ethnic groups for our robustness tests.<sup>12</sup> We denote  $NHHI$  when calculated using  $N = 8$  as  $DIV\_McK8$ , and using  $N = 5$  as  $DIV\_McK5$ .

In panel A of Table 5 we report descriptive statistics on  $DIV\_McK8$  and  $DIV\_McK5$  for firms in the S&P 500® at 12/31/19.<sup>13</sup> The two distributions are similar, with an average of 27% of firms having executives of one race/ethnicity, and a standard deviation for nonzero observations of 0.15. No firm has a McKinsey diversity score equal to 1.0, indicating that no firm in the S&P 500® had an equal number of the eight broad or five narrower races/ethnicities required under  $DIV\_McK8$  and  $DIV\_McK5$  for “maximum diversity” as defined by McKinsey.

#### 2.4 *McKinsey’s approach to measuring, analyzing, and evaluating the relations between executive racial/ethnic diversity and firm financial performance*

McKinsey measures, analyzes, and evaluates the relations between the racial/ethnic diversity of firms’ executive teams and firms’ financial performance according to this sequence:

1. Rank the pertinent firms (e.g., all firms, or only US firms) by their  $NHHI_j$  as defined in equation (2), with firms in the bottom executive race/ethnicity diversity quartile Q1 being those with the lowest  $NHHI_j$  and firms in the top executive race/ethnicity diversity quartile Q4 being those with the highest  $NHHI_j$ .
2. In each of Q1 and Q4, calculate the “likelihood of financial outperformance” defined by McKinsey as the proportion of firms in a given quartile that have an EBIT margin above their national industry-median EBIT margin.
3. Report the 2-tailed  $p$ -value on the  $z$ -statistic<sup>14</sup> testing the null hypothesis that the difference in the likelihood of financial outperformance in Q4 versus Q1 is zero.<sup>15</sup>
4. Present the percentage by which the likelihood of financial outperformance in Q4 exceeds the likelihood of financial outperformance in Q1. As an example, in Exhibit 1 on p.8 of McKinsey’s 2018 study the likelihoods of financial outperformance are shown as 44% for Q1 and 59% for Q4. While the difference of 15% = 59% – 44% is what McKinsey report a  $p$ -value < 0.05 on, what McKinsey emphasize is not 15%, but the +33% that 15% is as compared to 44%, viz. 15%/44%.

<sup>12</sup> On p. 2 of their 2015 study, McKinsey states that  $N = 7$ . In footnote #2 on the same page, however, McKinsey indicates that “ethnic and racial categories used were African ancestry, European ancestry, Near Eastern, East Asian, South Asian, Latino, Native American, Other” which suggests that  $N = 8$ . In their later 2018 and 2020 studies, McKinsey uses  $N = 5$  for US geography firms (White/European ancestry, Black/African ancestry, Latino/Hispanic of any race, Asian/Asian ancestry including South Asian, and Other including mixed race, pp. 37 and 49, respectively).

<sup>13</sup> McKinsey does not provide descriptive statistics of  $DIV\_McK8$  in their studies that we can use for comparison.

<sup>14</sup> McKinsey does not report what type of statistic underlies their inferences. We assume that McKinsey is calculating a  $z$ -statistic testing a difference in proportions, namely in this situation the difference in the likelihood of financial outperformance in Q4 versus Q1.

<sup>15</sup> McKinsey does not report whether their  $p$ -values are one-tailed or two-tailed. Based on our calculations using their exhibit 7 results, we believe McKinsey’s  $p$ -values are two-tailed.



### 3. Results

#### 3.1 *McKinsey's results as reported in their 2015, 2018, and 2020 studies*

In each of their 2015, 2018 and 2020 studies, McKinsey reports finding a statistically significant positive relation between the industry-adjusted EBIT margin in their global samples of large public firms and the racial/ethnic diversity of the firms' executive teams. In panel B of Table 5, we tabulate McKinsey's results on financial outperformance, which we denote as above-median financial performance (*AMFP*), and the likelihood of financial outperformance, which we denote  $p(AMFP)$ , in top *NHHI*-ranked quartile Q4 firms versus bottom *NHHI*-ranked quartile Q1 firms, based on exhibit 6 of McKinsey's 2015 study and exhibit 7 of McKinsey's 2020 study.

Columns 2–4 of panel B of Table 5 report McKinsey's results for the global samples of large public firms used in their studies. For example, in their 2015 study, McKinsey report that in their full set of global firms, 58% of Q4 firms had above-median financial outperformance  $AMFP > 0$  compared to 43% of Q1 firms. We report the 15% difference between Q4 and Q1; the  $z$ -statistic of 2.0 on the difference of 15%, assuming there are  $n = 92$  firms in each of Q1 and Q4; and the 2-tailed  $p$ -value of 0.04 on the  $z$ -statistic of 2.0. In column 5 we also report the results that McKinsey presents for just the US in their 2015 study, since our interest is in US S&P 500® firms.

In all four of columns 2–5, McKinsey's results consistently indicate that for the firms in their samples of large public companies, there is a statistically significant higher likelihood of financial outperformance in top *NHHI*-ranked quartile firms than in bottom *NHHI*-ranked quartile firms. Specifically, the  $z$ -statistics on the differences between the means of  $p(AMFP)$  in Q4 versus Q1 are 2.0, 2.6, and 2.1 in McKinsey's 2015, 2018, and 2020 studies that use all McKinsey's pooled samples of global public firms (# observations = 366, 589, and 533, and  $p$ -values = 0.04, 0.01, and 0.01, respectively), and 2.0 in McKinsey's 2015 study that uses only McKinsey's sample of US plus Canadian public firms (# observations = 186,  $p$ -value = 0.05).

#### 3.2 *Our results for the firms in the S&P 500® Index at 12/31/19*

In Table 6 we present the results of applying McKinsey's approach to the firms in the S&P 500® Index at 12/31/19, as well as results from expanding our analysis beyond McKinsey's in several ways. The key takeaway from Table 6 is that, in contrast to McKinsey's results, we do not find a statistically significant positive correlation between McKinsey's measures of the racial/ethnic diversity of the executive teams of firms in the S&P 500® Index at 12/31/19 and either the likelihood of financial outperformance over 2015–2019 or financial outperformance per se.

Our results in Table 6 that are most directly comparable to McKinsey's are in the gray-shaded cells in panel A, column 2, bordered in black. We propose that these results are comparable to those in the far right column of panel B of Table 5 because both cover large US publicly traded firms ( $n = 497$  S&P 500® firms vs.  $n = 186$  McKinsey US firms) for which financial performance is measured reasonably after the Great Recession (2015–2019 for our S&P 500® firms vs. 2010–2013 for McKinsey's US firms). However, as indicated by these mean  $p(AMFP)$  results in Table 6, panel A, and in sharp contrast to McKinsey's results in the far right column of panel B of Table 5, we find that only 54.0% of the S&P 500® firms that are in the top quartile Q4 of McKinsey's 2015 executive racial/ethnic diversity metric  $DIV\_McK8$  have a positive industry-adjusted EBIT margin, vs. 51.2% in the bottom  $DIV\_McK8$  quartile Q1.<sup>16</sup> The  $z$ -statistic on the difference of 2.8% between 54.0% and 51.2% is a statistically insignificant 0.5 ( $p$ -value = 0.65).

Because our results contradict McKinsey's and do not support McKinsey's interpretation that greater racial/ethnic diversity in a firm's executives "is a business imperative that drives real business results," we expand our tests in five ways designed to assess the robustness of our contrary inference.

First, in panel A, column 2, again within the black-bordered area, we report the mean  $p(AMFP)$  for  $DIV\_McK8$  quartiles Q2 and Q3. If greater executive racial/ethnic diversity is positively associated with industry-adjusted EBIT margin, we would expect that mean  $p(AMFP)$  in  $Q1 < Q2 < Q3 < Q4$ . However, the mean  $p(AMFP)$  figures for Q2 and Q3 do not support this prediction. Thus, the  $z$ -statistic on the difference of  $-5.7\%$  between the mean  $p(AMFP)$  in Q2 and Q1 is  $-0.9$  ( $p$ -value = 0.37).

Second, we extend beyond the probability of financial outperformance per se and compare the mean levels of industry-adjusted EBIT margin in Q4 vs. Q1. Here too, however, we find a statistically insignificant difference, in that the mean industry-adjusted EBIT margin for Q4 is 1.9% vs. 0.8% in Q1, and the  $t$ -statistic on the 1.1% difference in means is 0.9 ( $p$ -value = 0.37).

Third, using the data in all four quartiles but in a continuous and unranked manner, we find that executive racial/ethnic diversity is uncorrelated with the likelihood that a firm's industry-adjusted EBIT margin is positive (Pearson correlation coefficient [ $PCC$ ] = 0.02,  $t$ -statistic = 0.5), and the firm's industry-adjusted EBIT margin ( $PCC$  = 0.02,  $t$ -statistic = 0.5).

Fourth, since in their 2018 and 2020 studies McKinsey use five rather than eight racial/ethnic groups to measure US executive racial/ethnic diversity, in column 2 of panel B we repeat our tests from panel A, column 2, using  $DIV\_McK5$  instead of  $DIV\_McK8$ . We find  $z$ -statistics and correlations using  $DIV\_McK5$  that are even closer to zero than those found using  $DIV\_McK8$ .

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<sup>16</sup> All  $n = 127$  S&P 500® firms with zero executive racial/ethnic diversity are in the bottom quartile, and the  $n = 124$  firms with the highest executive racial/ethnic diversity are in the top quartile.

Fifth, in panels A and B of Figure 1 we present the scatterplots and univariate regression lines for *DIV\_McK8* (y-axis) vs. *AMPF* (x-axis), and *DIV\_McK5* vs. *AMPF*, respectively. The scatterplots do not reveal any outliers, and the univariate regression lines appear visually sound and robust.

Sixth, in columns 3–7 of panels A and B we examine five additional measures of firm financial performance: sales growth, gross margin, ROA, ROE, and TSR, all on an industry-adjusted basis. For each, we repeat the tests done for industry-adjusted EBIT margin. This yielded 40 non-independent *z*-statistics or *t*-statistics testing the null hypothesis that there is no relation between firm financial performance and McKinsey’s metric for executive racial/ethnic diversity in US S&P 500® firms. We find that 37 of the 40 test statistics are insignificant, one is reliably positive, and two reliably negative.

Lastly, in column 8 of panels A and B we calculate the simple average of the corresponding cells in columns 2–7. Once again, we find no evidence of any statistically significant positive relations between the financial performance of S&P 500® firms and McKinsey’s measures of the racial/ethnic diversity of their executives.

The totality of the results we report in Table 6 suggest that despite the imprimatur commonly given to McKinsey’s (2015, 2018, 2020) studies, caution is warranted in relying on their findings to support the view that US publicly traded firms can deliver improved financial performance if they increase the racial/ethnic diversity of their executives. Hewing closely to McKinsey’s approach using a sample of large US public firms, we do not find evidence that is consistent with McKinsey’s results for firms that were in the US S&P 500® at 12/31/19, using average annual financial performance over 2015–2019 and executive race/ethnicity measured in mid-2020.

## 4. Discussion

In this section we provide a critique of McKinsey’s studies. We first appraise McKinsey’s inverse normalized Herfindahl-Hirschman measure of racial/ethnic diversity, highlighting its strengths and weaknesses. We then propose and empirically evaluate two alternative measures of executive racial/ethnic diversity. We also discuss McKinsey’s views of what the positive correlations it reports between executive racial/ethnic diversity and firm financial performance say about causality. Lastly, we outline ongoing work in which we seek to identify and measure the presence, sign, and magnitude of causal relations between executive racial/ethnic diversity and firm financial performance.

### 4.1 *Strengths and weaknesses of McKinsey’s HNNI measure of executive team diversity*

Despite its careful, albeit varied, delineation in academic research (e.g., Philipps and O’Reilly 1998; Harrison and Klein 2007; Lu, Naik, and Teo 2021), the word “diversity” is rarely defined in a

careful manner in either the business or common vernacular. In contrast, a strength of McKinsey's studies is that McKinsey clearly and algebraically define their *HHNI* diversity measure in all three of their 2015, 2018, and 2020 reports. This feature notwithstanding, McKinsey's *HHNI* inverse normalized Herfindahl-Hirschman definition of executive racial/ethnic diversity has three weaknesses.

First, *HHNI* maximizes at  $1/N$  when there are equal numbers or densities of executives from all  $N$  races/ethnicities in a given firm. This is problematic because neither the US population nor the US labor force contains equal numbers of each race/ethnicity. From a real-world point of view, *HHNI* can therefore likely only be at its maximum in a subset of US firms, not in all US firms.

Second, *HHNI* yields the result that any set of executive racial/ethnic densities (RAEDs) that differs from equal densities is less diverse than equal densities. We suggest that this runs counter to the intuition that a firm whose executive RAEDs are equal to the US population (USPopRAED) is more racially/ethnically diverse than a firm whose executives RAEDs are equal across all  $N$  races/ethnicities. This concern is amplified in that the number of races/ethnicities  $N$  is undefined. As we illustrate in appendix B, for a given set of  $M$  executives and  $N$  racial/ethnic groups with an equal number of  $M/N$  executives in each group and thus  $HHNI\_N = 1$ , diversity as measured by *HHNI* can decrease to  $HHNI\_N^* < 1$  if the number of racial/ethnic groups is reduced to  $N^* < N$ . The reverse is also true, that diversity per *HHNI* can decrease when one starts with  $M$  executives,  $N^*$  racial/ethnic groups and an equal number of  $M/N^*$  executives in each group, so  $HHNI\_N^* = 1$ , but then reclassifies the executives into  $N > N^*$  groups.

Third, McKinsey's *HHNI* metric yields what we propose is the counter-intuitive outcome that firm ABC that has the same executive racial/ethnic densities RAEDs of the US population (USPopRAED) is as equally diverse as firm XYZ that has the same race/ethnicity densities as USPopRAED except that the race/ethnicity densities are spread out "oppositely" or in some other way different from those of USPopRAED. For example, the 2019 USPopRAEDs are American Indian/Alaska Native = 1.0%, Asian/Pacific Islander = 6.4%, Black = 13.0%, Hispanic = 18.5%, and White = 61.2% (Green and Hand 2021, appendix C). One can readily calculate that  $HHNI\_(\text{aian, api, b, h, w}) = HHNI\_ (1.0\%, 6.4\%, 13.0\%, 18.5\%, 61.2\%) = 0.77 = HHNI\_ (61.2\%, 18.5\%, 13.0\%, 6.4\%, 1.0\%) = HHNI\_ (6.4\%, 18.5\%, 61.2\%, 13.0\%, 1.0\%)$ . However, we propose that it is unlikely that business leaders, employees, activists and consultants will view a firm whose executive team is 61.2% American Indian/Alaska Native, 18.5% Asian/Pacific Islander, 13.0% Black, 6.4% Hispanic and 1.0% White (exactly the inverse of USPopRAED) to be as equally racially/ethnically diverse as a firm whose executive team is 1.0% American Indian/Alaska Native, 6.4% Asian/Pacific Islander, 13.0% Black, 18.5% Hispanic and 61.2% White (the current USPopRAED percentages).

Fourth, McKinsey's *HNNI* metric ignores key economic aspects of the supply of and demand for executive talent. We propose that because large US publicly traded firms are likely to have been financially very successful, their demand in hiring proto-executive talent into their organizations will historically have centered on hiring the academically strongest BA/BS graduates,<sup>17</sup> particularly at the point when such students are graduating and their talent can be shaped to fit the firm's specific needs. Green and Hand (2021) suggest that this feature of firms' demand will be supplied best by the academically most top-ranked US colleges and universities, such as those on the *New York Times* (NYT) list of the top 100 US four-year colleges and universities (Ashkenas, Park, and Pearce, 2017). Green and Hand develop a measure of the executive RAEDs that would be expected to be observed in S&P 500 firms based on the RAEDs of seniors who graduated from institutions on the NYT list, matched to executives' BA/BS graduation years. They refer to these "top BA qualified" expected RAEDs as ERAEDs. We leverage Green and Hand's TBQ-based ERAEDs to propose an alternative quantitative measure of the racial/ethnic diversity of firms' executives, which we denote as *DIV\_TBQ* per equation (2) below.

$$DIV\_TBQ_j = 1 - \sum_{i=1}^N (RAED_{ij} - ERAED_{ij})^2 \quad (2)$$

*DIV\_TBQ* maximizes when executive RAEDs exactly match the ERAEDs of the TBQ benchmark. We propose that this is both economically plausible and practically feasible, not only for any single firm, but for firms as a whole.<sup>18</sup> Separate from but related to *DIV\_TBQ*, we also propose that the degree of racial/ethnic diversity in executives could be measured by setting the benchmark against which RAEDs are assessed to be the USPopRAED. This leads to a second alternative to *DIV\_McK*:

$$DIV\_USPop_j = 1 - \sum_{i=1}^N (RAED_{ij} - USPopRAED_i)^2 \quad (3)$$

#### 4.2 Empirical relations between firm financial performance and *DIV\_TBQ* and *DIV\_USPop*

In panels A and B of Table 7 we report the results of applying the same suite of tests to *DIV\_TBQ* and *DIV\_USPop* as we used in evaluating *DIV\_McK8* and *DIV\_McK5* per Table 6. We note the following findings.

First, panel A shows there are no reliably nonzero relations between any of the seven measures of firm financial performance and *DIV\_TBQ*. That is, the degree to which a firm's executives are close

<sup>17</sup> We use the term BA/BS to refer to all bachelor's degrees, i.e., degrees received from a college or university at the completion of undergraduate study.

<sup>18</sup> *DIV\_TBQ* per equation (1) is intended to be illustrative. It could be adapted to reflect symmetric or asymmetric loss functions over the RAED – ERAED of one or more races/ethnicities, or alternative power functions.

to or far away from their top BA qualified ERAEDs (measured in total within a firm) is uncorrelated with the firm's financial performance. Second, and in a modicum of contrast, panel B shows that *DIV\_USPop* is reliably negatively correlated with revenue growth, gross margin and ROA, and reliably positively correlated with ROE. This suggests that on balance, firms whose executives are closer to their racial/ethnic proportions in the US population exhibit marginally worse financial performance than firms whose executives are further from their US population RAEDs.

#### 4.3 *Causality: Testing for the presence, sign, and magnitude of causal relations between executive racial/ethnic diversity and firm financial performance*

In all three of their studies, McKinsey clearly states that the positive relation they report between executive racial/ethnic diversity and EBIT margin is a correlation and not a causal link that shows that higher racial/ethnic diversity of executives causes higher firm financial performance.<sup>19</sup> Indeed, McKinsey notes that better firm financial performance may lead companies to diversify as defined by *DIV\_McK5* and *DIV\_McK8*.<sup>20</sup> This is an important sidebar because McKinsey measures firm financial performance over the four or five years leading up to the year in which they measure the race/ethnicity of the firm's executives, making the default direction of causality captured in their correlations that of better firm financial performance causing companies to diversify the racial/ethnic composition of their executives, not the reverse.

The vital importance of determining whether, where, when, how, and why one or more causal relations exist between the racial/ethnic composition of a firm's executives and the firm's financial performance leads us to propose that a first-pass way to answer the causal question is a longitudinal approach. McKinsey recognizes this and states, "As with many levers of business performance, particularly at such a high level, [establishing a causal relation] would be challenging to demonstrate, likely requiring detailed longitudinal studies" (2020, p. 38, our elucidating text in square brackets). However, McKinsey's reports do not contain such analyses.<sup>21</sup> Thus, future research could seek to

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<sup>19</sup> "The relationship between diversity and performance highlighted in the research is a correlation, not a causal link" (2015, p. 2); "[c]orrelation does not prove that the relationship is causal" (2015, p. 3); "correlation does not demonstrate causation" (2018, p. 2); "[t]he same caveats apply to the correlation analyses reported here as did in 'Why Diversity Matters': correlation is not causation" (2018, p. 5). Very similar statements to those from McKinsey's 2018 study are included in their 2020 study. At the same time, however, the titles of McKinsey's studies imply in their wordings that they are taking a causal view of the evidence they present: thus, "Diversity Matters" (2015), "Delivering through Diversity" (2018) and "Diversity Wins: How Inclusion Matters".

<sup>20</sup> "It is theoretically possible that the better financial outperformance enables companies to achieve greater levels of diversity. Companies that perform well financially may choose to deploy more of their resources toward more advanced talent strategies, thus allowing them to attract more diverse talent, for example." (2018, p. 39).

<sup>21</sup> We approached McKinsey and asked if they would share their data with us so that we could undertake a longitudinal analysis of it. They declined, citing internal policies pertaining to not releasing data that would relate to clients. The severity of this stricture meant that McKinsey would not release to us even the names of the firms in their datasets.

undertake causally oriented analysis by, for example, using WaybackMachine to gather historical data on the race/ethnicity of executives for all firms in the S&P 500® Index as of mid-2002, 2005, 2008, 2011, 2014 and 2017, with the goal of adding such data to the mid-2020 data we employ. Combined with historical data on the six metrics of firm financial performance we use in this study, measured leading up to, in the year of, and after the year in which we judge the race/ethnicity of firms' executives, a longitudinal dataset would allow researchers to conduct conventional quasi-experimental regression-based tests as to whether there is or is not a statistically reliable relation between executive racial/ethnic diversity in year  $t$  and firm financial performance leading up to  $t$ , in  $t$ , or after  $t$ , and if so, what the sign and the magnitudes of the relations are.<sup>22</sup>

#### 4.4 *Caveats*

As with any study, our research comes with several caveats. First, our sole focus is on US firms. We therefore make no comments regarding McKinsey's findings on non-US firms. Second, S&P 500® firms are not a random sample of US publicly traded firms. Our results should therefore not be assumed to automatically generalize to the population of US publicly traded firms. Third, because we do not undertake in-depth biographical analysis, our method of identifying executive race/ethnicity is likely to undercount non-Whites and overcount Whites, primarily because non-White individuals' faces and/or names can sometimes appear similar to European faces and/or names, and vice-versa. While we do not believe this is likely to lead to biases in the inferences we make in our study, executive-specific information from List Service Direct (LSD) could be used to augment our current face-plus-names approach to judging race/ethnicity. LSD uses a person's name(s) to estimate their race/ethnicity. The strength of LSD's approach is that it provides likely less-biased identification of Hispanics. However, the weakness of LSD's approach is that it focuses solely on name-based information and thus sets entirely aside the value of face-based information.<sup>23</sup>

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<sup>22</sup> Our intent is to make our datasets publicly available upon publication of the main paper(s) in our set of existing research projects that draw on our datasets.

<sup>23</sup> We do not adjust any other visually identified races/ethnicities using LSD data for two reasons. First, Green and Hand (2021) use CEO and CFO data from Crist|Kolder Associates that allow them to cross-check the accuracy of their visual identification method. They find that their visual identification method, which we also use in this paper, identified API and Black executives in a fairly accurate manner. Second, because many Black and White names are not distinguishable, LSD underidentifies (overidentifies) the number of Black (White) individuals (Brochet et al. 2019; Flam et al. 2020).

## 5. Conclusions

In a series of influential studies, McKinsey (2015, 2018, 2020) report finding a statistically significant positive relation between the industry-adjusted EBIT margin of global samples of large public firms and the racial/ethnic diversity of their executives. However, when we revisit McKinsey's tests using recent data for US S&P 500® firms, we find statistically insignificant relations between McKinsey's inverse normalized Herfindahl-Hirschman measures of executive racial/ethnic diversity and not only industry-adjusted EBIT margin, but also industry-adjusted sales growth, gross margin, ROA, ROE and total shareholder return (TSR).

Our findings lead us to two main conclusions and an emphasis. First, while our results do not rule out the possibility that under some circumstances or in some time periods greater executive racial/ethnic diversity may be economically beneficial to firms, we conclude that caution is warranted in relying on McKinsey's findings to support the view that US publicly traded firms can deliver improved financial performance if they increase the racial/ethnic diversity of their executives. Indeed, the structure of McKinsey's tests are such that by measuring firm financial performance over the four or five years leading up to the year in which they judge the race/ethnicity of firms' executives, the default direction of causality that McKinsey capture in the positive correlation they report is that better firm financial performance causes firms to diversify the racial/ethnic composition of their executives, not the reverse.

Second, we conclude that in light of the prominence of the connections between firm financial performance and the racial/ethnic composition of their employees, not just in the US but around the world, there is great value in future research that would seek to empirically test for the presence, sign, magnitude, and direction of any causal relations that exist. Such longitudinal and causality-oriented study may also help bring into sharper focus the identities and sizes of the costs and benefits, as well as the risks and returns, that are associated with higher or lower racial/ethnic diversity, not only in firms' executives, but in their Boards of Directors and rank-and-file employees.

Lastly, we emphasize that in light of the challenging nature of matters to do with race/ethnicity in the US, our findings, like those of McKinsey, are limited. While our results do speak to the lack of robustness of McKinsey's (2015, 2018, 2020) studies vis-à-vis large public US firms, they do not speak to the connections between racial/ethnic diversity in employees and/or Boards and either firm financial performance or non-financial firm goals, nor to intra-firm activities. Nor do they speak to any social or moral contributions that racial/ethnic diversity in US executives provide. Such research is most worthwhile and important, but it is outside of our area of expertise.



## References

- Ashkenas, J., Park, H., and A. Pearce. 2017. [Even with affirmative action, Blacks and Hispanics are more underrepresented at top colleges than 35 years ago](#). *New York Times*, Aug. 24, 2017.
- Brochet, F., Miller, G., Naranjo, P., and G. Yu. 2019. Managers' cultural background and disclosure attributes. *The Accounting Review* 94, 57–86.
- Edmans, A. 2018. [The business case for diversity: A critical look at the evidence](#). 2/17/18.
- Ely, R. J. and D. A. Thomas. 2020. Getting serious about diversity: Enough already with the business case. *Harvard Business Review*, Nov-Dec. 98, 6: 114-122.
- Flam, R. W., Green, J. G., Lee, J. A., and N. Y. Sharp. 2020. A level playing field? Empirical evidence that ethnic minority analysts face unequal access to corporate managers. Working paper, Texas A&M University.
- Gow, I. D., Larcker, D. F., and E. M. Watts. 2020. Board diversity and shareholder voting. Working paper, Yale School of Management.
- Green, J., and J. R. M. Hand. 2021. Measuring and calibrating the racial/ethnic densities of executives in US publicly traded firms. Working paper, UNC–Chapel Hill.
- Harrison, D. A. and K. J. Klein. 2007. What's the difference? Diversity constructs as separation, variety, or disparity in organizations. *The Academy of Management Review*, 32(4), 1199–1228.
- Herring, C. 2009. Does diversity pay? Race, gender and the business case for diversity. *American Sociological Review* 74(2), 208–224.
- Holger, D. 2019. The business case for more diversity. *Wall Street Journal*, Oct. 19, 2019.
- Kim, M. 2018. [If your boss is still asking about the “business case” for diversity, your company’s in trouble](#). Medium.com, 3/26/18.
- Larcker, D. and B. Tayan. 2020. *Diversity in the C-Suite: The Dismal State of Diversity Among Fortune 100 Senior Executives* (Stanford: Rock Center for Corporate Governance, Apr. 1, 2020).
- Levitt, A., Jr. 2021. If corporate diversity works, show me the money. *Wall Street Journal*, Jan. 20, 2021.
- Lorenzo, R. and M. Reeves. 2018. How and where diversity drives financial performance. *Harvard Business Review*, Jan. 30, 2018.
- Lorenzo, R., Voigt, N., Schetelig, K., Zawadzki, A., Welp, I. M., and Brosi, P. 2017. *The Mix That Matters* (Boston Consulting Group, Apr. 2017).
- Lorenzo, R., Voigt, N., Tsusaka, M., Krentz, M. and K. Abouzahr. 2018. *How Diverse Leadership Teams Boost Innovation* (Boston Consulting Group, Nov. 2018).
- Lu, Y., Naik, N., and M. Teo. 2021. Diverse hedge funds. Working paper, University of Central Florida.
- McKinsey: Hunt, V., Layton, D., and S. Prince. 2015. *Diversity Matters* (London: McKinsey & Company, Feb. 2, 2015).
- McKinsey: Hunt, V., Prince, S., Dixon-Fyle, S., and L. Yee. 2018. *Delivering through Diversity* (London: McKinsey & Company, January 2018).
- McKinsey: Hunt, V., Prince, S., Dixon-Fyle, S., and K. Dolan. 2020. *Diversity Wins: How Inclusion Matters* (London: McKinsey & Company, May 2020).

- McKinsey: Diaz, A., Montgomery Tabron, L. A., Rangel, C., Wittenberg, J., Burns, S., Florant, A., Haas, S., Magni, M., and Ramos, P. 2021. *Racial Equity in Financial Services* (McKinsey Global Publishing, in collaboration with the W.K. Kellogg Foundation, September 2020).
- Norbash, A., and Kadom, N. 2020. The business case for diversity and inclusion. *Journal of the American College of Radiology* 17, 676–680.
- Phillips, K. W., and C. A. O'Reilly. 1998. Demography and diversity in organizations: A review of 40 years of research. *Research in Organizational Behavior* 20, 77–140.
- Pitts, D. W. 2005. Diversity, representation, and performance: Evidence about race and ethnicity in public organization. *Journal of Public Administration Research and Theory* 16(4), 615–631.
- Richard, O. C., Triana, M. D. C., and Li, M. 2020. The effects of racial diversity congruence between upper management and lower management on firm productivity. *Academy of Management Journal*, in press.
- Teachman, J. D. 1980. Analysis of population diversity. *Sociological Methods and Research* 8, 341–362.
- Whelan, E. 2021. Racial discrimination goes better with Coke? *National Review* (Feb. 11, 2021).
- Wittenberg, A. 2017. Why diversity is good for your bottom line. *Fortune* (Jan. 18, 2017).

## Appendix A

This appendix presents screenshots of the raw firm and executive data items for four example firms in the random sample (RS), along with an explanation of what each data item means, how it was collected, and how it was coded. An identical data structure applies to firms in the S&P 500® sample (SP).

Panel A: Items 1-19

RS or SP	Is firm also in SP500 dataset?	YWP, YWN or NWN?	RS Firm ID	RS Company Name	RS Webpg 1	RS Webpg 2	RS Webpg 3	RS Webpg 4	RS Exec #	RS Last name(s)	RS First name(s)	RS Middle initial(s)	RS Chief or Officer 1	RS Chief or Officer 2	RS Chief or Officer Domain	RS Rank or Title	RS Rank or Title Domain	RS Area
RS	0	YWP	1	CENTRUS ENERGY CORP	Home	Who We	Leadersh	Executive	1	Poneman	Daniel	B	CEO	President	CEO-PRES			Field Oper
RS	0	YWP	1	CENTRUS ENERGY CORP					2	Cutlip	Larry	B				SVP	SVP	ELEU Oper
RS	0	YWP	1	CENTRUS ENERGY CORP					3	Dyke	Elmer					EVP	EVP	
RS	0	YWP	1	CENTRUS ENERGY CORP					4	Scott	Dennis	J	CS	GC	Legal	SVP	SVP	
RS	0	YWP	1	CENTRUS ENERGY CORP					5	Strawbridg	Philip		CFO	Chief Acco	Finance	SVP	SVP	
RS	0	YWP	1	CENTRUS ENERGY CORP					6	Donelson	John	MA				SVP	SVP	
RS	0	YWP	1	CENTRUS ENERGY CORP					7	Howe	Jim					VP	VP	Governme
RS	0	YWP	1	CENTRUS ENERGY CORP					8	Leistikow	Dan					VP	VP	Corporate
RS	0	YWN	2	FIRST NATIONAL CORP/VA	Home	Investor	Corporat	Senior M	1	Harvard	Scott	C	CEO		CEO-PRES			
RS	0	YWN	2	FIRST NATIONAL CORP/VA					2	Dysart	Dennis	A	COO	President	Operations			
RS	0	YWN	2	FIRST NATIONAL CORP/VA					3	Bell	Shane	M	CFO		Finance	EVP	EVP	
RS	0	NWN	17	PLANET GREEN HOLDINGS CORP					1	Zhou	Bin		CEO		CEO-PRES			
RS	0	NWN	17	PLANET GREEN HOLDINGS CORP					2	Hu	Lili		CFO		Finance			
RS	0	NWN	17	PLANET GREEN HOLDINGS CORP					3	Cui	Daqi		COO		Operations			
RS	0	NWN	17	PLANET GREEN HOLDINGS CORP					4	Yin	Mingze					Director	BU-CEO-PR	Investor Re
RS	0	YWP	488	MEDIFAST INC	Investor	Management			1	Chard	Daniel	R	CEO		CEO-PRES			
RS	0	YWN	488	MEDIFAST INC					2	Kelleman	Joe		CFO		Finance			
RS	0	YWP	488	MEDIFAST INC					3	Tyree	Tony		Chief Marketing Office		Marketing			
RS	0	YWP	488	MEDIFAST INC					4	Johnson	Nicholas					President	BU-CEO-PR	Coach & Cl
RS	0	YWP	488	MEDIFAST INC					5	Baker	Bill					EVP	EVP	Informatio
RS	0	YWP	488	MEDIFAST INC					6	Groves	Jason	L	GC	CS	Legal	EVP	EVP	
RS	0	YWP	488	MEDIFAST INC					7	Greninger	Claudia					EVP	EVP	HR

- Item 1 RS or SP. Indicator to denote whether firm is from the random sample or S&P® 500 sample.
- Item 2 Indicator = 1 if firm is in both the RS and SP datasets. There are 54 such overlap firms.
- Item 3 YWP = firm website shows the named executive and their photo.  
YWN = firm website shows the named executive but not their photo.  
NWN = firm website does not show an/the executive's name or photo.
- Item 4 Firm ID = for RS, runs from 1-523.
- Item 5 Firm name per Compustat.
- Item 6 Webpg 1 = 1<sup>st</sup> level in firm's website address identifying the page with the executive on it.
- Item 7 Webpg 2 = 2<sup>nd</sup> level in firm's website address identifying the page with the executive on it.
- Item 8 Webpg 3 = 3<sup>rd</sup> level in firm's website address identifying the page with the executive on it.
- Item 9 Webpg 4 = 4<sup>th</sup> level in firm's website address identifying the page with the executive on it.
- Item 10 Executive #, coded in the order shown on firm's website (if in a row, order taken is left to right).
- Item 11 Last name(s) of executive.
- Item 12 First name(s) of executive.
- Item 13 Middle initial(s) of executive.
- Item 14 Chief or Officer 1 = 1<sup>st</sup> of a maximum of two Chief or Officer positions ascribed to the executive.
- Item 15 Chief or Officer 2 = 2<sup>nd</sup> of a maximum of two Chief or Officer positions ascribed to the executive.
- Item 16 Chief or Officer Domain = category covering one or more Chief or Officer 1 or 2 positions.
- Item 17 Rank or Title = rank or title of executive, outside of Chief and Officer 1 or 2.
- Item 18 Rank or Title Domain = category covering one or more Ranks or Titles.
- Item 19 Area = area of business responsibility covered by the executive, as judged by authors based on the text provided about the executive on firm's website.

## Appendix A (continued)

### Panel B: Items 20-32

YWP, YWN or NWN?	RS Firm ID	RS Company Name	RS Photo	RS Photo Source	RS Gender	McK 2015 race/ethnicity aa,eur,ne,ea, sa,lat,na,pi,an	McK 2018 US + NCES IPEDS race/ethnicity w,b,h,api,aian	RS Visual est age	RS Formal attire?	RS Jacket?	RS Tie?	RS Smile (1-10)	RS Pay (\$M) Yahoo! Finance	RS Year Born Yahoo! Finance	RS True Age @ Feb-20
YWP	1	CENTRUS ENERGY CORP	y	Website	m	eur	w	60	y	y	y	10	\$ 1.56	1956	64
YWP	1	CENTRUS ENERGY CORP	y	Website	m	eur	w	55	y	y	y	5			
YWP	1	CENTRUS ENERGY CORP	y	Website	m	eur	w	55	y	y	y	7	\$ 0.65	1964	56
YWP	1	CENTRUS ENERGY CORP	y	Website	m	eur	w	55	y	y	y	8			
YWP	1	CENTRUS ENERGY CORP	y	Website	m	eur	w	55	n	y	n	5		1955	65
YWP	1	CENTRUS ENERGY CORP	y	Website	m	eur	w	40	y	y	n	7			
YWP	1	CENTRUS ENERGY CORP	y	Website	m	eur	w	60	y	y	n	6			
YWP	1	CENTRUS ENERGY CORP	y	Website	m	eur	w	45	y	y	n	6			
YWN	2	FIRST NATIONAL CORP/VA	y	LIN	m	eur	w	65	y	y	y	7	\$ 0.44	1955	65
YWN	2	FIRST NATIONAL CORP/VA	y	LIN	m	eur	w	50	y	y	y	8	\$ 0.30	1972	48
YWN	2	FIRST NATIONAL CORP/VA	y	LIN	m	eur	w	45	y	y	y	6	\$ 0.28	1973	47
NWN	17	PLANET GREEN HOLDINGS CORP	n		m								\$ 0.10	1990	30
NWN	17	PLANET GREEN HOLDINGS CORP	n		f								\$ 0.05	1979	41
NWN	17	PLANET GREEN HOLDINGS CORP	y	LIN	m	ea	api	50	y	y	y	4	\$ 0.10	1967	53
NWN	17	PLANET GREEN HOLDINGS CORP	n		m										
YWP	488	MEDIFAST INC	y	Website	m	eur	w	55	y	y	y	7	\$ 2.04	1965	55
YWN	488	MEDIFAST INC	y	LIN	m	eur	w	60	y	y	n	5			
YWP	488	MEDIFAST INC	y	Website	m	aa	b	55	y	y	y	6	\$ 0.70	1965	55
YWP	488	MEDIFAST INC	y	Website	m	eur	w	45	y	y	y	4	\$ 0.56	1980	40
YWP	488	MEDIFAST INC	y	Website	m	eur	w	45	y	y	y	7	\$ 0.58	1972	48
YWP	488	MEDIFAST INC	y	Website	m	aa	b	45	y	y	y	5			
YWP	488	MEDIFAST INC	y	Website	f	lat	h	45	y	y	n	7			

- Item 20 Photo = y if a photo of the executive was found on the firm's website, else the executive's LinkedIn page (LIN), else the firm's Bloomberg profile (BB), else business media (OTH).
- Item 21 Photo source: If photo = y, photo source = firm's website, LIN, BB or OTH.
- Item 22 Gender: Male or female, based on the executive's photo and/or bio, where available.
- Item 23 McK 2015 race/ethnicity. We classified an executive's race/ethnicity by visually examining their photo and first and last names. All classifications were done by the same coauthor. The most granular racial/ethnic categories we employ are those of Hunt, Layton, and Prince (McKinsey, 2015). With our lowercase descriptor tag of each race/ethnicity category shown in parentheses, these are African ancestry (aa), European ancestry (eur), Near Eastern (ne), East Asian (ea), South Asian (sa), Latino (lat), Native American (na), and Other (o). We specify Other as either Pacific Islander (pi) or Alaska Native (an). We use the nomenclature American Indian (ai) rather than Native American because American Indian is the nomenclature used in much of the historical data that we extract from the National Center for Educational Statistics' Integrated Postsecondary Education Data System (NCES IPEDS).
- Item 24 NCES IPEDS race/ethnicity. NCES IPEDS specifies five race/ethnicity categories outside of Nonresident aliens (lowercase descriptor tag of each race/ethnicity category in parentheses: American Indian/Alaska Native (aian), Asian/Pacific Islander (api), Black (b), Hispanic (h), White (w). We connect McK 2015 race/ethnicity categories with the NCES IPEDS race/ethnicity categories by defining b = aa, w = eur + ne, api = ea + sa + pi, h = lat, aian = na + an (see item 23 for McK category descriptor tags). NCES IPEDS' race/ethnicity categories match closely with those used for US executives in McKinsey's 2018 and 2020 studies (Hunt, Prince, Dixon-Fyle, and Yee, 2018; Dixon-Fyle, Hunt, Dolan, and Prince, 2020).
- Item 25 Visual est age. Age of the executive as judged by the same coauthor from their photo, assigned into one of the following point estimates: 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90.
- Item 26 Formal attire? = y if executive was wearing formal attire as judged from the executive's photo by the same coauthor (sometimes not possible if photo was only of the executive's face).
- Item 27 Jacket? = y if executive was wearing a jacket as judged from their photo by the same coauthor (sometimes not possible if photo was only of the executive's face).
- Item 28 Tie? = y if executive was wearing a tie as judged from the executive's photo by the same coauthor (sometimes not possible if photo was only of the executive's face).

## **Appendix A (continued)**

- Item 29 Smile (1-10). Degree of genuine smile on the executive's face as judged from the executive's photo by the same coauthor, where 1 = not at all smiling/"very grumpy" and 10 = very wide, "joyous" smile.
- Item 30 Pay (\$M) Yahoo! Finance. If executive is one of the maximum of five individuals listed on the firm's Yahoo! Finance Profile page, Pay is the amount of "salary, bonuses etc." for the last fiscal year ending December 31, 2019.
- Item 31 Year Born Yahoo! Finance. If executive is one of the maximum of five individuals listed on the firm's Yahoo! Finance Profile page, Year Born is the executive's YYYY year of birth.
- Item 32 True Age @ Feb-20. If Year Born is available, True Age @ Feb-20 is the age of the executive to the nearest one year as of February 2020.

## Appendix B

This appendix illustrates that McKinsey's inverse normalized Herfindahl-Hirschman *HNNI* measure of the racial/ethnic diversity can decrease below its maximum level of 1.0 when the number of races/ethnicities increases or decreases. Panel A shows that starting from a given set of *M* executives and *N* racial/ethnic groups with an equal number of *M/N* executives in each group and thus *HNNI\_N* = 1, diversity as measured by *HNNI* can decrease to *HNNI\_N\** < 1 if the number of racial/ethnic groups is reduced to *N\** < *N* as below. The reverse is also true, that diversity per *HNNI* can decrease when starting from *M* executives, *N\** racial/ethnic groups and an equal number of *M/N\** executives in each group, and *HNNI\_N\** = 1, the *M* executives are reclassified into *N* > *N\** groups as below.

Panel A: Illustration of case of reducing the number of races/ethnicities from *N* = 9 to *N\** = 5

Starting with <i>M</i> = 45 executives equally spread over <i>N</i> = 9 racial/ethnic groups					After reclassifying the <i>M</i> = 45 executives into <i>N*</i> = 5 < <i>N</i> racial/ethnic groups				
RAETH	# execs	1/ <i>N</i>	Marginal RAED		RAETH	# execs	1/ <i>N*</i>	Marginal RAED	
1 ai	5	0.111	0.012	>>>>>	1 aian	10	0.200	0.049	
2 an	5	0.111	0.012		1 aian				
3 b	5	0.111	0.012		2 b	5	0.200	0.012	
4 eur	5	0.111	0.012		3 w	10	0.200	0.049	
5 ne	5	0.111	0.012		3 w				
6 ea	5	0.111	0.012		4 api	15	0.200	0.111	
7 sa	5	0.111	0.012		4 api				
8 pi	5	0.111	0.012		4 api				
9 h	5	0.111	0.012		5 h	5	0.200	0.012	
Sum	<i>M</i> = 45	1.000	0.111		Sum	<i>M</i> = 45	1.000	0.235	
<b>HNNI_N = 1.000</b>				>>>>>	<b>HNNI_N* = 0.957</b>				

Panel A: Illustration of case of increasing the number of races/ethnicities from *N\** = 5 to *N* = 9

After reclassifying the <i>M</i> = 45 executives into <i>N</i> = 9 > <i>N*</i> racial/ethnic groups					Starting with <i>M</i> = 45 executives equally spread over <i>N</i> = 5 racial/ethnic groups				
RAETH	# execs	1/ <i>N</i>	Marginal RAED		RAETH	# execs	1/ <i>N*</i>	Marginal RAED	
1 ai	4.5	0.111	0.010	<<<<<	1 aian	9	0.200	0.040	
2 an	4.5	0.111	0.010		1 aian				
3 b	9	0.111	0.040		2 b	9	0.200	0.040	
4 eur	4.5	0.111	0.010		3 w	9	0.200	0.040	
5 ne	4.5	0.111	0.010		3 w				
6 ea	3	0.111	0.004		4 api	9	0.200	0.040	
7 sa	3	0.111	0.004		4 api				
8 pi	3	0.111	0.004		4 api				
9 h	9	0.111	0.040		5 h	9	0.200	0.040	
Sum	<i>M</i> = 45	1.000	0.133		Sum	<i>M</i> = 45	1.000	0.200	
<b>HNNI_N = 0.975</b>				<<<<<	<b>HNNI_N* = 1.000</b>				

**Table 1**

Waterfall criteria applied in arriving at those S&P 500® firms that were publicly traded on US stock exchanges at 12/31/19 and for which at least one named executive was found on the firm's website, or the firm's Yahoo! Finance profile page, or the firm's Bloomberg profile page, or the firm's Annual Report, or comparably.com. Executives are defined as employees whose names are disclosed on the firm's website as part of the firm's executive, leadership, and/or management teams, or in its set of officers.

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Step	Waterfall	
	1. # firms in S&P 500® Index (SP) at 12/31/2019	500
<i>less:</i>	2. # SP firms with no website or no executive/s on firm's website	(9)
<i>plus:</i>	3. # firms of the n = 9 SP in Step 2 where $\geq 1$ executive was found on Yahoo! Finance, Bloomberg, Annual Report, or comparably.com	6
	= # SP firms with $\geq 1$ named executive	497
<i>less:</i>	4. # RS firms in the n = 497 above where no executive photo could be found	0
	= # SP firms with $\geq 1$ executive with a face photo	497

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**Table 2**

Descriptive statistics on the industry composition and selected firm financial characteristics at 12/31/19 or for the fiscal year ended on or before 12/31/19 for firms in the S&P 500® Index.

<i>Panel A</i>		<i>Panel B</i>			
<i>Fama-French industry</i>		<i>Firm financial characteristics (\$ millions)</i>			
Fama-French 12 Industry:	#		5 <sup>th</sup> pctile	Median	95 <sup>th</sup> pctile
Business Equipment	86	Market cap	\$ 9,842	\$ 20,646	\$ 102,130
Chemicals and Allied Products	21	Total assets	\$ 3,693	\$ 22,684	\$ 153,219
Consumer Durables	10	Total liabilities	\$ 914	\$ 14,563	\$ 143,789
Consumer Nondurables	31	Total equity	\$ 1,653	\$ 6,732	\$ 25,067
Finance	102	Revenue	\$ 1,630	\$ 6,611	\$ 28,563
Healthcare, Medical Equipment, and Drugs	41	COGS	\$ 438	\$ 3,420	\$ 17,342
Manufacturing	45	R&D	\$ -	\$ -	\$ 729
Oil, Gas, and Coal Extraction and Products	22	EBIT	\$ 296	\$ 1,395	\$ 3,949
Other	57	Net income	\$ 175	\$ 912	\$ 3,050
Telephone and Television Transmission	11	CFOPS	\$ 359	\$ 1,697	\$ 6,539
Utilities	30	CAPEX	\$ -	\$ 195	\$ 3,218
Wholesale, Retail, and Some Services	44	TSR	-4%	31%	64%

*Panel C*

*Annual financial performance over the years 2014–2019,  
both raw and Fama-French 12-industry median-adjusted*

Raw: Not industry-adjusted	5 <sup>th</sup> pctile	Median	95 <sup>th</sup> pctile
EBIT margin %	3%	17%	45%
Revenue growth	-12%	6%	33%
Gross margin %	13%	42%	88%
ROA	-1%	5%	19%
ROE	-23%	14%	67%
TSR	-32%	12%	57%
Raw less median of FF12 Industry	5 <sup>th</sup> pctile	Median	95 <sup>th</sup> pctile
EBIT margin %	-17%	0%	23%
Revenue growth	-15%	0%	26%
Gross margin %	-28%	0%	39%
ROA	-8%	0%	11%
ROE	-37%	0%	49%
TSR	-38%	0%	41%



**Table 3**

Descriptive statistics on the key non-race/ethnicity characteristics of the named executives with a face photo as of mid-2020 in the set of firms in the S&P® 500 Index at 12/31/19.

*Panel A: Number of executives per S&P® 500 firm*

# execs	Min.	Mean	Max.
7,246	2	14.6	79

*Panel B: Executive gender*

Male	Female	Total
5,533	1,713	7,246
76%	24%	100%

*Panel C: Executives occupying Chief and Officer positions and executive presidential rank*

Chief or Officer (outright or Co-) position	C-Label	#
CEO	CEO	501
President	Pres	351
Chief Financial Officer	CFO	491
General Counsel or Chief Legal Officer	GC, CLO	452
Chief Operating Officer	COO	170
Corporate Secretary	CS	242
Chief Human Resources (or People) Officer	CHRO	228
Chief Information Officer	CIO	143
Chief Technology Officer	CTO	113
Chief Marketing Officer	CMO	87
Chief Accounting Officer	CACO	84
Chief Diversity/Equity/Inclusion Officer	CDEIO	19
		Rank
		#
Senior Executive Vice-President	SEVP	65
Executive Vice-President	EVP	1,686
Senior Vice-President	SVP	1,676
Vice-President	VP	1,162

**Table 4**

Numbers and densities of executives in S&P 500® firms at 12/31/19 classified into two sets of racial/ethnic (RAETH) categories. [1] Expanding on McKinsey (2015), we classified an executive's RAETH into one of nine categories by visually examining their photo and first and last names. All classifications were done by the same coauthor. The categories are as follows (RAETH tag in parentheses): African ancestry (aa), European ancestry (eur), Near Eastern (ne), East Asian (ea), South Asian (sa), Latino (lat), Native American (na, ai), Pacific Islander (pi) and Alaska Native (an). Following McKinsey (2015, p. 2), we then combined pi and an into the category Other (o) to arrive at McKinsey's (2015) eight RAETH categories. [2] We also created five RAETH supracategories to parallel those used in much of the historical data in the National Center for Educational Statistics' Integrated Postsecondary Education Data System (NCES IPEDS). With our tag for each, These categories (RAETH supracategory tag in parentheses) are American Indian/Alaska Native (aian), Asian/Pacific Islander (api), Black (b), Hispanic (h) and White (w), where aian = ai + an, api = ea + sa + pi, b = aa, h = lat, and w = eur + ne. The five IPEDS' RAETH supracategories closely match those used for US executives in McKinsey (2018, 2020).

Classification by ethnic & racial category per McKinsey (2015)									
Racial/ethnic category per McKinsey (2015)	Native American	Other	East Asian	South Asian	African ancestry	Latino	European ancestry	Near Eastern	
McKinsey racial/ethnic tag	na	≡ pi + an	ea	sa	aa	lat	eur	ne	Total
All Executives #	0	1	191	302	246	149	5,944	98	6,931
RAED %	0.0%	0.01%	2.8%	4.4%	3.5%	2.1%	85.8%	1.4%	100%

Classification per National Center for Education Statistics' Integrated Post-Secondary Education System (NCES)						
	American Indian / Alaska Native	Asian / Pacific Islander	Black non-Hispanic	Hispanic	White non-Hispanic	
	aian = na + an	api = ea + sa + pi	b = aa	h = lat	w = eur + ne	Total
All Executives #	1	493	246	149	6,042	6,931
% of all executives	0.01%	7.1%	3.5%	2.1%	87.2%	100%
CEO #	0	23	6	9	463	501
%	0.00%	4.6%	1.2%	1.8%	92.4%	100%
President #	0	23	4	7	316	350
%	0.00%	6.6%	1.1%	2.0%	90.3%	100%
CFO #	0	22	6	6	447	481
%	0.00%	4.6%	1.2%	1.2%	92.9%	100%
GC or CLO #	0	18	33	7	379	437
%	0.00%	4.1%	7.6%	1.6%	86.7%	100%
COO #	0	8	4	4	150	166
%	0.00%	4.8%	2.4%	2.4%	90.4%	100%
Corporate Secretary #	0	12	14	3	200	229
%	0.00%	5.2%	6.1%	1.3%	87.3%	100%
CHRO #	0	12	25	5	205	247
%	0.00%	4.9%	10.1%	2.0%	83.0%	100%
CIO #	0	21	3	1	147	172
%	0.00%	12.2%	1.7%	0.6%	85.5%	100%
CTO #	0	25	1	2	89	117
%	0.00%	21.4%	0.9%	1.7%	76.1%	100%
CMO #	0	10	3	2	117	132
%	0.00%	7.6%	2.3%	1.5%	88.6%	100%
Chief Accounting Officer #	0	3	3	1	90	97
%	0.00%	3.1%	3.1%	1.0%	92.8%	100%
CDO/CIO/CDIO/DIO #	0	1	8	1	11	21
%	0.00%	4.8%	38.1%	4.8%	52.4%	100%
SEVP or EVP #	0	100	73	31	1,518	1,722
%	0.00%	5.8%	4.2%	1.8%	88.2%	100%
SVP #	0	119	56	63	1,358	1,596
%	0.00%	7.5%	3.5%	3.9%	85.1%	100%
VP #	0	65	33	17	918	1,033
%	0.00%	6.3%	3.2%	1.6%	88.9%	100%

**Table 5**

Relations between McKinsey's inverse normalized Herfindahl-Hirschman metrics of the racial/ethnic diversity of a firm's executives *DIV\_McK8* and *DIV\_McK5* and the firm's average annual financial performance *FP* in McKinsey's 2015, 2018, and 2020 studies. *FP* is measured by EBIT margin. Above-median financial outperformance *AMFP* is defined as a firm's mean *FP* over the benchmark period used in the study less the median *FP* for the McKinsey-defined industry over the same period.  $p(AMFP) = 1$  if  $AMFP > 0$ , else  $p(AMFP) = 0$ . Executive race/ethnicity judgments were made by McKinsey researchers during the year following the last year used in calculating annual *FP*. *DIV\_McK8* uses the eight different racial/ethnic groups delineated in McKinsey (2015, p. 2), while *DIV\_McK5* uses the five racial/ethnic groups delineated in McKinsey (2018, p. 37; 2020, p. 49). Source: McKinsey (2020, p. 14; 2015 p. 6).

*Panel A: McKinsey's normalized Herfindahl-Hirschman measures of the racial/ethnic diversity of S&P 500® firms' executives (DIV\_McK8 and DIV\_McK5 )*

	<i>DIV_McK8</i>	<i>DIV_McK5</i>		<i>DIV_McK8</i>	<i>DIV_McK5</i>
Min	0	0	% = 1	0	0
5%	0	0	% = 0	26%	28%
25%	0	0			
50%	0.25	0.25	Std. dev		
75%	0.39	0.40	of non-	0.15	0.15
95%	0.57	0.58	zero obs.		
Max	0.83	0.86			
# obs	497	497			

*Panel B: Relations between McKinsey's inverse normalized Herfindahl-Hirschman metrics of the racial/ethnic diversity of a firm's executives DIV\_McK8 and DIV\_McK5 and the firm's average annual financial performance FP in McKinsey (2015, 2018, 2020).*

	2015 study		2018 study		2020 study		2015 study	
McKinsey's results per McKinsey (2020, p.14; 2015 p.6)	FP = Firm's EBIT % margin – FF_Ind Median EBIT % margin		FP = Firm's EBIT % margin – FF_Ind Median EBIT % margin		FP = Firm's EBIT % margin – FF_Ind Median EBIT % margin		FP = Firm's EBIT % margin – FF_Ind Median EBIT % margin	
Statistic used to assess average FP in a given decile; FP data window	Mean	FP over p(AMFP) 2010-13	Mean	FP over p(AMFP) 2011-15	Mean	FP over p(AMFP) 2014-18	Mean	FP over p(AMFP) 2010-13
Q1 = lowest exec diversity quartile	43.0%	n = 91 firms per quartile	44.0%	n = 147 firms per quartile	43.0%	n = 133 firms per quartile	41.0%	n = 47 firms per quartile
Q2								
Q3								
Q4 = highest exec diversity quartile	58.0%		59.0%		59.0%		61.0%	
Q4 - Q1	15.0%		15.0%		16.0%		20.0%	
z-stat(Q4 - Q1); 2-tailed p-value	2.0	0.04	2.6	0.01	2.6	0.01	2.0	0.05
Number of racial/ethnic categories	8 per <i>DIV_McK8</i>		5 per <i>DIV_McK5</i> *		5 per <i>DIV_McK5</i> *		8 per <i>DIV_McK8</i>	
* up to 5 racial/ethnic categories in each of 6 geographies.	Countries	# firms	Countries	# firms**	Countries	# firms***	Country	# firms
** estimated using geographic data on 2018 study p.36 applied to n = 589 firms.	US + CAN	186	US + CAN	194	US + CAN	164	US + CAN	186
*** estimated using geographic data on 2020 study p.11 applied to n = 533 firms.	UK	107	Asia/Pac	165	Asia/Pac	138		
	Latin Am	73	Europe	165	Europe	175		
			Latin Am	41	Latin Am	36		
			SS Africa	24	SS Africa	20		

Note 1: We assume that each quartile comprises the same number of firms (to the nearest one firm).

**Table 6**

Relations between McKinsey's inverse normalized Herfindahl-Hirschman measures of the racial/ethnic diversity of S&P 500® firms' executives, *DIV\_McK8* and *DIV\_McK5*, and the firms' annual financial performance *FP*, measured in six ways: EBIT margin, revenue growth, gross margin, ROA, ROE, and TSR. Above-median financial outperformance *AMFP* is defined as a firm's mean *FP* over the period 2015–2019 less the median Fama-French 12-industry *FP* over 2015–2019.  $p(AMFP) = 1$  if  $AMFP > 0$ , else  $p(AMFP) = 0$ . Executive race/ethnicity judgments were made by the authors during May–August 2020 as described in section 2.2. *DIV\_McK8* uses the eight different racial/ethnic groups delineated in McKinsey (2015, p. 2), while *DIV\_McK5* uses the five racial/ethnic groups delineated in McKinsey (2018, p. 37; 2020, p. 49).

*Panel A: Results for S&P 500® firms based on the use of eight racial/ethnic categories in calculating McKinsey's inverse normalized Herfindahl-Hirschman diversity metric *DIV\_McK8**

	Column 2		Column 3		Column 4		Column 5		Column 6		Column 7		Column 8	
Our results using <i>DIV_McK8</i> (usually n = 124 per Quartile)	FP = Firm's EBIT margin – FF12_Ind Median EBIT margin		FP = Firm's Rev growth – FF12_Ind Median Rev growth		FP = Firm's GM% – FF12_Ind Median Gross margin %		FP = Firm's ROA – FF12_Ind Median ROA		FP = Firm's ROE – FF12_Ind Median ROE		FP = Firm's TSR – FF12_Ind Median TSR		Average across all 6 FP measures	
Statistic used to assess average <i>FP</i> in a given decile; <i>FP</i> data window	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>
Q1 = lowest exec diversity quartile	<b>51.2%</b>	0.8%	52.0%	1.3%	44.1%	1.1%	52.8%	1.4%	52.0%	1.0%	52.0%	1.8%	50.7%	1.2%
Q2	45.5%	1.1%	55.3%	2.1%	52.8%	2.7%	48.8%	-0.1%	44.7%	-0.7%	49.6%	-0.3%	49.5%	0.8%
Q3	49.6%	0.4%	56.9%	1.0%	43.1%	-1.1%	43.1%	0.2%	52.0%	0.6%	51.2%	-0.2%	49.3%	0.2%
Q4 = highest exec diversity quartile	<b>54.0%</b>	1.9%	43.5%	0.1%	54.0%	2.1%	52.4%	1.2%	56.5%	5.6%	56.5%	0.8%	52.8%	1.9%
Q4 - Q1	<b>2.9%</b>	1.1%	-8.4%	-1.2%	9.9%	1.1%	-0.3%	-0.3%	4.5%	4.5%	4.5%	-1.0%	2.2%	0.7%
z-stat(Q4 - Q1); t-stat(Q4 - Q1)	<b>0.5</b>	0.9	-1.3	-1.4	1.6	0.5	-0.1	-0.4	0.7	<b>2.1</b>	0.7	-0.7	0.3	0.4
Pearson_correlation( <i>DIV_McK8</i> , <i>FP</i> )	0.02	0.02	-0.07	-0.07	0.07	0.00	-0.02	-0.02	0.04	0.08	0.06	-0.03	0.02	0.00
t-stat(PCC)	0.5	0.5	-1.5	-1.5	1.6	0.0	-0.5	-0.4	0.9	1.7	1.3	-0.6	0.4	0.0

*Panel B: Results for S&P 500® firms based on the use of five racial/ethnic categories in calculating McKinsey's inverse normalized Herfindahl-Hirschman diversity metric *DIV\_McK5**

	Column 2		Column 3		Column 4		Column 5		Column 6		Column 7		Column 8	
Our results using <i>DIV_McK5</i> (usually n = 124 per Quartile)	FP = Firm's EBIT margin – FF12_Ind Median EBIT margin		FP = Firm's Rev growth – FF12_Ind Median Rev growth		FP = Firm's GM% – FF12_Ind Median Gross margin %		FP = Firm's ROA – FF12_Ind Median ROA		FP = Firm's ROE – FF12_Ind Median ROE		FP = Firm's TSR – FF12_Ind Median TSR		Average across all 6 FP measures	
Statistic used to assess average <i>FP</i> in a given decile; <i>FP</i> data window	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>	Mean p( <i>AMFP</i> )	Mean <i>AMFP</i>
Q1 = lowest exec diversity quartile	52.5%	1.4%	52.5%	1.5%	47.5%	2.3%	51.8%	1.4%	52.5%	0.6%	52.5%	1.6%	51.5%	1.5%
Q2	48.3%	1.2%	55.9%	1.8%	52.5%	2.4%	50.8%	0.1%	45.8%	-0.1%	47.5%	0.1%	50.1%	0.9%
Q3	47.9%	-0.1%	59.7%	1.5%	45.4%	-0.1%	46.2%	0.4%	54.6%	2.5%	56.3%	0.5%	51.7%	0.8%
Q4 = highest exec diversity quartile	51.3%	1.5%	39.5%	-0.3%	48.7%	0.0%	47.9%	0.7%	52.1%	3.6%	52.9%	-0.3%	48.7%	0.9%
Q4 - Q1	-1.2%	0.1%	-13.0%	-1.8%	1.2%	-2.3%	-3.9%	-0.7%	-0.4%	3.0%	0.5%	-2.0%	-2.8%	-0.6%
z-stat(Q4 - Q1); t-stat(Q4 - Q1)	-0.2	0.1	<b>-2.1</b>	<b>-2.0</b>	0.2	-1.0	-0.6	-1.0	-0.1	1.4	0.1	-1.4	-0.4	-0.5
Pearson_correlation( <i>DIV_McK5</i> , <i>FP</i> )	-0.01	-0.01	-0.08	-0.07	0.02	-0.04	-0.03	-0.03	0.02	0.06	0.04	-0.04	-0.01	-0.02
t-stat(PCC)	-0.2	-0.2	-1.8	-1.6	0.5	-0.9	-0.7	-0.8	0.4	1.3	0.9	-1.0	-0.1	-0.5

**Table 7**

Relations between two non-McKinsey measures of the racial/ethnic diversity of S&P 500® firms' executives, *DIV\_TBQ* and *DIV\_USPop*, and the firms' annual financial performance *FP* measured in six ways: EBIT margin, revenue growth, gross margin, ROA, ROE, and TSR. Above-median financial outperformance *AMFP* is defined as a firm's mean *FP* over the period 2015–2019 less the median Fama-French 12-industry *FP* over 2015–2019.  $p(AMFP) = 1$  if  $AMFP > 0$ , else  $p(AMFP) = 0$ . Executive race/ethnicity judgments were made by the same one author during May–August 2020 as described in section 2.2. The algebraic definitions of *DIV\_TBQ* and *DIV\_USPop* are provided in section 4.1.

*Panel A: Results for S&P 500® firms using *DIV\_TBQ* to measure the racial/ethnic diversity of executives*

Our results using 1 - USPop sum_abs(V-E) quartile (usually n = 124 per Quartile)	Column 2 FP = Firm's EBIT margin – FF12_Ind Median EBIT margin		Column 3 FP = Firm's Rev growth – FF12_Ind Median Rev growth		Column 4 FP = Firm's GM% – FF12_Ind Median Gross margin %		Column 5 FP = Firm's ROA – FF12_Ind Median ROA		Column 6 FP = Firm's ROE – FF12_Ind Median ROE		Column 7 FP = Firm's TSR – FF12_Ind Median TSR		Column 8 Average across all 6 FP measures	
	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP
Q1 = lowest DIV														
Q1	51.6%	1.7%	54.8%	1.8%	50.0%	3.3%	50.8%	1.2%	50.0%	-0.6%	52.4%	1.4%	51.6%	1.5%
Q2	55.6%	1.6%	51.6%	1.1%	54.8%	2.5%	58.1%	1.1%	55.6%	3.8%	50.8%	0.6%	54.4%	1.8%
Q3	44.8%	1.1%	55.2%	1.8%	48.8%	0.6%	48.8%	0.5%	50.4%	-0.6%	52.0%	0.3%	50.0%	0.6%
Q4	48.4%	-0.2%	46.0%	-0.1%	40.3%	-1.5%	39.5%	-0.2%	49.2%	4.0%	54.0%	-0.2%	46.2%	0.3%
Q4 - Q1	-3.2%	-1.9%	-8.9%	-1.9%	-9.7%	-4.8%	-11.3%	-1.4%	-0.8%	4.6%	1.6%	-1.5%	-5.4%	-1.2%
z-stat(Q4 - Q1) or z-stat(Q4 - Q1)	-0.5	-1.5	-1.4	<b>-2.2</b>	-1.5	<b>-2.0</b>	-1.8	<b>-2.1</b>	-0.1	<b>2.1</b>	0.3	-1.1	-0.8	-1.0
Corr(FP,1-USPop sum_abs(V-E))	-0.06	-0.08	-0.06	-0.07	-0.07	-0.11	-0.08	-0.09	0.02	0.08	-0.01	-0.07	-0.04	-0.06
z-stat(corr)	-1.4	-1.8	-1.4	-1.5	-1.6	<b>-2.4</b>	-1.8	<b>-2.1</b>	0.5	1.8	-0.2	-1.7	-1.0	-1.3

*Panel B: Results for S&P 500® firms using *DIV\_USPop* to measure the racial/ethnic diversity of executives*

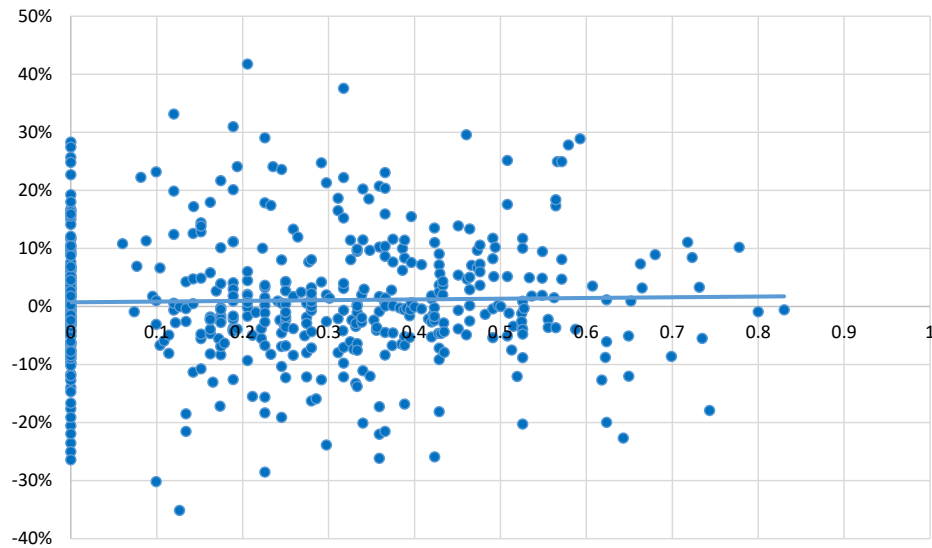
Our results using 1 - Firm RAED sum_abs(V-E) quartile (usually n = 124 per Quartile)	Column 2 FP = Firm's EBIT margin – FF12_Ind Median EBIT margin		Column 3 FP = Firm's Rev growth – FF12_Ind Median Rev growth		Column 4 FP = Firm's GM% – FF12_Ind Median Gross margin %		Column 5 FP = Firm's ROA – FF12_Ind Median ROA		Column 6 FP = Firm's ROE – FF12_Ind Median ROE		Column 7 FP = Firm's TSR – FF12_Ind Median TSR		Column 8 Average across all 6 FP measures	
	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP	Mean p(AMFP)	Mean AMFP
Q1 = lowest DIV														
Q1	53.2%	1.8%	48.4%	1.2%	54.0%	1.6%	50.0%	0.9%	51.6%	2.2%	53.2%	1.3%	51.7%	1.5%
Q2	54.8%	2.1%	56.5%	0.9%	46.8%	2.2%	46.0%	0.4%	54.0%	2.4%	58.1%	1.7%	52.7%	1.6%
Q3	50.4%	0.6%	51.2%	0.6%	48.0%	1.8%	48.8%	0.6%	50.4%	1.9%	40.0%	-1.6%	48.1%	0.6%
Q4	41.9%	-0.4%	51.6%	1.9%	45.2%	-0.7%	52.4%	0.8%	49.2%	0.0%	58.1%	0.8%	49.7%	0.4%
Q4 - Q1	-11.3%	-2.1%	3.2%	0.7%	-8.9%	-2.3%	2.4%	-0.1%	-2.4%	-2.2%	4.8%	-0.5%	-2.0%	-1.1%
z-stat(Q4 - Q1) or z-stat(Q4 - Q1)	-1.8	<b>-1.6</b>	0.5	0.6	-1.4	-1.1	0.4	-0.2	-0.4	-1.0	0.8	-0.4	-0.3	-0.9
Corr(1 - Firm RAED sum_abs(V-E), FP)	-0.09	-0.08	0.05	0.04	-0.07	-0.04	-0.03	-0.05	-0.01	0.01	-0.02	-0.05	-0.03	-0.03
z-stat(corr)	-1.9	<b>-1.9</b>	1.1	0.9	-1.7	-0.9	-0.6	-1.2	-0.1	0.1	-0.5	-1.0	-0.6	-0.7

**Figure 1**

Scatterplots of the relations between McKinsey's inverse normalized Herfindahl-Hirschman measures of the racial/ethnic diversity of S&P 500® firms' executives *DIV\_McK8* (panel A) and *DIV\_McK5* (panel B) and above-median financial outperformance *AMFP* defined as average EBIT margin over 2015–2019 less the median Fama-French 12-industry firm performance over 2015–2019. *DIV\_McK8* uses the eight different racial/ethnic groups delineated in McKinsey (2015, p. 2) while *DIV\_McK5* uses the five racial/ethnic groups delineated in McKinsey (2018, p. 37; 2020, p. 49).

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**Panel A: *AMFP* (y-axis) vs. *DIV\_McK8* (x-axis), with OLS univariate regression line**



**Panel B: *AMFP* (y-axis) vs. *DIV\_McK5* (x-axis), with OLS univariate regression line**

