ecgi

Diversity, Equity, and Inclusion

Finance Working Paper N° 913/2023
May 2023

Alex Edmans
London Business School, CEPR, and ECGI

Caroline Flammer
Columbia University, NBER, and ECGI

Simon Glossner
Federal Reserve Board

ECGI Working Paper Series in Finance

Diversity, Equity, and Inclusion

Working Paper N° 913/2023

May 2023

Alex Edmans
Caroline Flammer
Simon Glossner

We are indebted to the Great Place to Work® for generously sharing their data, and Marcus Erb for answering questions on it. We thank Tom Gosling for helpful comments. We are very grateful to the Ford Foundation and Just Capital for research funding. The analysis and conclusions contained in this paper are those of the authors and do not necessarily reflect the views of the Board of Governors of the Federal Reserve System, its members, or its staff

Abstract

This paper measures diversity, equity, and inclusion (DEI) using proprietary data on survey responses used to compile the Best Companies to Work For list. We identify 13 of the 58 questions as being related to DEI, and aggregate the responses to form our DEI measure. This variable has low correlation with gender and ethnic diversity in the boardroom, in senior management, and within the workforce, suggesting that DEI captures additional dimensions missing from traditional measures of demographic diversity. DEI is also unrelated to general workplace policies and practices, suggesting that DEI cannot be improved by generic initiatives. However, DEI is higher in small growth firms and firms with high financial strength. DEI is associated with higher future accounting performance across a range of measures, higher future earnings surprises, and higher valuation ratios, but demographic diversity is not. DEI perceptions among professional workers, such as R&D employees, are significantly correlated with the number and quality of patents. However, DEI exhibits no link with future stock returns.

Keywords: DEI, diversity, equity, inclusion, ESG, CSR, responsible business

JEL Classifications: G12, G32, J53, J71, J81

Alex Edmans*
Professor of Finance
London Business School, Institute of Finance and Accounting
Regent's Park
London, NW1 4SA, United Kingdom
phone: +44 20 7000 8258
e-mail: aedmans@london.edu

Caroline Flammer
Professor of International and Public Affairs and of Climate
Columbia University
420 West 118th Street, Office 1429
New York, NY 10027, USA
e-mail: caroline.flammer@columbia.edu

Simon Glossner
Economist
Federal Reserve Board
20th & Constitution Ave NW
Washington, DC 20551, USA
e-mail: simon.glossner@frb.gov

*Corresponding Author

Diversity, Equity, and Inclusion

Alex Edmans
London Business School, CEPR, and ECGI

Caroline Flammer
Columbia University, NBER, and ECGI

Simon Glossner
Federal Reserve Board

Current draft: April 29, 2023

Abstract

This paper measures diversity, equity, and inclusion (DEI) using proprietary data on survey responses used to compile the Best Companies to Work For list. We identify 13 of the 58 questions as being related to DEI, and aggregate the responses to form our DEI measure. This variable has low correlation with gender and ethnic diversity in the boardroom, in senior management, and within the workforce, suggesting that DEI captures additional dimensions missing from traditional measures of demographic diversity. DEI is also unrelated to general workplace policies and practices, suggesting that DEI cannot be improved by generic initiatives. However, DEI is higher in small growth firms and firms with high financial strength. DEI is associated with higher future accounting performance across a range of measures, higher future earnings surprises, and higher valuation ratios, but demographic diversity is not. DEI perceptions among professional workers, such as R&D employees, are significantly correlated with the number and quality of patents. However, DEI exhibits no link with future stock returns.

JEL classifications: G12, G32, J53, J71, J81

Keywords: DEI, diversity, equity, inclusion, ESG, CSR, responsible business

* We are indebted to the Great Place to Work® for generously sharing their data, and Marcus Erb for answering questions on it. We thank Tom Gosling for helpful comments. We are very grateful to the Ford Foundation and Just Capital for research funding. The analysis and conclusions contained in this paper are those of the authors and do not necessarily reflect the views of the Board of Governors of the Federal Reserve System, its members, or its staff.
[a] *Email:* aedmans@london.edu, London Business School, Regent's Park, London NW1 4SA.
[b] *Email:* caroline.flammer@columbia.edu, Columbia University, 1022 International Affairs Building, 420 West 118th Street, Office 1429, New York, NY 10027.
[c] *Email:* simon.glossner@frb.gov, Federal Reserve Board of Governors, 20th & Constitution Ave NW, Washington, DC 20551.

1. Introduction

Companies, investors, policymakers, and wider society are paying increased attention to diversity, equity, and inclusion ("DEI") within firms. Some countries have quotas for the proportion of women on the board of directors; several investors have policies to vote against director nominations that do not achieve a certain diversity threshold; and companies are voluntarily launching programs to increase workforce diversity. Corporate customers increasingly incorporate diversity considerations into their selection of suppliers, and retail customers sometimes boycott companies for their non-inclusive stance.[1]

DEI initiatives have two motivations. The first is *financial*: that DEI improves a company's long-term financial performance. Even if individual ability were the only relevant employee attribute, diversity policies could encourage a company to look beyond its traditional source of hires and notice high-ability candidates who might otherwise be overlooked. Moreover, an employee's value depends not only on her ability but also her cognitive diversity – her unique background, experience, and way of approaching problems. In addition, financial performance depends not only on hiring high-ability and cognitively diverse employees, but also fostering a culture of equity and inclusion that allows them to contribute their abilities and perspectives. The second is *social*: the belief that companies have a responsibility to contribute to societal goals. DEI policies ensure that a company provides jobs, and in particular leadership positions, to underrepresented individuals, in turn inspiring the next generation and mitigating social inequalities.

Under both financial and social motives, the relevant measures of DEI are holistic. New ideas, and thus superior financial performance, stem from cognitive rather than purely demographic diversity. Similarly, social outcomes stem from providing opportunities to underrepresented groups

[1] For example, in 2018, two Black men entered a Starbucks in Philadelphia and sat down without buying anything. Store employees asked them to leave; after they declined to do so, one called the police who forcibly removed the men. This led to the hashtag #BoycottStarbucks trending on Twitter.

across all areas – demographic, disability status, socioeconomic, or educational. Moreover, both goals require not only diversity but also equity and inclusion. Hiring minorities to tick a box, but failing to ensure that they can thrive and be themselves at work, will achieve neither the financial benefits of cognitive diversity nor the social outcomes of meaningful employment.

However, given measurement challenges, DEI metrics often focus narrowly on demographic diversity. For example, legal quotas or investor guidelines typically capture only the number of women on the board. Perhaps due to the narrowness of such a measure, academic research on the link between boardroom gender diversity and firm performance typically finds negative or insignificant effects (see Fried (2021) for a summary). Similarly, company reports often include the percentage of females or ethnic minorities in the wider workforce, but neither measure captures cognitive diversity, nor equity and inclusion.

This paper takes a first step towards measuring the DEI of a company, employing proprietary data used by the Great Place to Work® ("GPTW") to compile the list of the 100 Best Companies to Work For in America. Two thirds of the score that determines list inclusion stems from employee responses to the Trust Index™, a 58-question survey on various dimensions of employee satisfaction; the remaining one-third arises from a Culture Audit™ on a company's demographic makeup, pay and benefits programs, and culture. Edmans (2011, 2012) finds that the Best Companies enjoyed superior long-term shareholder returns and earnings surprises over a 28-year period from 1984-2011, suggesting that the dimensions captured by the list are financially material. Boustanifar and Kang (2022) demonstrate that this outperformance continues to hold through to 2020, and Edmans et al. (2023) extend these results to outside the US.

These studies only investigate list inclusion, since the individual responses to the 58 questions are confidential, as are the responses from companies that applied for the list but ended up unsuccessful. Via a confidentiality agreement with GPTW, we obtained the individual responses to all 58 questions

in the Trust Index, for all companies that applied to the list irrespective of whether they were eventually included, from 2006 to 2021. We identified 13 questions that cover DEI, such as "This is a psychologically and emotionally healthy place to work", "I can be myself around here", and "Managers avoid playing favorites." These questions include, but are broader than, questions focused on equity and inclusion based on demographic diversity, such as "people who here are treated fairly regardless of their sex". They are also different from the other 45 questions which are unrelated to DEI, such as "Management makes its expectations clear" and "I am given the resources and equipment to do my job"; thus, any results are specific to DEI rather than due to Best Company status in general. We aggregate employee responses to form a measure that we call *DEI*. Our measure is a "grass-roots" indicator of actual DEI, as perceived by the responses of 250 employees in a company, in contrast to more superficial measures such as whether a company has a DEI policy.

As a preliminary result, we show that *DEI* is only weakly correlated with traditional measures of demographic diversity. The Culture Audit gathers data on a range of diversity metrics, such as the percentages of women and ethnic minorities in both senior management and the wider workforce. *DEI* exhibits only a modest correlation with these measures; for example, its correlation with the percentage of female (minority) employees is 0.16 (-0.04). We supplement the Culture Audit by gathering information on the gender and minority status of the CEO and board of directors, which also have a weak correlation with *DEI*. Thus, our *DEI* measure contains incremental information that would be missed by standard metrics that focus more narrowly on demographic diversity. This has implications for the significant attention paid to diversity metrics paid by companies, investors, employees, the public, the media, policymakers, regulation, and ESG rating agencies – they omit a big piece of the picture. Companies can "hit the target, but miss the point" – improve diversity statistics without improving DEI.

We then study the determinants of DEI, to understand how it is associated with recent financial performance and firm characteristics. We do not use the word "determinants" in a causal sense, because both financial performance and firm characteristics are endogenous. Rather, we are interested in studying what types of firms are associated with a higher level of DEI. We find that DEI is positively associated with one- and three-year sales growth, positively associated with three-year but not one-year stock returns, negatively associated with leverage, and positively associated with dividends. This suggests that a strong financial position frees a company from having to focus on short-term pressures and instead allows it to address longer-term challenges such as DEI. Small and growth (low book-to-market) firms are associated with higher DEI, consistent with their greater ability to increase DEI, given management's proximity to workers, and their greater incentives to do so, given the importance of human capital in such firms.

We then study the workplace policies and practices that are associated with *DEI*. The proportion of women in senior management is positively and significantly associated with *DEI* across all specifications. In terms of economic magnitude, a one standard deviation increase in the percentage of female senior managers is associated with a 0.03 increase in *DEI* (16.2% of the sample standard deviation). One interpretation is that female senior managers are more attuned to DEI issues and directly improve DEI within an organization. A second, non-mutually-exclusive explanation is that women in senior management play a figurehead role, affecting employees' perceptions of DEI or their pursuit of DEI initiatives. However, there is no link between *DEI* and the presence of a female CEO and a negative association with the percentage of women on the board. Since female CEOs and directors are likely to have a particularly strong figurehead effect, this result suggests that the link between DEI and the proportion of women in senior management does not stem from a purely figurehead channel. We also find that DEI is unrelated or negatively related to ethnic diversity in senior management, at the CEO level, or in the boardroom. The insignificance of most demographic

diversity variables suggests that an "add diversity and stir" approach is insufficient to improve DEI. We also explore workplace policies, such as childcare, unpaid parental leave days, sabbaticals, and flextime, to test whether DEI can be easily increased by implementing simple policies. In contrast to this hypothesis, all workplace policies are insignificantly associated with DEI. In addition to policies, we also show that voluntary turnover has no link with *DEI*, and the percentage of unionized workers is negatively linked. This suggests that *DEI* cannot be increased by general efforts to improve the workplace, but instead requires specific, targeted initiatives.

We then turn to the consequences of DEI. Again, we do not use the word "consequences" in a causal sense, since DEI is endogenous. While there exist exogenous shocks to demographic diversity, such as law changes, it is very unlikely that there are such shocks to an intangible variable such as DEI since it cannot be regulated; thus, any study on DEI (regardless of how it is measured) can only document correlations. Rather, we are interested in the future performance of high DEI companies. For example, an investor wishing to buy high-DEI companies or an employee contemplating joining such firms may want to know how they typically perform, even if the future performance cannot be attributed to DEI in isolation. Separately, a positive correlation with future performance moves our prior and attenuates concerns that DEI is at the expense of performance, even if the correlation cannot be shown to be causal.

We find that *DEI* is positively associated with seven out of eight measures of future profitability, such as return on assets, return on sales, profits divided by employees, and sales divided by employees. For example, a one standard deviation increase in *DEI* is associated with a 0.8 percentage point increase in return on assets (9.6% of the sample standard deviation). These results are after controlling for the percentages of female and minority employees; indeed, these variables are insignificantly related to almost all performance measures. We also find that *DEI* is positively associated with valuation measures, such as Tobin's Q, suggesting that the market at least partially

incorporates the value of *DEI*. However, we also find that *DEI* is positively linked to future earnings surprises, indicating that the market does not fully incorporate the performance benefits of *DEI*.

We also study future innovation performance, since one of the main financial arguments for DEI is that it allows for a broader consideration of perspectives and stimulation of ideas which, in turn, may be driving increased innovativeness and financial performance. We find that *DEI* is unrelated to either the number of future patents or patent citations. However, the granular nature of our data allows us to stratify the survey responses by job category. We find that DEI perceptions of professionals, a job category that includes R&D staff, are positively and significantly correlated with both innovation measures, but there is no positive link with the responses from the three other categories: executives, managers, and hourly workers. This is consistent with the fact that innovation is most likely to stem from professionals.

Finally, we study future stock returns. Somewhat surprisingly, given prior results on profitability, innovation, and earnings surprises, we find no link between DEI and stock returns, after controlling for either firm characteristics in firm-level regressions or risk in portfolio regressions.

This paper is linked to existing research on diversity, which typically focuses on demographic diversity in the boardroom given data availability. An influential early paper is by Adams and Ferreira (2009); Ahern and Dittmar (2012), Matsa and Miller (2013) and Eckbo, Nygaard, and Thorburn (2022) study causal effects using Norway's 40% female quota; and Greene, Intintoli, and Kahle (2020) investigate the impact of California's requirement to have at least one female director. Studies on non-demographic measures of diversity are mainly in the psychology literature. Examples include Aggarwal et al. (2019), who measure cognitive diversity using experimental subjects' responses to a questionnaire, and Phillips, Liljenquist, and Neale (2009) and Loyd et al. (2013) who gauge social diversity by affiliation to a fraternity or sorority.

2. Measuring Diversity, Equity, and Inclusion

2.1 Diversity, Equity, and Inclusion

The source for our DEI measure is the survey responses used by Great Place to Work to compile the list of the Best Companies to Work for in America. This list was initially published in a book in 1984 that was later updated in 1993; from 1998 onwards it has been released every January in Fortune magazine. Two-thirds of the score comes from the Trust Index, a 58-question survey that GPTW administers to 250 employees randomly selected in each firm.[2] The survey asks specific questions on five areas: Credibility, Respect, Fairness, Pride, and Camaraderie. The survey questions were developed through an extensive process that involved a review of academic literature; interviews with managers, employees, and workplace experts; focus group sessions; and discussions with management consultants, survey design experts, and researchers. The survey was then beta-tested in a variety of workplace settings to ensure that each survey question was capturing what GPTW intended. The remaining one-third of the score comes from the Culture Audit.

The list of the 58 questions is confidential and has never been released in full; however, Great Place to Work has given permission to certain research teams to release a subset in academic papers. Edmans (2012) included nine questions to give examples of the dimensions that the survey captures; Guiso, Sapienza, and Zingales (2015) use two questions to gauge management integrity, and Gartenberg, Prat, and Serafeim (2019) employ a different four to measure organizational purpose. Through knowledge of the full list of questions disclosed by GPTW to Edmans (2012) – of which nine were authorized to be published – we were aware that the Trust Index contains questions related to DEI and thus asked GPTW for the individual survey responses for research purposes. Through a confidentiality agreement, GPTW generously gave us access to this data from 2006 to 2021.[3]

[2] There were 57 questions until 2008.
[3] Great Place to Work no longer has the individual responses for the years prior to 2006.

Firms apply to be considered for the Best Companies list. This is a potential issue for a study that compares firms included in the list to those not included (as the latter may include companies that simply did not apply, rather than companies with poor employee satisfaction). However, we were given the responses to all companies that applied for list inclusion, regardless of whether they were eventually featured, and thus none of our analyses compare listed versus unlisted companies. Instead, we compare low- versus high-DEI companies.

Before selecting the questions that best reflect DEI, the first step was to agree on a definition of DEI so that there was clarity on what we were seeking to measure. Our starting point was to scour both the academic literature and practitioner studies. Surprisingly, despite the significant attention paid to DEI, there are few formal definitions of this concept. Based on the few that we were able to find,[4] we came up with the following definitions. Diversity is "bringing a range of perspectives and backgrounds into an organization. This can include, but is not limited to, gender, race, age, disability, religion, marital status, sexual orientation, experience, education, political views, and socioeconomic background." Equity is "providing fair access, opportunities, rewards, and resources to all employees, regardless of their background." Inclusion is "ensuring that people of all backgrounds are respected and made to feel welcome, and that employees are encouraged to speak up, express their views, and be themselves without pressure to conform."

In the second step, all three co-authors independently studied the 58 questions and selected those we believed to reflect our definition of DEI. While there was significant consensus, there was a small amount of disagreement, and we discussed these differences and converged. This led to a final list of 13 questions below:

[4] Our sources included Great Place to Work, the Chartered Institute of Personnel and Development (the UK professional body for Human Resources professionals), the Financial Conduct Authority's discussion paper on diversity and inclusion in the financial sector, the UN Principles for Responsible Investment, the Global Diversity Practice (a consultancy established in 2009), and the CFA Institute DEI Code.

- Everyone has an opportunity to get special recognition.
- When people change jobs or work units, they are made to feel right at home.
- Managers avoid playing favorites.
- This is a psychologically and emotionally healthy place to work.
- People here are treated fairly regardless of their age.
- Promotions go to those who best deserve them.
- I can be myself around here.
- People here are treated fairly regardless of their race.
- People here are treated fairly regardless of their sex.
- People here are treated fairly regardless of their sexual orientation.
- Management shows a sincere interest in me as a person, not just an employee.
- I am treated as a full member here regardless of my position.
- When you join the company, you are made to feel welcome.

Eight of these questions fall within the Fairness category, with three under Camaraderie and two under Respect. The survey contains twelve Fairness questions, but we deemed four not to relate to fairness in the context of DEI. For example, some captured whether employees are treated fairly relative to management, rather than minority employees being treated fairly relative to non-minorities. Thus, our DEI measure is not simply a measure of fairness. We calculated *DEI* as the mean responses across these 13 questions. In addition to these 13, there were four additional questions that we were undecided on whether they captured *DEI*. We calculated a second measure as the mean responses across this broader list of 17 questions, and reran all analyses using this alternative DEI measure. Our results are very similar, so we only report those with our main measure.

2.2 Sample and Summary Statistics

We match our DEI measure to stock returns from CRSP, accounting data from Compustat, analyst forecasts from IBES, director data from BoardEx, and patent data from UVA Darden's Global Corporate Patent Dataset. We focus on publicly listed firms between 2006 and 2021.

Table 1, Panel A provides descriptive statistics about the number of firms in our sample. We have an average of 126 public firms per year and 24,467 firm-month observations.

Panels B and C provide summary statistics about the firms in our sample, and also all firms in CRSP for comparison. Firms in our sample are larger, with an average market capitalization of $24.9 billion compared to $4.0 billion for firms in CRSP. They also have better growth opportunities, with an average book-to-market ratio of 0.58 versus 2.62. Their average monthly stock return is 0.91%, compared to 0.72% for firms in CRSP, loosely consistent with earlier results that the Best Companies (a subsample of the Great Place to Work list that contains all applicants) outperformed the market. Online Appendix Table OA1 provides additional statistics on the demographic makeup of our sample as well as additional firm characteristics. The surveyed firms employ 38,600 people on average, among which 42% are female and 20% are minorities (defined as Blacks and Hispanics).

The *DEI* scores of the surveyed firms have a mean of 4.24 and a standard deviation of 0.21. Our *DEI* measure ranges from 1 (lowest) to 5 (highest). Figure 1 shows that the average DEI score has risen from 4.10 in 2006 to 4.35 in 2021, consistent with the increased attention paid to DEI issues.

In the Online Appendix, we provide further statistics about our DEI measure. Table OA2 shows that the five industries with the best DEI scores (between 4.29 and 4.34) are business services; restaurants, hotels, and motels; petroleum and natural gas; banking; and construction. The five worst industries (3.86 to 4.01) are candy and soda; electrical equipment; aircraft; construction materials; and automobiles and trucks, although we caution that the number of firm-years in these industries is below 10.

2.3 Diversity, Equity, and Inclusion vs. Demographic Diversity

As a preliminary first step, we study whether *DEI* captures different information from standard measures of demographic diversity. From the Culture Audit, we calculate *Female%*, *Minority%*,

FemaleMgt% and *MinorityMgt%*. The first two variables represent the percentage of females and minorities (Blacks and Hispanics) in the workforce, and the third and fourth in senior management. To these, we also add *FemaleCEO* and *MinorityCEO*, the gender and race of the CEO. We obtain the name and gender of the CEO from BoardEx; we infer the CEO's race based on his/her surname using U.S. Census data.[5] Finally, we add *FemaleDir%* and *MinorityDir%*, the percentage of female and minority directors. We obtain the former directly from BoardEx since it contains the gender of each director. We estimate the latter by obtaining the name of each director from BoardEx and using U.S. Census data to estimate his/her race.

Table 2 illustrates the univariate correlations between *DEI* and all eight measures of demographic diversity. The highest correlation is only 0.17, with both the percentage of women in the workforce and the percentage of women in senior management. The correlation with the percentage of minorities in the workforce is -0.04; three other correlations are modestly positive. These results suggest that *DEI* captures information over and above standard measures of demographic diversity.

3. The Determinants of Diversity, Equity, and Inclusion

This section studies the determinants of *DEI*, i.e. the association between *DEI* and firm characteristics. The goal is to understand the types of firms that score highly on diversity, equity, and inclusion.

3.1 Financial Strength and Firm Characteristics

This section relates *DEI* to measures of financial strength and other firm characteristics. We hypothesize that firms in stronger financial positions have greater latitude to invest in DEI. We also

[5] The U.S. Census provides the most likely race for surnames (https://www.census.gov/topics/population/genealogy/data/2010_surnames.html and https://www.census.gov/topics/population/genealogy/data/2000_surnames.html).

conjecture that smaller, younger, and growing firms will have higher *DEI*. They likely have greater incentives to be attentive to DEI issues, given the importance of human capital in such firms. In addition, smaller firms may have a greater ability to improve DEI, because it is easier to implement initiatives across the whole company, and because individual employees are more likely to believe that they matter and feel included.

We run the following regression at the annual level:

$$DEI_{it} = \beta_0 + \beta_1 Strength_{it-1} + \beta_2 Characteristics_{it-1} + \eta_{jt} + \varepsilon_{it}. \quad (1)$$

Strength is a vector of variables that measure firm *i*'s financial strength. We use one- and three-year sales growth and one- and three-year stock returns as measures of recent performance, plus dividend yield, cash holdings, and leverage to capture its current financial position. *Characteristics* is a vector of firm characteristics: the number of employees, firm age, and book-to-market ratio (all in logs) to test the hypothesis that small, young, and growth firms have higher DEI. We measure size with the number of employees since this affects the ease of managing DEI issues, but the results are the same if we measure firm size with book assets. We control for year times industry fixed effects, $\eta_{jt,}$ where *j* indexes industry, using the Fama-French (1997) 48-industry classification, and double-cluster standard errors by firm and year.

Table 3 reports the results. Columns (1) and (2) find that *DEI* is positively associated with 1- and 3-year sales growth; both coefficients are significant at the 5% level. For example, a one standard deviation increase in 3-year sales growth is associated with a 0.02 (=0.0429*0.5020) increase in *DEI*, compared to the sample mean of 4.24 and the sample standard deviation of 0.21. Columns (3) and (4) show that one-year stock returns are insignificantly related to DEI, and three-year stock returns are positive and significant at the 10% level. We include these measures separately to avoid

multicollinearity issues. Turning to other financial strength measures, leverage is negative and significant at the 5% level in three of the four regressions, and dividend yield is positive and significant at the 10% level. The latter result is consistent with Kaplan and Zingales (1997) and Whited and Wu (2006) who find that higher dividends and the payment of dividends are correlated with lower financial constraints. However, cash holdings are insignificant.

Taken together, the results broadly suggest that a strong recent financial position allows a company to improve its DEI. This positive correlation is consistent with prior findings that financial strength affects a company's level of environmental and social ("ES") investment; for example, Cohn and Wardlaw (2016) and Xu and Kim (2022) find that relaxing financial constraints reduces workplace injuries and firms' toxic emissions. However, the relevance of financial performance is unlikely to stem from cash being needed to directly finance intangible investment. Our DEI measure does not capture factors such as employee pay, working conditions, and amenities (which are represented by other survey questions) that require financial investment, but attitudes. Instead, the explanation is likely indirect: strong financial performance frees a company from having to focus on short-term pressures and instead allows it to address longer-term challenges such as DEI. The slightly stronger results for three-year than one-year stock returns are also consistent with this interpretation.

Across all four regressions, book-to-market and size are significantly negatively related to DEI, although firm age is insignificant. This is consistent with small growth firms having greater incentives and ability to be attentive to DEI issues.

3.2 Diversity Characteristics and Workplace Policies

We now study the correlation between *DEI* and workplace policies and practices, by running the following regression:

$$DEI_{it} = \beta_0 + \beta_1 Workplace_{it} + \beta_2 Controls_{it} + \eta_{jt} + \varepsilon_{it}. (2)$$

Workplace is a vector of workplace variables, the main ones being related to demographic diversity. We explored such variables in Section 2.3 to study whether *DEI* captures information over and above that captured in standard demographic diversity measures. This section uses them for a different purpose: to study whether demographic diversity affects perceptions of DEI.[6] Thus, in contrast to the univariate correlations in Section 2.3, we include *Controls*, a vector of controls: the number of employees, the book to market ratio, age, dividend yield, cash, and leverage, as studied in Table 3.

The results are reported in Table 4. In column (1), *Workplace* includes the percentage of females and minorities in the board of directors, the CEO role, senior management, and the wider workforce. The only variable with a significantly positive association is the percentage of women in senior management. A one standard deviation increase in the percentage of female senior managers is associated with a 0.03 (=0.2726*0.1206) increase in DEI, compared to the sample mean of 4.25 and standard deviation of 0.20. One potential interpretation is that female senior managers are more attuned to DEI issues and seek to improve DEI within an organization. A second, non-mutually-exclusive explanation is that women in senior management play a figurehead role, either directly affecting employees' perceptions of DEI, or indirectly encouraging employees to pursue DEI initiatives with the confidence that senior management will be supportive. In addition, as mentioned previously, our results admit explanations other than causal ones from workplace policies to DEI. It may be that DEI allows women to advance into senior positions. However, it is unclear why DEI does not help minorities to advance into such positions, nor increase female representation at other levels.

[6] An alternative specification would be to lag the workplace policies by one year. However, doing so would lead to a significant loss of observations as it requires both the DEI variable and the Culture Audit data, and thus we would lose companies that are not surveyed in successive years.

The lack of a significant relationship between *MinorityMgt%* and *DEI* may be because there are few minorities to begin with, and a critical mass is needed before senior minorities can have an effect. Panel B of OA1 shows that the mean proportion of minorities in senior management is 13%, compared to 25% for women.

Turning to CEO and board variables, we find that the proportion of female directors is significantly negatively associated with DEI in two of the four regressions, and the fraction of minority directors is negatively linked in the other two. A potential explanation is that substantial attention is placed on boardroom diversity, and thus companies may think that adding minority directors allows them to "tick the box" without actually improving DEI. The CEO's gender and race, by contrast, are insignificantly related to DEI.

Since female CEOs and directors are likely to have a particularly strong figurehead effect, these non-positive coefficients suggest that the link between DEI and the proportion of female senior managers does not stem purely from a figurehead channel. Rather, it implies that it is their direct actions that increase DEI. The granularity of our dataset, which contains the survey responses of each individual employee as well as that employee's demographic characteristics, allows us to conduct another test to help disentangle the two explanations. Panel B divides our main dependent variable, *DEI*, into the average responses by white males, white females, minority males, and minority females. The percentage of women in senior management is positively and significantly linked to the average DEI scores of all categories. Since women are unlikely to be the most natural figureheads for white males and minority males, these results are inconsistent with a purely figurehead role.

Returning to Panel A, in column (2), we add a set of variables that represent workplace policies, to explore whether a company can easily increase DEI by implementing such policies. Such policies are easier to implement than cultural change and, due to their visibility, they may play a role in affecting perceptions of DEI. We include *FlexSchedule*, an indicator for whether a company has a

flexible work policy, *Sabbatical*, an indicator for whether it allows employees to take sabbaticals, *ChildCare*, an indicator for whether it has on-site childcare, and *UnpaidParentLeave*, the number of unpaid parental leave days that a company allows. All data is taken from the Culture Audit.[7] The results show that all workplace policies are unrelated to DEI, suggesting that DEI cannot be improved by general workplace policies but requires specific, targeted actions.

In column (3), we include *UnionWorker%*, the percentage of unionized workers among all employees. (The set of companies for which we have union data has little overlap with the set of companies for which we have workplace policies, and so we are unable to add this variable in the same regression.) Somewhat surprisingly, DEI is significantly negatively associated with the percentage of unionized workers. A potential explanation is that trade unions focus on quantifiable aspects of the employment relationship, such as pay, working hours, and holidays, since they can claim to their members that they have represented them well by improving these conditions. This in turn may lead companies to focus more on quantifiable issues rather than qualitative ones such as DEI. In column (4), we include *VolTurnover*, the voluntary turnover rate, to study whether *DEI* can be improved by general human resource policies that improve employee satisfaction and reduce voluntary turnover rather than measures specific to DEI. The insignificant coefficient on voluntary turnover provides no evidence for this hypothesis.

4. The Consequences of Diversity, Equity, and Inclusion

We now turn to the consequences for future performance. As with the determinants, we do not interpret our analyses in a causal sense, since there may be omitted variables correlated with both DEI

[7] The Culture Audit also contains whether a company has race and gender non-discrimination policies. However, except for one firm-year observation, every company has such policies, so we do not include them in the regression.

and future performance. Since DEI is an intangible variable that is unlikely to be shocked by exogenous factors such as a law change, any analysis of DEI (regardless of how it is measured) is likely only to be able to document correlations. However, such correlation can still move our priors – a positive correlation with future performance increases our posterior belief that DEI may have positive causal effects, and reduces concerns that DEI initiatives are at the expense of prior performance. Similarly, investors wishing to buy shares in a high-DEI company, or employees or other stakeholders wishing to join a high-DEI company, may be interested in its likely future performance, even if it is caused by other factors correlated with DEI rather than DEI itself.

We consider three categories of performance measures: accounting performance and valuations, innovation, and stock returns.

4.1 Accounting performance and valuation

The first set of analyses explore accounting performance and valuation, which we examine with the following regression:

$$Perf_{it} = \beta_0 + \beta_1 DEI_{it-1} + \beta_2 Controls2_{it-1} + \eta_{jt} + \varepsilon_{it}. \quad (3)$$

Perf is one of eight different measures of accounting profits: return on assets (where the numerator, profits, is income before extraordinary items), return on equity, return on sales, return on employees, earnings per share growth, profit growth, sales growth, and sales divided by the number of employees. We now use a more extensive set of control variables, *Controls2*. These include *Female%* and *Minority%*, to study whether DEI has explanatory power over and above traditional measures of demographic diversity. Following Gompers, Ishii, and Metrick (2003) and Giroud and Mueller (2011), we also control for the book-to-market ratio, firm size, firm age, an S&P 500

inclusion dummy, and a Delaware incorporation dummy. Consistent with these other papers, we measure firm size with log assets, rather than the number of employees; the latter is more relevant when *DEI* is the dependent variable. Gompers, Ishii, and Metrick (2003) and Giroud and Mueller (2011) use industry-adjusted dependent variables. A subsequent paper by Gormley and Matsa (2014) recommends industry fixed effects over industry adjustment. We use industry by year fixed effects, η_{jt}, as it is a more stringent specification; it allows for industry-level components of accounting performance that vary over time. We double-cluster standard errors by firm and year.

Table 5 reports the results. We find that lagged *DEI* is positively associated with seven out of the eight accounting variables that we explore: all except return on equity. When return on assets and profit growth are the dependent variable, the coefficient on lagged *DEI* is significant at the 10% level; for the five other dependent variables, it is significant at the 5% level or better. The significantly higher sales per employees is particularly relevant as it is a measure of labor productivity. This suggests that DEI may play a role in increasing employee motivation and engagement. As examples of economic significance, a one standard deviation increase in lagged DEI is associated with a 0.8 percentage point (=0.0380*0.1982*100) increase in return on assets (9.6% of the sample standard deviation) and with a 2.4 percentage point (=0.1188*0.1982*100) increase in one-year sales growth (14.1% of the sample standard deviation). In contrast, the percentage of females and minorities in the workforce is insignificant in seven specifications; in the eighth, the percentage of minorities is negatively linked to sales growth (significant at the 10% level). These results suggest that DEI is associated with superior future accounting performance, but demographic diversity is not.

In Table 6, we use Tobin's Q, the price-earnings ratio, and the aggregate value-EBITDA ratio as the measure of performance, to study the extent to which DEI is valued by the stock market. Edmans (2011) and Edmans et al. (2023) find that, even though the Best Companies enjoy higher long-term stock returns, suggesting that employee satisfaction is not fully priced in, they also exhibit higher

Tobin's Q, implying that it is at least partially valued. We replace *Perf* in equation (3) with the three valuation measures. Table 6 shows that *DEI* is positive and significant in all specifications. In terms of economic significance, a one standard deviation increase in DEI is associated with a 0.32 (=1.5996*0.2012) increase in Tobin's Q, compared to the sample mean of 2.23 and standard deviation of 1.77. These results suggests that the market at least partially incorporates the value of DEI, either because some investors go beyond simple measures of demographic diversity and analyze DEI more holistically, or because DEI is correlated with other variables that the market directly values.[8]

Tables 5 and 6 use the control variables taken from Gompers, Ishii, and Metrick (2003) and Giroud and Mueller (2011). Guiso, Sapienza, and Zingales (2015), who also use individual responses to the Trust Index, also conduct accounting regressions and Tobin's Q regressions, but with a separate set of control variables: firm age, number of employees, and a firm's headquarter region. We prefer the set of control variables used in Gompers, Ishii, and Metrick (2003) and Giroud and Mueller (2011) since they include the book-to-market ratio in accounting regressions and measure firm size with assets rather than the number of employees, which is the more relevant measure of firm size to explain accounting performance. However, in Tables OA3 and OA4 in the Online Appendix, we show that our results are robust to the controls in Guiso, Sapienza, and Zingales (2015).[9] In particular, *DEI* remains positively and significantly related to six out of eight accounting performance measures and to all valuation measures, while both measures of demographic diversity are insignificant or significantly negative in all specifications.

While Table 6 tests whether the market at least partially incorporates the value of DEI, Table 7 investigates whether it does so fully by investigating the link between *DEI* and future one- and two-

[8] The economic magnitude is similar to Gompers, Ishii, and Metrick (2003) who find a 0.336 average difference between the Tobin's Q of democracy and dictatorship firms.
[9] We continue to use industry-year fixed effects and double-clustered standard errors; Guiso et al. (2015) use industry and year fixed effects.

year earnings surprises. Our dependent variable, *Surprise*, is the actual earnings per share for the fiscal year ending in year *t* minus the median I/B/E/S analyst forecast, deflated by lagged assets per share.[10] The I/B/E/S consensus forecast for the one-year (two-year) earnings surprise is taken eight (twenty) months prior to the end of the forecast period, i.e. four months after the fiscal year-end. Since most annual reports are filed within three months of the fiscal year-end, this ensures that analysts know prior earnings when making their forecasts. As in Easterwood and Nutt (1999), Giroud and Mueller (2011), and Edmans (2011), we remove observations for which the forecast error is larger than 10% of the price. We control for firm size and the book to market ratio, plus year fixed effects. Standard errors are double-clustered by firm and year.

Table 7 shows that *DEI* is positively and significantly associated with future earnings surprises. Panel A shows the results for one-year earnings surprises. In column (1), a one standard deviation increase in *DEI* implies that actual earnings are 0.17 percentage points (=8.3347*0.1997/1000*100) higher than analyst estimates, scaled by assets per share. Columns (2) and (3) successively add firm size and book-to-market as additional controls and the results remain robust. Consistent with prior results, our *DEI* measure captures DEI more holistically than standard demographic statistics. The percentage of minorities in the workforce bears no relationship, and the percentage of women has a significantly negative relationship in all specifications. In Panel B, we find a positive correlation between *DEI* and two-year earnings surprises. While the magnitudes are similar to Panel A, the statistical significance is 10% in all specifications, potentially due to the lower number of observations. These findings suggest that the superior accounting performance documented in Table 5 is not fully anticipated by the market. They are consistent with the positive earnings surprises to the

[10] Following Giroud and Mueller (2011), we calculate assets per share by dividing book assets from the previous fiscal year by shares outstanding measured at the time of the forecast.

US Best Companies documented by Edmans (2011), and to the Best Companies in countries with flexible labor markets found by Edmans et al. (2023).

4.2 Innovation

We next turn to innovation performance. Advocates argue that one of the main benefits of DEI is its impact on innovation. For example, hiring a diverse mix of employees brings a range of backgrounds, perspectives, and cognitive styles into an organization, which can stimulate new ideas and innovations. Similarly, an inclusive culture may encourage employees to share their ideas even if they go against the grain. To examine the relationship between DEI and innovation, we estimate the following regression:

$$Innov_{it} = \beta_0 + \beta_1 DEI_{it-1} + \beta_2 Controls3_{it-1} + \eta_{jt} + \varepsilon_{it}. \quad (4)$$

Innov is either the number of patents filed in a given year or the citations to those patents; the latter is a measure of patent quality. Both variables are taken from the UVA Darden Global Corporate Patent Database.[11] This data is available until 2017, but we omit the last two years because of the reporting gap when filing patents.[12] While many papers on innovation use the log of one plus the number of patents or the number of citations, Cohn, Liu, and Wardlaw (2022) highlight problems with adding one to a count or count-like variable and taking logs; for example, the coefficients no longer have any economic meaning. We thus follow their recommendation to use a Poisson regression. The main independent variable of interest is lagged *DEI.* We control for book-to-market and firm age as measures of growth opportunities, and firm size (as measured by log assets), dividend

[11] Bena et al. (2017) provide a detailed description of the UVA Darden Global Corporate Patent Database.
[12] There is an average of two years between patent applications and patent grants (Hall, Jaffe, and Trajtenberg, 2005).

yield, cash holdings, and leverage as measures of financial strength. Following Flammer and Kacperczyk (2016), we also control for R&D expenses divided by sales and a missing R&D dummy, since R&D likely also drives innovation.

Table 8 illustrates the results. We find that *DEI* is insignificantly related to either the number of patents (column (1)) or patent citations (column (3)). However, we note that innovation is likely to stem from particular types of employees, such as those in the R&D department. We thus stratify the responses by job category. Our dataset contains the job category of each respondent, which is either executives, managers, professionals, or hourly workers; the third category includes all salaried employees, such as R&D staff and technical professionals.

In columns (2) and (4), we disaggregate the firm-level *DEI* measure into the averages reported by each of the four categories of respondent. We find that the average *DEI* scores of professionals are positively related to both the number and quality of patents, and the results are significant at the 10% level for patents and at the 1% level for citations. In terms of economic significance, in column (4), a one standard deviation increase in the DEI score of professional is associated with a 121% (= (exp(3.7675*0.2104)-1)*100) increase in the number of citations. None of the other averages is positively related to either innovation measure; indeed, the average *DEI* scores of managers is surprisingly negatively related to both measures. The negative relation with managers' *DEI* responses may explain why the aggregate *DEI* measure bears no relation to innovation.

4.3 Stock returns

Our final set of analyses study stock return performance. Stock returns capture all channels through which *DEI* affect firm performance, as long as they are not fully anticipated by the market. These channels include the accounting performance and innovation previously studied, but also other

potential channels, such as customer satisfaction ratings and news announcements that have not yet fed through to accounting performance.

We first run the following pooled panel regression over the full sample at the firm-month level:

$$R_{it} = \beta_0 + \beta_1 DEI_{it-2} + \beta_2 Controls4_{it-2} + \tau_t + \varepsilon_{it}. \qquad (2)$$

R_{it} is the return on stock i in month t, either the raw return or the industry-adjusted return. $Controls4_{it}$ include the control variables used in Brennan, Chordia, and Subrahmanyam (1998), calculated using data from CRSP and Compustat. *LnSize* is the log of firm i's market capitalization at the end of month *t-2*. *LnBM* is the log of firm i's book-to-market ratio. This variable is recalculated each July and held constant through the following June. *DivYield* is firm i's dividend yield: the total dividend paid over the previous fiscal year, divided by the market value at calendar year-end. This variable is recalculated each July and held constant through the following June. *LnRet23* is the log of one plus firm i's cumulative return over months *t-3* through *t-2*. *LnRet46* and *LnRet712* are defined similarly. *LnDollarVol* is the log of firm i's dollar trading volume in month *t-2*. *LnPrc* is the log of firm i's price at the end of month *t-2*. We include month fixed effects, τ_t, and double cluster the standard errors at the firm and month level.

Table 9 shows that *DEI* is uncorrelated with both future raw stock returns and industry-adjusted stock returns. While Table 9 controls for firm characteristics, Table 10 instead controls for risk. We calculate the Carhart (1997) four-factor alphas to the *DEI* portfolio:

$$R_{pt} = \alpha + \beta_{MKT} MKT_t + \beta_{HML} HML_t + \beta_{SMB} SMB_t + \beta_{MOM} MOM_t + \varepsilon_t, \quad (1)$$

R_{pt} is the return to a portfolio of companies that is long in the top tercile of *DEI* and short in the bottom tercile of *DEI* for a given month *t*. The portfolio is either equal-weighted or value-weighted,

and individual stock returns are either unadjusted or industry-adjusted. α is an intercept that captures the abnormal risk-adjusted return. *MKT, HML, SMB,* and *MOM* are, respectively, the market, value, size, and momentum factors, collected from Ken French's website. Standard errors are corrected for heteroscedasticity and autocorrelation using Newey-West's (1987) estimator with four lags.

We find that none of the *DEI* portfolios have a significantly positive alpha – whether equal-weighted or value-weighted, or raw or industry-adjusted. When taken together with the positive results for accounting performance and earnings surprises, as well as the weaker stock return results in the Fama-MacBeth regressions, these results suggest that high-*DEI* companies may be releasing other news besides profitability that the market perceives less positively, thus offsetting the positive effect of superior profitability.

5. Conclusion

This paper has taken a first step towards measuring diversity, equity, and inclusion. Our measure goes beyond the demographic diversity metrics studied by prior research. We construct it using the employee responses to the Great Place to Work's Trust Index survey that are most closely associated with DEI. We show that these average responses exhibit a low correlation with traditional measures of demographic diversity, whether at the boardroom, executive, or workforce levels, suggesting that demographic diversity measures may miss many important aspects of DEI. This result has important implications for the substantial attention paid to diversity statistics by companies, investors, stakeholders, and regulators – they may miss a big piece of the picture.

Companies with high DEI enjoyed recent strong financial performance and are less levered, suggesting that a strong financial position gives companies latitude to focus on long-term issues such as DEI that may take time to build. Small growth firms also exhibit higher DEI scores, consistent with either greater incentives or ability to improve DEI in such firms. Turning to the potential

workplace determinants of DEI perceptions, we find that the percentage of women in senior management is significantly positively associated with DEI perceptions, and this result holds regardless of the gender or ethnicity of the respondents. However, there is a negative correlation with the percentage of female directors in some specifications and minority directors in other specifications, while other demographic variables bear no relation. DEI is also unrelated to general workplace policies and outcomes, suggesting that DEI needs to be improved by targeted rather than generic initiatives.

Moving to the consequences of DEI, we find that high-DEI firms enjoy superior subsequent accounting performance across a range of variables. The stock market partially incorporates the value of DEI, as shown by higher valuation ratios, but this incorporation is only partial as evidenced by the superior future earnings surprises. While firm-wide DEI scores bear no relation to either the quantity nor quality of patents, DEI perceptions by professionals, which include R&D employees, are positively and significantly linked to both measures. Somewhat surprisingly, given these performance results, we find no evidence of a link between DEI and firm-level stock returns when controlling for firm characteristics, and no alpha to DEI portfolios when controlling for risk.

References

Adams, Renee and Daniel Ferreira (2009): "Women in the boardroom and their impact on governance and performance." *Journal of Financial Economics* 94, 291–309.

Aggarwal, Ishani, Anita Williams Woolley, Christopher F. Chabris, and Thomas W. Malone (2019): "The impact of cognitive style diversity on implicit learning in teams." *Frontiers in Psychology* 10, 112.

Ahern, Kenneth R. and Amy K. Dittmar (2012): "The changing of the boards: The impact on firm valuation of mandated female board representation." *Quarterly Journal of Economics* 127, 137–197.

Bena, Jan, Miguel A. Ferreira, Pedro Matos, and Pedro Pires (2017): "Are foreign investors locusts? The long-term effects of foreign institutional ownership." *Journal of Financial Economics* 126, 122–146.

Boustanifar, Hamid and Young Dae Kang (2022): "Employee satisfaction and long-run stock returns, 1984-2020." *Financial Analysts Journal* 78, 129–151.

Brennan, Michael J., Tarun Chordia, and Avanidhar Subrahmanyam (1998): "Alternative factor specifications, security characteristics, and the cross-section of expected stock returns." *Journal of financial Economics* 49.3, 345–373.

Carhart, Mark M (1997): "On persistence in mutual fund performance." *Journal of Finance* 52, 57–82.

Cohn, Jonathan B., Zack Liu, and Malcolm I. Wardlaw (2022): "Count (and count-like) data in finance." *Journal of Financial Economics* 146, 529–551.

Cohn, Jonathan B. and Malcolm I. Wardlaw (2016): "Financing constraints and workplace safety." *Journal of Finance* 71, 2017–2058.

Easterwood, John C. and Stacey R. Nutt (1999): "Inefficiency in analysts' earnings forecasts: Systematic misreaction or systematic optimism?" *Journal of Finance* 54, 1777–1797.

Eckbo, B. Espen, Knut Nygaardt, and Karin S. Thorburn (2022): "Valuation effects of Norway's board gender-quota law revisited." *Management Science* 68, 4112–4134.

Edmans, Alex (2011): "Does the stock market fully value intangibles? Employee satisfaction and equity prices." *Journal of Financial Economics* 101, 621–640.

Edmans, Alex (2012): "The link between job satisfaction and firm value, with implications for corporate social responsibility." *Academy of Management Perspectives* 26, 1–19.

Edmans, Alex, Darcy Pu, Chendi Zhang, and Lucius Li (2023): "Employee satisfaction, labor market flexibility, and stock returns around the world." *Management Science*, forthcoming.

Fama, Eugene F. and Kenneth R. French (1997): "Industry costs of equity." *Journal of Financial Economics* 43, 153–193.

Flammer, Caroline and Aleksandra Kacperczyk (2016): "The impact of stakeholder orientation on innovation: Evidence from a natural experiment." *Management Science* 62, 1982–2001.

Fried, Jesse M (2021): "Will Nasdaq's diversity rules harm investors?" *Harvard Business Law Review Online* 12, 1.

Gartenberg, Claudine, Andrea Prat, and George Serafeim (2019): "Corporate purpose and financial performance." *Organization Science* 30, 1–18.

Giroud, Xavier and Holger M. Mueller (2011): "Corporate governance, product market competition, and equity prices." *Journal of Finance* 66, 563–600.

Gompers, Paul, Joy Ishii, and Andrew Metrick (2003): "Corporate governance and equity prices." *Quarterly Journal of Economics* 118, 107–156.

Gormley, Todd A. and David A. Matsa (2014): "Common errors: How to (and not to) control for unobserved heterogeneity." *Review of Financial Studies* 27, 617–661.

Greene, Daniel, Vincent J. Intintoli, and Kathleen M. Kahle (2020): "Do board gender quotas affect firm value? Evidence from California Senate Bill No. 826." *Journal of Corporate Finance* 60, 101526.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2015): "The value of corporate culture." *Journal of Financial Economics* 117, 60–76.

Hall, Bronwyn H., Adam Jaffe, and Manuel Trajtenberg (2005): "Market value and patent citations." *RAND Journal of Economics* 36, 16–38.

Kaplan, Steven N. and Luigi Zingales (1997): "Do investment-cash flow sensitivities provide useful measures of financing constraints?" *Quarterly Journal of Economics* 112, 169–215.

Loyd, Denise Lewin, Cynthia S. Wang, Katherine W. Phillips, and Robert B. Lount, Jr. (2013): "Social category diversity promotes premeeting elaboration: The role of relationship focus." *Organization Science* 24, 757–772.

Matsa, David A., and Amalia R. Miller (2013): "A female style in corporate leadership? Evidence from quotas." *American Economic Journal: Applied Economics* 5, 136–169.

Newey, Whitney K. and Kenneth D. West (1987): "A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix." *Econometrica* 55, 703–708.

Phillips, Katherine W., Katie A. Liljenquist, and Margaret A. Neale (2009): "Is the pain worth the gain? The advantages and liabilities of agreeing with socially distinct newcomers." *Personality and Social Psychology Bulletin* 35, 336–350.

Whited, Toni M. and Guojun Wu (2006): "Financial constraints risk." *Review of Financial Studies* 19, 531–559.

Xu, Qiping and Taehyun Kim (2022): "Financial constraints and corporate environmental policies." *Review of Financial Studies* 35, 576–635.

Figure 1: DEI firm scores over time

This table reports the firms' average DEI scores over time. We calculate the DEI measure as the average of 13 DEI-related survey questions from the GPTW Institute and aggregate it over all surveyed employees in a given firm and year. The sample period is from 2006 to 2021.

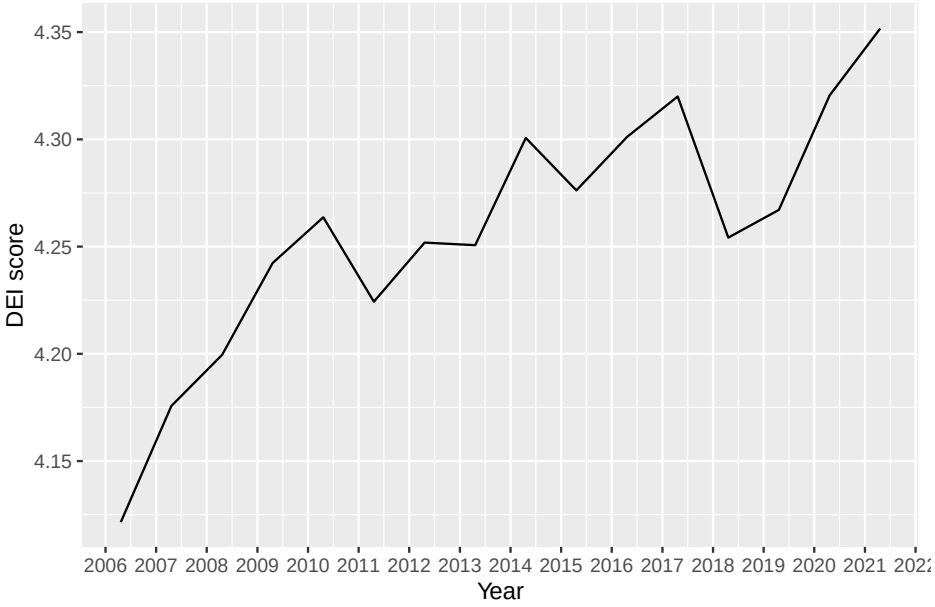

Table 1: Descriptive statistics

This table reports summary statistics for our sample based on CRSP data. The GPTW sample contains firm-month observations of publicly listed companies that participate in the GPTW survey. The full CRSP sample has all firms included in CRSP. The appendix provides descriptions for each variable. The sample period is from February 2006 to December 2021.

Panel A: Number of firm-month observations

Month	GPTW sample
Dec 2006	230
Dec 2007	183
Dec 2008	167
Dec 2009	151
Dec 2010	127
Dec 2011	127
Dec 2012	115
Dec 2013	110
Dec 2014	106
Dec 2015	102
Dec 2016	84
Dec 2017	88
Dec 2018	108
Dec 2019	104
Dec 2020	102
Dec 2021	117
Total sample	24,467

Panel B: GPTW sample

Statistic	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max	N
DEI	4.24	0.21	3.28	4.11	4.26	4.38	4.82	24,467
ret	0.91	10.99	−99.68	−4.26	1.02	6.02	232.76	24,404
size	24,850.36	48,878.00	9.45	2,663.98	8,166.41	23,778.37	981,681.20	24,397
bm	0.58	0.95	0.004	0.21	0.37	0.67	16.53	23,493

Panel C: Full CRSP sample

Statistic	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max	N
ret	0.72	15.91	−100.00	−4.70	0.46	5.25	1,988.36	1,355,429
size	3,951.61	22,902.30	0.09	81.91	344.52	1,588.78	2,509,775.00	1,346,608
bm	2.62	42.59	0.0000	0.32	0.60	1.01	13,106.94	877,454

Table 2: Correlations between DEI and demographic diversity

This table provides correlation coefficients between our DEI measure and demographic variables from GPTW's Culture Audit and BoardEx. The appendix provides descriptions for each variable. The sample period is from 2006 to 2021.

	DEI	Female%	Minority%	FemaleMgt%	MinorityMgt%	FemaleCEO	MinorityCEO	FemaleDir%	MinorityDir%
DEI	1								
Female%	0.1640	1							
Minority%	-0.0400	0.2803	1						
FemaleMgt%	0.1719	0.6042	0.2100	1					
MinorityMgt%	0.0560	-0.1515	-0.0512	0.0810	1				
FemaleCEO	0.0597	0.1593	0.0070	0.1407	-0.0073	1			
MinorityCEO	-0.0249	-0.0021	0.0095	0.0117	0.0520	-0.0318	1		
FemaleDir%	0.0132	0.2422	0.0355	0.3070	0.1113	0.2913	0.0668	1	
MinorityDir%	-0.0624	0.0814	0.1025	0.0670	0.0697	-0.0599	0.4414	0.1250	1

Table 3: DEI and firm characteristics

This table regresses DEI on lagged financial strength measures and controls. We include industry times year fixed effects in each column. Standard errors are double clustered at the firm and year level. The appendix provides descriptions for each variable. The sample period is from 2006 to 2021. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable:			
	DEI_t			
	(1)	(2)	(3)	(4)
sg1yr_{t-1}	0.11^{**}			
	(0.05)			
sg3yr_{t-1}		0.04^{**}		
		(0.02)		
ret1yr_{t-1}			0.001	
			(0.02)	
ret3yr_{t-1}				0.02^{*}
				(0.01)
lnemp_{t-1}	-0.04^{***}	-0.04^{***}	-0.04^{***}	-0.04^{***}
	(0.01)	(0.01)	(0.01)	(0.01)
lnbm_{t-1}	-0.03^{***}	-0.03^{**}	-0.03^{***}	-0.03^{**}
	(0.01)	(0.01)	(0.01)	(0.01)
divyield_{t-1}	0.17^{*}	0.17^{*}	0.17^{*}	0.15^{*}
	(0.08)	(0.09)	(0.08)	(0.08)
cash_{t-1}	0.03	0.003	0.04	0.02
	(0.08)	(0.09)	(0.09)	(0.09)
leverage_{t-1}	-0.10^{**}	-0.10^{*}	-0.11^{**}	-0.11^{**}
	(0.05)	(0.05)	(0.05)	(0.05)
lnage_{t-1}	−0.003	−0.01	−0.01	−0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Year x FF48 FE	Yes	Yes	Yes	Yes
Observations	1,820	1,759	1,823	1,773
Adjusted R^2	0.35	0.36	0.35	0.35

Table 4: DEI and diversity characteristics

This table regresses DEI on demographic characteristics and workplace policies. Panel A shows the results for our aggregated DEI measure. Panel B analyzes the DEI responses by demographic groups (i.e., white males, white females, male minorities, and female minorities). In both panels, we include industry times year fixed effects. Standard errors are double clustered at the firm and year level. The appendix provides descriptions for each variable. The sample period is from 2006 to 2021. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Baseline DEI measure

	Dependent variable:			
	DEI			
	(1)	(2)	(3)	(4)
Female%	0.06	−0.02	−0.05	−0.06
	(0.08)	(0.11)	(0.08)	(0.15)
Minority%	0.05	0.11	−0.02	0.08
	(0.10)	(0.14)	(0.11)	(0.21)
FemaleMgt%	0.27***	0.34**	0.38***	0.39**
	(0.08)	(0.14)	(0.11)	(0.16)
MinorityMgt%	−0.12*	−0.21	−0.15	−0.15
	(0.07)	(0.12)	(0.11)	(0.15)
FemaleCEO	0.01	0.06	0.01	0.05
	(0.04)	(0.04)	(0.04)	(0.07)
MinorityCEO	0.01	0.01	0.07	0.09
	(0.05)	(0.06)	(0.04)	(0.10)
FemaleDir%	−0.15**	−0.19**	−0.12	−0.07
	(0.06)	(0.07)	(0.07)	(0.09)
MinorityDir%	−0.17	−0.34	−0.52**	−0.79*
	(0.15)	(0.19)	(0.18)	(0.41)
FlexSchedule		0.03		
		(0.02)		
ChildCare		−0.01		
		(0.02)		
Sabbatical		0.01		
		(0.03)		
UnpaidParentLeave		0.0001		
		(0.0002)		
UnionWorker%			−0.41***	
			(0.05)	
VolTurnover				0.05
				(0.27)
lnemp	−0.03***	−0.04***	−0.03***	−0.03*
	(0.01)	(0.01)	(0.01)	(0.02)
lnbm	−0.04***	−0.03*	−0.03*	−0.02
	(0.01)	(0.01)	(0.01)	(0.02)
divyield	−0.08	−0.16	0.22	−0.17
	(0.26)	(0.30)	(0.35)	(0.23)
cash	0.04	0.02	−0.07	−0.002
	(0.08)	(0.09)	(0.09)	(0.08)
leverage	−0.13**	−0.18**	−0.17***	−0.10
	(0.04)	(0.05)	(0.05)	(0.06)
lnage	−0.02*	−0.02	−0.01	−0.02
	(0.01)	(0.01)	(0.01)	(0.02)
Year x FF48 FE	Yes	Yes	Yes	Yes
Observations	1,493	734	781	331
Adjusted R^2	0.42	0.47	0.52	0.42

Panel B: DEI responses by demographic group

	Dependent variable:			
	DEI_whitemale	DEI_whitefemale	DEI_minoritymale	DEI_minorityfemale
	(1)	(2)	(3)	(4)
Female%	0.07	0.08	−0.004	0.11
	(0.09)	(0.08)	(0.10)	(0.11)
Minority%	0.02	0.08	0.09	0.20
	(0.10)	(0.11)	(0.09)	(0.13)
FemaleMgt%	0.26^{***}	0.30^{***}	0.35^{**}	0.22^{*}
	(0.08)	(0.08)	(0.14)	(0.13)
MinorityMgt%	−0.08	−0.08	−0.15	0.01
	(0.06)	(0.07)	(0.12)	(0.12)
FemaleCEO	−0.01	0.02	0.04	0.06
	(0.04)	(0.03)	(0.04)	(0.06)
MinorityCEO	0.04	−0.01	0.01	−0.03
	(0.05)	(0.05)	(0.08)	(0.06)
FemaleDir%	-0.22^{***}	−0.14	-0.22^{**}	-0.24^{**}
	(0.07)	(0.08)	(0.10)	(0.11)
MinorityDir%	−0.30	−0.22	−0.16	−0.08
	(0.17)	(0.15)	(0.19)	(0.20)
lnemp	-0.03^{***}	-0.03^{***}	-0.04^{***}	-0.04^{***}
	(0.01)	(0.01)	(0.01)	(0.01)
lnbm	-0.03^{***}	-0.04^{***}	-0.04^{***}	−0.02
	(0.01)	(0.01)	(0.01)	(0.02)
divyield	−0.12	−0.07	0.003	0.06
	(0.26)	(0.31)	(0.33)	(0.40)
cash	0.07	0.07	0.004	0.17
	(0.09)	(0.08)	(0.09)	(0.11)
leverage	-0.13^{**}	-0.08^{*}	-0.17^{***}	-0.13^{**}
	(0.04)	(0.04)	(0.06)	(0.05)
lnage	-0.02^{**}	-0.02^{**}	−0.01	−0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Year x FF48 FE	Yes	Yes	Yes	Yes
Observations	1,477	1,477	1,472	1,471
Adjusted R^2	0.44	0.35	0.28	0.21

Table 5: Accounting performance

This table regresses accounting performance measures on lagged DEI scores, demographic characteristics, and controls. We winsorize all accounting performance measures at the 5% and 95% levels. We include industry times year fixed effects in each column. Standard errors are double clustered at the firm and year level. The appendix provides descriptions for each variable. The sample period is from 2007 to 2021. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable:							
	roa_t	roe_t	ros_t	$roemp_t$	$epsg1yr_t$	$profitg1yr_t$	$sg1yr_t$	$semp_t$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DEI_{t-1}	0.04^{*}	0.03	0.13^{**}	72.67^{**}	0.63^{**}	0.61^{*}	0.12^{***}	314.69^{**}
	(0.02)	(0.04)	(0.05)	(24.49)	(0.26)	(0.28)	(0.03)	(116.00)
$Female\%_{t-1}$	−0.02	0.06	0.01	−21.53	−0.14	−0.26	−0.03	−191.41
	(0.02)	(0.05)	(0.03)	(19.04)	(0.20)	(0.19)	(0.03)	(137.66)
$Minority\%_{t-1}$	−0.01	0.04	0.04	59.04	0.08	0.02	-0.11^{*}	82.22
	(0.03)	(0.08)	(0.08)	(47.99)	(0.41)	(0.42)	(0.05)	(202.95)
$lnbm_{t-1}$	-0.03^{***}	-0.09^{***}	-0.03^{***}	-10.84^{*}	-0.14^{**}	-0.15^{**}	-0.04^{***}	13.17
	(0.01)	(0.02)	(0.01)	(5.53)	(0.05)	(0.06)	(0.01)	(15.59)
$lnassets_{t-1}$	0.01^{*}	0.03^{***}	0.02^{***}	12.08^{***}	0.04	0.05	0.0000	79.42^{***}
	(0.003)	(0.01)	(0.01)	(3.38)	(0.03)	(0.03)	(0.004)	(13.65)
$lnage_{t-1}$	0.01^{*}	0.02	0.01	−2.51	0.001	−0.01	-0.04^{***}	-73.33^{***}
	(0.004)	(0.01)	(0.01)	(4.52)	(0.07)	(0.07)	(0.01)	(20.76)
$sp500_{t-1}$	−0.01	−0.02	−0.01	10.29	−0.04	−0.07	−0.01	68.20
	(0.01)	(0.03)	(0.02)	(11.80)	(0.07)	(0.08)	(0.01)	(40.24)
$delaware_{t-1}$	-0.02^{***}	-0.04^{**}	0.003	3.09	0.04	0.06	−0.01	45.27
	(0.01)	(0.02)	(0.01)	(8.12)	(0.08)	(0.07)	(0.01)	(43.43)
Year x FF48 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,605	1,604	1,605	1,581	1,603	1,605	1,605	1,581
Adjusted R^2	0.24	0.26	0.14	0.35	0.02	0.03	0.38	0.49

Table 6: Firm valuation

This table regresses firm valuation measures on lagged DEI scores, demographic characteristics, and controls. We drop negative valuation measures and winsorize the valuation measures at the 1% and 99% levels. We include industry times year fixed effects in each column. Standard errors are double clustered at the firm and year level. The appendix provides descriptions for each variable. The sample period is from 2006 to 2021. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable:		
	q	pe	avebitda
	(1)	(2)	(3)
DEI	1.60^{***}	37.68^{**}	18.35^{**}
	(0.38)	(12.81)	(6.42)
Female%	-0.93^{*}	-5.40	-8.23
	(0.51)	(12.73)	(5.18)
Minority%	-1.22	8.67	0.95
	(0.70)	(19.09)	(7.42)
lnassets	-0.40^{***}	-5.08^{***}	-1.56^{**}
	(0.08)	(1.43)	(0.58)
lnage	-0.13	-5.09	-2.61
	(0.12)	(3.64)	(1.79)
sp500	1.24^{***}	14.46^{**}	6.00^{*}
	(0.27)	(6.14)	(3.18)
delaware	0.22	8.30^{**}	3.38^{**}
	(0.14)	(3.56)	(1.38)
Year x FF48 FE	Yes	Yes	Yes
Observations	1,616	1,576	1,687
Adjusted R^2	0.27	-0.01	0.08

Table 7: Earnings surprises

This table regresses analysts' forecast errors, normalized over assets per share, on lagged DEI, demographic characteristics, and controls. Panel A shows one-year earnings surprises and Panel B shows two-year earnings surprises. We measure the median analysts' forecasts eight and twenty months (for one- and two-year surprises, respectively) before the actual earnings are announced. We calculate assets per share by dividing assets from the previous fiscal year by shares outstanding at the time of the forecast. We drop observations when the median forecast errors are larger than 10% of the stock price. In both panels, we include year fixed effects. Standard errors are double clustered at the firm and year level. The appendix provides descriptions for each variable. The sample period is from October 2006 to December 2021 in Panel A and from October 2007 to December 2021 in Panel B. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: One-year earnings surprises

	Dependent variable:		
	one-year surprise$_t$		
	(1)	(2)	(3)
DEI$_{t-8}$	8.33**	8.61**	7.50**
	(3.31)	(3.18)	(3.10)
Female%$_{t-8}$	−8.28**	−7.07*	−6.72*
	(3.34)	(3.34)	(3.44)
Minority%$_{t-8}$	−8.14	−7.65	−5.62
	(5.14)	(5.28)	(5.12)
lnsize$_{t-12}$		0.97**	0.98**
		(0.43)	(0.45)
lnbm$_{t-12}$			−1.17*
			(0.60)
Year FE	Yes	Yes	Yes
Observations	1,709	1,709	1,671
Adjusted R^2	0.03	0.03	0.03

Panel B: Two-year earnings surprises

	Dependent variable:		
	two-year surprise$_t$		
	(1)	(2)	(3)
DEI$_{t-20}$	8.05*	7.96*	8.32*
	(4.14)	(4.28)	(4.57)
Female%$_{t-20}$	−2.00	−1.38	−1.43
	(6.98)	(6.74)	(7.11)
Minority%$_{t-20}$	−11.26	−10.82	−10.18
	(10.37)	(10.56)	(11.09)
lnsize$_{t-24}$		0.73	0.80
		(0.71)	(0.72)
lnbm$_{t-24}$			0.20
			(1.53)
Year FE	Yes	Yes	Yes
Observations	1,479	1,475	1,443
Adjusted R^2	0.05	0.05	0.04

Table 8: Innovation

This table regresses innovation measures on lagged DEI scores, demographic characteristics, and controls using a Poisson model. We include industry times year fixed effects in each column. Standard errors are double clustered at the firm and year level. The appendix provides descriptions for each variable. The sample period is from 2007 to 2015. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variables:	$patents_t$		$citations_t$	
Model:	(1)	(2)	(3)	(4)
DEI_{t-1}	0.1518		1.252	
	(0.5665)		(1.106)	
$DEI\_executives_{t-1}$		-0.3074		-0.8357***
		(0.2606)		(0.2160)
$DEI\_managers_{t-1}$		-0.6597*		-1.187**
		(0.3738)		(0.4884)
$DEI\_professionals_{t-1}$		1.489*		3.768***
		(0.7748)		(1.448)
$DEI\_workers_{t-1}$		-0.0856		-0.0584
		(0.2108)		(0.1890)
$Female\%_{t-1}$	-3.387**	-3.520**	-0.1757	-0.9532
	(1.405)	(1.439)	(1.451)	(1.518)
$Minority\%_{t-1}$	-0.2063	0.1469	-1.466	0.4988
	(1.768)	(1.965)	(3.080)	(2.628)
$lnbm_{t-1}$	-0.4541***	-0.4547***	-0.2891**	-0.3516***
	(0.0764)	(0.0936)	(0.1138)	(0.1006)
$lnassets_{t-1}$	0.8364***	0.8302***	0.9175***	0.9080***
	(0.0609)	(0.0592)	(0.0921)	(0.0798)
$divyield_{t-1}$	2.347***	2.336***	-1.253	-0.6339
	(0.5680)	(0.6973)	(1.859)	(1.148)
$cash_{t-1}$	-1.745*	-1.915*	-0.2553	-0.8334
	(1.020)	(0.9827)	(1.066)	(0.8108)
$leverage_{t-1}$	-1.057	-1.068	0.3405	0.0353
	(0.6820)	(0.6604)	(0.8510)	(0.7887)
$lnage_{t-1}$	0.1359	0.1553	0.1951	0.1431
	(0.1256)	(0.1243)	(0.2243)	(0.1737)
$rdsales_{t-1}$	6.549***	6.266***	11.41***	10.14***
	(1.509)	(1.439)	(1.830)	(1.609)
$rdmiss_{t-1}$	-2.290***	-2.117***	-2.993***	-2.708***
	(0.4367)	(0.3076)	(0.6909)	(0.6308)
Year x FF48 FE	Yes	Yes	Yes	Yes
Observations	1,134	1,111	1,134	1,111
Pseudo R^2	0.91191	0.91454	0.88852	0.90202

Table 9: Stock returns

This table regresses raw and industry-adjusted stock returns on lagged DEI and controls. All variables used to predict the stock returns of month t are available at the end of month $t-2$. We calculate industry-adjusted stock returns by subtracting the returns of value-weighted Fama-French-48 industries from the raw stock returns. We include month fixed effects in each column. Standard errors are double clustered at the firm and month level. The appendix provides descriptions for each variable. The sample period is from February 2006 to December 2021. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable:	
	ret	retvwind
	(1)	(2)
DEI	−0.17	−0.17
	(0.50)	(0.44)
lnsize	0.40**	0.33**
	(0.17)	(0.15)
lnbm	−0.05	0.06
	(0.10)	(0.08)
divyield	−2.07	−2.14
	(1.50)	(1.57)
lnret23	0.36	0.47
	(1.67)	(1.56)
lnret46	−0.87	−0.34
	(1.29)	(1.23)
lnret712	0.11	0.10
	(0.68)	(0.62)
lndollarvol	−0.46***	−0.39***
	(0.16)	(0.14)
lnprc	0.02	0.08
	(0.11)	(0.10)
Month FE	Yes	Yes
Observations	23,452	22,698
Adjusted R^2	0.25	0.02

Table 10: Portfolio returns

This table regresses the returns of a DEI portfolio on asset pricing factors. The portfolio is long (short) firms with a DEI score in the top (bottom) tercile. Variables *ewlsrf* and *vwlsrf* are the equal- and value-weighted portfolio returns, whereas variables *ewlsind* and *vwlsind* are the equal- and value-weighted industry-adjusted portfolio returns. We calculate industry-adjusted portfolio returns by subtracting the returns of value-weighted Fama-French-48 industries from the raw stock returns before creating the portfolios. The appendix provides descriptions for each variable. The sample period is from February 2006 to December 2021. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable:			
	ewlsrf	vwlsrf	ewlsind	vwlsind
	(1)	(2)	(3)	(4)
Constant	−0.207	−0.097	−0.176	−0.098
	(0.191)	(0.215)	(0.156)	(0.170)
MKT	0.098**	0.292***	0.041	0.177***
	(0.047)	(0.048)	(0.043)	(0.035)
SMB	0.127	−0.072	0.160**	−0.034
	(0.087)	(0.098)	(0.079)	(0.086)
HML	−0.246**	−0.392***	−0.130	−0.203***
	(0.114)	(0.083)	(0.097)	(0.061)
MOM	0.113***	0.054	0.080**	0.008
	(0.040)	(0.057)	(0.037)	(0.047)
Observations	191	191	191	191
Adjusted R^2	0.103	0.163	0.051	0.083

Appendix - Variable Descriptions

Variable	Description
	GPTW's employee survey
DEI	Our DEI measure based on 13 DEI-related survey questions from the GPTW Institute. We average the survey questions and aggregate these over all employees of a firm.
DEI_whitemale	DEI responses of white male respondents.
DEI_whitefemale	DEI responses of white female respondents.
DEI_minoritymale	DEI responses of minority (Blacks and Hispanics) male respondents.
DEI_minorityfemale	DEI responses of minority (Blacks and Hispanics) female respondents.
DEI_executives	DEI responses of executives and senior managers.
DEI_managers	DEI responses of midrank managers/supervisors.
DEI_professionals	DEI responses of salaried professionals.
DEI_workers	DEI responses of hourly workers.
	GPTW's Culture Audit
Female%	Percentage of female employees in a company.
Minority%	Percentage of minority (Blacks and Hispanics) employees.
FemaleMgt%	Percentage of female senior managers.
MinorityMgt%	Percentage of minority (Blacks and Hispanics) senior managers.
FlexSchedule	Dummy whether the company has a policy for flexible work schedules.
ChildCare	Dummy whether the company has on-site child care.
Sabbatical	Dummy whether the company allows their employees to take sabbaticals.
UnpaidParentLeave	Number of days of unpaid parental leave that a company allows.
UnionWorker%	Percentage of unionized workers among all employees.
VolTurnover	Percentage of voluntary employee turnover.
	BoardEx data
FemaleCEO	Dummy whether the CEO of a company is female.
MinorityCEO	Dummy whether the CEO of a company is a minority (Blacks and Hispanics). We estimate the race of a CEO based on the CEO's last name using U.S. census data.
FemaleDir%	Percentage of female directors.
MinorityDir%	Percentage of minority directors. We estimate the race of a director based on the director's last name using U.S. census data.
	CRSP
ret1yr, ret3yr	One- and three-year stock returns.
ewlsrf, vwlsrf	Equal- and value-weighted long-short portfolio returns.

ewlsind, vwlsind	Equal- and value-weighted long-short industry-adjusted portfolio returns.
ret	Raw stock returns.
retvwind	Industry-adjusted stock returns, calculated as raw stock returns minus Fama-French-48 value-weighted industry returns.
lnsize	Natural log of market capitalization in millions.
lnret23, lnret46, lnret712	Natural logs of the compounded returns in, respectively, month t-3 to month t-2, month t-6 to month t-4, and month t-12 to month t-7.
lndollarvol	Natural log of dollar trading volume.
lnprc	Natural log of stock price.

Compustat

roa, roe, ros, roemp	Income before extraordinary items divided by average assets, book equity, sales, and the number of employees.
epsg1yr, profitg1yr	Earnings per share growth and income before extraordinary items growth.
semp	Sales divided by the average number of employees.
sg1yr, sg3yr	One- and three-year sales growth.
q	Tobin's Q. We calculate the ratio as market value (book assets plus December market cap minus book value of common equity minus deferred taxes) divided by book assets.
pe	Price/Earnings. We calculate the ratio as December market cap divided by earnings (income before extraordinary items for common shareholders plus deferred taxes plus investment tax credit).
avebitda	Aggregate value/EBITDA. We calculate the ratio as aggregated value (December market cap plus net debt, defined as long-term debt plus debt in current liabilities minus cash and short-term investments) divided by operating income before depreciation.
divyield	Cash dividends on ordinary stock divided by December market cap.
cash	Cash and short-term investments divided by total assets.
leverage	Net debt, defined as long-term debt plus debt in current liabilities minus cash and short-term investments, divided by total assets.
lnbm	Natural log of book-to-market ratio. Book equity is calculated as shareholders' equity minus preferred stock plus balance sheet deferred taxes plus FASB 106 adjustment. Shareholders' equity is calculated as stockholders' equity if not missing, else total common equity plus preferred stock par value if both are present, else total assets minus total liabilities, if both are present.
lnassets	Natural log of book assets.
lnage	Natural log of the current fiscal year minus the fiscal year when the company (gvkey) first appeared in Compustat.
sp500	Dummy whether a company is in the S&P 500 index.
delaware	Dummy whether a company is incorporated in Delaware.
lnemp	Natural log of the number of employees.
rdsales	R&D expenses divided by sales.
rdmiss	Indicator whether R&D expenses are missing in Compustat.
region	Indicator whether a company's headquarter is located in the Northeast, West, South, or Midwest of the United States.

	IBES
surprise	Actual earnings minus median forecast, divided by lagged assets per share. We calculate assets per share by dividing the total firm assets from the previous fiscal year by the shares outstanding at the time of the forecast.
	Global Corporate Patent Database
patents	Number of patents filed by a company. We set this variable to zero if a company has no patents in a year.
citations	Number of citations that patents filed by a company receive in subsequent years. We set this variable to zero if a company has no citations in subsequent years.

Online Appendix

Table OA1: Descriptive statistics for the Compustat data

This table reports summary statistics for our sample based on Compustat data. The GPTW sample contains firm-year observations of publicly listed companies that participate in the GPTW survey. The full Compustat sample has all firms included in Compustat. The appendix provides descriptions for each variable. The sample period is from 2006 to 2021.

Panel A: Number of firm-year observations

Year	GPTW sample
2006	227
2007	185
2008	168
2009	150
2010	127
2011	126
2012	115
2013	109
2014	104
2015	102
2016	83
2017	87
2018	106
2019	104
2020	101
2021	109
Total sample	2,003

Panel B: GPTW sample

Statistic	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max	N
DEI	4.24	0.21	3.28	4.11	4.26	4.38	4.82	2,003
Female%	0.42	0.17	0.05	0.29	0.40	0.54	1.00	1,926
Minority%	0.20	0.13	0.00	0.10	0.15	0.27	0.77	1,903
FemaleMgt%	0.25	0.13	0.00	0.16	0.24	0.32	0.98	1,860
MinorityMgt%	0.13	0.11	0.00	0.06	0.11	0.17	1.00	1,808
FemaleCEO	0.03	0.18	0	0	0	0	1	1,842
MinorityCEO	0.03	0.17	0	0	0	0	1	1,866
FemaleDir%	0.19	0.11	0.00	0.11	0.18	0.27	0.57	1,901
MinorityDir%	0.04	0.06	0.00	0.00	0.00	0.08	0.57	1,901
emp	38.59	84.37	0.61	5.00	13.02	40.41	2,300.00	1,971
roa	0.05	0.08	−0.51	0.02	0.05	0.10	0.19	1,982
q	2.26	1.78	0.45	1.16	1.64	2.71	16.22	1,774
assets	55,353.36	205,232.30	69.62	2,409.94	7,551.10	26,177.50	3,169,495.00	2,003

Panel C: Full Compustat sample

Statistic	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max	N
emp	12.12	50.40	0.001	0.21	1.15	6.25	2,300.00	75,145
roa	−0.03	0.17	−0.72	−0.03	0.02	0.06	0.19	74,520
q	1.90	1.75	0.34	1.00	1.29	2.07	16.22	73,363
assets	16,633.34	119,821.40	0.00	183.98	890.79	3,960.81	3,771,200.00	79,449

Table OA2: Descriptive industry statistics

This table provides the average DEI score for the Fama-French-48 industries with the five best and five worst DEI scores. We only consider industries with at least 5 firm-year observations. The sample period is from 2006 to 2021.

FF48 code	Fama French 48 Description	Firm-year N	Avg DEI score
34	Business Services	377	4.34
43	Restaurants, Hotels, Motels	110	4.33
30	Petroleum and Natural Gas	62	4.31
44	Banking	130	4.29
18	Construction	48	4.29
3	Candy and Soda	8	4.01
22	Electrical Equipment	6	3.98
24	Aircraft	8	3.96
17	Construction Materials	9	3.95
23	Automobiles and Trucks	6	3.86

Table OA3: Accounting performance - Guiso, Sapienza and Zingales (2015) controls

This table regresses accounting performance measures on lagged DEI scores, demographic characteristics, and controls. We winsorize all performance measures at the 5% and 95% levels. We include industry times year fixed effects in each column. Standard errors are double clustered at the firm and year level. The appendix provides descriptions for each variable. The sample period is from 2006 to 2021. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable:							
	roa_t	roe_t	ros_t	$roemp_t$	$epsg1yr_t$	$profitg1yr_t$	$sg1yr_t$	$semp_t$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DEI_t	0.03^{*}	0.07	0.09^{*}	48.38^{**}	0.44^{**}	0.48^{**}	0.15^{***}	35.03
	(0.02)	(0.06)	(0.04)	(21.30)	(0.16)	(0.17)	(0.02)	(99.20)
Female$\%_t$	−0.02	−0.05	−0.02	-49.31^{**}	0.12	−0.01	−0.03	-357.69^{**}
	(0.02)	(0.06)	(0.04)	(18.55)	(0.34)	(0.30)	(0.04)	(141.47)
Minority$\%_t$	−0.01	0.12	0.004	51.63	−0.09	−0.09	−0.09	24.79
	(0.03)	(0.10)	(0.05)	(40.94)	(0.52)	(0.51)	(0.05)	(189.77)
lnemp	0.01	0.04^{***}	0.01	2.13	0.05^{*}	0.03	0.01^{*}	−28.79
	(0.003)	(0.01)	(0.01)	(3.77)	(0.02)	(0.02)	(0.003)	(19.97)
lnage	0.01^{**}	0.02	0.02^{**}	4.22	0.04	0.03	-0.04^{***}	0.74
	(0.005)	(0.02)	(0.01)	(5.32)	(0.05)	(0.04)	(0.01)	(25.78)
regionNortheast	0.02	0.06^{**}	0.04^{***}	36.44^{***}	0.02	0.05	0.01	156.23^{**}
	(0.01)	(0.03)	(0.01)	(10.94)	(0.12)	(0.12)	(0.02)	(60.25)
regionSouth	0.01	−0.002	0.01	0.30	0.08	0.09	0.02^{*}	59.73
	(0.01)	(0.03)	(0.01)	(10.62)	(0.09)	(0.08)	(0.01)	(55.62)
regionWest	0.01	0.01	0.03	25.80^{**}	0.01	0.01	0.05^{***}	110.90^{**}
	(0.01)	(0.03)	(0.01)	(9.43)	(0.12)	(0.12)	(0.01)	(51.54)
Year x FF48 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,678	1,673	1,678	1,677	1,677	1,678	1,678	1,677
Adjusted R^2	0.19	0.16	0.18	0.38	0.11	0.11	0.33	0.43

Table OA4: Firm valuation - Guiso, Sapienza and Zingales (2015) controls

This table regresses firm valuation measures on lagged DEI scores, demographic characteristics, and controls. We drop negative valuation measures and winsorize the valuation measures at the 1% and 99% levels. We include industry times year fixed effects in each column. Standard errors are double clustered at the firm and year level. The appendix provides descriptions for each variable. The sample period is from 2006 to 2021. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable:		
	q	pe	avebitda
	(1)	(2)	(3)
DEI_t	1.97^{***}	33.84^{**}	17.15^{**}
	(0.45)	(11.87)	(6.79)
$Female\%_t$	-0.86	-0.54	-8.62
	(0.59)	(13.47)	(5.66)
$Minority\%_t$	-1.33^{*}	9.51	2.36
	(0.75)	(16.62)	(6.62)
lnemp	-0.09	-1.89	-0.91
	(0.07)	(2.20)	(0.79)
lnage	-0.03	-4.09	-1.81
	(0.12)	(3.84)	(1.82)
regionNortheast	0.41^{*}	-0.83	-0.37
	(0.21)	(5.67)	(2.29)
regionSouth	0.32	6.92	0.85
	(0.22)	(4.53)	(1.90)
regionWest	0.73^{**}	14.96^{*}	4.73
	(0.28)	(7.94)	(3.49)
Year x FF48 FE	Yes	Yes	Yes
Observations	1,496	1,466	1,575
Adjusted R^2	0.25	-0.005	0.08

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

ECGI Working Paper Series in Finance

www.ecgi.global/content/working-papers

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.global/content/working-papers) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html