

# Director diversity and inclusion: At the table but in the game?

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## Abstract

The issue of the *presence* of diverse directors on boards has attracted considerable attention among policymakers, practitioners, and academics. There is relatively less attention to the *inclusion* of diverse directors, or their onward trajectory after appointment. We study two outcomes related to inclusion—the retention of directors and their promotion to board leadership positions. Although gender is a key focus of many diversity discussions, we find significant inclusion results on skill diversity and nongender diversity dimensions. Retention and promotion are “less” likely for age- and ethnicity-diverse directors but both outcomes are more likely for skill-diverse directors.

## KEYWORDS

board hierarchies, board of directors, director skills, diversity, homophily, identity, inclusion

## JEL CLASSIFICATION

G30, G32, G34

## 1 | INTRODUCTION

In modern public corporations, it is rare for shareholders to directly engage with managers. Instead, shareholders control management through boards of directors. Individuals serve as board directors because directorships are financially remunerative and serve as a source of reputation and prestige (Fama & Jensen, 1983; Yermack, 2004; Fich & Shivdasani, 2006; Adams & Ferreira, 2008; Masulis & Mobbs, 2014).

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The structure, composition, and functioning of boards have been subject to periodic interventions from regulators and other stakeholders. These interventions take the form of binding requirements under law and informally through “best practice” guidelines.<sup>1</sup> Although the historical focus of board reforms has been director independence, more recently, attention has shifted to other director attributes, notably skills and diversity. On the skills front, proxy statements have started to provide detail on director skills and director biographies. Diversity efforts have focused on gender. For example, Norway’s 2006 law requires at least 40% representation of women on boards and California’s August 2018 law (SB 826) requires at least one woman director on each California public firm (Ahern & Dittmar, 2012; Eckbo et al., 2018; Hwang et al., 2018).

Our study has three goals. First, although prior work focuses on the *presence* of diverse directors on boards, we address their *inclusion* or the engagement, activity, and ultimate influence of an individual in the group (s)he serves on.<sup>2</sup> We analyze inclusion by examining the retention and transition of diverse directors to leadership positions on boards. Second, we shed light on the dimensions of diversity beyond gender. Our primary interest is in skill diversity but we also analyze and report results on sociodemographic diversity including the nongender dimensions of age and ethnicity. Third, we focus on econometric issues relevant to studying board diversity. We develop empirical metrics for diversity and propose simple methods for analyzing diversity effects.

Our interest in inclusion is motivated by the observation that much of the discussion on diversity focuses on whether diverse directors are present on boards. We take the view that the presence of a diverse director, or getting a seat at the table, although visible, is only a first step toward diversity on the board. The next step is “being in the game,” or the engagement of diverse directors in the boards they serve on to influence and shape how the boards discharge their important functions. Are diverse directors really in the game or do they merely have a token presence on boards? We examine two metrics of inclusion. One is the retention of diverse directors and the other is their onward progression to the higher profile leadership positions on boards. The basic idea is simple. Directors who are included and involved in shaping the boards they serve on are likely to be retained on boards and move up to senior positions. This leads to the specific empirical questions we pursue. We ask whether the diverse directors are less or more likely to be retained and conditional on retention, move up to leadership positions.

Our second focus is on the dimensions of diversity. Director skills have been of statutory interest since at least the 2002 Sarbanes Oxley Act (SOX), whose Section 407 requires public companies to disclose financial expertise (Hoitash et al., 2009). Practitioners increasingly recognize that diverse skills are desirable. For example, the New York Pension Funds Board Accountability Projects proposes a director “skill matrix” as a best practice. The large pension fund CalPERS argues that boards should possess a “... *range of skills*, competence, knowledge, experience” (emphasis ours). Skill diversity is thus a key focus of our study.

We also control for other dimensions of diversity. As motivation, consider the 2018 Board Diversity Report by Institutional Shareholder Services, which notes, “... gender diversity dominates the board diversity conversation” but as the report also goes on to note “... ethnicity, skills, background, and age are becoming more important.” These views are echoed by corporations and financial institutions. Ursula Burns, the former CEO of Xerox, discusses this point when narrating her experiences and views as senior executive in one of the top corporations in the United States. BlackRock, the world’s biggest asset manager, defines diversity as “... diversity in gender, ethnicity, age, career experience, and geographic location as well as diversity of mind.”<sup>3</sup> We focus on diversity in age, ethnicity, and skillsets, the nongender axes of diversity.<sup>4</sup>

<sup>1</sup> An early example is the (358-page) Corporate Governance Guide of the New York Stock Exchange (NYSE) in December 2014. See [https://www.nyse.com/publicdocs/nyse/listing/NYSE\\_Corporate\\_Governance\\_Guide.pdf](https://www.nyse.com/publicdocs/nyse/listing/NYSE_Corporate_Governance_Guide.pdf).

<sup>2</sup> “Your Company Says Diversity is a High Priority. Now What?” *The Wall Street Journal*, July 19, 2020.

<sup>3</sup> See <https://www.pbs.org/newshour/economy/xerox-employees-arent-carbon-copies> for the interview by Ursula Burns, <https://www.goldmansachs.com/our-firm/people-and-culture/> for the Goldman Sachs diversity initiative, and <https://ir.blackrock.com/CustomPage/Index?keyGenPage=1073753205> for data on Blackrock diversity policies.

<sup>4</sup> Ethnicity has received growing attention in 2020. See <https://www.wsj.com/articles/zillow-nextdoor-and-other-companies-pledge-to-add-black-directors-11599649200> for the pledge by firms to add black directors, and <https://calmatters.org/politics/2020/08/corporate-board-diversity-ca-bill/> for the California bill to ban all-White corporate boards.

Our third point concerns the economics and econometrics of our empirical approach. We view diversity as a within-board attribute, that is, a director's attribute relative to the remaining directors on a board. This *within* construct is relevant if the goal is to make every board diverse as opposed to just having an aggregate director pool that is diverse, which could result in some boards being very diverse and others less so. Empirically, the *within* construct specifies a director's diversity as the distance between an attribute's value for a director and its average for other directors on the same board. Let us take age, for instance. An old director serving on a board is more diverse when the remaining directors are young but less diverse when the other directors on the board are also old. Our diversity variables thus focus on a director's distance on an attribute from the locus of the other board members.

Econometrically, our point is that within-board diversity effects can be captured in a relatively simple and robust manner by including board-year interactive fixed effects. The regression coefficient for a director's attribute is then the effect of the attribute relative to the average of the attribute for the board in the year, which is precisely the diversity effect. Interactive fixed effects also serve the useful purpose of filtering out endogeneity due to unobservables at the level of a firm, year, or even a particular firm in a given year (Gormley & Matsa, 2014). This feature is empirically useful as board outcomes can vary based on accounting, industry, or stock variables (Yermack, 2004; Harford, 2003; Jenter & Kanaan, 2015; Bates et al., 2017). Board-year fixed effects control for these variables nonparametrically without taking a stance on what controls to include or the functional form in which they should enter.<sup>5</sup>

We turn to testable predictions next. If skill diversity is useful, skill-diverse directors should be more likely to be retained and promoted. For non-skill dimensions, we draw on the "birds of a feather flock together" literature in which individuals have affinity for similar others (McPherson et al., 2001). If directors prefer similar others, diverse directors—across all diversity axes—should experience worse employment outcomes. These predictions are most relevant for the demographic axes of diversity including gender, age, and ethnicity.

Our sample comprises CRSP-COMPUSTAT firms covered by BoardEx between fiscal 2004 and 2019. Our sample has 8758 unique U.S. listed companies and 58,153 unique nonexecutive directors and updates the ones used in prior studies. This sample is larger than those in studies that use the ISS (formerly IRRC) database, as it includes smaller firms. We estimate skill metrics and skill diversity using BoardEx data.<sup>6</sup> For age and gender diversity, we use the director age and gender reported in BoardEx. For ethnicity, we use machine learning algorithms applied to first and last names, which yields measures that are part nationality and part religion (Sood & Laohaprapanon, 2018), dimensions of concern to Title VII of the 1964 Civil Rights Act.

The first inclusion variable we analyze, director retention, measures whether a director serving on a given board remains or leaves the board in the year (Yermack, 2004). We find that skills exhibit a very robust pro-diversity effect: directors with diverse skills are more likely to be retained. Diversity on non-skill dimensions also matters. Although retention is more likely for women, the signs flip for other measures of demographic diversity. Age-diverse directors and directors whose ethnicity varies from the rest of the board are less likely to be retained. The results emphasize that it is less useful to think of diversity as a single monolithic construct. Rather, there are many axes of diversity with individual effects on outcomes experienced by a director. The diversity results are robust to the inclusion of several controls.

Our second outcome of interest is promotion, that is, the elevation of a non-key director to a leadership position on the board. We classify directors as being *key* or *non-key* based on their roles as reported in BoardEx. Conditional on remaining on a board, the probability that a non-key director is promoted next year to a key leadership role is about 9%. Once again, skill diversity matters. Directors possessing greater skill diversity are more likely to be retained and promoted. The results hold after controlling for the levels of the skills of directors. We also report results on diversity along non-skill dimensions. Women directors are less likely to be promoted to leadership positions but the result is not significant to controls for skill, suggesting that gender matters less once we account for skills. Age and

<sup>5</sup> For attributes such as age where diversity is bidirectional, that is, both older and younger directors are diverse, the specification involves a slight modification, as we discuss in later in Section 2.

<sup>6</sup> They are derived from the educational and employment data as we describe later. Work on director skills includes Fich (2005), Masulis, Wang, and Xie (2012), Knyazeva, Knyazeva, and Raheja (2013), Adams, Akyol, and Verwijmeren (2018), and Bernile, Bhagwat, and Yonker (2018). Related work on director career backgrounds includes Booth and Deli (1999), Agarwal and Knoeber (2001), and Dass et al. (2014).

ethnically diverse directors are “less” likely to be promoted. This result, unlike that for gender, is robust to skill controls. The findings suggest that skill diversity and the nongender sociodemographic diversity matter in both retention and promotion.

We conduct a large number of other tests to clarify the nature of our results. We find that diversity matters less for key directors. A key director likely has an accumulated corpus of knowledge and unique insights about running the board that is lost if the director leaves. Non-key directors do not need the same soft and hard skills coming into a board so diversity should matter less for these directors. This is exactly what we find across a range of specifications and samples. The retention results are robust to local market supply constraints (Knyazeva et al., 2013). We also include controls for outside success of directors, with controls for skills and skill counts, and in disciplinary turnover events. The results are robust.

## 1.1 | Related literature

We contribute to the research on reforming boards. This topic has been a special priority since the wave of corporate frauds in the 1990s and the ensuing 2002 SOX, but attention to boards predates this period.<sup>7</sup> A key instrument in board accountability is the hiring and firing of directors (Yermack, 2004; Fich & Shivdasani, 2006; Masulis & Mobbs, 2014). Our main point is that the typical pattern of director turnover is “within” boards as the typical director turnover event involves one or two directors leaving at a time. That is, the important margin in director departure is “within” boards between directors who depart and those who are retained. This is exactly the margin we analyze. We also contribute to this literature by analyzing the role of skill, skill diversity, and other diversity variables in explaining turnover and introduce board-year fixed effects as a tool to pin down within-variation. Our samples and datasets on director skills update and enlarge those in recent work (Denis et al., 2015, 2018; Adams et al., 2018; Bernile et al., 2018).

We add to the work on diversity that focuses on sociodemographic axes such as race, color, gender, national origin, or age. Such dimensions are the focus of laws such as the 1964 Civil Rights Act and the 1967 Age Discrimination in Employment Act (ADEA) and the labor economics literature (Goldin, 1990; Bertrand & Mullainathan, 2004; Leibbrandt & List, 2018; Neumark, 2018). We develop evidence for labor market outcomes for directors. Although gender diversity has attracted prior research (Ahern & Dittmar, 2012; Eckbo, Nygaard, & Thorburn, 2018; Hwang, Shivdasani, & Simintzi, 2018), there has been less research on skills and nongender dimensions of diversity, which are of increasing interest (Papadopoulos et al., 2018).<sup>8</sup>

Our work is related to the board diversity study of Field et al. (2019). We do, however, note key differences. One, we focus on inclusion, or the onward outcomes for diverse directors rather than their presence on boards. Two, we introduce new empirical constructs for diversity, which is the distance of a director's attribute from “the rest of the board.” Moreover, we use a multidimensional diversity construct that is specified along multiple axes including skills. Finally, our BoardEx sample is significantly larger and we use interactive board-year fixed effects to examine within-board variation in outcomes, which is not feasible when the unit of analysis is the entire board. The approaches are different and the insights are complementary.

We also add to the literature on identity economics. Observations that individuals prefer similar others date back to Aristotle and Plato but Kossinets and Watts (2009) show that it continues to be a robust feature among the young.<sup>9</sup> Akerlof and Kranton (2000) offer a theory and Benjamin et al. (2010) offer related evidence. Our contribution to this

<sup>7</sup> See, for example, Lipton and Lorsch (1992). Quotes in their work include, for example, “the board of directors is the linchpin of our system of corporate governance.” (Breedon, SEC Chairman, 1992), “Outside directors should function as active monitors continually” (Allen, Delaware Court of Chancery Chancellor, 1992), and “a board can contribute if it acts as informed and interested counsellors, advisors, and directors of management.” (Perkins, CEO of Jewel Companies, 1979). See Adams, Hermalin, and Weisbach (2010) for a review of the boards literature.

<sup>8</sup> Although we focus on individual director diversity, other work looks at overall board diversity. See Adams and Ferreira (2009), Ferreira (2011), Anderson et al. (2011), or Carter, Simkins, and Simpson (2003).

<sup>9</sup> Diversity-seeking behavior is also possible (Fischer and Olicker, 1983; McAlister and Pessemier, 1982; Wuchty, Jones, and Uzzi, 2007). We argue later that it is plausibly reflected in preferences for diversity in skills.

literature is to introduce new evidence on boards. These are groups with well-defined structures and boundaries, and economically important as they govern roughly the top 3000 firms in the United States. Although much of the identity preference literature asks whether identity shapes group “formation” (Carrarini et al., 2009, 2010), we also look at other outcomes, for example, group dissolution and promotion of individuals within groups, outcomes on which there is less evidence (McPherson, Smith-Lovin, & Cook, 2001). Our analysis sheds light on whether identity preferences fade when team members interact with each other (Popielarz & McPherson, 1995; Burt, 2000). They do not, even in our setting that features high-level professionals and directors in large public companies.<sup>10</sup>

## 2 | DATA

Our main dataset includes firms in the BoardEx database core reports that have CRSP-COMPUSTAT data. Other studies using BoardEx include Cohen et al. (2008, 2010), Hwang and Kim (2009), and Fracassi and Tate (2012). BoardEx compiles a full historical profile containing directors’ employment history, board memberships, educational background, and social activities. We map a BoardEx report date to a COMPUSTAT fiscal year-end date if the distance between the first day of the BoardEx report month and year and the COMPUSTAT fiscal year-end date is less than 31 days. CRSP matches must be within the effective link dates provided in the WRDS linking suite. For one part of our study, we link the data to the ISS director election data (Fos et al., 2018; Aggarwal et al., 2018).

Our sample starts in fiscal 2004 and ends in fiscal 2019. This post-dates many significant policies and regulations to reform boards in the early 2000s such as the 2002 SOX and the NYSE Rule 505a, changes that have led companies to alter boards to comply with the new rules (Agrawal & Chadha, 2005). As in Yermack (2004), we exclude financials and utilities, or firms with SIC codes 6000 to 6999 and 4900 to 4999. Our sample includes nonexecutive or outside supervisory directors who are not employees. We require that CEOs of a firm be identified.

The final sample consists of 307,262 director-board-year observations pertaining to 8758 distinct firms, 58,153 distinct directors, and 46,376 board-years. This sample considerably updates and increases the number of firms covered in earlier studies. For instance, Yermack (2004) studies outside director turnover for 734 directors in Fortune 500 firms between 1994 and 1996. Fahlenbrach et al. (2017) examine 2282 firms and 16,497 directors from 1999 to 2010.

### 2.1 | Variable definitions

Appendix A contains variable definitions. We study two employment outcomes, director retention (or its mirror image, turnover) and director promotion.

We define a director as departing a board in fiscal year  $t$  if BoardEx lists the individual as serving on the board at the end of the year  $t - 1$  but not in year  $t$ . We define a promotion as occurring when a director does not occupy a key leadership position in a board year  $t - 1$  but does so in year  $t$ . Key leadership positions are chairs of one of the audit, compensation, or nominating committees, or a board chairman or lead director. These directors set the important board agenda and drive its decisions. Disclosures on these roles have been historically spotty but appear to have improved after SOX and concurrent changes in governance rules and obligations such as the NYSE Listing Rule 303A. For example, Yermack (2004) notes that in the 1994–1996 sample of Fortune 500 firms he studies, there is little reporting of formal nominating committees. This has changed even in the expanded universe of firms we study. We identify director

<sup>10</sup> See Lazarsfeld and Merton (1954), who argue identity preferences can reflect *status* or *value* homophily, related to sociodemographic or attitudinal similarity, respectively.

roles in the BoardEx database using the “Committee Details” report. As companies do not follow standard descriptions for committees, we read through all committee names in BoardEx and standardize names using keywords.<sup>11</sup>

In our study, diversity measures how a given director is different from the other directors serving on the same board. To measure skill diversity, we start by identifying skill sets. We apply the approach suggested by Adams, Akyol, and Verwijmeren (2018) to the BoardEx educational and employment history database to construct 18 skill categories. Two other skills, namely, “Leadership” and “Management,” are absorbed by other dimensions such as a director serving as a chief executive in another company. See Appendix B for a complete list.

Our skillset database also expands the data used in prior work. For instance, the sample of 251,899 director-years is almost nine times the Adams et al. sample of 29,029 director-years. The skills dataset is available to researchers using BoardEx upon request. Our null hypothesis is that there is a preference “for” skill diversity to respond to the (increasingly) diverse responsibilities of boards as noted in prior work (Adams, Akyol, & Verwijmeren, 2018; Fich, 2005; Fahlenbrach et al., 2010; Becher et al., 2017).

To construct the skill diversity measure, let  $a_{ij}$ ,  $j = 1, 2, \dots, 18$  denote skill  $j$  for director  $i$  and  $\bar{a}_j$  denote the median value of skill  $j$  on a board. *SKILL\_DIVERSITY* is the Euclidean distance between a director’s skill vector and the board median:

$$SKILL\_DIVERSITY_i = a_i - \bar{a}_2 = \sqrt{\sum_{j=1}^{18} (a_{ij} - \bar{a}_j)^2}.$$

On sociodemographic dimensions, our focus is on employment outcomes and our diversity metrics rely on relevant employment laws, namely, the 1967 ADEA act, which targets discrimination based on age, and Title VII of the 1964 Civil Rights Act enacted on July 2, 1964, which covers “...race, color, religion, sex, or national origin.” The sociodemographic diversity axes we focus on are gender, ethnic origin, and age, data on which come from BoardEx.

Gender is the first sociodemographic dimension. Preferences for the similar are especially salient when men are in a strong majority (Ibarra, 1997). This is, of course, the case in U.S. boards. However, several decades of pressure may have subordinated gender preferences so women directors are less or equally likely to leave as men (e.g., Yermack, 2004). The next dimension is ethnicity. McPherson, Smith-Lovin, and Cook (2001) note that ethnicity-related preferences are stronger in diverse societies. Experimental evidence suggests that ethnicity matters in employment (Bertrand & Mullainathan, 2004; Leibbrandt & List, 2018). Whether it does so in boards that comprise well qualified individuals is an interesting empirical question.

The primary source of ethnicity constructs in prior work is names, the approach used in Bertrand and Mullainathan (2004). We infer ethnicity from names using the machine learning approach suggested by Sood and Laohaprapanon (2018). The training dataset includes names and ethnicity data compiled by Ambekar et al. (2009). The input is a bi-char (two character) string constructed by concatenating the first and last name and eliminating instances that are too frequent or too infrequent as described in the LSTM algorithm in Sood and Laohaprapanon. This algorithm has been used in many applications in areas such as speech or handwriting recognition that require sequential machine learning and applications in finance have begun to appear.<sup>12</sup> It has precision and recall of more than 83%. The output of the machine learning classifier is a set of 13 categories reflecting ethnic origin, nationality, and religion.<sup>13</sup> The variable *ETHNIC\_DIVERSITY* equals 1 if a director’s ethnicity is not the mode (or one of the modes) of the board and 0 otherwise.

<sup>11</sup> Compensation committees include committees with any of the following words in their names: *compensation, option, remuneration, benefit, human resources, people resources, incentive plan, salary, employee stock, officer stock, employee incentive, executive equity awards, and pension*. Nomination committees include committees with any of the following words in their names: *nominating, nomination, governance, director affairs, board affairs, board composition, and directors*.

<sup>12</sup> The relevant code is at <https://github.com/appeler/ethnicol/>. Other applications include Pool, Stoffman, and Yonker (2015) on fund manager peer effects and Adhikari and Agrawal (2016) on bank CEO local religiosity and risk-taking.

<sup>13</sup> The 13 categories include British, Jewish, Italian, French, Germanic, Nordic, Hispanic, East Asian, Indian, East European, African, Muslim, and Japanese.

Age is the next diversity dimension. The 1967 ADEA focuses on discrimination against those of age 40 or more. The cutoff is not focal for us as age preferences do not rely on the cutoff. *AGE\_DIVERSITY* is the absolute difference between the age of the director and the median age of other directors on the board (see also Louch, 2000). This approach allows nondirectional age-related preferences, or the possibility that both older and younger directors face different outcomes.

## 2.2 | Descriptive statistics: Director and board attributes

Table 1 presents descriptive statistics for our sample. The unit of observation is a director-board-year level. Panel A, which describes the characteristics of the diversity variables in our study, shows that directors have mean (median) of 3.65 (4) skills. About 12% of the directors are women. The mean (median) director in our sample is about 61.26 (62) years old. About 31% of the director-board-year observations are classified as ethnic minority directors based on director names. In terms of controls, Panel B shows that the typical director has served for mean (median) of 7.03 (5) years. We find that 44% of directors serve on leadership positions. We also find that 42% of directors are coopted, that is, are appointed after the current CEO is appointed. Panel C shows that the typical board in our sample has a mean (median) of 8.08 (8) directors. On average, about 82% of board members are nonexecutive directors. In 33% of the board-years, the CEO is also the chairman of the board. The board size data in our sample are typical. Boards usually have between seven and eight members. Small boards with less than four directors and large boards with 13 or more directors are rare, constituting 6% of the sample (Yermack, 1996; Eisenberg et al., 1998).

Table 2 reports data on key positions. In 2004, the chairman is identified in only 26.66% of firms, but this number increases to 52.49% in 2019. A lead director is identified in only 10.7% of firms in 2004 but becomes present in more than one third of the firms in 2019. Similar trends are seen for the chairs of audit, compensation, and nomination committees. We combine these positions into a single composite indicator of whether a director serves in a key position and refer to the director as a "key" director. A total of 44.04% of directors are key. The last column in Table 2 shows that key directors represent 36.73% of directors in 2004 and 46.47% in 2019.

## 2.3 | Descriptive statistics: Director diversity

We turn to diversity metrics next. Figure 1 shows data on director skills. Panel A presents the percentage of directors (boards) with each of the 18 specific skills shown in the figure. As discussed by Custódio et al. (2013), director skills sets encompass a broad array of general and special skills. The most common skill among directors is service on outside board. About 68% of all directors have served on outside boards and 95% of the firms have at least one such director. Panel B of Figure 1 shows the percentage of directors and boards with a certain number of skills. Each director on a board has on average about four skills, as shown in the hashed histogram. Collectively, all directors on boards together represent 10 skills on average.

Figure 2 shows the proportion of women directors on the board. The percentage of women directors increases from 9% to 19% between fiscal 2004 and 2019. In unreported results, we find that the number of firms with no women directors shrinks, whereas the number of firms with two or more women increases from 12% to 40%. Figure 3 shows data on director age. We find that the average age of directors has increased over time from about 59 to 63 years.

Figure 4 presents the distribution of the ethnicity of directors. The empirical ethnicity variable reflects a composite of nationality, race, and religion, dimensions relevant to U.S. employment laws. The 13 ethnic groups are shown in the figure. Directors with British ethnicity represent the largest group and account for almost 70% of the sample. The second largest group comprises directors with Jewish ethnicity, who account for almost 12% of the sample. Other groups together account for about 18% of the sample. Figure 5 presents the patterns in ethnicity of directors by year. Panel A shows that boards having no non-British ethnicity directors have decreased from 17% to 10% and the number

TABLE 1 Descriptive statistics

Variables	N	Mean	Median	SD	Min	Max
Panel A: Diversity variables						
FEMALE	307,262	0.120	0.000	0.325	0.000	1.000
AGE	307,262	61.263	62.000	9.269	37.488	82.000
ETHNIC_MINORITY	307,262	0.307	0.000	0.461	0.000	1.000
SKILL_COUNT	307,262	3.653	4.000	1.985	0.000	12.000
Panel B: Other director characteristics						
KEY	307,262	0.441	0.000	0.497	0.000	1.000
TENURE	307,262	7.026	5.000	6.632	0.100	32.300
COOPTED	307,262	0.422	0.000	0.494	0.000	1.000
Panel C: Board characteristics						
BDSIZE	46,376	8.077	8.000	2.170	4.000	14.000
NED_RATIO	46,376	0.817	0.857	0.094	0.545	1.000
CEO_CHAIR	46,376	0.327	0.000	0.469	0.000	1.000
MKT_CAP	46,044	4.035	0.549	11.843	0.008	87.514
AJD_RET	43,440	0.056	-0.036	0.570	-0.862	2.835

Note: The table reports descriptive statistics. Panel A reports the distribution of director-level variables in our sample. The unit of observation is a director-board-year. Panel B reports board and firm characteristics. The unit of observation is a board-year. Unbounded continuous variables are winsorized at the 1st and 99th percentile values. See Appendix A for definitions of the variables. The sample comprises all nonexecutive directors of firms in BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019.

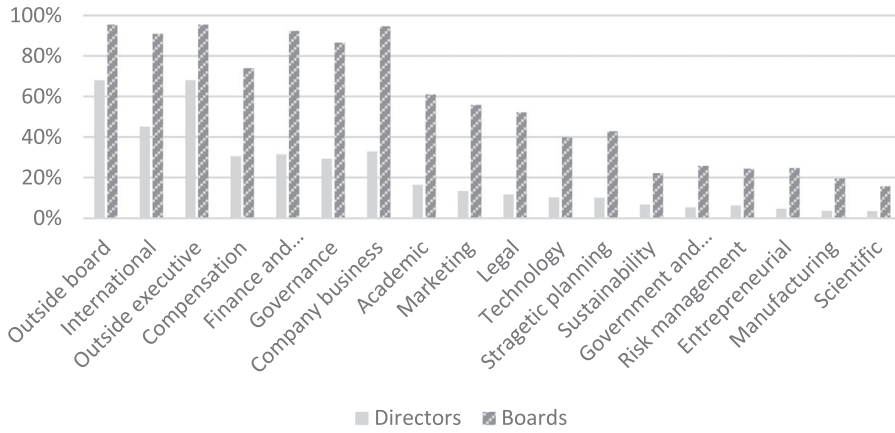


**TABLE 2** Key positions on boards

Year	Chairman	Lead	Committee chair				Key
			Compensation	Nominating	Audit		
2004	26.658%	10.697%	79.323%	46.275%	87.867%	36.726%	
2005	29.260%	14.894%	82.711%	59.080%	91.138%	39.720%	
2006	32.947%	17.241%	85.455%	64.357%	92.915%	41.390%	
2007	35.852%	19.678%	88.971%	68.328%	94.695%	42.722%	
2008	36.726%	22.062%	90.358%	71.175%	95.681%	43.440%	
2009	38.141%	25.508%	92.083%	73.425%	96.145%	44.075%	
2010	39.669%	28.729%	92.781%	74.991%	97.164%	44.344%	
2011	41.832%	31.026%	93.333%	76.630%	96.813%	44.869%	
2012	43.103%	31.833%	93.231%	77.534%	97.036%	45.057%	
2013	44.028%	33.039%	92.172%	77.472%	97.133%	45.078%	
2014	45.950%	34.205%	91.937%	78.424%	97.128%	45.396%	
2015	47.891%	35.268%	93.048%	87.378%	97.503%	46.744%	
2016	48.755%	35.995%	93.654%	87.990%	97.748%	46.664%	
2017	50.280%	36.370%	94.289%	88.893%	98.003%	46.716%	
2018	51.413%	35.891%	94.559%	88.978%	98.326%	46.759%	
2019	52.489%	36.664%	94.559%	89.900%	97.902%	46.473%	
Total	41.332%	27.767%	90.631%	75.384%	95.737%	44.040%	

Note: This table presents statistics on the positions held by key directors, who are defined as board chairman, lead director, or chairs of the audit, compensation, or nominating committees. The last column shows that the percentage of key directors. The designations are imputed from position descriptions provided in BoardEx. The sample comprises all nonexecutive directors of firms in BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019.

Panel A: Percentage of Directors (Boards) with Type of Skills



Panel B: Percentage of Directors (Boards) with Number of Skills



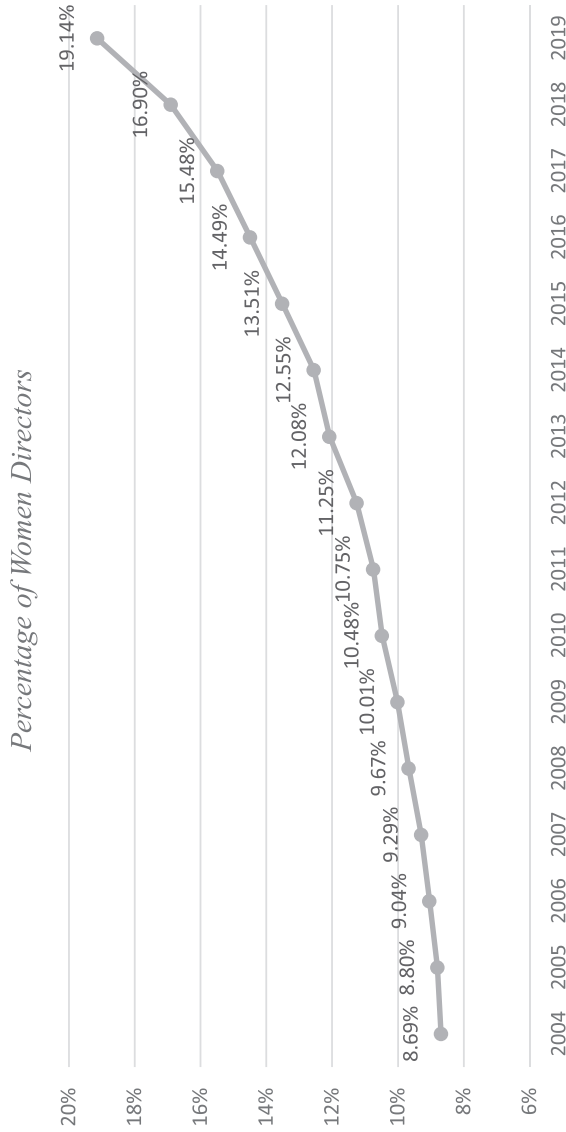
FIGURE 1 Director skills and board skills

Note: This figure presents data on the skills set of directors at the individual and the board level. Panel A presents the percentage of directors or boards with each of the 18 specific skills. Panel B presents the percentage of directors or boards with a given number of unique skills

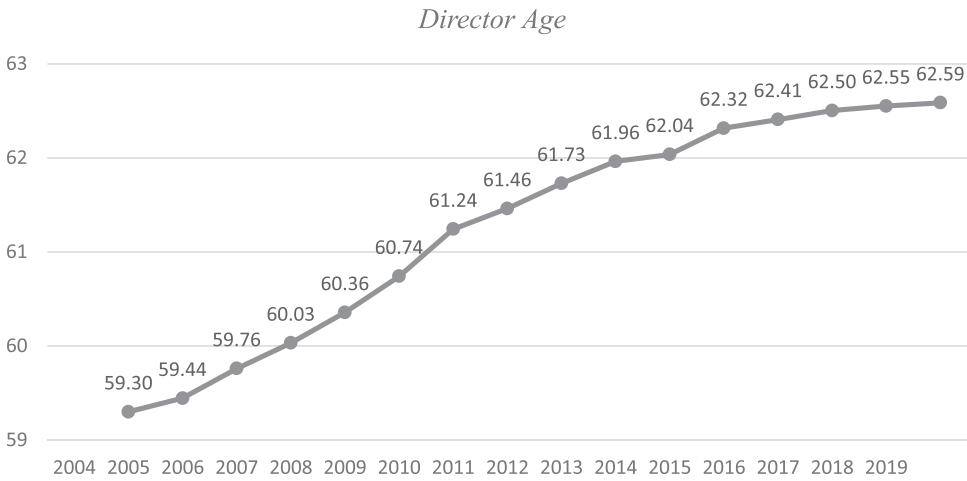
of firms with two or more non-British directors has increased from 54% to 66%. Panel B shows that the number of directors not in the top two ethnicities has increased somewhat from 17% to 23%.

### 2.4 | Descriptive statistics: Retention and promotion of diverse directors

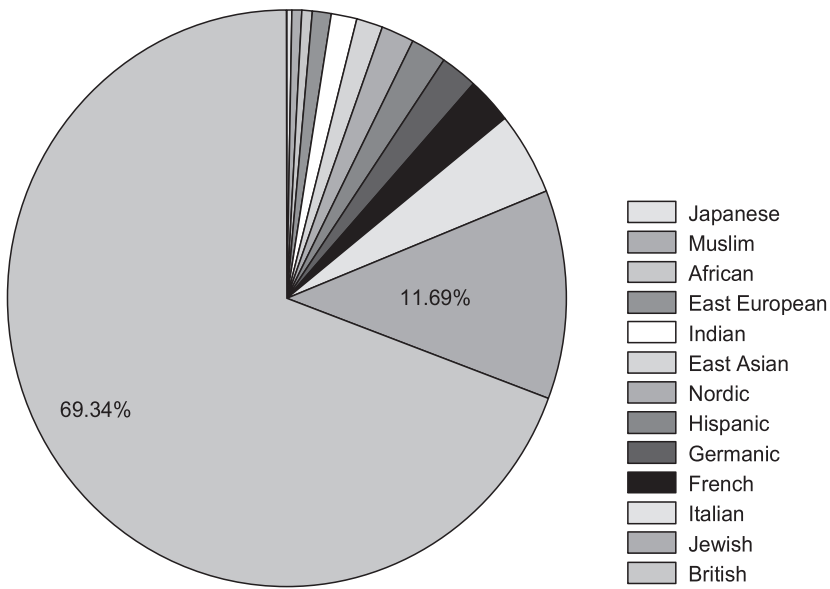
Retention, or its mirror image, turnover, is a key outcome variable in our study. Figure 6 depicts data on director turnover at the board-year level. Of the total of 46,376 board-year observations in our sample, 60% have



**FIGURE 2** Time series of number and percent women on boards  
 Note: This figure presents the pattern of gender diversity on boards computed by fiscal year



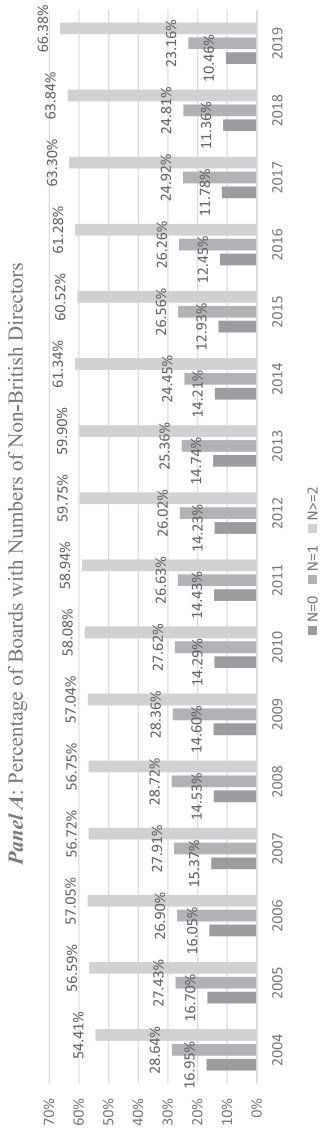
**FIGURE 3** Time series of director age characteristics  
 Note: This figure presents the mean director age computed by fiscal year



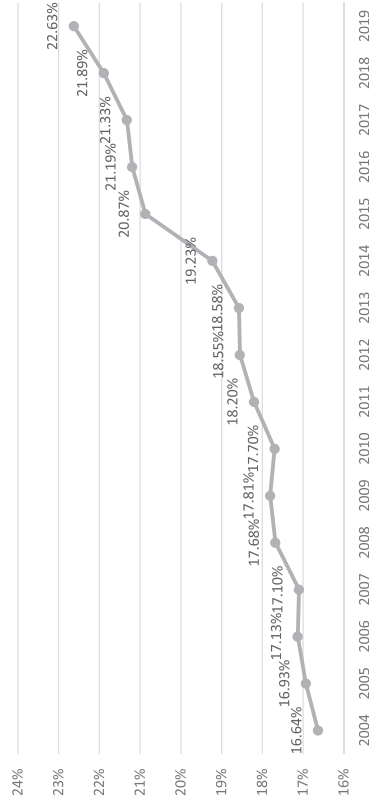
**FIGURE 4** Ethnicity distribution  
 Note: This figure presents the percentage of directors in our sample belonging to the 13 ethnic groups where groups are defined according to the machine learning algorithm of Sood and Laohaprapanon (2018)

no director turnover. Conditional on a director turnover, 67% involve a single director, and 90% involve two directors or less. The entire board is replaced in only 109 cases over the 16-year time period of our sample. These rare cases of board shakeup are due to conflicts with the management, proxy fights, or large investment transactions.<sup>14</sup>

<sup>14</sup> For example, all five nonexecutive directors of Affiliated Computer Services resigned in 2007 after the company's founder blamed them for a failed \$6.1 billion private equity buyout bid. <http://www.cnbc.com/id/21579135>.

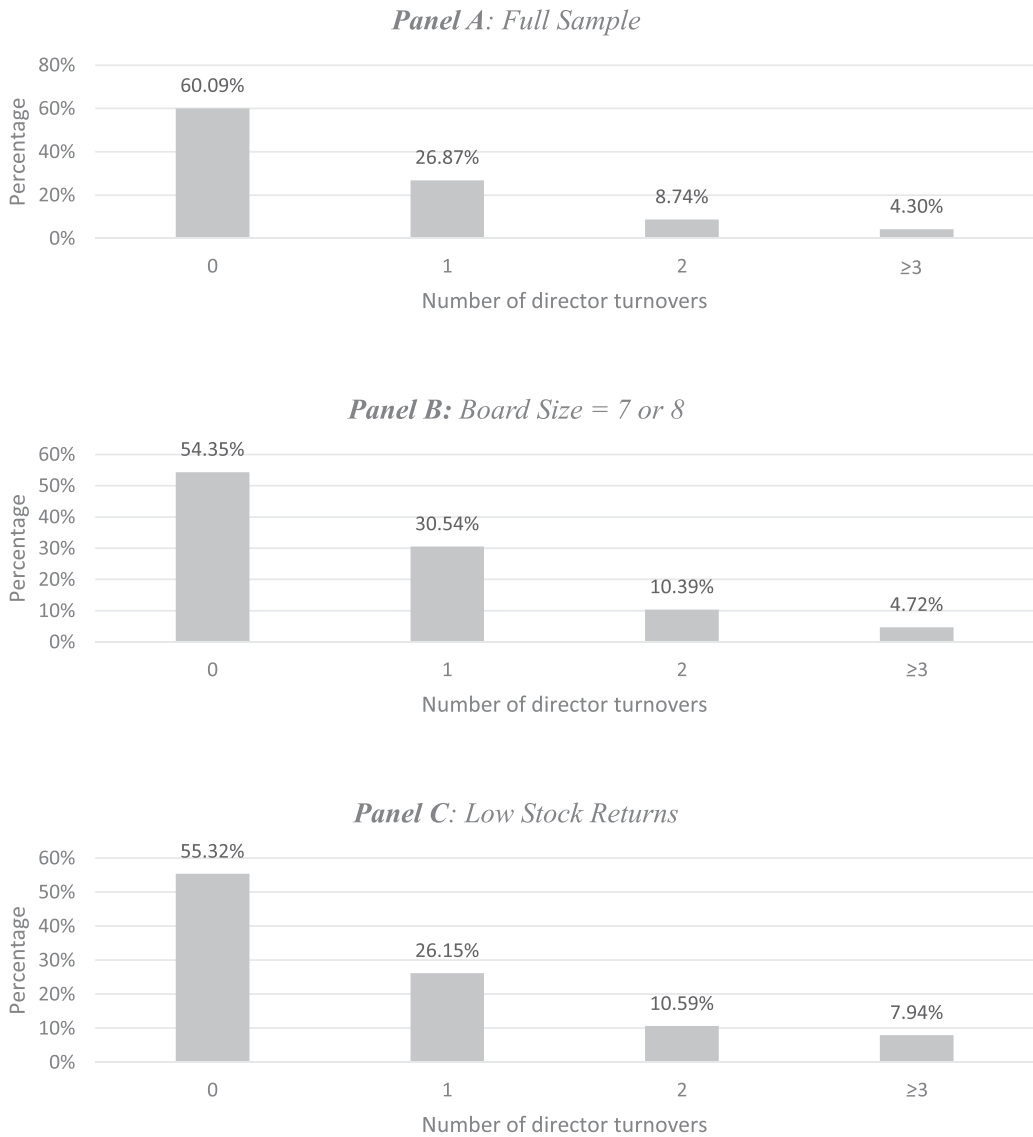


**Panel B:** Ethnicity Not in Top 2 Ethnicities in Our Sample



**FIGURE 5** Ethnicity patterns

Note: This figure presents patterns in the ethnicity variable in our data. All groups are defined according to the machine learning algorithm of Sood and Laohaprapanon (2018). Panel A presents the percentage of directors in our sample who are not of British origin. Panel B plots the annual mean of an indicator variable that takes the value of 1 if a director does not belong to the top two ethnicities in our sample



**FIGURE 6** Number of director turnovers

*Note:* This figure presents the frequency distribution of the number of director turnovers in the full sample of board-year observations (Panel A), the sample of board-years where the board size is 7 or 8 (Panel B), and the board-years where the market-adjusted stock return belongs to the bottom decile (Panel C)

Because large boards may (mechanically) have greater turnovers, we report turnover sorted by board size. Board sizes of 7 or 8 are modal. Turnover distributions for these boards are similar to those in the full sample. Panel C reports turnover rates for firms in the bottom quartile of market-adjusted stock returns, which are likely disciplinary. The odds of multiple turnover increase. For example, in Panel A, 8.74% and 4.3% of turnover events involve two and more than two departures, respectively, which increase to 10.59% and 7.94% in Panel C. The dominant pattern still remains one director departure. That is, the important difference in turnover is “within” rather than across boards, which is what our specification with board-year fixed effects estimates.

Table 3 presents time series data on turnover. Over the entire sample period, the baseline turnover rate is 9.07%. Turnover decreases slightly around the financial crisis period in 2008 and picks up again thereafter. Key directors depart at a 6.85% rate, whereas that for non-key directors is almost 60% greater at 10.81%. Key directors seem to play a leadership role that suggests greater turnover but they also ensure continuity, which requires lower turnover. We leave models of the trade-off between discipline and continuity for future work.

Figure 7 depicts cross-sectional patterns for director turnover as a function of diversity. Panel A shows that skill-diverse directors are less likely to depart. Directors with greater skill diversity have turnover rates of 8.5% versus 9.6% for those with less skill diversity. Panel B shows that the turnover rate for female directors is lower than that for male directors, 7% versus 9.3%, respectively. Panel C shows ethnic minority directors depart at a 9.5% rate versus 8.9% for nonminority directors. Panel D shows that age diversity matters. Turnover for directors with greater than median age distance from the board is 10.9% versus 7.3% for those below. All the four panels in Figure 8 show that these patterns are more pronounced for non-key directors.

Table 4 presents data on our second outcome variable, director promotions. As the table shows, promotions to leadership positions are relatively infrequent. Out of 153,132 non-key directors in year  $t$  who remain on boards in year  $t + 1$ , 8.82% or 13,502 are promoted to a key directorship. The baseline promotion rates, though, are of similar orders of magnitude as director turnover. Table 4 further shows the promotion rates by year. We note a slight decline in promotions around the 2008 financial crisis before normalizing to about 9% in later years. Table 3 shows that most departures are of non-key directors; therefore, fewer promotions are necessitated by departures of key directors.

Figure 8 displays cross-sectional data on promotions as a function of diversity measures. All diversity dimensions matter. Directors with diverse skills have a promotion probability of 10.37% compared to 7.61% for other directors without this range of skills.<sup>15</sup> Promotion rate for ethnically diverse directors is 8.06% compared to 9.12% for the others; age-diverse directors are promoted at the rate of 8.07% compared to 9.58% for non-age-diverse directors. Gender differences are, however, minor: 8.72% for women compared to 8.84% for male directors.

### 3 | REGRESSION EVIDENCE

#### 3.1 | Retention of diverse directors

We regress director turnover (one minus retention) on diversity. This is a director-level regression that includes controls with interactive board-year fixed effects to absorb heterogeneity at the firm and year level. Continuous variables are 1% winsorized. The coefficients reported in column (1) of Table 5 are scaled by 100 and thus represent increases in the percentage probability of turnover associated with a characteristic.

The regressions affirm the univariate pattern seen in Table 3 that key directors are less likely to depart boards. To interpret the coefficients, the baseline turnover rate is about 9.07%. A key director is associated with a 2-percentage-point reduction in this probability to 6.85%, or a 24% reduction in the baseline probability. *SKILL\_DIVERSITY* has a negative and significant coefficient, consistent with the greater retention odds for directors who have special skills relative to the rest of the board. Ethnicity-diverse directors are more likely to depart, whereas women directors are less likely to do so. The coefficient for age diversity is positive and significant. Thus, directors who differ in age from the rest of the board are more likely to leave. To sum up the flavor of the results, although age and ethnically diverse directors are more likely to depart boards, skill-diverse directors are more likely to be retained, suggesting that boards value diversity in skills.

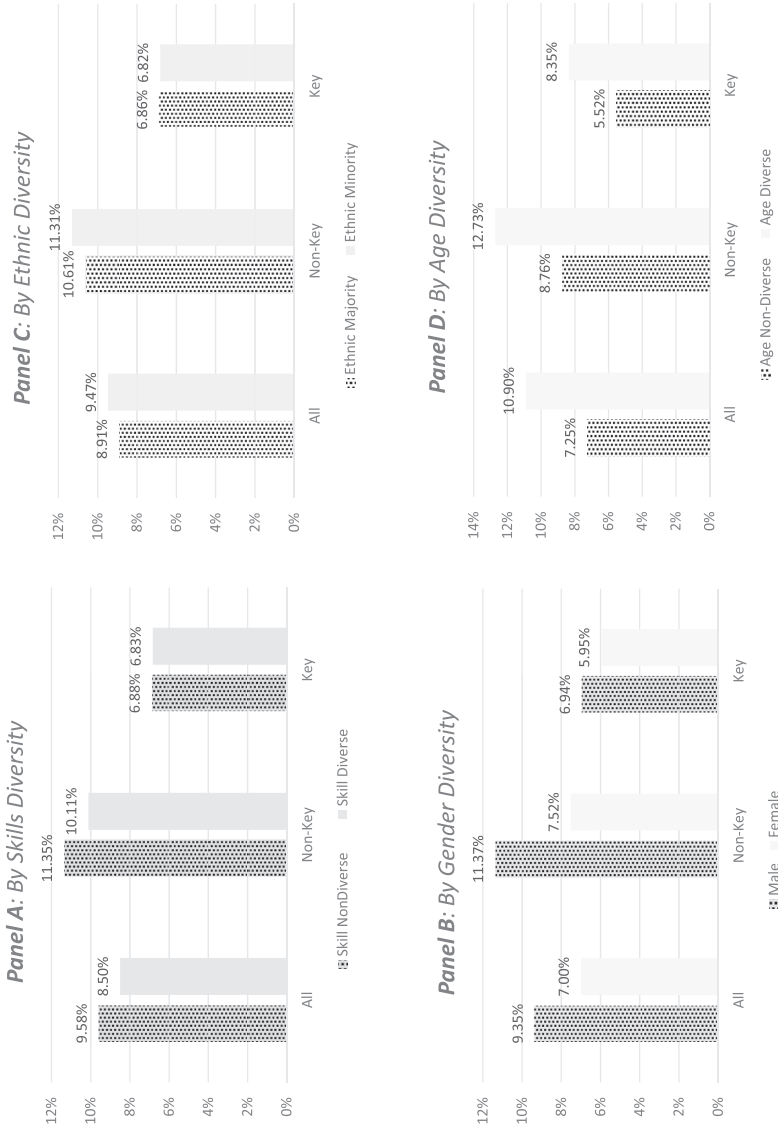
<sup>15</sup> In unreported results and in previous versions of the paper, we analyzed demotions, or the probability that key directors remain in non-key roles. These are rare events. Key director positions are sticky. These directors are both less likely to leave and less likely to move to non-key role. These results are available upon request.

**TABLE 3** Director turnover rates

Year	All director		Key director		Non-key director	
	Number	Rate	Number	Rate	Number	Rate
2004	1819	9.821%	376	5.528%	1443	12.313%
2005	1981	9.677%	519	6.383%	1462	11.848%
2006	1812	8.862%	548	6.475%	1264	10.547%
2007	1851	9.193%	576	6.696%	1275	11.055%
2008	1707	8.755%	558	6.588%	1149	10.419%
2009	1533	7.999%	497	5.884%	1036	9.666%
2010	1338	7.386%	453	5.639%	885	8.778%
2011	1406	7.691%	453	5.522%	953	9.455%
2012	1414	7.701%	459	5.548%	955	9.467%
2013	1627	8.889%	566	6.860%	1061	10.554%
2014	1657	9.071%	600	7.236%	1057	10.598%
2015	1879	9.470%	731	7.881%	1148	10.864%
2016	1956	9.908%	737	8.000%	1219	11.578%
2017	1925	9.957%	746	8.260%	1179	11.444%
2018	1993	10.236%	732	8.040%	1261	12.165%
2019	1958	10.140%	739	8.235%	1219	11.794%
Total	27,856	9.066%	9290	6.853%	18,566	10.813%

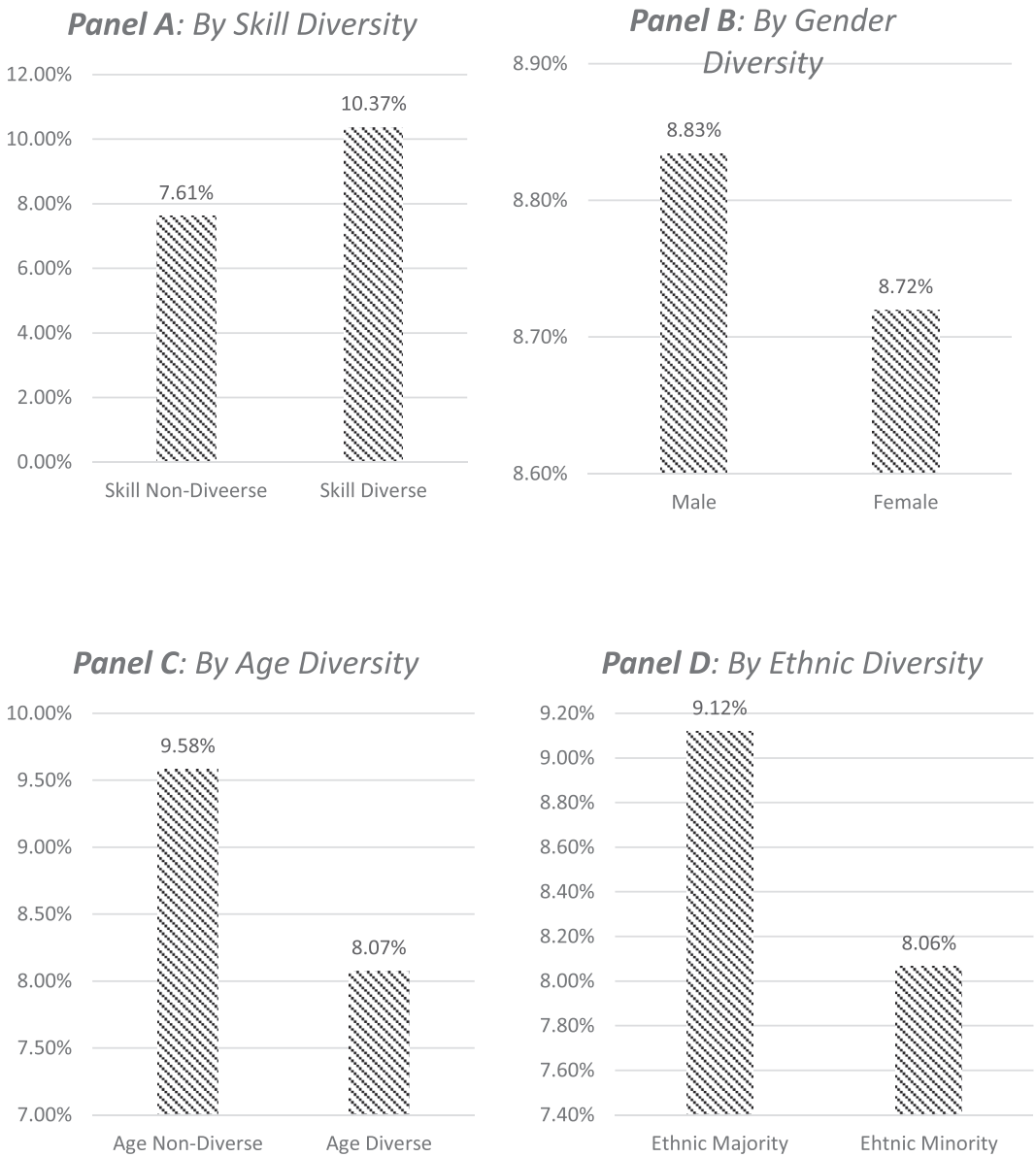
Note: The table presents the total number of director turnovers and turnover rates by fiscal year. Key directors are defined as board chairman, lead director, or chairs of the audit, compensation, or nominating committees. The sample comprises all nonexecutive directors of firms in BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019.





**FIGURE 7** Director identity diversity and turnover

Note: This figure presents the average annual turnover rates of directors. The panels present data classified by groups based on skill, gender, ethnicity, and age distance from other board members



**FIGURE 8** Director identity diversity and promotions  
 Note: This figure presents the average annual promotion rates of directors. The panels present data classified by groups based on skill, gender, ethnicity, and age distance from other board members

In terms of controls, all board- and year-level variation is soaked up by board-year fixed effects. The results are robust to several director-level controls. Among these controls, older directors with age from 65 to 69 have less turnover and those of age 70 and above have greater turnover. Among these, we note that the coefficient of *COOPTED* is negative and significant, that is, directors hired after the current CEO takes office have lower turnover (Coles et al., 2014). None of the controls impact the central results that sociodemographic diversity is related to more turnover, whereas skill diversity is related to less director turnover.

**TABLE 4** Director promotions

Year	Number of promotions	Number of remaining non-key directors	Promotion rate
2004	1135	10,276	11.045%
2005	1026	10,878	9.432%
2006	1005	10,720	9.375%
2007	914	10,258	8.910%
2008	868	9879	8.786%
2009	758	9682	7.829%
2010	705	9197	7.666%
2011	685	9126	7.506%
2012	686	9133	7.511%
2013	742	8992	8.252%
2014	757	8917	8.489%
2015	899	9419	9.545%
2016	832	9310	8.937%
2017	835	9123	9.153%
2018	831	9105	9.127%
2019	824	9117	9.038%
Total	13,502	153,132	8.817%

*Note:* The table presents data on transitions of directors from non-key positions to key positions for the directors on a board from a previous year who do not depart in the next year. A director is promoted when reported as a key director in a year but was not key in the previous year. The sample comprises nonexecutive directors of firms in the BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019.

Specifications (2) and (3) of Table 5 report the turnover results for two subsets of directors, key directors and non-key directors. Diversity appears to matter less for key directors. All the diversity coefficients are lower in magnitude in the key director sample compared to the non-key sample and except for age diversity, the coefficients are insignificant. These results suggest that diversity effects on promotions should act through the extrinsic margin of becoming a key director, that is, the promotion channel in which directors gain key leadership positions, because the key directors are less likely to depart. We turn to the promotion specifications next.

### 3.2 | Promotion of diverse directors

Our next tests examine the promotion of directors to senior leadership positions on boards. The sample comprises directors who do not occupy key leadership positions at the beginning of a fiscal year. We examine which of these directors who remain move up to occupy leadership positions on the board in the next year. Thus, the margin we examine, promotion, is disjoint from the retention decision. Because the tests are run on the directors already on boards, the promotion results reflect preferences for less (or more) diverse directors within the board.

Specifications (4) and (5) in Table 5 report the related results. Although specification (4) directly analyzes promotion, the related specification (5) reports results on a second margin, the direct appointment of diverse directors to a key directorship position. Such appointments are relatively rare as they comprise less than 15% of the director appointments to key positions. We include it for completeness and as supplemental evidence to add to the main promotion results.

**TABLE 5** Retention of directors and promotion or appointment to key positions: Baseline results

Variables	(1) Turnover	(2) Key turnover	(3) Non-key turnover	(4) Promotion	(5) Appointed key
FEMALE	-1.203*** (0.147)	0.017 (0.247)	-1.625*** (0.173)	-0.388 (0.311)	-1.448 (0.952)
ETHNIC_DIVERSITY	0.248* (0.128)	-0.010 (0.201)	0.405* (0.221)	-1.084*** (0.168)	-2.217** (0.845)
AGE_DIVERSITY	0.190*** (0.010)	0.171*** (0.019)	0.224*** (0.019)	-0.165*** (0.014)	-0.241** (0.086)
SKILL_DIVERSITY	-0.844*** (0.182)	-0.166 (0.162)	-1.115*** (0.201)	2.701*** (0.328)	8.116*** (0.807)
KEY	-5.240*** (0.217)				
TENURE	0.336*** (0.024)	0.262*** (0.028)	0.347*** (0.030)	-0.205*** (0.020)	
COOPTED	-2.467*** (0.230)	-0.662** (0.241)	-3.535*** (0.302)	1.118*** (0.180)	
AGE65_69	-0.524*** (0.153)	-0.475*** (0.148)	-0.739** (0.304)	0.103 (0.196)	4.357*** (1.340)
AGE70_UP	6.598*** (0.192)	4.501*** (0.226)	8.863*** (0.279)	-1.321*** (0.315)	4.164** (1.937)
Board-year FE	Yes	Yes	Yes	Yes	Yes
Observations	307,262	132,661	167,224	147,268	15,598
Adjusted R-squared	0.112	0.116	0.121	0.100	0.125

Note: This table presents estimates of linear probability models for director outcomes with interactive board-year fixed effects. The unit of analysis is a director-board-year. In Columns (1) to (3), the dependent variable is 1 if a director leaves the board during the year and 0 otherwise. In Column (4), the dependent variable is 1 if a non-key director becomes a key director during the year and 0 otherwise. In Column (5), the dependent variable is 1 if a new director is appointed to a key position on board and 0 otherwise. The sample comprises nonexecutive directors (NEDs) of firms in the BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019. Column (1) sample includes all NEDs on the board at the beginning of the year. Column (2) sample includes NEDs occupying key board positions at the beginning of the year. Column (3) sample includes NEDs who do not occupy key board positions at the beginning of the year. Column (4) sample consists of NEDs who do not occupy key board positions at the beginning of the year and remain on the board at the end of the year. Column (5) sample consists of NEDs who are newly appointed to the board during the year. All potentially unbounded variables are winsorized at the 1st and 99th percentile values. See Appendix A for the definition of the explanatory variables. Coefficients and standard errors are scaled by 100 for ease of exposition. Standard errors in parentheses are clustered by firm and year. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

Specification (4) in Table 5 shows that the diversity variables are significant in explaining promotions. The results for skill diversity are symmetric to those we saw for promotions: we see pro-skill diversity effects. Directors with diverse skills are more likely to be promoted to key positions just as the earlier results show that they are more likely to be retained. Age-, ethnicity-, and gender-diverse directors are less likely to be promoted to key positions. The coefficient for gender is of particular interest as they reverse the results on retention. That is, although specification (1) shows that women are more likely to be retained, specification (4) shows that they are not more likely to be promoted. The

asymmetry is not seen for age and ethnicity diversities. Directors diverse on these dimensions are both less likely to be retained and less likely to be promoted.

Specification (5) examines the appointment of new hires to leadership position. Two results are significant. Yet again, skill diversity matters. Directors with more skill diversity are more likely to be directly appointed to leadership positions, a margin that adds to the earlier effects of being more likely to be retained and promoted. Among the other variables, we see that age-diverse directors are less likely to be directly appointed to leadership positions. Turning to control variables, we see that longer tenured directors and old directors with age greater than 70 are less likely to be promoted to key positions. One interpretation of the results is that directors with longer future careers are more likely to invest in acquiring relevant skills for firms and are preferred over those with shorter horizons.<sup>16</sup>

### 3.3 | Other tests

#### 3.3.1 | Controls for skill levels

The results in Table 5 show that skill diversity matters along several margins, consistent with pro-skill diversity effects in director retention and promotion or appointment to board leadership positions. One question is whether skill diversity proxies for skill levels. We reconsider the regressions in Table 5 to incorporate a control for the absolute level of skills in Table 6. We include the variable *SKILL\_COUNT*, which is the number of skills from the list in Appendix B identified for each director. Our findings in Table 6 are largely similar to the baseline findings in Table 5 concerning skill diversity, which continues to be significant. There is one interesting difference in Table 6 with respect to gender, whose coefficient in column (4) halves and loses significance relative to models without skill controls. The result suggests that women directors are onboarded and the process endows these directors experience, but onward progress on the board is a function of skill and skill diversity. Supporting this interpretation is the result that the skill count variable is itself significant in the regression in Table 6 that subsumes gender diversity. The other diversity measures continue to matter.

#### 3.3.2 | Which skills matter?

In the above analysis, we define skills based on the skills matrix and control for skill counts. An interesting empirical question is which of the skills actually matter. Perhaps the most direct way to address this question is to put “all” skills used in populating the skills matrix into the econometric models individually. The specification essentially reruns the model in Table 6 with an additional full set of dummy variables, one for each of the skills used to populate the skills matrix shown in Appendix B. The results are in Table 7.

We find that directors with legal skills, financial expertise, risk management skills, strategic planning skills, scientific skills, and sustainability skills are more likely to be retained, that is, less likely to be turned over. Those with outside board and international skills are less likely to be retained. Promotions are more likely for directors with skills derived from outside executive positions, governance, compensation, and financial expertise. These results can be interpreted as saying that skills relating to discharge of the governance and fiduciary board obligations lead to leadership positions on boards. These results add to the dimensionality of director skills over and above directors being generalist

<sup>16</sup> In unreported results for both the turnover and promotion specifications, we control for additional director characteristics including highest education degree attained, business-related degree, military experience, industry experience, serving as CEO in another firm, professional director, and Ivy League graduate. In the promotion regression, we also consider transition to executive director positions. The results are robust.

**TABLE 6** Retention of directors and promotion or appointment to key positions: Controlling for skill count

Variables	(1) Turnover	(2) Key turnover	(3) Non-key turnover	(4) Promotion	(5) Appointed key
FEMALE	-1.197*** (0.147)	0.019 (0.252)	-1.621*** (0.162)	-0.040 (0.301)	-0.775 (0.942)
ETHNIC_DIVERSITY	0.248* (0.128)	-0.010 (0.201)	0.405* (0.221)	-1.105*** (0.169)	-2.128** (0.855)
AGE_DIVERSITY	0.190*** (0.010)	0.171*** (0.019)	0.224*** (0.019)	-0.139*** (0.012)	-0.147 (0.089)
SKILL_DIVERSITY	-0.888*** (0.187)	-0.185 (0.243)	-1.138*** (0.247)	0.823** (0.285)	3.051*** (0.621)
SKILL_COUNT	0.023 (0.043)	0.009 (0.063)	0.012 (0.079)	1.030*** (0.071)	2.836*** (0.311)
Controls	Yes	Yes	Yes	Yes	Yes
Board-year FE	Yes	Yes	Yes	Yes	Yes
Observations	307,262	132,661	167,224	147,268	15,598
Adjusted R-squared	0.112	0.116	0.121	0.103	0.136

Note: The table explains director turnover, promotion, or appointment to key position with additional controls for director skill counts.

This table presents estimates of linear probability models for director outcomes with interactive board-year fixed effects. The unit of analysis is a director-board-year. In Columns (1) to (3), the dependent variable is 1 if a director leaves the board during the year and 0 otherwise. In Column (4), the dependent variable is 1 if a non-key director becomes a key director during the year and 0 otherwise. In Column (5), the dependent variable is 1 if a new director is appointed to a key position on board and 0 otherwise. The sample comprises nonexecutive directors (NEDs) of firms in the BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019. Column (1) sample includes all NEDs on the board at the beginning of the year. Column (2) sample includes NEDs occupying key board positions at the beginning of the year. Column (3) sample includes NEDs who do not occupy key board positions at the beginning of the year. Column (4) sample consists of NEDs who do not occupy key board positions at the beginning of the year and remain on the board at the end of the year. Column (5) sample consists of NEDs who are newly appointed to the board during the year. Controls include key, tenure, coopted, and age. All potentially unbounded variables are winsorized at the 1st and 99th percentile values. See Appendix A for the definition of the explanatory variables. Coefficients and standard errors are scaled by 100 for ease of exposition. Standard errors in parentheses are clustered by firm and year. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

versus specialist directors (see, e.g., Custódio, Ferreira & Matos, 2013). The effect of skills on direct appointees to key positions largely mirrors the impact of skills on internal promotions. The ones with relatively more special or technical skills (government expertise, sustainability, entrepreneurial, company business, technological, scientific skills) are less likely to be promoted.

### 3.3.3 | Proxies for outside success of directors

Career successes outside the firm can matter. We have two ideas in mind. One, it can increase the prestige of the director. Alternatively, it can act as a separate indicator of skills and thus be an independent indicator of skills and skill diversity. For both reasons, a director's outside success can increase the probability of holding or being promoted to a key leadership position on a board.

We use five different metrics to define director success. Our main focus is on a variable that we call *PRIM\_CSUITE500*, which is a dummy variable equal to 1 if the director is a C-Suite executive (CEO, CFO, or COO) in

**TABLE 7** Retention of directors and promotion or appointment to key positions: Individual skills of directors

Variables	(1) Turnover	(2) Key turnover	(3) Non-key turnover	(4) Promotion	(5) Appointed key
<i>FEMALE</i>	-1.101*** (0.158)	0.012 (0.251)	-1.475*** (0.183)	0.454 (0.283)	-0.657 (0.927)
<i>ETHNIC_DIVERSITY</i>	0.223 (0.130)	-0.014 (0.200)	0.340 (0.215)	-0.742*** (0.157)	-1.624* (0.869)
<i>AGE_DIVERSITY</i>	0.190*** (0.011)	0.170*** (0.019)	0.223*** (0.019)	-0.138*** (0.012)	-0.155* (0.082)
<i>SKILL_DIVERSITY</i>	-0.457** (0.166)	-0.063 (0.271)	-0.528* (0.260)	1.214*** (0.265)	2.818*** (0.753)
<i>Skill_government</i>	0.074 (0.268)	0.090 (0.446)	0.433 (0.300)	-1.518*** (0.254)	-3.997*** (1.170)
<i>Skill_outside_executive</i>	-0.115 (0.153)	-0.154 (0.169)	-0.105 (0.260)	2.286*** (0.281)	3.164*** (0.699)
<i>Skill_marketing</i>	-0.283 (0.202)	-0.057 (0.181)	-0.483 (0.362)	-0.414 (0.265)	-2.581** (1.105)
<i>Skill_manufacturing</i>	0.361 (0.336)	0.394 (0.398)	0.101 (0.367)	-0.842* (0.442)	-0.431 (1.827)
<i>Skill_legal</i>	-0.450** (0.192)	0.083 (0.254)	-0.856*** (0.289)	-0.234 (0.380)	-0.430 (1.211)
<i>Skill_international</i>	0.538*** (0.113)	0.214 (0.167)	0.736*** (0.199)	-0.467** (0.187)	0.499 (0.704)
<i>Skill_governance</i>	-0.455 (0.453)	0.201 (0.278)	-1.052 (0.680)	4.828*** (0.748)	10.841*** (2.142)
<i>Skill_finance_accounting</i>	-0.443** (0.176)	-0.819*** (0.224)	-0.007 (0.269)	3.466*** (0.157)	11.907*** (1.206)
<i>Skill_entrepreneurial</i>	0.325 (0.252)	-0.092 (0.405)	0.504 (0.371)	-2.387*** (0.340)	-3.646 (2.164)
<i>Skill_compensation</i>	-0.424 (0.311)	-0.006 (0.177)	-0.758 (0.500)	6.445*** (0.904)	15.020*** (1.161)
<i>Skill_academic</i>	0.007 (0.113)	0.039 (0.215)	-0.120 (0.181)	-1.333*** (0.328)	0.173 (1.064)
<i>Skill_company_business</i>	0.395 (0.260)	0.376 (0.224)	0.445 (0.341)	-1.305*** (0.292)	-2.757*** (0.902)
<i>Skill_outside_board</i>	0.695*** (0.154)	0.270 (0.230)	0.961*** (0.266)	-0.539 (0.402)	0.127 (0.979)
<i>Skill_risk_mgmt</i>	-1.041*** (0.201)	-0.767* (0.408)	-1.090*** (0.327)	-0.259 (0.465)	0.209 (1.562)
<i>Skill_scientific</i>	-1.265*** (0.275)	-1.207** (0.558)	-1.275*** (0.342)	-1.669*** (0.413)	-8.479*** (1.583)

(Continues)

**TABLE 7** (Continued)

Variables	(1) Turnover	(2) Key turnover	(3) Non-key turnover	(4) Promotion	(5) Appointed key
<i>Skill_strategic_planning</i>	-0.625*** (0.160)	-0.653** (0.279)	-0.930*** (0.282)	-0.374 (0.350)	-3.806*** (0.900)
<i>Skill_sustainability</i>	-0.582* (0.285)	-0.325 (0.365)	-0.827* (0.423)	-1.498*** (0.342)	0.091 (2.270)
<i>Skill_technology</i>	-0.270 (0.229)	-0.059 (0.392)	-0.549* (0.278)	-1.417*** (0.325)	0.286 (0.851)
Controls	Yes	Yes	Yes	Yes	Yes
Board-year FE	Yes	Yes	Yes	Yes	Yes
Observations	307,262	132,661	167,224	147,268	15,598
Adjusted R-squared	0.112	0.117	0.122	0.121	0.189

Note: This table presents estimates of linear probability models for director outcomes with interactive board-year fixed effects. The unit of analysis is a director-board-year. In Columns (1) to (3), the dependent variable is 1 if a director leaves the board during the year and 0 otherwise. In Column (4), the dependent variable is 1 if a non-key director becomes a key director during the year and 0 otherwise. In Column (5), the dependent variable is 1 if a new director is appointed to a key position on board and 0 otherwise. The sample comprises nonexecutive directors (NEDs) of firms in the BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019. Column (1) sample includes all NEDs on the board at the beginning of the year. Column (2) sample includes NEDs occupying key board positions at the beginning of the year. Column (3) sample includes NEDs who do not occupy key board positions at the beginning of the year. Column (4) sample consists of NEDs who do not occupy key board positions at the beginning of the year and remain on the board at the end of the year. Column (5) sample consists of NEDs who are newly appointed to the board during the year. All potentially unbounded variables are winsorized at the 1st and 99th percentile values. See Appendix A for the definition of the explanatory variables and Appendix B for the identification of skills. Coefficients and standard errors are scaled by 100 for ease of exposition. Standard errors in parentheses are clustered by firm and year. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

a Standard and Poor's (S&P) 500 firm. In unreported analyses that give similar results, we consider four other indicators that we discuss here for completeness. *PRIM\_SIZE* is the logarithm of the revenues of the director's primary employer (0 if missing). *RANKED* is a dummy variable equal to 1 if the director is ranked by EXECUCOMP in the director's primary job. *PRIM\_RANK* is the rank given by EXECUCOMP to the director and is set to 11 if not ranked. *PRIM\_COMP* is the logarithm of the director's total compensation in her primary job. The variable is set to 0 if it is missing.

Table 8 shows the regression results for director outcomes using *PRIM\_CSUITE500* as a proxy for a director's outside success. The results show an interesting contrast between turnover and promotion. Success does not explain retention nor does it alter the coefficients on diverse director turnover. However, the measure of director success is itself statistically significant and increases both the probability of promotion of an internal director to a key position and the probability of direct appointments to leadership positions on boards. The baseline results with respect to diversity metrics do not change. The one exception is for gender in the promotion regressions. Its coefficient more than halves relative to its estimate Table 5 and loses significance.

### 3.3.4 | Local labor supply and diversity

Knyazeva, Knyazeva, and Masulis (2013) show that the local director labor supply has a significant impact on board composition. Following their study, we construct the local director pool variable as the density of nonfinancial firms in the COMPUSTAT universe headquartered within 60 miles of the firm's headquarters, excluding firms in the same



**TABLE 8** Retention of directors and promotion or appointment to key positions: With success proxy

Variables	(1) Turnover	(2) Key turnover	(3) Non-key turnover	(4) Promotion	(5) Appointed key
FEMALE	-1.202*** (0.141)	0.031 (0.246)	-1.635*** (0.171)	-0.274 (0.303)	-1.339 (0.985)
ETHNIC_DIVERSITY	0.248* (0.128)	-0.011 (0.202)	0.404* (0.221)	-1.065*** (0.167)	-2.191** (0.846)
AGE_DIVERSITY	0.190*** (0.010)	0.171*** (0.019)	0.224*** (0.019)	-0.168*** (0.017)	-0.244** (0.086)
SKILL_DIVERSITY	-0.844*** (0.182)	-0.168 (0.162)	-1.116*** (0.200)	2.711*** (0.327)	8.116*** (0.808)
PRIM_CSUITE500	0.055 (0.539)	1.004 (0.711)	-0.382 (0.585)	3.914*** (0.309)	3.557** (1.560)
Controls	Yes	Yes	Yes	Yes	Yes
Board-year FE	Yes	Yes	Yes	Yes	Yes
Observations	307,262	132,661	167,224	147,268	15,598
Adjusted R-squared	0.112	0.116	0.121	0.100	0.125

Note: The table explains director turnover, promotion, or appointment to key position with an additional control for whether director is in S&P 500 C-Suite. This table presents estimates of linear probability models for director outcomes with interactive board-year fixed effects. The unit of analysis is a director-board-year. In Columns (1) to (3), the dependent variable is 1 if a director leaves the board during the year and 0 otherwise. In Column (4), the dependent variable is 1 if a non-key director becomes a key director during the year and 0 otherwise. In Column (5), the dependent variable is 1 if a new director is appointed to a key position on board and 0 otherwise. The sample comprises nonexecutive directors (NEDs) of firms in the BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019. Column (1) sample includes all NEDs on the board at the beginning of the year. Column (2) sample includes NEDs occupying key board positions at the beginning of the year. Column (3) sample includes NEDs who do not occupy key board positions at the beginning of the year. Column (4) sample consists of NEDs who do not occupy key board positions at the beginning of the year and remain on the board at the end of the year. Column (5) sample consists of NEDs who are newly appointed to the board during the year. Controls include key, tenure, coopted, age, and skill count. All potentially unbounded variables are winsorized at the 1st and 99th percentile values. See Appendix A for the definition of the explanatory variables. Coefficients and standard errors are scaled by 100 for ease of exposition. Standard errors in parentheses are clustered by firm and year. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

four-digit SIC industry. We estimate the models for director outcomes for the subsample of firms with above-median local director pool and report the results in Table 9. The skill diversity coefficient continues to be significant. With regard to the other diversity indicators, the promotion results are similar except for ethnic diversity, which is not significant. We find that gender variable has a negative and significant coefficient when we consider the small sample of direct appointment to key leadership positions.

### 3.3.5 | Years with multiple director turnover

Our conversations with practitioners indicate that the instances of multiple director turnovers usually reflect dissatisfaction with current directors. An example is the restructuring of the board undertaken by General Electric in 2018 when it brought in three new members to its board.<sup>17</sup> We study director changes during these episodes. Table 10

<sup>17</sup> <https://www.ge.com/news/press-releases/ge-announces-2018-board-directors-slate-includes-three-new-directors>

**TABLE 9** Retention of directors and promotion or appointment to key positions: With large local director pool

Variables	(1) Turnover	(2) Key turnover	(3) Non-key turnover	(4) Promotion	(5) Appointed key
FEMALE	-0.748*** (0.167)	0.729*** (0.185)	-1.128*** (0.255)	-0.447 (0.323)	-2.934** (1.145)
ETHNIC_DIVERSITY	0.088 (0.180)	-0.196 (0.204)	0.298 (0.257)	-1.152*** (0.224)	-0.650 (1.038)
AGE_DIVERSITY	0.178*** (0.018)	0.151*** (0.029)	0.206*** (0.024)	-0.170*** (0.023)	-0.144 (0.119)
SKILL_DIVERSITY	-0.746*** (0.216)	-0.382 (0.231)	-0.789*** (0.259)	2.975*** (0.363)	6.319*** (0.998)
Controls	Yes	Yes	Yes	Yes	Yes
Board-year FE	Yes	Yes	Yes	Yes	Yes
Observations	153,174	64,817	84,718	74,871	7,811
Adjusted R-squared	0.099	0.103	0.104	0.100	0.112

Note: The table explains director turnover, promotion, or appointment to key position for firms located in geographies with above-median director supply. This table presents estimates of linear probability models for director outcomes with interactive board-year fixed effects. The unit of analysis is a director-board-year. In Columns (1) to (3), the dependent variable is 1 if a director leaves the board during the year and 0 otherwise. In Column (4), the dependent variable is 1 if a non-key director becomes a key director during the year and 0 otherwise. In Column (5), the dependent variable is 1 if a new director is appointed to a key position on board and 0 otherwise. The sample comprises nonexecutive directors (NEDs) of firms with above-median local director pool in the BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019. The local director supply pool is defined as the Log of 1 plus the number of nonfinancial firms in the COMPUSTAT universe headquartered within 60 miles of the firm's headquarters, excluding firms in the same four-digit SIC industry. Column (1) sample includes all NEDs on the board at the beginning of the year. Column (2) sample includes NEDs occupying key board positions at the beginning of the year. Column (3) sample includes NEDs who do not occupy key board positions at the beginning of the year. Column (4) sample consists of NEDs who do not occupy key board positions at the beginning of the year and remain on the board at the end of the year. Column (5) sample consists of NEDs who are newly appointed to the board during the year. Controls include key, tenure, coopted, age, and skill count. All potentially unbounded variables are winsorized at the 1st and 99th percentile values. See Appendix A for the definition of the explanatory variables. Coefficients and standard errors are scaled by 100 for ease of exposition. Standard errors in parentheses are clustered by firm and year. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

reports the retention results for samples comprising board-years with two or more director turnovers. The diversity results are similar to those in Table 5.

### 3.3.6 | Combining departures and appointments

Our next tests concentrate on an interesting subsample of departures in which we can reasonably identify a replacement for a director who exits. For this sample, we compare the identity diversity of the newly appointed director with that of the departed director. The comparison is most straightforward when there are equal numbers of directors leaving and departing in a given fiscal year. Other combinations of departures and appointments could involve board size changes and delayed appointments in future years.

We have 5207 board-years where one director is replaced by another, 1200 instances with two director departures and appointments, and 397 board-years with more than two departures and an equal number of replacements.

**TABLE 10** Retention of directors in multiple director turnover years

Variables	(1) Turnover	(2) Key turnover	(3) Non-key turnover
<i>FEMALE</i>	-2.826*** (0.430)	0.920 (0.914)	-4.676*** (0.571)
<i>ETHNIC_DIVERSITY</i>	0.988 (0.564)	-0.026 (0.872)	1.485* (0.841)
<i>AGE_DIVERSITY</i>	0.403*** (0.027)	0.396*** (0.088)	0.421*** (0.061)
<i>SKILL_DIVERSITY</i>	-3.413*** (0.708)	-0.597 (1.056)	-3.513*** (1.015)
Controls	Yes	Yes	Yes
Board-year FE	Yes	Yes	Yes
Observations	47,785	18,383	28,849
Adjusted R-squared	0.070	0.088	0.081

Note: The table explains director turnover for the years when there is more than one director turnover. This table presents estimates of linear probability models for director outcomes with interactive board-year fixed effects. The unit of analysis is a director-board-year. The dependent variable is 1 if a director leaves the board during the year and 0 otherwise. The sample comprises nonexecutive directors (NEDs) of firms in the BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019, where there is more than one director turnover during the year. Column (1) sample includes all NEDs on the board at the beginning of the year. Column (2) sample includes NEDs occupying key board positions at the beginning of the year. Column (3) sample includes NEDs who do not occupy key board positions at the beginning of the year. Controls include key, tenure, coopted, age, and skill count. All potentially unbounded variables are winsorized at the 1st and 99th percentile values. See Appendix A for the definition of the explanatory variables. Coefficients and standard errors are scaled by 100 for ease of exposition. Standard errors in parentheses are clustered by firm and year. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

If appointed directors are less diverse on a given axis of identity to the board than the departed directors, it would indicate a preference for less diverse directors on that dimension. We note that the results need not mechanically mirror the turnover results on identity because the appointed-departed comparison examines “all” departures, which population includes directors of varying similarity to the rest of the board. For instance, a less diverse director who departs could be replaced by an even less diverse director.

Table 11 reports the regression results. In the regressions in Table 11, the dependent variable equals 1 for an appointed director and 0 for the departed director. The explanatory variables are our diversity variables. Ethnicity is no longer significant in the appointment-replacement regression. The interpretation of this finding is that the push for ethnic diversity appears to be manifested as greater director churn. That is, when directors of different ethnicity depart, they tend to be replaced by another director who is also ethnically different. We find that new replacement director appointments reflect more diversity along gender and skill dimensions compared to departing directors. These results broadly reinforce the main turnover results that show pro-diversity effects along gender and skills but pro-similarity effects for age. Taken as a whole across the spectrum of results we report, perhaps the most robust finding relates to skill diversity—and on sociodemographic dimensions, age. Directors on a board appear to exhibit statistically significant homophilous behavior for other directors of similar age that is detectable in virtually all specifications we analyze.

**TABLE 11** Characteristics of appointed versus departed directors

Variables	(1) All	(2) One director change	(3) Two director changes
AGE	-2.274*** (0.089)	-2.749*** (0.119)	-1.963*** (0.158)
FEMALE	24.387*** (3.461)	35.389*** (3.910)	16.167*** (3.043)
RE_AGE_DIVERSITY	-1.325*** (0.044)	-1.729*** (0.095)	-1.190*** (0.140)
RE_SKILL_DIVERSITY	5.493*** (1.579)	3.029 (2.538)	8.399*** (2.124)
RE_ETHNIC_DIVERSITY	0.407 (1.099)	-0.376 (1.697)	0.485 (2.194)
Board-year FE	YES	YES	YES
Observations	17,467	10,166	4742
Adjusted R-squared	-0.337	-0.523	-0.154

Note: This table presents estimates of linear probability models for a sample of boards where there is at least one director departure and the number of departures equals the number of new appointments. The unit of analysis is a director-board-year and we include board-year fixed effects throughout. See Appendix A for definitions of explanatory variables. All unbounded continuous variables are winsorized at the 1st and 99th percentile values. Column (1) uses the sample of all appointed or departed directors in the board-years. Column (2) uses the sample of appointed or departed directors in the board-years where there is one appointment and one departure. Column (3) uses the sample of appointed or departed directors in the board-years where there are two appointments and two departures. The dependent variable takes the value of 1 if the director is newly appointed and 0 if departed. The sample comprises nonexecutive directors of firms in BoardEx and COMPUSTAT-CRSP databases between fiscal 2004 and 2019. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

## 4 | CONCLUSION

After nearly two decades of focus on reconstituting boards to achieve director independence, diversity has become an important focus in boards of directors. The focus has been on the sociodemographic dimension of gender. There has been less emphasis on other aspects of diversity. For example, a diverse portfolio of skills is likely necessary for directors in the modern enterprise but there has been little evidence on whether skill diversity matters. Likewise, there is limited evidence on the role of nongender dimensions of sociodemographic diversity, such as age or ethnicity. We contribute evidence along these dimensions.

We develop new diversity constructs based on the biographical data on directors in the BoardEx database. Our diversity measures capture the differences between a director and the rest of the board that the director serves on. We study the role of diversity in determining two economically important employment outcomes for directors, the retention of a director in her post and the promotion of a director to a key position on a board. Both outcomes are important. A director who loses an appointment suffers a loss in remuneration and reputation. Promotions give directors visibility, prestige, and positions of influence.

Our main result is that a director's diversity matters in determining employment outcomes. Using a multidimensional skill rubric to characterize director skills, we show that a director's skill diversity matters. Skill-diverse directors are less likely to leave boards and more likely to be promoted to key positions. On the gender dimension, women are more likely to be retained but less likely to be promoted. We also find that gender matters in onboarding, but the onward progression to leadership positions depends on director skills. Along the ethnicity and age dimensions, diverse

directors different from the board average are less likely to be retained or promoted, but skill diversity does not subsume these identity diversity effects. We examine economically interesting variation across several subsamples and margins both to assess statistical robustness and shed light on the likely economics underlying these findings. As the 2018 ISS diversity report (Papadopoulos et al., 2018) remarks, “while gender dominates board conversations, ethnicity, skills, background, and age are becoming important to shareholders.”

Our study suggests avenues for further research. One possibility is to better understand the role of diversity in the constitution of the top management teams of firms, data on whom are reported in the compensation filings of firms. Another avenue for further inquiry is the unique nature of board agency problems. Senior directors occupying leadership positions shape the board’s agenda and are responsible for its functioning. We find that these directors tend to be shielded from turnover. This insurance effect for key directors can certainly incentivize effort and continuity but it can also entrench directors and create an agency problem. Modeling this contract and its consequences are interesting theoretical questions.

Our study also makes the point that the internal organization of boards is an interesting topic relevant to both academics and policy. The assignment to leadership positions within boards remains an emerging policy issue, a sentiment reflected in the academic literature on boards. As Adams et al. (2010) write in their survey of the board of directors literature, “... committees are definitely an area where more work can be done.” Our work takes a step in this direction, but clearly there is far more to do both theoretically and empirically.

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## REFERENCES

- Adams, R. B., Akyol, A. C., & Verwijmeren, P. (2018). Director skill sets. *Journal of Financial Economics*, 130, 641–662.
- Adams, R. B., & Ferreira, D. (2008). Do directors perform for pay? *Journal of Accounting and Economics*, 46, 154–171.
- Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94, 291–309.
- Adams, R. B., Hermalin, B. E., & Weisbach, M. S. (2010). The role of boards of directors in corporate governance: A conceptual framework and survey. *Journal of Economic Literature*, 48, 58–107.
- Adhikari, B. K., & Agrawal, A. (2016). Religion, gambling attitudes and corporate innovation. *Journal of Corporate Finance*, 37, 229–248.
- Aggarwal, R., Dahiya, S., & Prabhala, N. R. (2018). The power of shareholder votes: Evidence from uncontested director elections. *Journal of Financial Economics*, 133, 134–153.
- Agrawal, A., & Chadha, S. (2005). Corporate governance and accounting scandals. *Journal of Law and Economics*, 48, 371–406.
- Agrawal, A., & Knoeber, C. R. (2001). Do some outside directors play a political role? *Journal of Law and Economics*, 44, 179–198.
- Ahern, K. R., & Dittmar, A. K. (2012). The changing of the boards: The impact on firm valuation of mandated female board representation. *Quarterly Journal of Economics*, 127, 137–197.
- Akerlof, G. A., & Kranton, R. E. (2000). Economics and identity. *Quarterly Journal of Economics*, 115, 715–753.
- Ambekar, A., Ward, C., Mohammed, J., Male, S., & Skiena, S. (2009). *Name-ethnicity classification from open sources*. Proceedings of the 15th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining Paris, France, June 28 - July 1, 2009.
- Anderson, R. C., Reeb, D. M., Upadhyay, A., & Zhao, W. (2011). The economics of director heterogeneity. *Financial Management*, 40, 5–38.
- Bates, T. W., Becher, D. A., & Wilson, J. I. (2017). *Performance-based turnover on corporate boards*. Working Paper. <http://ssrn.com/abstract=2654375>.

- Becher, D. A., Walkling, R. A., & Wilson, J. I. (2017). *Board changes and the director labor market: The case of mergers*. Working Paper. <https://ssrn.com/abstract=2625798>.
- Benjamin, D. J., Choi, J. J., & Strickland, A. J. (2010). Social identity and preferences. *American Economic Review*, 100, 1913–1928.
- Bernile, G., Bhagwat, V., & Yonker, S. (2018). Board diversity, firm risk, and corporate policies. *Journal of Financial Economics*, 127, 588–612.
- Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *American Economic Review*, 94, 991–1013.
- Booth, J. R., & Deli, D. N. (1999). On executives of financial institutions as outside directors. *Journal of Corporate Finance*, 5, 227–250.
- Burt, R. S. (2000). Decay functions. *Social Networks*, 22, 1–28.
- Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, 38, 33–53.
- Cohen, L., Frazzini, A., & Malloy, C. (2008). The small world of investing: Board connections and mutual fund returns. *Journal of Political Economy*, 116, 951–979.
- Cohen, L., Frazzini, A., & Malloy, C. (2010). Sell-side school ties. *Journal of Finance*, 65, 1409–1437.
- Coles, J. L., Daniel, N. D., & Naveen, L. (2014). Co-opted boards. *Review of Financial Studies*, 27, 1751–1796.
- Currarini, S., Jackson, M. O., & Pin, P. (2009). An economic model of friendship: Homophily, minorities, and segregation. *Econometrica*, 77, 1003–1045.
- Currarini, S., Jackson, M. O., & Pin, P. (2010). Identifying the roles of choice and chance in network formation: Racial biases in high school friendships. *Proceedings of the National Academy of Sciences*, 107, 4857–4861.
- Custódio, C., Ferreira, M. A., & Matos, P. (2013). Generalists vs. specialists: Lifetime experience and CEO pay. *Journal of Financial Economics*, 108, 471–492.
- Dass, N., Kini, O., Nanda, V., Onal, B., & Wang, J. (2014). Board expertise: Do directors from related industries help bridge the information gap? *Review of Financial Studies*, 27, 1533–1592.
- Denis, D. J., Denis, D. K., & Walker, M. D. (2015). CEO assessment and the structure of newly formed boards. *Review of Financial Studies*, 28, 3338–3366.
- Denis, D., Denis, D., & Walker, M. (2018). *The selection of directors to corporate boards*. Working Paper. <https://ssrn.com/abstract=3215474>.
- Eckbo, B. E., Nygaard, K., & Thorburn, K. S. (2018). *Board gender-balancing and firm value*. European Corporate Governance Institute Finance Working Paper No. 463/2016. <https://ssrn.com/abstract=2746786>.
- Eisenberg, T., Sundgren, S., & Wells, M. T. (1998). Larger board size and decreasing firm value in small firms. *Journal of Financial Economics*, 48, 35–54.
- Fahlenbrach, R., Low, A., & Stulz, R. M. (2010). Why do firms appoint CEOs as outside directors? *Journal of Financial Economics*, 97, 12–32.
- Fahlenbrach, R., Low, A., & Stulz, R. M. (2017). Do independent director departures predict future bad events? *Review of Financial Studies*, 30, 2313–2358.
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26, 301–325.
- Ferreira, D. (2011). Board diversity. In H. Kent Baker & R. Andersen (Eds.), *Corporate governance: A synthesis of theory, research, and practice* (pp. 225–242). Wiley Online Publishing.
- Fich, E. M. (2005). Are some outside directors better than others? Evidence from director appointments by fortune 1000 firms. *Journal of Business*, 78, 1943–1972.
- Fich, E. M., & Shivdasani, A. (2006). Are busy boards effective monitors? *Journal of Finance*, 61, 689–724.
- Field, L. C., Souther, M. E., & Yore, A. (2019). *At the table but can't break through the glass ceiling: Board leadership positions elude diverse directors*. Working Paper. <https://ssrn.com/abstract=2810543>.
- Fischer, C. S., & Olicker, S. J. (1983). A research note on friendship, gender, and the life cycle. *Social Forces*, 62, 124–133.
- Fos, V., Li, K., & Tsoutsoura, M. (2018). Do director elections matter? *Review of Financial Studies*, 31, 1499–1531.
- Fracassi, C., & Tate, G. (2012). External networking and internal firm governance. *Journal of Finance*, 67, 153–194.
- Goldin, C. (1990). *Understanding the gender gap: An economic history of American women*. Oxford University Press.
- Gormley, T. A., & Matsa, D. A. (2014). Common errors: How to (and not to) control for unobserved heterogeneity. *Review of Financial Studies*, 27, 617–661.
- Harford, J. (2003). Takeover bids and target directors' incentives: The impact of a bid on directors' wealth and board seats. *Journal of Financial Economics*, 69, 51–83.
- Hoitash, U., Hoitash, R., & Bedard, J. C. (2009). Corporate governance and internal control over financial reporting: A comparison of regulatory regimes. *The Accounting Review*, 84, 839–867.
- Hwang, B.-H., & Kim, S. (2009). It pays to have friends. *Journal of Financial Economics*, 93, 138–158.

- Hwang, S., Shivdasani, A., & Simintzi, E. (2018). *Mandating women on boards: Evidence from the United States*. Working Paper. <https://ssrn.com/abstract=3265783>.
- Ibarra, H. (1997). Paving an alternative route: Gender differences in managerial networks. *Social Psychology Quarterly*, 60, 91–102.
- Jenter, D., & Kanaan, F. (2015). CEO turnover and relative performance evaluation. *Journal of Finance*, 70, 2155–2184.
- Knyazeva, A., Knyazeva, D., & Masulis, R. W. (2013). The supply of corporate directors and board independence. *Review of Financial Studies*, 26, 1561–1605.
- Knyazeva, A., Knyazeva, D., & Raheja, C. G. (2013). *The benefits of focus vs. heterogeneity: Dissimilar directors and coordination within corporate boards*. Working Paper. <https://ssrn.com/abstract=2083287>.
- Kossinets, G., & Watts, D. J. (2009). Origins of homophily in an evolving social network. *American Journal of Sociology*, 115, 405–450.
- Lazarsfeld, P. F., & Merton, R. K. (1954). Friendship as a social process: A substantive and methodological analysis. In M. Berger, T. Abel, & C. H. Page (Eds.), *Freedom and control in modern society* (pp. 18–66). Van Nostrand.
- Leibbrandt, A., & List, J. (2018). *Do equal employment opportunity statements backfire? Evidence from a natural field experiment on job-entry decisions*. National Bureau of Economic Research Working Paper No. 25035. <https://www.nber.org/papers/w25035>.
- Lipton, M., & Lorsch, J. W. (1992). A modest proposal for improved corporate governance. *The Business Lawyer*, 48, 59–77.
- Louch, H. (2000). Personal network integration: Transitivity and homophily in strong-tie relations. *Social Networks*, 22, 45–64.
- Masulis, R. W., & Mobbs, S. (2014). Independent director incentives: Where do talented directors spend their limited time and energy? *Journal of Financial Economics*, 111, 406–429.
- Masulis, R. W., Wang, C., & Xie, F. (2012). Globalizing the boardroom — The effects of foreign directors on corporate governance and firm performance. *Journal of Accounting and Economics*, 53, 527–554.
- Mcalister, L., & Pessemer, E. (1982). Variety seeking behavior: An interdisciplinary review. *Journal of Consumer Research*, 9, 311–322.
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444.
- Neumark, D. (2018). Experimental research on labor market discrimination. *Journal of Economic Literature*, 56, 799–866.
- Papadopoulos, K., Kalb, R., Valderrama, A., & Balog, T. (2018). *U.S. board study: Board diversity review*. Institutional Shareholder Services. <https://www.issgovernance.com/library/gender-diversity-boards-review-global-trends/>.
- Pool, V. K., Stoffman, N., & Yonker, S. E. (2015). The people in your neighborhood: Social interactions and mutual fund portfolios. *Journal of Finance*, 70, 2679–2732.
- Popielarz, P. A., & McPherson, J. M. (1995). On the edge or in between: Niche position, niche overlap, and the duration of voluntary association memberships. *American Journal of Sociology*, 101, 698–720.
- Sood, G., & Laohaprapanon, S. (2018). *Predicting race and ethnicity from the sequence of characters in a name*. <https://arxiv.org/abs/1805.02109>.
- Wuchty, S., Jones, B. F., & Uzzi, B. (2007). The increasing dominance of teams in production of knowledge. *Science*, 316, 1036–1039.
- Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40, 185–211.
- Yermack, D. (2004). Remuneration, retention, and reputation incentives for outside directors. *Journal of Finance*, 59, 2281–2308.

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## APPENDIX A

**TABLE A1** Variable definitions in alphabetical order

Variable	Definition
<i>ADJ_RET</i>	Raw buy-and-hold returns over the 12-month period ending on the last date of the previous fiscal year minus the CRSP value-weighted index return over the 12-month period ending on the last date of the previous fiscal year
<i>AGE</i>	Director age
<i>AGE65_69</i>	Dummy variable indicating the director's age is between 65 and 69
<i>AGE70_UP</i>	Dummy variable indicating the director is age 70 or older
<i>AGE_DIVERSITY</i>	The absolute difference of a director's age and the median age of the board
<i>BDSIZE</i>	The number of directors on a board
<i>CEO_CHAIR</i>	Dummy variable indicating CEO serving as Chairman of the Board
<i>COOPTED</i>	Dummy variable indicating the director joins the board after the CEO takes office
<i>DIRTO</i>	Dummy variable indicating director turnover
<i>ETHNIC_DIVERSITY</i>	Dummy variable indicating the director's ethnicity is not the mode (or one of the modes) of the directors of the board
<i>ETHNIC_MINORITY</i>	Dummy variable indicating the director does not belong to the largest ethnic group
<i>FEMALE</i>	Dummy variable indicating the director is female
<i>KEY</i>	Dummy variable indicating the director holds a key position on the board, including Chairman of the board, Lead Director, Audit Committee Chair, Compensation Committee Chair, and Nomination Committee Chair.
<i>MKT_CAP</i>	Market capitalization, in billions of dollars
<i>PRIM_CSUITE500</i>	Dummy variable indicating the director is CEO, CFO, or COO in a S&P 500 firm
<i>PRIM_COMP</i>	The logarithm of the director's total compensation in her primary job (0 if missing)
<i>PRIM_RANK</i>	The executive rank given by EXECUCOMP to the director in her primary employer (11 if not ranked)
<i>PRIM_SIZE</i>	The logarithm of the revenues of the director's primary employer (0 if missing)
<i>RANKED</i>	Dummy variable indicating the director is ranked by EXECUCOMP in the director's primary job
<i>RE_AGE_DIVERSITY</i>	The absolute difference of an appointed or departed director's age and the median age of the remaining directors of the board
<i>RE_ETHNIC_DIVERSITY</i>	Dummy variable indicating an appointed or departed director's ethnicity is not the mode (or one of the modes) of the remaining directors of the board
<i>RE_SKILL_DIVERSITY</i>	The Euclidean distance between an appointed or departed director's skill vector and the median of the remaining directors of the board
<i>SKILL_COUNT</i>	Number of a director's skills
<i>SKILL_DIVERSITY</i>	The Euclidean distance between a director's skill vector and the median of the board
<i>TENURE</i>	The number of years a director has served on a board



## APPENDIX B

TABLE A2 Skills

Skills	Source tables	How identified
Academic	DEmP, COD	Prior or current employment or directorship in an academic institution.
Company business	DC	Time in company greater than time on board or experience in the same industry.
Compensation	BDC	Experience in serving as Chair of a compensation committee.
Entrepreneurial	DEmP	Founder of a listed company.
Finance and accounting	BDC DEmP, DEdP	CFA, CPA, experience as CFO, treasurer, controller, or role in finance and accounting.
Governance	BDC, DEmP	Experience in serving as Chair of a governance committee.
Government and policy	DEmP, CPD	Prior or current employment or directorship in U.S. Executive Office of the President, Senate, Congress, House of Representatives, or Executive Departments.
International	DEmP, CPD	Prior or current employment or directorship in a foreign country.
Legal	DEdP	Law degree
Manufacturing	DEmP	Prior or current role description contains the words "manufacturing," "manufactured," or "industrial."
Marketing	DEmP	Prior or current role description contains marketing or sales.
Outside board	DC	Prior or current outside directorship.
Outside executive	DEmP	Prior or current executive director or chief executive in a listed company.
Risk management	BDC, DEmP	Prior or current role description or committee membership contains the word "risk."
Scientific	BDC, DEmP	Prior or current role description or committee membership contains the words "scientific," "R&D," or "research and development."
Strategic planning	BDC, DEmP	Prior or current role description or committee membership contains the words "strategic" or "business planning."
Sustainability	BDC, DEmP	Prior or current role description or committee membership contains the words "environmental," "safety," "sustainable," or "sustainability."
Technology	BDC, DEmP	Prior or current role description or committee membership contains the word "technology" or "technological."

Note: Skills are identified from the following BoardEx tables and variables:

Director characteristics (DC): timeinco, totinolstdbrd.

Board director committees (BDC): committeename, committeerolename, functionalexperience.

Director employment profile (DEmP): rolename, fulltextdescription, brdposition, ned.

Director education profile (DEdP): instituionname, qualification.

Company profile detail (CPD): hocountryname, orgtype.