Knowing Me, Knowing You?
Similarity to the CEO and Fund Managers' Investment Decisions[✧]

Stefan Jaspersen and Peter Limbach[*]

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ABSTRACT

This study provides evidence that investors' demographic similarity to CEOs affects their investment decisions. We find that mutual fund managers overweight firms led by CEOs who resemble them in terms of age, ethnicity and gender. This finding is robust to excluding educational and local ties and is supported by variation in similarity caused by CEO departures. Investing in firms run by similar CEOs, on average, is associated with superior performance and is more pronounced when CEOs have more impact on their firms. Results suggest that demographic similarity to CEOs facilitates informed trading, implying that investors' information production incorporates firm management.

JEL *classification:* G11, G23, J10

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* Jaspersen and Limbach are with the Department of Finance and Centre for Financial Research (CFR), University of Cologne, Albertus-Magnus-Platz, 50923 Cologne, Germany. E-mail: jaspersen@wiso.uni-koeln.de and plimbach@wiso.uni-koeln.de. Part of the paper was written while Limbach was visiting Rotterdam School of Management at Erasmus University Rotterdam and while Limbach was with the Karlsruhe Institute of Technology.

To obtain additional information that leads to superior performance, investors have to engage in costly screening and monitoring of a broad investment universe. In this regard, an important question is which sources of information investors consider in the process of information production and how they use it. One source of information that is likely to be relevant in the initial screening and evaluation of a company is its leadership, in particular the chief executive officer (CEO). CEOs do not only represent their firms in the public, whereby they give them a face, but they also have a significant impact on the strategy and performance of the firms they run (e.g., Bertrand and Schoar (2003), Adams, Almeida, and Ferreira (2005), and Bennedsen, Pérez-González, and Wolfenzon (2017)). Consequently, information about the CEO can be expected to affect decisions to invest in a firm.

However, so far little is known about whether and how investors incorporate CEO information in the process of screening and monitoring investments. Against this background, our paper suggests that CEOs matter for fund managers' stock selection. In particular, we provide evidence that fund managers' investment decisions and performance are affected by their demographical similarity to CEOs.

There are two main reasons why demographic similarity to CEOs can be expected to influence fund managers' information production, the quality of their information set, and their investment performance. First, similarity to the CEO can enhance the amount and precision of the information that fund managers have about a firm, which helps them overcome asymmetric information. Consistent with models of statistical discrimination (Phelps (1972), Arrow (1973), Cornell and Welch (1996)), fund managers can be expected to screen and evaluate the CEOs' (and firms') future strategic decisions more precisely if CEOs are similar to them. Specifically, applying the model of Cornell and Welch (1996), a fund manager can evaluate noisy signals about a CEO (e.g., about the CEO's quality, preferences, or styles) more precisely if both belong to the same group because similarity facilitates the interpretation and lowers the noise of signals. On the contrary, a fund manager has to rely on priors and apply group averages for

CEOs of dissimilar groups. Furthermore, as similarity attracts (e.g., McPherson, Smith-Lovin, and Cook (2001)), fund managers may acquire more information about similar CEOs and their firms, which further facilitates screening and monitoring. The empirical prediction of this channel is that due to informational advantages fund managers should either over- or underweight firms run by demographically similar CEOs relative to the fund's investment style, depending on positive or negative signals. In any case, fund managers can be expected to make superior investment decisions and to outperform compared to their investments in firms run by dissimilar CEOs.

In contrast to the aforementioned reasoning, similarity may also have adverse effects on the amount and quality of fund managers' information if it leads to a familiarity bias. Theoretical models and empirical evidence of taste-based discrimination (e.g., Becker (1957), Levitt (2004)) suggest that agents have preferences for members of their own group while being prejudiced against others. In our case, this reasoning implies that even if all fund managers have the same information and receive the same noisy signals about CEOs, those with a higher similarity to a CEO are more likely to have an additional utility from investing in the firm run by this CEO. In addition, familiarity can also reduce the amount of information fund managers acquire about a firm because it can cause them to erroneously believe they are better able to assess similar CEOs and because it enhances trust, which tends to lower monitoring (e.g., Zak and Knack (2001)). The empirical prediction of such a familiarity bias is that fund managers will overweight (not underweight) firms led by similar CEOs. Further, investments in firms run by similar CEOs can be expected to exhibit an equal or even an inferior performance compared to investments in firms of dissimilar CEOs, given that the latter have a higher hurdle to be included in the fund portfolio.

To test the aforementioned empirical predictions, we use a large panel of CEOs and mutual fund managers for the period 2001-2011. We find that fund managers invest significantly more in firms led by demographically similar CEOs. The demographics we consider are age,

ethnicity, and gender, which are arguably exogenous and which fund managers can easily observe or infer when they see or read about CEOs (e.g., in the business press or annual reports). The similarity-based overweighting is found for all three demographics and for a similarity score based on these demographics. Educational and local ties between fund managers and CEOs as well as CEO demographics themselves do not explain the overweighting of firms run by similar CEOs. Further, we find that similarity-based overweighting is more pronounced if CEOs have more decision-making power and, thus, more impact on the firms they run (Adams, Almeida, and Ferreira (2005)), which provides additional evidence that professional investors indeed take firm management into account when they make investment decisions.

To further strengthen the causal link between demographic similarity and investments, we use variation in CEO-fund manager similarity caused by CEO departures and compare fund managers' investments in the quarters around these events. We find that fund managers are significantly more likely to sell a firm's stock (relative to holding or buying it) after CEO departures that decrease their demographic similarity to firms' CEOs. Plausibly exogenous variation in similarity caused by sudden CEO deaths further supports this result.

Because overweighting of stocks is consistent with both informed trading and a familiarity bias, we consider the performance consequences of investing in firms run by CEOs who resemble the fund manager. To this end, we compare investments in firms run by demographically similar CEOs to investments in firms run by dissimilar CEOs made by the same fund manager(s) at the same time. This approach eliminates the impact of any omitted factors that do not vary for a given fund manager-date combination, such as fund managers' educational background, general ability, and investment experience, fund and fund family characteristics, as well as the current market state. While information advantages should be associated with superior relative performance, a familiarity bias should be associated with no or a negative performance. Our results suggest that similarity-based overweighting, on average, is associated with superior performance, consistent with information advantages. In particular,

when we analyze the trades of funds, we find that the difference in next-quarter risk-adjusted returns between the stocks bought and the stocks sold is significantly higher for trades in similar CEOs. For example, compared to the fund's concurrent trades in firms of less similar CEOs, we find that the difference in Carhart alphas between stocks bought and stocks sold is up to 31.2 basis points higher if all managers in a fund manager team have a similar age, the same ethnicity, and the same gender as the CEO. Robustness tests, including the performance of fund holdings and sub-portfolios of CEO characteristics, support the above results.

Interestingly, we find that the superior average performance is driven by fund managers' investments in CEOs of similar age and gender, while investing in CEOs of the same ethnicity does not generate a significant outperformance. We conclude that similarity in ethnicity does not facilitate informed trading but rather causes a familiarity bias, which induces fund managers to overweight similar CEOs without having better information. This heterogeneous effect is consistent with McPherson, Smith-Lovin, and Cook (2001). The authors point out that ethnical differences cause the strongest divide in society, whereas people of different age and gender are less prejudiced against each other as they interact more often (in households, neighborhoods, etc.). This reasoning provides an explanation for why the benefits of similarity can outweigh the costs in case of similar age and gender, but not in case of similar ethnicity.[1]

Taken together, our study suggests that professional investors can use easily observable information – i.e., their own demographic similarity to firm's CEOs – when they invest in firms. While this information might seem irrelevant for investment decisions, our evidence indicates that, on average, it helps mutual fund managers mitigate informational asymmetries and make superior investment decisions.[2] In additional tests, we find that the superior average investment

[1] The results of Kumar, Niessen-Ruenzi, and Spalt (2015) as well as Gompers, Mukharlyamov, and Xuan (2016) support the above reasoning. The former find that investor flows are significantly lower for mutual funds managed by fund managers with foreign-sounding names, although these managers do not perform differently. The latter study the role of ethnicity and gender for collaborations of venture capitalists (VCs) and find a significantly negative investment success when VCs of the same ethnicity collaborate.

[2] Ex ante, it is not clear that a fund manager should invest in her own or a different group to generate superior performance. Empirical studies on the relation between CEO demographics and firm performance either suggest that CEO demographics do not matter for firm performance or yield ambiguous results. For example,

decisions related to similarity-based investing also translate into better performance for fund investors. Specifically, overall performance at the fund level, on average, is positively affected by fund managers' overweighting of demographically similar CEOs.

The mutual fund industry constitutes an optimal test ground to study the role that similarity to CEOs plays for investment decisions. Mutual funds are not allowed to acquire control blocks of voting rights and – in contrast to banks, venture capitalists and some other investors – they are not approached by their investee firms and have no contracts with these firms to influence firm performance post investment. In addition, fund managers have no or only limited personal contact to firms' CEOs. These aspects facilitate drawing inferences from empirical results on investment decisions and their performance implications. Furthermore, quantifying fund managers' decisions and performance is relatively straightforward. Finally, fund managers' decisions have an immediate impact on fund investors' wealth, which can be measured easily. In this regard, the amount of $16.3 trillion held in U.S. mutual funds at the end of 2016 (Investment Company Institute (2017)) makes it particularly important to understand how fund managers make investment decisions and what the performance consequences are.

Our study contributes to the literature in several ways. First, we contribute to the emerging literature on the role of similarities between economic agents for financial decision making. The studies most closely related to our work are Wintoki and Xi (2017) and Fisman, Paravisini, and Vig (2017)). The former provide evidence that fund managers overweight companies managed by executives and directors with whom they share a similar political partisan affiliation. They find that fund managers' overweighting of stocks does not reflect superior information. In contrast, our study suggests that similarity between economic agents, on average, leads to information advantages. While Wintoki and Xi (2017) study political attitudes,

Wolfers (2006) finds no significant difference in the stock returns of firms run by men or women, while Flabbi, et al. (2016) find that female executives either have positive or negative effects on performance. Further, studies that include CEO age or gender typically find no systematic impact on firm value (e.g., Custódio and Metzger (2014) or Li, Lu, and Phillips (2017)). Nevertheless, we control for CEO demographics in robustness tests.

we study demographics, i.e., we focus on exogenously shared status instead of shared values. This difference might explain why our results deviate.[3]

Using data from an Indian bank, Fisman, Paravisini, and Vig (2017) find that proximity in terms of religion and caste between lenders and borrowers increases access to credit and loan size and reduces collateral requirements and default. This result suggests that shared codes and beliefs serve to mitigate information frictions in lending. In contrast, our study focuses on demographic instead of cultural proximity and on investments instead of lending decisions. While Fisman, Paravisini, and Vig (2017) study loan officers who are approached by individual borrowers, we study professional investors who have a broad investment opportunity set and often select stocks without any personal contacts to company management. Furthermore, we provide large-scale evidence for the U.S. mutual fund market, i.e., a different cultural and demographic setting where castes do not exist and religious beliefs are less important.

More generally, our study contributes to the literature concerned with factors that influence the acquisition and use of information by professional investors. This literature has focused on effects of professional investors' job experience outside the investment industry (Cici, et al. (2017)), networks (Cohen, Frazzini, and Malloy (2008)), and geography (Coval and Moskowitz (2001), Pool, Stoffman, and Yonker (2012), Pool, Stoffman, and Yonker (2015)) in portfolio decisions. We extend this literature by providing evidence that investors' similarity to firms' CEOs is associated with information advantages as reflected by superior investment decisions. While many existing studies highlight the value of personal connections for investment decisions, demographic similarity likely affects investments even absent personal connections.

[3] Our paper also relates to two other studies, which examine the role of similarities between economic agents in different economic settings. Jannati, et al. (2016) study sell-side equity analysts and find that earnings forecasts are lower when Republican analysts assess firms run by Democrat CEOs, when domestic analysts assess firms run by foreign CEOs, and when male analysts assess firms run by female CEOs. Grinblatt and Keloharju (2001) study investments by Finnish households and institutions and find that both are more likely to hold, buy, and sell the stocks of Finnish firms if these firms are located closer to the investors, communicate in the investors' native tongue, and have CEOs who are also Finnish or whose native tongue is Finnish.

The remainder of this paper is organized as follows. Section 1 describes our data and variables. Section 2 presents empirical results on the decision of fund managers to invest in firms run by similar CEOs. In Section 3, we attempt to answer the question whether similarity-based investing reflects information advantages or rather a familiarity bias. Section 4 concludes.

1 Data and variables

1.1 Data

We combine several data sources to obtain our sample of mutual fund managers and CEOs for the period 2001 to 2011. First, we obtain information on fund characteristics from the CRSP Survivor-Bias-Free U.S. Mutual Fund Database (CRSP MF). Fund characteristics include, e.g., fund returns, total net assets under management, fund fees, fund age, fund families, fund location, and investment objectives. Information at the share-class level is aggregated at the fund-level using share class total net assets as weights. We focus on actively-managed U.S. domestic equity funds and eliminate all international, sector, balanced, bond, index, and money market funds. Funds are categorized into six different styles by their dominating investment objective using CRSP style codes (Mid Cap (EDCM), Small Cap (EDCS), Micro Cap (EDCI), Growth (EDYG), Growth & Income (EDYB), and Income (EDYI)).[4] The CRSP MF data are matched with the Thomson Reuters Mutual Fund Holdings Database (MF Holdings) using the MFLINKS tables. We limit our analysis to holdings of common stocks (share codes 10 and 11). Additional information about these stocks is from the CRSP/Compustat Merged Database.

We obtain fund managers' names as well as their start and end dates at the respective fund from the Morningstar Direct Mutual Fund Database (MS Direct), which is more accurate in terms of fund manager information than the CRSP MF database (see, e.g., Patel and Sarkissian

[4] When CRSP Style Code information is missing, we use the classifications according to Lipper, Strategic Insight, and Wiesenberger to identify a fund's dominating investment objective.

(2015)), and eliminate cases for which MS Direct reports anonymous management teams. We merge MS Direct with the former databases using fund CUSIPs.

Information on CEOs' names, their age and gender are from ExecuComp and Board Analyst's The Corporate Library.[5] Using both databases allows us to cover a broader range of common stocks held by mutual funds and reduces the bias towards larger firms. We eliminate observations where a firm is run by a team of CEOs and require the identity of the CEO to be available for at least 67% of the stocks held by a fund at a given report date. The median (mean) fraction of the stocks in a fund's portfolio for which we have CEO information is 92% (89.5%). Since mutual funds report their holdings several times throughout the year and both ExecuComp and TCL provide information only as of fiscal-year end, we use information from ExecuComp and hand-collected data to identify the exact dates when CEOs took office.

Further, we follow Pool, Stoffman, and Yonker (2015) and identify the ethnicity of CEOs and fund managers using their surnames in the classification algorithm of Ambekar et al. (2009), which categorizes names into 13 different ethnic groups. For robustness, we use two alternative approaches to classify ethnic groups in Section 2. Following Niessen-Ruenzi and Ruenzi (2017), we determine a fund manager's gender by comparing the first name to a list provided by the United States Social Security Administration (SSA) containing the most popular first male and female names. We enrich our data set with educational information for CEOs and fund managers, which we obtain primarily from Capital IQ, Marquis Who's Who, and MS Direct. In addition, we manually collected biographical data from Bloomberg, fund company websites, LinkedIn, and SEC filings. Because fund manager age frequently is unavailable, we follow Chevalier and Ellison (1999) and assume that fund managers are 21 upon receiving their bachelor's degree.

[5] Board Analyst's The Corporate Library covers firms from 2001 onwards.

Our final sample consists of 2,487 actively managed diversified U.S. domestic equity funds, 4,862 fund managers, 5,552 CEOs, and 3,716 common stocks.

1.2 Variables

We use different measures of demographic similarity between CEOs and fund managers based on age, ethnicity and gender. We calculate the fraction of a fund's managers who match a firm's CEO in terms of age, ethnicity or gender, respectively (*PctMgrMatch*).[6] In terms of age, we use an interval of plus or minus five years around the CEO's age as our main similarity measure (but use different age measures for robustness in Section 2.2). *Avg. PctMgrMatch* measures the average fraction of fund managers with the same age, ethnicity and gender as the CEO. As alternative similarity measures we use indicator variables that are equal to one if all of a fund's managers, respectively, have a similar age, same ethnicity or same gender as the CEO (*AllMatch*). The variable *SimilarityScore* combines demographic dimensions by summing up the aforementioned dummy variables across all three dimensions. Accordingly, the similarity score can take on values between 0 and 3.

In Section 2, we use the variable *Excess weight* as the dependent variable to study the relation between fund managers' investment decisions and their similarity to CEOs. *Excess weight* is defined as the weight a fund manager assigns to a stock in her portfolio relative to the average weight in the fund's investment style in a given quarter. In Section 3, we examine the performance of fund managers' investment decisions based on risk-adjusted returns. We use the stock characteristic-adjusted performance measure of Daniel, et al. (1997) (*DGTW*), compounded over the three months within a quarter. We also use quarterly stock performance based on Carhart (1997) 4-factor alphas (*Carhart alpha*). We determine these alphas by taking the difference of realized stock return and the expected excess stock return in the quarter. The expected return in a month is calculated using factor loading estimations from the prior 24

[6] As in Pool, Stoffman, and Yonker (2012), we include all observations with available information for at least one fund manager. We calculate fractions based on the number of fund managers with available information.

months and factor realizations in the current month. We compound both realized and expected returns over the quarter before taking their difference. Monthly factor returns are obtained from Kenneth French's website.

In the analyses in Sections 2 and 3, we control for several stock and fund characteristics that could have an impact on both portfolio weights and stock performance. At the stock level, we include the quarterly stock return (i.e., the compounded monthly return within the quarter), the natural logarithm of the firm's market capitalization, the natural logarithm of the firm's age (based on the first CRSP listing date), and the book-to-market ratio. Using CRSP daily stock return and trading data, we also control for stocks' quarterly turnover (i.e., the average of daily number of shares traded divided by total shares outstanding over all trading days of a quarter), its quarterly return volatility and the quarterly mean-adjusted stock illiquidity based on a daily Amihud (2002) illiquidity measure.

At the fund level, we use an indicator variable equal to one if the fund is managed by a team (zero otherwise), the natural logarithm of the fund's total net assets under management (in $ millions), the natural logarithm of the fund's age, the fund's annual expense and turnover ratios, the fund's quarterly fund flows (i.e., the fund's percentage growth rate over the quarter as in Sirri and Tufano (1998)), and the natural logarithm of the fund family's total net assets under management (in $ millions). Finally, to account for differences in funds' portfolio styles, we include the fund's portfolio concentration (i.e., the Herfindahl index of portfolio weights in a quarter) as well as the value-weighted average size, value, and momentum scores of Daniel, et al. (1997).

1.3 Summary statistics

Table 1 reports summary statistics for our sample. In Panel A, we report statistics on CEO and fund manager demographics. We find a similar distribution between CEOs and fund managers with respect to their ethnicities. However, while the average CEO is 55 years old and only 2.7% of all CEOs are females, fund managers are on average 45 years old and 11.3% are female. The

above figures compare well to existing CEO and fund manager studies (e.g., Custódio and Metzger (2014), Bär, Kempf, and Ruenzi (2011), Niessen-Ruenzi and Ruenzi (2017)).

Panel B reports summary statistics for our measures of demographic CEO-fund manager similarity. The mean values for *PctMgrMatch* are 0.216 for similar age, 0.275 for same ethnicity and 0.885 for same gender. *Avg. PctMgrMatch* has a mean of 0.46. Regarding the three *AllMatch* indicator variables, for 11%, 15% and 73% of the sample's observations all managers of a fund manager team have a similar age, the same ethnicity and the same gender as a firm's CEO, respectively. The similarity score has a mean of 0.98 and a median of 1. Its minimum (maximum) value is 0 (3).

Panels C and D report key characteristics at the stock and fund level, respectively. The average firm in our sample has a market capitalization of over $3 billion, has been public for almost 19 years, and has a book-to-market ratio of 0.65. The average stock generates a quarterly return of 3.33%. These figures are consistent with prior literature (e.g., Brown, Wei, and Wermers (2014), Agarwal, et al. (2015)). The average fund in our sample has a portfolio weight in a stock of 0.94%, total net assets of $1.3 billion, and is approximately 14 years old. It has a turnover ratio of 87%, an expense ratio of 1.28% per year and generates a Carhart (1997) 4-factor alpha of 10 basis points per quarter based on gross-of-fee returns. The fund characteristics in our sample compare well to related studies (e.g., Pástor, Stambaugh, and Taylor (2015) or Pool, Stoffman, and Yonker (2012)).

2 Demographic similarity to CEOs and fund manager's investment decisions

In this section, we examine whether and how demographic similarity between CEOs and fund managers is related to the investment decisions of the latter. Section 2.1. provides our baseline regression results. In Section 2.2, we investigate whether these results are robust to variations in our empirical setup and address alternative explanations. Section 2.3 provides additional evidence that fund managers take CEOs into account when they make investment decisions.

Finally, in Section 2.4 we present results from regressions where we exploit variation in CEO-fund manager similarity around different CEO turnover events.

2.1 Stock selection when fund managers are similar to firms' CEOs

To capture a fund manager's preference for a stock, we use the variable *Excess weight* as our dependent variable. That means we examine the weights fund managers assign to the stocks in their portfolios relative to the average weight in the fund's investment style in a given quarter. The use of style-adjusted weights addresses the potential concern that funds overweight CEO characteristics because the firms run by CEOs with specific characteristics better match their investment style. To examine how fund managers' portfolio weights are influenced by their similarity to firms' CEOs, we relate the excess weight that the fund places on the stock to our measures for demographic similarity between CEOs and fund managers. In particular, as shown in equation (1) we regress *Excess weight* on the different similarity measures and several controls for stock and fund characteristics (all described in section 1.2):

$$ExcessWeight_{i,j,t} = \alpha + \beta\ Similarity_{i,j,t} + \gamma' X_{i,j,t-1} + \varepsilon_{i,j,t} \quad (1)$$

$ExcessWeight_{i,j,t}$ is the portfolio weight of fund i in stock j at the end of quarter t in percent relative to the average weight in stock j across all funds in the same investment style as fund i. $Similarity_{i,j,t}$ represents the similarity measure, which is either the *SimilarityScore* or the three individual *AllMatch* dummies or the fraction of a fund's managers who are similar to a firm's CEO in terms of age, ethnicity or gender (*PctMgrMatch*) at the end of quarter t. $X_{i,j,t-1}$ is a vector of control variables at the stock and fund level, all defined as in Table 1. All control variables except for the *Team* dummy are lagged by one quarter. To control for unobservable style characteristics, the regressions include style fixed effects. We also include industry-time fixed effects to address the concern that funds simply differ in their preference for particular industries in which specific CEO characteristics are more prevalent. Industries are based on the

48-industry classification proposed by Fama and French (1997). Standard errors are clustered at the fund-stock level.

We report the regression result in Table 2. Panel A reports the results of equation (1) when we use the *SimilarityScore* and the individual *AllMatch* dummies, i.e., the components of the score. Panel B reports the results when we instead use *Avg. PctMgrMatch* and the three *PctMgrMatch* variables. The results in both panels of Table 2 provide evidence that fund managers place significantly larger weights than peer funds on stocks of firms run by CEOs who resemble them. Irrespective of the similarity measure we use, the effect of CEO-fund manager similarity is always positive and statistically significant. Results are also economically significant. For example, the first column of Panel A suggests that, all else equal, an additional shared characteristic between fund managers and CEOs leads to an increase in the excess weight by almost 5.7 basis points. That is, compared to a fund manager without any match between her and a firm's CEO, a fund manager who is similar to the CEO in age, ethnicity and gender, overweights a stock by 17 basis points. The economic magnitude of this effect is strong, given that the average excess weight and the average portfolio weight in our sample amount to 0 and 94 basis points, respectively. [7]

Regarding the control variables, we find that the funds in our sample tend to place larger bets on smaller and less frequently traded firms with higher returns in the previous quarter. This finding is consistent with the evidence in, e.g., Chan, Chen, and Lakonishok (2002) and Jiang, Verbeek, and Wang (2014) that active funds expect to find more investment opportunities in the less efficient small-cap segment and have a preference for past winner stocks. At the fund

[7] In unreported tests, we further investigate whether a higher *SimilarityScore* also induces a fund manager to hold a stock. To test this, we run pooled regressions with the dependent variable *Hold* which equals one if the fund holds a stock, and zero otherwise. For each fund, we include all stocks that are currently held by at least one fund in their investment style. We control for the same fund and stock characteristics as before as well as the average weight of the stock in the investment style. We find a positive impact of the *SimilarityScore* on the decision to hold a stock. The coefficient of 0.0016 suggests that a fund manager who resembles the CEO in terms of age, ethnicity and gender has a 0.48 basis points higher probability to hold the stock. This effect is economically meaningful, given that the average likelihood to hold the stock, i.e., the average value of *Hold*, is 4.3 basis points.

level, we find that team-managed funds, larger funds, and funds from larger fund families on average have smaller excess weights. This finding is in line with, e.g., Bär, Kempf, and Ruenzi (2011) and Huang, et al. (2016) who document that teams and larger funds and families tend to hold more diversified portfolios. Lastly, as expected, stock concentration in the fund portfolio has a significant positive impact on the excess weight in a particular stock.

2.2 Robustness tests and alternative explanations

In the following, we present the results of various robustness tests for our main finding from Section 2.1. We present the results in Table 3. For brevity, we suppress all control variables. Panel A reports results for several alternative measures of demographic similarity between CEOs and fund managers. With respect to age similarity, we calculate *PctMgrMatch* based on a maximum gap of three or ten years between CEOs and fund managers instead of the five-year gap we use as our main age similarity measure. We also calculate the fraction of the fund's managers who are in the same age cohort (e.g., 40s, 50s) or were born in the same decade (e.g., 1950s, 1960s) as the CEO. As a last age similarity measure, we calculate the simple average age gap between CEOs and fund managers, i.e., the simple difference in years of age. As higher values of this age gap indicate less CEO-fund manager similarity, we expect a negative relation with *ExcessWeight*. Regarding ethnicity, we present results for two alternative classifications. First, we use the dominating ethnicity of surnames from the ethnicity classification of the Census 2000 (from the U.S. Census Bureau). We require that the dominating ethnicity covers at least 75% of the population with a given surname. Instead of the 13 groups from the Ambekar, et al. (2009) algorithm, we now classify CEOs and fund managers into only four groups (Asian, Black, Hispanic and White). Second, we use an alternative algorithm from Onolytics (formerly OnoMap) that has already been used in existing academic studies, e.g., Ellahie, Tahoun, and Tuna (2016) and Giannetti and Zhao (2016). This algorithm bases the origin of a name on both

the first and last name instead of just the surname.[8] As last step, we construct alternative versions of the *SimilarityScore*, which limit the score to two demographic dimensions each.

In Panel B, we address the concern that the documented overweighting of similar CEOs stems from connections between fund managers and CEOs. In this regard, Cohen, Frazzini, and Malloy (2008) document that fund managers overweight firms led by CEOs with whom they have educational ties. Coval and Moskowitz (1999), Coval and Moskowitz (2001) and Pool, Stoffman, and Yonker (2012), among others, show that fund managers have a preference for local investments. Hence, it might be the case that fund managers invest in similar CEOs only because they know or have met each other. For example, both might belong to the same alumni network or local club. To address this concern, we rerun our regressions after removing local stocks, stocks with educational ties between CEOs and fund managers, or both.[9] Unless mentioned otherwise, we report results only for the *SimilarityScore* from Panel A of Table 2. However, the results are qualitatively similar for each individual demographic dimension.

In Panel C, we report results on alternative estimations of equation (1). First, we estimate the regression without control variables and fixed effects. Second, we replace the dependent variable *ExcessWeight* with either the normal portfolio weight, with *ExcessWeight* divided by the average weight in the investment style, or with an indicator variable equal to one if *ExcessWeight* is positive (zero otherwise). Third, we add different sets of fixed effects to the regression model. Specifically, we add fund fixed effects to control for unobservable fund characteristics and family-time fixed effects to rule out that the overweighting decision is due

[8] From Onolytics, we also obtain information on the likely religion for a given first and last name. In unreported tests, we calculate the similarity between CEOs and fund managers based on whether they have the same religion. We again find a significant positive impact of similarity on *Excess weight*. In all tests where we use Onolytics, we eliminate cases where the ethnicity is identified as "International".

[9] We obtain the location of the fund's management company from the CRSP MF database. Information on firm headquarters is obtained from Compustat. Consistent with the literature (e.g., Coval and Moskowitz (2001)), we define all stocks within a distance of 100 kilometers from fund headquarters as local stocks. The results are qualitatively the same if we alternatively eliminate all stocks from the same state as the fund company. We further define an educational connection between a fund and a CEO if at least one fund manager attended the same school as the CEO, which corresponds to the *CONNECTED1* measure in Cohen, Frazzini, and Malloy (2008). We eliminate observations for which local and educational information is missing.

to centralized research within the family. We also add fund-stock fixed effects to address the concern of an endogenous matching between funds and firms. In the case of fund-stock fixed effects, we compare the same fund's weight of the same stock when the similarity between CEO and fund manager changes. Finally, we replace the industry-time fixed effects with stock-time fixed effects. This allows us to compare concurrent investors of the same firm and to analyze whether investors with a higher similarity to the CEO have higher excess weights in the respective stock. In addition to the varying sets of fixed effects, we use different estimation techniques for equation (1). First, we use Fama and MacBeth (1973) regressions with Newey and West (1987) corrected standard errors using a lag length parameter of four. Second, we run the regression on a weighted sample where weights are based on a propensity score matching. For this exercise, we define the treatment group as either fund manager-CEO combinations with a positive *SimilarityScore*, i.e., with at least one shared characteristic or as fund manager-CEO combinations with a maximum *SimilarityScore*. This approach takes into account that observations with positive or maximum *SimilarityScores* could differ on observable characteristics and, therefore, aligns treatment and control group. For example, a British male CEO in his 50s is more likely to be similar to investors. If these CEOs run different firms than other CEOs, the propensity score matching takes this into account. To obtain propensity scores, we run logistic regressions of the respective treatment on all control variables from Table 2 as well as on industry- and style fixed effects.[10]

All robustness tests presented in Table 3 support our main finding from Section 2.1 that fund managers overweight firms led by CEOs who resemble them in terms of different demographic characteristics.

[10] We also address the concern that the relation between CEO-fund manager similarity and the excess weight is spurious by employing a bootstrap procedure where we randomly assign the similarity score to fund-stock observations and rerun regression (1), keeping all control variables unchanged. We repeat this random assignment 250 times. The results (not reported) show that none of the 250 coefficients on *SimilarityScore* is as large as the one we have obtained in the original regression.

To further address the concern that CEO demographics themselves, instead of demographic similarities to CEOs, play a role for fund managers' decisions to invest in firms, we repeat the regressions shown in Panel A of Table 2 and additionally control for CEO demographics, i.e., CEO age, CEO gender, and CEO ethnicity fixed effects. The results are shown in Appendix A. Including additional controls for CEO demographics does not change our results.

Finally, in Appendix A.2, we present results from regressions where we use the weights of sub-portfolios for different age cohorts, female CEOs, and different ethnicities. This approach follows Pool, Stoffman, and Yonker (2012) who analyze sub-portfolio weights in managers' home states. Again, the results corroborate our findings.

2.3 Do fund managers pay attention to the firm's CEO?

A concern with the previous results is that fund managers might not take CEOs into account when investing into firms but actually consider an unobservable factor that correlates with both the observed overweighting decision and the fund manager-CEO similarity. To address this concern, we investigate whether overweighting of similar CEOs is stronger if investors are more likely to take CEOs into account. This is likely to be the case if CEOs have more decision-making power and, hence, more impact on the firms they run (e.g., Adams, Almeida, and Ferreira (2005)). Thus, we hypothesize that the overweighting of similar CEOs is more pronounced for more powerful CEOs. To test this hypothesis, we interact *SimilarityScore* with several measures of CEO power as suggested by the literature (e.g., Adams, Almeida, and Ferreira (2005)). The first measure is *CEO duality*, which is an indicator variable that equals one if a firm's CEO is also the chairman of the company (zero otherwise). Our second measure is *CEO only insider*, which is an indicator variable that equals one if the CEO is the sole insider on the board of directors (zero otherwise). Our third measure is *Entrenched CEO*, which is an indicator variable that equals one if the firm's entrenchment index (Bebchuk, Cohen, and Ferrell (2009)) is above the median in a given quarter (zero otherwise). Information about board

composition and the E-index is retrieved from the ISS governance database, which covers S&P 1500 firms.

Regression results for the aforementioned interactions are presented in Table 4. Stock and fund level control variables are the same as in Table 2 but suppressed for brevity. We include style and industry-time fixed effects and cluster standard errors at the fund-stock level as before. For all three measures, we find that similarity-based investing is more pronounced if CEOs have more impact on the firms they run and, thus, are more likely to matter to investors. In general, the positive coefficient for *SimilarityScore* remains significant irrespective of the interaction tested. Hence, CEO power only intensifies the impact of fund manager-CEO similarity on the decision to overweight, but does not completely explain the documented effect. Overall, the evidence indicates that fund managers do indeed take the firm's management into account when they make investment decisions.

2.4 Evidence from CEO turnovers

In this section, we provide more direct support for the idea that fund managers incorporate CEO information in their information production process and, specifically, that demographic similarity between CEOs and fund managers influences the investment decisions of the latter. In particular, we exploit variation in CEO-fund manager similarity caused by CEO departures. To do so, we examine trades in quarters of CEO departures and analyze whether a change in a fund manager's similarity to a CEO – as caused by the change of the CEO – has an impact on the fund managers' likelihood to sell the stock of the affected firm. By focusing on fund trades in the CEO turnover quarter only, we mitigate concerns that firm fundamentals change materially, which might cause fund managers to trade. Consistent with our reasoning and our findings from Section 2.1 and 2.2, we should expect to find that fund managers become more (less) likely to sell a stock if the firm's new CEO is less (more) similar to them.

We identify 1,890 CEO departures during our sample period 2001 to 2011. To analyze how these departures affect fund managers' trades, we calculate the similarity of fund managers to

both the former and the new CEOs in terms of age, ethnicity, and gender. We eliminate cases where the composition of the fund manager team or the fund manager changes around the quarter of a CEO departure. This way we ensure that variation in CEO-fund manager similarity can be attributed only to differences between old and new CEOs. Our dependent variable is *Sell*, which is an indicator variable equal to one if the fund sells shares of the stock of a firm that experiences a CEO departure (zero otherwise). We relate the sell decision to several independent variables that measure changes in demographic similarity around CEO departures. These variables are $SimilarityIncrease^{Score}$, $SimilarityIncrease^{Age}$, $SimilarityIncrease^{Ethnicity}$ and $SimilarityIncrease^{Gender}$. All four variables are dummy variables, which are equal to one if the *SimilarityScore* or the respective *AllMatch* dummies (defined in Section 1.2) increase (zero otherwise). That is, the variables capture instances in which fund managers become more similar to the new CEO relative to the former CEO of the same company. Our regressions include stock-time fixed effects, which further mitigate concerns that fund managers simply trade in reaction to CEO departures because they probably coincide with changes in firm characteristics. However, our results also hold when we compare the trading behavior within the same stock in the same investment style. Table 5 reports our results. While Panel A reports our baseline regression results, Panel B reports results of regressions where we only consider funds with a positive weight in the stock before the CEO departure, i.e., we eliminate initiating buys in the turnover quarter.

One might argue that CEO departures are plausibly exogenous to fund managers, given that mutual funds are not allowed to possess control blocks of firms' voting rights and given that single fund managers are unlikely to significantly influence CEO turnover. However, one might also argue that mutual funds' trading behavior in a firm's stock (or the threat of voting with their feet) has an impact on the likelihood of a CEO being replaced (see, e.g. Parrino, Sias, and Starks (2003)). To address this concern, we perform an additional analysis where we focus on sudden, unexpected CEO deaths. We exclude cases of CEOs who were murdered or

committed suicide. Because sudden deaths occur randomly and are likely to be exogenous to current firm and market conditions (see, e.g., Nguyen and Nielsen (2014) or Jenter, Matveyev, and Roth (2016)), they offer plausibly exogenous variation in CEO-fund manager similarity. We use the sudden death data from Limbach, Schmid, and Scholz-Daneshgari (2017) who collect cases of sudden CEO deaths following the methodology of Nguyen and Nielsen (2014).

Different from most CEO departures used before (in particular retirements and forced turnovers), sudden CEO deaths are random events, which are unexpected to both firms and investors. Usually it is not immediately clear who will succeed the deceased CEO and firms typically need a considerable amount of time to find a successor. Moreover, fund managers first have to learn about the death, its consequences, and who will be the successor. Hence, we do not expect funds to react instantaneously. As a consequence, we focus on a longer period of time after the event. In particular, we compare the weight that a fund held in the stock at the beginning of the death quarter with the average portfolio weight in the stock in the year after the death. We define the indicator variable *Sell* as being equal to one if the average portfolio weight in the stock in the year after the death is lower than before the death (zero otherwise). We only include events where the successor is known six months after the death at the latest. We have 35 cases of sudden deaths between 2000 and 2011, which still leaves us with a sample size of more than 1,300 observations because several funds are affected by each death event. As before, the independent variables of interest are the *SimilarityIncrease* dummies described before. In our regressions, we add stock-time fixed effects to compare the behavior of investors for the same death event. Panel C of Table 5 reports our results.

The results presented in Table 5 support our expectation that an increase in similarity due to a CEO change makes a fund manager less likely to sell the stock of the affected firm. For example, the first column in Panel A suggests that, all else equal, an increase in total similarity between a fund manager and a CEO decreases the probability that the firm's stock will be sold by 2.8 percentage points. This difference accounts for almost 8% of the average likelihood to

sell a stock (which is 35.8%). Corroborating the findings from Panel A and Panel B of Table 4, in Panel C we provide evidence that fund managers are also less likely to sell stocks of firms when CEO-fund manager similarity increases after sudden CEO deaths.

Taken together, the results from this section provide evidence that changes in the similarity to the CEO bring about changes in the portfolios of fund managers. This similarity-based investing is economically meaningful. We conclude that CEO-fund manager demographic similarity matters and that investors indeed react to who is leading a firm instead of just trading on basic firm characteristics.

3 Does overweighting of similar CEOs reflect an information advantage?

Because overweighting stocks is consistent with both a familiarity bias and informed trading by investors, in this section we perform additional tests to infer whether similarity-based overweighting reflects a bias or information advantages. In Section 3.1, we analyze the performance of trades in demographically similar and dissimilar CEOs, while we examine performance consequences at the fund level in Section 3.2.

3.1 Evidence from fund managers' trades in similar and dissimilar CEOs

We now consider the performance of fund managers' investments as a more direct test of whether similarity-based overweighting reflects information advantages or a familiarity bias. In case of the former, we would expect to find a significantly positive effect of similarity-based overweighting on performance, reflecting informed trading. On the contrary, in case of a familiarity bias, we would expect to find either a negative performance effect or no effect. Therefore, we analyze whether the next-quarter performance of trades is related to the similarity between fund managers and CEOs. Several studies argue that trades may be more appropriate to identify information advantages and biases of fund managers than the holdings of a stock because they better capture active investment decisions (see, e.g., Chen, Jegadeesh, and

Wermers (2000), Pool, Stoffman, and Yonker (2015)). Accordingly, we test whether trading returns, i.e., the performance of buys over sells, depend on CEO-fund manager similarity.

To study trading-based performance, we use an approach similar to Kempf, Manconi, and Spalt (2017) and define a trade as a buy (sell) if the fund increases (decreases) the number of shares in the stock. Since we are interested in the success of a trading-based strategy, we eliminate observations where the number of shares does not change. We then run the following pooled regression at the fund-stock level (see equation (2)):

$$Perf_{i,j,t+1} = \alpha + \beta_1 Similarity_{i,j,t} + \beta_2 Buy_{i,j,t} + \beta_3 Similarity_{i,j,t} \times Buy_{i,j,t} + \gamma' X_{j,t} + \varepsilon_{i,j,t+1} \quad (2)$$

$Perf_{i,j,t+1}$ denotes the stock performance in the quarter following the trade and $Buy_{i,j,t}$ is an indicator variable equal to one for buys, and zero for sells. $Similarity_{i,j,t}$ represents the similarity measure between the managers of fund *i* and the CEO of stock *j*. To capture similarity, we use the fraction of fund managers who resemble a CEO in terms of age or ethnicity or gender, i.e., *PctMgrMatch*, as well as the corresponding *AllMatch* dummies and the *SimilarityScore*. In regression equation (2), β_2 captures the performance differences of buys and sells for funds without similarity to the CEO, while the sum of β_2 and β_3 measures the same difference, but now for funds with a positive similarity to the CEO. Thus, β_3 represents a difference-in-difference estimator for the comparison of buy-sell differences between trades of fund managers in similar and dissimilar CEOs. We present results based on risk-adjusted returns, using both holdings-based and factor-based performance measures. Specifically, we use the stock characteristic-adjusted performance measure of Daniel, et al. (1997) (*DGTW*) and the quarterly stock performance based on Carhart (1997) 4-factor alphas (*Carhart alpha*). Both are described in Section 1.2. $X_{j,t-1}$ is a vector of the same stock-level control variables as in equation (1) referring to the quarter preceding the stock performance calculation. For brevity, control

variables are suppressed. As before, we add industry-time fixed effects and cluster standard errors at the fund-stock level. To better identify whether demographic similarity results in information advantages, we include fund-time fixed effects in the regressions. This way we can examine the relation between similarity and performance of trades within the same fund irrespective of the fund manager's baseline skill. Nevertheless, the results are qualitatively similar if we instead control for the same fund-level variables as before.

Table 6 presents our results. Panel A reports the results for the *SimilarityScore*, while Panels B, C and D report the results for the individual demographic dimensions age, ethnicity and gender (using both *PctMgrMatch* and the *AllMatch* dummies).[11] The results indicate that, on average, demographic similarity to the CEO has a positive impact on the performance of fund manager's trades. The coefficient of the interaction term *Similarity* × *Buy* is positive and statistically significant in Panel A, B and D, independent of the performance measure we use. That means, average CEO-fund manager similarity, indicated by the similarity score, as well as similarity based on age and gender are associated with superior performance. The positive performance effect is economically meaningful. For example, the second column of Panel A suggests that the buy-sell difference based on Carhart alphas for trades is -13.8 basis points per quarter if a fund's managers do not resemble a CEO, neither in age, nor in ethnicity or gender. On the contrary, a buy-sell strategy of the same fund in the same quarter delivers a 31.2 (= 3 × 10.4) basis points higher performance per quarter for trades in firms led by CEOs who resemble a fund's managers in terms of age, ethnicity and gender. This difference is economically significant given that the average difference in quarterly Carhart alphas of stocks bought and stocks sold in the sample is -22 basis points. This general underperformance of stocks bought

[11] We perform additional robustness tests on the results shown in Table 6. First, in Appendix A.3 we show results from regressions of equation (2) with additional controls for CEO demographics. The results are qualitatively similar to those in Table 6. Second, in Appendix A.4, we show that the results for the similarity score are qualitatively similar when we use net buys and net sells as in Kempf, Manconi, and Spalt (2017). In additional unreported regressions, we find that the results for the three demographic dimensions are also qualitatively similar when we use net buys and net sells.

by funds relative to stocks sold is in line with evidence by Dyakov, Jiang, and Verbeek (2017) that mutual fund sells have outperformed their buys since the beginning of the millennium. When we look at the individual dimensions of the similarity score, we find that the positive impact of similarity is driven by age and gender similarity, which show difference-in-difference estimates for Carhart alphas of 13.6 and 22.4 basis points, respectively.

In addition to the aforementioned results, we document an interesting heterogeneity. Particularly, we find that fund managers do not perform better when they invest in firms led by CEOs with whom they share the same ethnicity. Panel C of Table 6 suggests that the difference between stocks bought and stocks sold in firms managed by CEOs with the same ethnicity as the fund manager is either insignificant or even slightly lower than the same difference for trades in dissimilar CEOs. Hence, ethnicity-based investing is more consistent with a familiarity bias, comparable to the home-state bias of Pool, Stoffman, and Yonker (2012). The heterogeneous effect of demographic similarity we document is in line with McPherson, Smith-Lovin, and Cook (2001). The authors point out that differences in ethnicities cause the strongest divide in society. They argue that people of different age and gender are less prejudiced against each other than people of different ethnical groups because the former interact much more often (in households, neighborhoods, etc.). This reasoning provides an explanation for why the benefits of similarity can outweigh the costs in case of similar age and gender, but not in case of similar ethnicity.

Despite the fact that trades are arguably more appropriate to identify fund managers' investment decisions, we test the robustness of the aforementioned performance results by providing holdings-based (instead of trade-based) results in Appendix A.5. In the analyses, we use Carhart (1997) 4-factor alphas as our performance measure and run a similar regression as regression equation (2), but without differentiating between buys and sells. The holdings-based results are consistent with the results from Table 6 and corroborate that similarity in age and gender as well as average similarity (measured by the similarity score) lead to superior

performance. They further suggest that similarity based on ethnicity causes a familiarity bias. In particular, we find a significant negative impact of higher ethnic similarity on the performance of holdings.

Taken together, the performance results shown in this section suggest that, on average, similarity-based overweighting reflects informed trading. Fund managers are found to have an information advantage when they invest in demographically similar CEOs, especially when CEO-fund manager similarity is based on age and gender. On the contrary, compared to investments in dissimilar CEOs, fund managers perform worse or at least not better in firms run by CEOs with the same ethnicity. This latter finding indicates that performance differences between demographic dimensions exist.

3.2 Fund-level performance

In our final analysis, we test whether the previously documented performance impact of similarity-based investing translates into overall fund performance. This question is particularly interesting for fund investors as they may benefit directly from the similarity-based decisions of fund managers. However, as argued by Cici, et al. (2017), even if fund managers obtain information advantages or suffer from a familiarity bias with respect to their similarity to firms' CEOs, they run diversified funds and their own characteristics might not be sufficiently covered by CEOs of their own investment universe. As a consequence, even though fund managers overweight their own characteristics relative to peer funds, their portfolio will also consist of a large fraction of less similar CEOs. Thus, ex ante it is not clear that performance in the similar sub-portfolios also shows up at the fund level.

We measure a fund's probability to invest in CEOs who are similar to the fund managers (denoted *Similarity Overweighting*) as the deviation of the fund's weight in the fund manager's age cohort, ethnicity or gender from the average weight of the respective demographic characteristic in the fund's investment style. To take into account that portfolio weights in some manager characteristics (e.g., female) are smaller due to the small number of CEOs with a

matching characteristic, we divide the deviation by the average weight of the manager's characteristic in the fund's style.[12] For funds with multiple managers, we take the average of the relative deviation across all managers. In order to capture a fund's overall tendency to invest in similar CEOs, we take the simple average of *Similarity Overweighting* for the measures for age cohort, ethnicity and gender. We run a pooled regression in which we relate fund performance in a quarter to the lagged value of *Similarity Overweighting* and the same lagged fund-level control variables as in our previous analyses. Fund performance is measured analogously to stock performance based on Carhart alphas. We determine fund performance based on gross-of-fee returns, i.e., the net-of-fee return plus one twelfth of the annual total expense ratio, because gross-of-fee returns are more suitable to capture differences in fund managers' investment decisions and skills. However, we repeat the analysis using net-of-fee returns to identify costs and benefits for fund investors. The regressions include style and time fixed effects. Standard errors are clustered at the fund level. The regression results are shown in Table 7.

The results suggest that the likelihood of fund managers to invest into demographically similar CEOs has performance consequences also at the fund level. We find a significantly positive relation between *Similarity Overweighting* and fund performance. This result does not depend on whether we measure fund performance via gross-of-fee returns or net-of-fee returns. Hence, similarity-based investing, on average, is positive for fund performance and likely to be indicative of information advantages. In terms of economic significance, the first column in Table 7 suggests that an increase in *Similarity Overweighting* by one standard deviation is associated with an increase in quarterly Carhart alphas of 3.4 (1.42 × 0.024) basis points. This effect is economically meaningful as the average (median) Carhart alpha for funds in our sample

[12] In this regard, the measure is conceptually similar to the $bias_{state}$ measure in Giannetti and Laeven (2016). Also note that using the five-year age difference as before is not feasible at the sub-portfolio level as we cannot compare the weights across different funds with different manager ages. This is why we focus on portfolio weights in age cohorts.

is only 10 (6) basis points. Overall, we can conclude that similarity-based investing has a direct impact on the wealth of fund investors.

4 Conclusion

This study addresses the question whether and how professional investors' similarity to CEOs affects their investment decisions. It provides evidence that mutual fund managers overweight firms led by CEOs who resemble them in terms demographics, i.e., age, ethnicity and gender. Variation in demographic similarity caused by CEO departures supports this result. On average, similarity-based overweighting is associated with superior performance of fund managers' trades and holdings. Taken together, the results suggest that similarity to CEOs may help fund managers screen and monitor firms more efficiently, consistent with theoretical models of statistical discrimination and the notion that investors are more likely to acquire information about CEOs who resemble them.

The evidence provided in this study suggests that investors are able to use their own similarity to firms' CEOs to mitigate informational asymmetries and make better investment decisions. This result supports studies from corporate finance, which conclude that CEOs matter. In contrast to these studies, our approach is to relate CEO attributes to fund managers' investment decisions instead of corporate outcomes. We find that CEOs matter to investors.

Finally, our evidence implies that both mutual fund investors and families should take fund manager demographics into account. Investors should do so when they select funds that tend to invest in firms associated with specific CEO demographics. Fund families should do so when they allocate fund managers to funds or teams.

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Table 1 – Summary statistics

This table reports sample characteristics. In Panel A, we report mean values for CEO and fund manager demographics. *Age* is shown in years. *Female* represents the fraction of CEOs and fund managers who are female. The remaining rows in Panel A report the distribution of the 13 distinct CEO and fund manager ethnicities, for which we use the surname-based name classification algorithm of Ambekar, et al. (2009). In Panel B, we report summary statistics for measures of demographic CEO-fund manager similarity. The variables *AllMatch* are indicator variables equal to one if all of the fund's managers have the same age, ethnicity or gender as the CEO, respectively (zero otherwise). *SimilarityScore* is the sum of the three *AllMatch* dummies. The variables *PctMgrMatch* are defined as the fractions of fund managers in the fund with the same age (i.e., with a maximum age difference of 5 years), ethnicity or gender as the CEO, respectively. *Avg. PctMgrMatch* represents the average fraction of fund managers with the same age, ethnicity and gender as the CEO. In Panel C, we report quarterly summary statistics at the stock level. *Firm size* is the market capitalization of the firm at the end of the quarter in millions of dollars. *Firm age* is the difference in years between the current year and the first CRSP listing date. *Book-to-market ratio* represents the ratio of book value of shareholder equity and market capitalization of equity. *Quarterly stock return* is the the compounded monthly return within the quarter. Monthly returns are winsorized at the 1st and 99th percentile. *Quarterly stock turnover* is the average daily turnover ratio of a stock in a quarter, where turnover is defined as the daily number of shares traded divided by total shares outstanding. *Quarterly stock turnover* is the annualized the standard deviation of daily stock returns within a given quarter. *Amihud illiquidity* represents the mean-adjusted quarterly stock illiquidity based on a daily Amihud (2002) illiquidity measure. *Annual return* is the annual stock return. *Carhart stock performance* represents the quarterly Carhart (1997) 4-factor alpha of the stock, measured as the difference between realized and expected excess return within the quarter. The expected excess return is calculated as the product of realized factor values and factor loadings, which were estimated using the stock's return over the previous 24 months. Panel D presents quarterly summary statistics for key variables at the fund level. *Portfolio weight* is the percentage of total portfolio value that the fund holds in the stock. *Excess weight* is the portfolio weight of the stock in the fund's portfolio minus the average weight of the stock across funds in the same investment style in the respective quarter. *Team* is an indicator variable equal to one if the fund is managed by a team, and zero otherwise. *Fund size* is the total net assets under management in millions of dollars and *Fund age* is shown in years. *Turnover ratio* is fund turnover, defined as the minimum of security purchases and sales divided by the average total net assets under management during the calendar year. *Expense ratio* represents funds' fees charged for total services. *Fund flows* are estimated as the fund's percentage growth rate over a quarter adjusted for the internal growth of the fund as in Sirri and Tufano (1998). *Stock concentration* represents the Herfindahl index of portfolio weights for a fund in a quarter. *Family size* is the total net assets under management of the fund family in millions of dollars. *Size score, Value score, and Momentum score* are the value-weighted average quintile scores of the stocks in the fund portfolio along the respective dimension following Daniel et al. (1997). *Carhart alpha* represents the quarterly Carhart (1997) 4-factor alpha based on gross-of-fee returns.

Panel A: CEO and fund managers characteristics

	CEOs (N=5,552)	**Fund managers (N=4,862)**
Age	55	45
Female (%)	2.70	11.33
African (%)	2.00	2.24
British (%)	49.42	46.95
Eastasian (%)	2.61	3.46
Easteuropean (%)	3.49	4.18
French (%)	5.28	3.62
German (%)	3.21	2.86
Hispanic (%)	3.73	2.70
Indian (%)	3.40	3.54
Italian (%)	6.54	5.62
Japanese (%)	1.51	1.93
Jewish (%)	14.09	18.44
Muslim (%)	2.68	2.39
Nordic (%)	2.04	2.06

Table 1 – Summary statistics (continued)

Panel B: Measures of demographic CEO-fund manager similarity

	Mean	Median	SD
$PctMgrMatch^{Age}$	0.22	0.00	0.33
$PctMgrMatch^{Ethnicity}$	0.28	0.00	0.37
$PctMgrMatch^{Gender}$	0.89	1.00	0.24
Avg. PctMgrMatch	0.46	0.44	0.19
$AllMatch^{Age}$ (0/1)	0.11	0.00	0.31
$AllMatch^{Ethnicity}$ (0/1)	0.15	0.00	0.36
$AllMatch^{Gender}$ (0/1)	0.73	1.00	0.45
Similarity Score	0.98	1.00	0.72

Panel C: Stock characteristics (N=3,716)

	Mean	Median	SD
Firm size	3,233	702	6,241
Firm age	18.89	14.00	17.07
Book-to-market ratio	0.65	0.51	0.69
Quarterly return (%)	3.33	2.08	25.01
Quarterly stock turnover (*100)	0.95	0.68	1.08
Quarterly volatility (*100)	44.22	39.32	22.54
Amihud illiquidity (*100)	4.73	0.08	114.03
Carhart alpha (%)	0.94	-0.35	22.53

Panel D: Fund characteristics (N=2,487)

	Mean	Median	SD
Portfolio weight (%)	0.94	0.58	1.15
Excess weight (%)	0.00	-0.15	0.98
Team	0.65	1.00	0.47
Fund size	1,282.78	194.90	5,432.45
Fund age	13.83	10.00	13.36
Turnover ratio (%)	86.66	67.00	73.00
Expense ratio (%)	1.28	1.23	0.52
Quarterly fund flows (%)	6.27	-0.92	51.45
Stock concentration (*100)	2.35	2.00	2.37
Size score	4.08	4.49	0.98
Value score	2.93	2.91	0.36
Momentum score	3.09	3.07	0.46
Family size	25,088.62	4,139.00	70,563.63
Carhart alpha (%), gross-of-fees	0.10	0.06	3.11

Table 2 – CEO-fund manager similarity and portfolio choice

This table presents results from pooled regressions on the relation of a fund's excess portfolio weight in a stock and the similarity of the CEO with the fund's managers. The dependent variable is *ExcessWeight*, defined as the portfolio weight of the stock in the fund portfolio (in percent) minus the average weight of the stock in portfolios of the fund's investment style. In the first column of Panel A, the main independent variable is *SimilarityScore*, representing the sum of the three *AllMatch* dummies. In the last three columns of Panel A, the main independent variable is *AllMatch*, an indicator variable equal to one if all of the fund's managers have the same age, ethnicity, or gender as the CEO, and zero otherwise. In Panel B, the main independent variable is *PctMgrMatch*, defined as the fraction of fund managers in the fund with the same age (i.e., with a maximum age difference of 5 years) or ethnicity or gender as the CEO, respectively. *Avg. PctMgrMatch* represents the average fraction of fund managers with the same age, ethnicity and gender as the CEO. *PctMgrMatch*, *Avg. PctMgrMatch*, *AllMatch* and *SimilarityScore* are valid at the end of the quarter for which we calculate excess weights. Additional independent controls at the stock level are the natural logarithm of *Firm Size*, the natural logarithm of *Firm Age*, the *Book-to-market ratio*, *Quarterly return*, *Quarterly stock turnover*, *Quarterly volatility*, and *Amihud illiquidity*, all defined as in Table 1, and suppressed in Panel B of the table. At the fund level, we control for the *Team* dummy, the natural logarithm of *Fund size*, the natural logarithm of *Fund age*, the *Turnover ratio*, the *Expense ratio*, *Quarterly fund flows*, *Stock concentration*, *Size score*, *Value score*, *Momentum Score*, and the natural logarithm of *Family size*, all defined as in Table 1. All control variables except for the *Team* dummy (which is valid concurrently to *PctMgrMatch*) are valid as of the end of the quarter preceding the calculation of the dependent variable. A constant is included in all regressions but not reported for brevity. Regressions are run with industry-time and style fixed effects. t-statistics reported in parentheses are based on standard errors clustered at the fund-stock level. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Table 2 – CEO-fund manager similarity and portfolio choice (continued)

Panel A: Complete matches between CEOs and fund managers

Dependent variable:	*ExcessWeight*				
SimilarityScore	**0.057 *****				
	(30.44)				
AllMatch^{Age}		**0.025 *****			**0.023 *****
		(7.13)			**(6.54)**
AllMatch^{Ethnicity}			**0.042 *****		**0.037 *****
			(13.37)		**(11.22)**
AllMatch^{Gender}				**0.084 *****	**0.085 *****
				(28.35)	**(27.99)**
Firm size	-0.054 ***	-0.054 ***	-0.054 ***	-0.054 ***	-0.054 ***
	(-29.93)	(-29.97)	(-30.48)	(-30.79)	(-30.13)
Firm age	0.012 ***	0.012 ***	0.011 ***	0.011 ***	0.011 ***
	(9.04)	(8.98)	(8.93)	(8.77)	(8.73)
Book-to-market ratio	0.006 ***	0.006 ***	0.005 ***	0.006 ***	0.006 ***
	(4.16)	(3.68)	(3.63)	(3.89)	(4.11)
Quarterly return	0.040 ***	0.041 ***	0.042 ***	0.042 ***	0.040 ***
	(17.03)	(17.27)	(18.20)	(18.04)	(17.01)
Quarterly stock turnover	-0.469 ***	-0.496 ***	-0.431 ***	-0.441 ***	-0.465 ***
	(-4.00)	(-4.24)	(-3.78)	(-3.86)	(-3.98)
Quarterly volatility	-0.003	-0.001	-0.006	-0.008	-0.003
	(-0.35)	(-0.10)	(-0.80)	(-1.06)	(-0.44)
Amihud illiquidity	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.52)	(-0.37)	(-0.39)	(-0.50)	(-0.56)
Team	-0.007 ***	-0.041 ***	-0.030 ***	-0.019 ***	-0.010 ***
	(-2.61)	(-15.04)	(-11.18)	(-7.74)	(-3.76)
Fund size	-0.041 ***	-0.042 ***	-0.041 ***	-0.041 ***	-0.041 ***
	(-31.74)	(-32.06)	(-32.03)	(-32.00)	(-31.75)
Fund age	0.040 ***	0.041 ***	0.039 ***	0.038 ***	0.040 ***
	(14.11)	(14.39)	(14.11)	(13.71)	(14.18)
Turnover ratio	-0.051 ***	-0.053 ***	-0.054 ***	-0.054 ***	-0.052 ***
	(-18.82)	(-19.57)	(-20.15)	(-20.48)	(-18.90)
Expense ratio	13.064 ***	12.571 ***	12.646 ***	13.080 ***	13.272 ***
	(18.45)	(17.97)	(18.40)	(18.64)	(18.67)
Quarterly fund flows	0.022 ***	0.022 ***	0.020 ***	0.020 ***	0.022 ***
	(6.67)	(6.64)	(6.39)	(6.27)	(6.77)
Stock concentration	33.009 ***	33.129 ***	33.642 ***	33.441 ***	32.946 ***
	(24.91)	(25.05)	(25.85)	(25.59)	(24.80)
Size score	-0.155 ***	-0.158 ***	-0.164 ***	-0.160 ***	-0.154 ***
	(-32.71)	(-33.50)	(-36.25)	(-34.95)	(-32.18)
Value score	-0.051 ***	-0.053 ***	-0.051 ***	-0.050 ***	-0.052 ***
	(-10.22)	(-10.58)	(-10.30)	(-10.16)	(-10.26)
Momentum score	-0.084 ***	-0.082 ***	-0.075 ***	-0.074 ***	-0.084 ***
	(-19.76)	(-19.44)	(-18.30)	(-18.17)	(-19.69)
Family size	-0.033 ***	-0.034 ***	-0.031 ***	-0.031 ***	-0.033 ***
	(-36.59)	(-36.93)	(-36.16)	(-36.31)	(-36.57)
Industry-time fixed effects	Yes	Yes	Yes	Yes	Yes
Style fixed effects	Yes	Yes	Yes	Yes	Yes
Number of observations	4,322,245	4,323,736	4,443,135	4,444,260	4,322,245
Adj. R-Squared	0.258	0.257	0.257	0.257	0.258

Table 2 – CEO-fund manager similarity and portfolio choice (continued)

Panel B: Fraction of fund managers similar to the CEO

Dependent variable:	*ExcessWeight*				
Avg. PctMgrMatch	0.051 ***				
	(8.75)				
$PctMgrMatch^{Age}$		0.006 *			0.006 *
		(1.71)			(1.72)
$PctMgrMatch^{Ethnicity}$			0.023 ***		0.023 ***
			(8.10)		(7.74)
$PctMgrMatch^{Gender}$				0.026 ***	0.026 ***
				(6.62)	(6.44)
Stock and fund controls as in Panel A	Yes	Yes	Yes	Yes	Yes
Industry-time fixed effects	Yes	Yes	Yes	Yes	Yes
Style fixed effects	Yes	Yes	Yes	Yes	Yes
Number of observations	4,322,245	4,323,736	4,443,135	4,444,260	4,322,245
Adj. R-Squared	0.257	0.257	0.257	0.257	0.257

Table 3 – Robustness and alternative explanations

This table presents robustness checks for the baseline regression of Table 2. For brevity, we only report coefficients of interest and suppress control variables. If not indicated otherwise, the dependent variable is *ExcessWeight*, defined as in Table 2. In Panel A, we use alternative measures for the similarity between CEO and the fund's managers. $PctMgrMatch^{AgeGap3}$ and $PctMgrMatch^{AgeGap10}$ are the fraction of the fund's managers with an age distance to the CEO of less than 3 and 10 years, respectively. $PctMgrMatch^{SameAgeCohort}$ is the fraction of the fund's managers in the same age cohort as the CEO. $PctMgrMatch^{SameDecade}$ is the fraction of the fund's managers born in the same decade as the CEO. *Avg. age gap* is the average age distance between the fund managers and the CEO in years. $PctMgrMatch^{CensusEthnicity}$ is the fraction of fund managers with the same ethnicity (White, Black, Asian, or Hispanic), based on the Census 2000 ethnicity classification of surnames. $PctMgrMatch^{OnolyticsEthnicity}$ is the fraction of fund managers with the same ethnicity, based on the classification of first and last names using the Onolytics software. *SimilarityScore (Age+Ethnicity), SimilarityScore (Age+Gender), SimilarityScore (Ethnicity+Gender)* are the pairwise *SimilarityScores* based on the respective two dimensions. In Panel B, we rerun the baseline regression of Table 2 after eliminating either local stocks, stocks with educational ties, or both. Local stocks are defined as stocks of companies in a distance of less than 100 kilometres from the fund's management company. Educational ties exist if at least one fund manager attended the same university as the CEO. In Panel C, we modify the empirical approach. Results are presented for the *SimilarityScore*. We modify the specification either by estimating the regression without controls and fixed effects or by replacing the dependent variable *ExcessWeight* with the normal portfolio weight of the stock, with the relation between *ExcessWeight* and the average weight of the stock in the segment, or with an indicator variable equal to one if *ExcessWeight* is positive, and zero otherwise. We also modify the regression specification by adding either, fund fixed effects, family-time fixed effects, fund-stock fixed effects, or stock-time fixed effects. In addition, we report results of a Fama and MacBeth (1973) regression with Newey and West (1987) adjusted standard errors using a lag length parameter of four and of a weighted matched sample, where weights are based on a propensity score matching. The treatment group is either defined as observations with a positive *SimilarityScore* or with the maximum *SimilarityScore*. Propensity scores are calculated by running a logistic regression of a treatment indicator on the same control variables as in Table 2. If not indicated otherwise, the regressions include style and industry-time fixed effects. t-statistics are based on standard errors clustered at the fund-stock level.

Panel A: Alternative similarity measures

	Coeff.	t-statistic	Number of observations
$PctMgrMatch^{AgeGap10}$	0.007	2.96	4,323,736
$PctMgrMatch^{AgeGap3}$	0.008	2.10	4,323,736
$PctMgrMatch^{SameDecade}$	0.014	4.25	4,323,736
$PctMgrMatch^{SameAgeCohort}$	0.009	3.09	4,323,736
Avg. age gap	-0.001	-3.68	4,323,736
$PctMgrMatch^{CensusEthnicity}$	0.057	10.19	2,580,211
$PctMgrMatch^{OnolyticsEthnicity}$	0.024	7.19	2,972,184
SimilarityScore (only age+ethnicity)	0.034	14.35	4,322,598
SimilarityScore (only age+gender)	0.066	26.83	4,323,383
SimilarityScore (only ethnicity+gender)	0.065	31.93	4,442,772

Table 3 – Robustness and alternative explanations (continued)

Panel B: Exclude local stocks and educational networks

	Coeff. *SimilarityScore*	t-statistic	Number of observations
Exclude local stocks	0.057	32.04	3,753,822
Exclude educational networks	0.050	25.46	3,623,975
Exclude local stocks + educational networks	0.052	27.00	3,142,293

Panel C: Alternative estimation methods

	Coeff. *SimilarityScore*	t-statistic	Number of observations
Without controls or fixed effects	0.083	48.96	5,728,174
Normal portfolio weight	0.067	34.37	4,322,245
ExcessWeight/Weight in style	0.059	32.20	4,322,245
I (ExcessWeight>0)	0.030	37.40	4,322,245
Fund fixed effects	0.010	5.59	4,322,245
Fund-stock fixed effects	0.012	5.70	4,176,391
Stock-time fixed effects	0.063	31.53	4,322,643
Family-time fixed effects	0.025	13.42	4,322,155
Fama and MacBeth (1973)	0.032	6.66	4,322,643
Weighted sample: SimilarityScore>0	0.012	2.90	6,615,785
Weighted sample: Max. SimilarityScore	0.019	2.43	193,391

Table 4 – Similarity-based investing and CEO decision-making power

This table presents results from pooled regressions on the relation between the excess weight in a stock and the similarity between fund manager and CEO when adding several measures of CEO decision-making power and their interaction with the *SimilarityScore*. The dependent variable is *ExcessWeight*, defined as in Table 2. The main independent variable is *SimilarityScore*, defined as in Table 2, as well as its interaction with several interaction variables (*Int*). The regressions include the same fund- and stock-level control variables as in Table 2. The interaction variable in the first column is *CEO duality*, which is an indicator variable equal to one if the CEO is also chairman of the board, and zero otherwise. In the second column, the interaction variable *CEO only insider*, which is an indicator variable that equals one if the CEO is the sole insider on the board (zero otherwise). In the third column, the interaction variable is *Entrenched CEO*, which is an indicator variable that equals one if the firm's entrenchment index (Bebchuk, Cohen, and Ferrell (2009)) is above the median in a given quarter (zero otherwise). Regressions are run with industry-time and style fixed effects. A constant is included in all regressions but not reported for brevity. t-statistics (reported in parentheses) are based on standard errors clustered at the fund-stock level. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Dependent variable:	Excess weight		
Interaction variable (Int):	CEO duality	CEO only insider	Entrenched CEO
SimilarityScore × Int	**0.008*** **	**0.010*** **	**0.013*** **
	(2.98)	**(2.95)**	**(4.01)**
SimilarityScore	0.053***	0.052***	0.052***
	(23.23)	(16.44)	(18.13)
Int	-0.001	-0.006	-0.008**
	(-0.22)	(-1.52)	(-2.07)
Stock and fund controls	Yes	Yes	Yes
Industry-time fixed effects	Yes	Yes	Yes
Style fixed effects	Yes	Yes	Yes
Number of observations	4,162,198	2,967,356	2,967,356
Adj. R-Squared	0.260	0.267	0.267

Table 5 – Changes in similarity around CEO turnovers

This table presents results from pooled regressions on the relation of the decision to sell a stock in the quarter of a CEO turnover event and the change in similarity to the CEO around the event. The dependent variable in Panel A and B is *Sell*, an indicator variable equal to one if the fund has decreased its number of shares in the stock in the quarter of the turnover event, i.e., switch quarter, and zero otherwise. We limit the analysis to funds whose managers do not switch in the quarter of the CEO turnover. The main independent variables are the *SimilarityIncrease* dummies, which are, respectively, equal to one if the *SimilarityScore* or the individual *AllMatch* dummy (for age, ethnicity, or gender) increases, and zero otherwise. In Panel B, we eliminate initiating buys, i.e., observations with a zero pre-switch weight, where pre-switch weight represents the portfolio weight of the fund in the stock (in percent) at the end of the quarter before the turnover event. Panel C presents results from pooled regressions on the relation of the decision to decrease the portfolio weight in a stock a stock in the year after the CEO's sudden death and the change in similarity to the CEO around the death event. We limit the analysis to sudden deaths where the successor is announced in the six months after the death at the latest. We only focus on funds whose managers do not change after the event. In Panel C, the dependent variable *Sell* is an indicator variable equal to one if the fund has decreased its portfolio weight in the stock in the year after the death compared to the portfolio weight right before the event, and zero otherwise. All regressions are run with stock-time fixed effects. A constant is included in all regressions but not reported for brevity. t-statistics (reported in parentheses) are based on standard errors clustered at the fund-stock level. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Panel A: Baseline result

Dependent variable:	Sell			
	Score	*Age*	*Ethnicity*	*Gender*
SimilarityIncrease	**-0.028 *** **	**-0.021 *** **	**-0.053 *** **	**-0.043 * **
	(-6.69)	**(-4.59)**	**(-8.97)**	**(-1.67)**
Stock-time fixed effects	Yes	Yes	Yes	Yes
Number of observations	102,725	102,789	109,176	109,198
Adj. R-Squared	0.032	0.031	0.032	0.031

Panel B: Drop initiating buys

Dependent variable:	Sell			
	Score	*Age*	*Ethnicity*	*Gender*
SimilarityIncrease	**-0.033 *** **	**-0.024 *** **	**-0.065 *** **	**-0.051 * **
	(-7.19)	**(-4.71)**	**(-10.08)**	**(-1.84)**
Stock-time fixed effects	Yes	Yes	Yes	Yes
Number of observations	89,786	89,848	95,334	95,356
Adj. R-Squared	0.039	0.039	0.040	0.039

Panel C: Sudden CEO deaths only

Dependent variable:	Sell			
	Score	*Age*	*Ethnicity*	*Gender*
SimilarityIncrease	**-0.066 ** **	**-0.029**	**-0.128 *** **	**-0.357 *** **
	(-2.06)	**(-0.85)**	**(-3.05)**	**(-3.90)**
Stock-time fixed effects	Yes	Yes	Yes	Yes
Number of observations	1,341	1,341	1,378	1,378
Adj. R-Squared	0.085	0.082	0.088	0.082

Table 6 – Performance of buys and sells

This table presents results from pooled OLS regressions that analyze the impact of similarity on the performance of trades in the next quarter. The dependent variable is the next-quarter stock performance. Stock performance is either the compounded stock-characteristic adjusted stock return within the quarter of Daniel, et al. (1997) (*DGTW*) or the Carhart (1997) 4-factor alpha of the stock (*Carhart alpha*). To obtain the Carhart alpha, we take the difference of realized and expected return. We calculate the expected excess return of the stock as the sum of the products of estimated factor loadings and current factor values, where factor loadings are estimated over the prior 24 months. *Buy* is an indicator variable equal to one if the fund has increased the number of shares in a stock during the quarter, and zero otherwise. *Similarity* represents either the *PctMgrMatch* variable in the age, ethnicity or gender dimension, the corresponding *AllMatch* dummy variable, or the *SimilarityScore*, all defined as in Table 2. Panel A reports results for the *SimilarityScore*, while in Panel B, C, and D, similarity is measured for the age, ethnicity, or gender dimension, respectively. Stock-level control variables are the same as in Table 2, valid in the quarter preceding the stock performance calculation, and suppressed for brevity. Regressions are run with fund-time and industry-time fixed effects. t-statistics (reported in parentheses) are based on standard errors clustered at the fund-stock level. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Panel A: Similarity score

	Stock performance	
Dependent variable:	DGTW	Carhart alpha
	SimilarityScore	*SimilarityScore*
Similarity × Buy	**0.111 *** **	**0.104 *** **
	(5.04)	**(4.11)**
Buy	-0.105 ***	-0.138 ***
	(-4.72)	(-4.59)
Similarity	0.098 ***	0.035
	(5.33)	(1.33)
Stock controls	Yes	Yes
Fund-time fixed effects	Yes	Yes
Industry-time fixed effects	Yes	Yes
Number of observations	4,731,427	4,671,402
Adj. R-Squared	0.133	0.138

Table 6 – Performance of buys and sells (continued)

Panel B: Similarity in age

	Stock performance			
Dependent variable:	DGTW		Carhart alpha	
	PctMgrMatch	*AllMatch*	*PctMgrMatch*	*AllMatch*
Similarity × Buy	**0.156 *** **	**0.168 *** **	**0.099 ***	**0.136 ** **
	(3.43)	**(3.38)**	**(1.87)**	**(2.36)**
Buy	-0.089 ***	-0.073 ***	-0.061 ***	-0.054 ***
	(-4.89)	(-4.42)	(-2.92)	(-2.84)
Similarity	-0.097 ***	-0.079 **	0.069 *	0.038
	(-2.76)	(-2.01)	(1.66)	(0.83)
Stock controls	Yes	Yes	Yes	Yes
Fund-time fixed effects	Yes	Yes	Yes	Yes
Industry-time fixed effects	Yes	Yes	Yes	Yes
Number of observations	4,732,698	4,732,698	4,672,675	4,672,675
Adj. R-Squared	0.133	0.133	0.138	0.138

Panel C: Similarity in ethnicity

	Stock performance			
Dependent variable:	DGTW		Carhart alpha	
	PctMgrMatch	*AllMatch*	*PctMgrMatch*	*AllMatch*
Similarity × Buy	**-0.069 ***	**-0.077 ***	**-0.046**	**-0.074**
	(-1.70)	**(-1.78)**	**(-0.99)**	**(-1.48)**
Buy	-0.043 **	-0.051 ***	-0.031	-0.033 *
	(-2.24)	(-3.07)	(-1.41)	(-1.76)
Similarity	0.072 **	0.067 *	-0.170 ***	-0.111 ***
	(2.27)	(1.87)	(-4.63)	(-2.67)
Stock controls	Yes	Yes	Yes	Yes
Fund-time fixed effects	Yes	Yes	Yes	Yes
Industry-time fixed effects	Yes	Yes	Yes	Yes
Number of observations	4,862,812	4,862,812	4,800,981	4,800,981
Adj. R-Squared	0.133	0.133	0.138	0.138

Table 6 – Performance of buys and sells (continued)

Panel D: Similarity in gender

	Stock performance			
Dependent variable:	DGTW		Carhart alpha	
	PctMgrMatch	*AllMatch*	*PctMgrMatch*	*AllMatch*
Similarity × Buy	**0.306 *** **	**0.242 *** **	**0.161 ** **	**0.224 *** **
	(5.00)	**(7.06)**	**(2.28)**	**(5.65)**
Buy	-0.330 ***	-0.234 ***	-0.185 ***	-0.203 ***
	(-5.90)	(-8.06)	(-2.87)	(-6.06)
Similarity	0.879 ***	0.848 ***	1.097 ***	0.986 ***
	(13.24)	(13.46)	(13.88)	(13.08)
Stock controls	Yes	Yes	Yes	Yes
Fund-time fixed effects	Yes	Yes	Yes	Yes
Industry-time fixed effects	Yes	Yes	Yes	Yes
Number of observations	4,863,621	4,863,621	4,801,790	4,801,790
Adj. R-Squared	0.133	0.133	0.138	0.138

Table 7 – Fund performance

This table presents results from pooled OLS regressions on the relation of quarterly mutual fund performance and the lagged propensity to invest in similar CEOs *(Similarity Overweighting)* using Carhart (1997) 4-factor alphas, based on gross-of-fee returns (specification 1) and net-of-fee returns (specification 2). The performance measures are presented in percent. The main independent variable is *Similarity Overweighting*, which measures a fund's probability to invest in CEOs who are similar to the fund's managers. The variable is calculated as the average of the deviations of the fund's weight in its manager's age cohort, ethnicity, and gender from the average weight of the respective characteristic in the investment style, divided by the average weight of the characteristic in the investment style. Additional independent controls at the fund level are the same as in Table 2. All independent variables are valid as of the end of the quarter preceding the fund performance calculation. Regressions are run with time and style fixed effects. t-statistics reported in parentheses are based on standard errors clustered at the fund level. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Dependent variable:	Carhart alpha	
	Gross-of-fee returns	*Net-of-fee returns*
Similarity Overweighting	**0.024 ****	**0.024 ****
	(2.38)	**(2.36)**
Team	-0.064 **	-0.063 **
	(-2.10)	(-2.08)
Fund size	-0.045 ***	-0.044 ***
	(-4.40)	(-4.40)
Fund age	0.097 ***	0.095 ***
	(4.05)	(4.04)
Turnover ratio	-0.088 ***	-0.090 ***
	(-2.99)	(-3.07)
Expense ratio	-6.544	-28.234 ***
	(-1.31)	(-6.75)
Quarterly fund flows	-0.077	-0.066
	(-0.82)	(-0.71)
Stock concentration	-0.310	-0.255
	(-0.31)	(-0.26)
Size score	-0.021	-0.020
	(-0.53)	(-0.53)
Value score	-0.129 ***	-0.128 ***
	(-2.83)	(-2.83)
Momentum score	-0.052	-0.053
	(-1.20)	(-1.21)
Family size	0.008	0.009 *
	(1.53)	(1.66)
Style fixed effects	Yes	Yes
Time fixed effects	Yes	Yes
Number of observations	51,935	51,935
Adj. R-Squared	0.079	0.083

Knowing Me, Knowing You?

Similarity to the CEO and Fund Managers' Investment Decisions

February 2018

Appendix

This Appendix presents additional results to accompany the paper "Knowing Me, Knowing You? Similarity to the CEO and Fund Managers' Investment Decisions".

Table A1 – CEO-fund manager similarity and portfolio choice: Controlling for CEO demographics

This table presents results from pooled regressions on the relation of a fund's excess portfolio weight in a stock and the similarity of the CEO with the fund's managers. The dependent variable is *ExcessWeight*, defined as the portfolio weight of the stock in the fund portfolio (in percent) minus the average weight of the stock in portfolios of the fund's investment style. The regressions are similar to those in Panel A of Table 2 except for additional controls for CEO demographics. These controls are *CEO age*, defined as the natural logarithm of the CEO's age in years, *CEO gender*, which is an indicator variable equal to one if the CEO is female, and CEO ethnicity fixed effects. *SimilarityScore* is the sum of the three *AllMatch* dummies. *AllMatch* is an indicator variable equal to one if all of the fund's managers have the same age, ethnicity, or gender as the CEO, and zero otherwise. Additional independent controls at the stock level are the natural logarithm of *Firm Size*, the natural logarithm of *Firm Age*, the *Book-to-market ratio*, *Quarterly return*, *Quarterly stock turnover*, *Quarterly volatility*, and *Amihud illiquidity*, all defined as in Table 1. At the fund level, we control for the *Team* dummy, the natural logarithm of *Fund size*, the natural logarithm of *Fund age*, the *Turnover ratio*, the *Expense ratio*, *Quarterly fund flows*, *Stock concentration*, *Size score*, *Value score*, *Momentum Score*, and the natural logarithm of *Family size*, all defined as in Table 1. All control variables except for the *Team* dummy are valid as of the end of the quarter preceding the calculation of the dependent variable. A constant is included in all regressions but not reported for brevity. Regressions are run with industry-time and style fixed effects. t-statistics reported in parentheses are based on standard errors clustered at the fund-stock level. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Dependent variable:	*ExcessWeight*			
SimilarityScore	**0.061 *****			
	(31.47)			
AllMatch^{Age}		**0.027 *****		
		(7.26)		
AllMatch^{Ethnicity}			**0.048 *****	
			(13.73)	
AllMatch^{Gender}				**0.090 *****
				(28.94)
CEO age	0.034 ***	0.015 *	0.002	0.003
	(3.95)	(1.75)	(0.22)	(0.36)
CEO gender	0.052 ***	0.008	0.006	0.072 ***
	(8.26)	(1.34)	(1.00)	(11.12)
CEO ethnicity fixed effects	Yes	Yes	Yes	Yes
Stock controls	Yes	Yes	Yes	Yes
Fund controls	Yes	Yes	Yes	Yes
Industry-time fixed effects	Yes	Yes	Yes	Yes
Style fixed effects	Yes	Yes	Yes	Yes
Number of observations	4,322,245	4,323,383	4,433,235	4,434,723
Adj. R-Squared	0.258	0.257	0.257	0.259

Table A.2 – Sub-portfolio weights of CEO characteristics

This table presents results from regressions on the impact of similarity between a fund's managers and the CEO on the aggregate weights of CEO characteristics. We present separate results for similarity based on age cohort, on ethnicity, or on gender. The dependent variable is the fund's excess weight of an age cohort, ethnicity, or of female CEOs, measured as the fund's portfolio weight in the respective group relative to the average weight of the group in the fund's investment style. If a particular group is not held by a fund, we assign a sub-portfolio weight of zero. In Panel A, we report results of pooled OLS regressions with the excess sub-portfolio weight as dependent variable. The main independent variables are the respective *PctMgrMatch* or the *AllMatch* dummy, defined as in Table 2, and valid at the end of the quarter, for which we calculate portfolio weights. Additional control variables at the fund level are as in Table 2. All control variables except for *Team* are valid at the beginning of the quarter, for which we calculate portfolio weights. Regressions are run with time and style fixed effects. t-statistics reported in parentheses are based on standard errors clustered by fund. In Panel B, we run a Fama and MacBeth (1973) regression. t-statistics reported in parentheses are based on Newey and West (1987) adjusted standard errors using a lag length parameter of four. The regressions include the same independent variables as in Panel A as well as style fixed effects. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Table A.2 – Sub-portfolio weights of CEO characteristics (continued)

Panel A: Pooled OLS regressions

Dependent variable:	Excess sub-portfolio weight					
	Age cohort		Ethnicity		Female	
PctMgrMatch	**0.264 ****		**0.380 *****		**0.132**	
	(2.41)		**(3.18)**		**(1.31)**	
AllMatch		**0.319 *****		**0.410 *****		**0.212 ***
		(2.61)		**(2.73)**		**(1.67)**
Team	0.038 **	0.067 ***	0.028 ***	0.052 ***	0.037	0.056
	(2.22)	(3.29)	(2.73)	(3.95)	(0.82)	(1.20)
Fund size	-0.017 ***	-0.016 ***	-0.010 ***	-0.010 ***	-0.034 **	-0.034 **
	(-2.90)	(-2.78)	(-2.88)	(-2.77)	(-2.03)	(-2.02)
Fund age	0.011	0.010	0.007	0.006	0.049	0.049
	(0.81)	(0.74)	(0.84)	(0.72)	(1.38)	(1.37)
Turnover ratio	-0.035 ***	-0.035 ***	-0.019 **	-0.018 **	-0.019	-0.020
	(-2.58)	(-2.60)	(-2.40)	(-2.32)	(-0.72)	(-0.75)
Expense ratio	-9.588 ***	-9.562 ***	-5.385 ***	-5.389 ***	-4.384	-4.410
	(-3.30)	(-3.29)	(-3.21)	(-3.21)	(-0.89)	(-0.90)
Quarterly fund flows	-0.011	-0.011	-0.010	-0.010	-0.025	-0.025
	(-0.90)	(-0.85)	(-1.32)	(-1.32)	(-0.61)	(-0.61)
Stock concentration	-1.517	-1.519	-0.960	-0.972	-0.857	-0.868
	(-1.11)	(-1.10)	(-1.14)	(-1.15)	(-0.68)	(-0.69)
Size score	0.462 ***	0.462 ***	0.281 ***	0.281 ***	-0.120 **	-0.120 **
	(18.93)	(18.89)	(19.44)	(19.31)	(-2.53)	(-2.53)
Value score	-0.286 ***	-0.284 ***	-0.175 ***	-0.174 ***	0.345 ***	0.346 ***
	(-11.62)	(-11.49)	(-11.75)	(-11.65)	(4.50)	(4.51)
Momentum score	0.062 ***	0.063 ***	0.036 ***	0.036 ***	-0.100 **	-0.101 **
	(3.64)	(3.64)	(3.47)	(3.49)	(-2.26)	(-2.27)
Family size	-0.002	-0.002	-0.001	-0.001	-0.012	-0.011
	(-0.47)	(-0.52)	(-0.61)	(-0.60)	(-1.17)	(-1.16)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Style fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	366,120	366,120	618,215	618,215	46,989	46,989
Adj. R-Squared	0.005	0.005	0.003	0.003	0.010	0.011

Table A.2 – Sub-portfolio weights of CEO characteristics (continued)

Panel B: Fama and MacBeth (1973) regressions

Dependent variable:	Excess sub-portfolio weight					
	Age cohort		Ethnicity		Female	
PctMgrMatch	**0.230 *****		**0.424 *****		**0.134 *****	
	(3.50)		**(4.95)**		**(3.34)**	
AllMatch		**0.302 *****		**0.452 *****		**0.233 *****
		(3.99)		**(4.38)**		**(4.03)**
Team	0.027 *	0.054 ***	0.022 ***	0.049 ***	0.041	0.061 **
	(1.90)	(2.77)	(2.88)	(8.06)	(1.62)	(2.35)
Fund size	-0.013 ***	-0.013 **	-0.008 **	-0.008 **	-0.027 *	-0.027 *
	(-2.71)	(-2.55)	(-2.45)	(-2.37)	(-1.75)	(-1.72)
Fund age	0.005	0.005	0.004	0.004	0.041	0.041
	(0.75)	(0.64)	(0.85)	(0.70)	(1.13)	(1.11)
Turnover ratio	-0.047 ***	-0.047 ***	-0.026 ***	-0.025 ***	-0.019	-0.020
	(-2.94)	(-2.97)	(-3.01)	(-2.97)	(-0.99)	(-1.02)
Expense ratio	-9.613 ***	-9.612 ***	-5.344 ***	-5.342 ***	-6.064 *	-6.136 *
	(-7.34)	(-7.30)	(-6.88)	(-6.85)	(-1.82)	(-1.85)
Quarterly fund flows	-0.010	-0.009	-0.008	-0.008	-0.004	-0.005
	(-0.61)	(-0.58)	(-0.89)	(-0.86)	(-0.14)	(-0.15)
Stock concentration	-3.762 ***	-3.767 ***	-2.290 ***	-2.314 ***	0.793	0.792
	(-4.09)	(-4.08)	(-4.01)	(-4.02)	(0.70)	(0.70)
Size score	0.526 ***	0.527 ***	0.318 ***	0.319 ***	-0.161 **	-0.161 **
	(6.23)	(6.24)	(6.21)	(6.20)	(-2.33)	(-2.32)
Value score	-0.315 ***	-0.313 ***	-0.193 ***	-0.191 ***	0.304 ***	0.306 ***
	(-8.28)	(-8.19)	(-8.32)	(-8.35)	(3.13)	(3.14)
Momentum score	0.059 *	0.059 *	0.032	0.032	-0.104	-0.104
	(1.84)	(1.82)	(1.59)	(1.61)	(-1.11)	(-1.12)
Family size	-0.006 ***	-0.006 ***	-0.004 ***	-0.004 ***	-0.009	-0.009
	(-3.46)	(-3.65)	(-3.87)	(-3.97)	(-1.46)	(-1.46)
Style fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	366,120	366,120	618,215	618,215	46,989	46,989
Avg. R-Squared	0.007	0.007	0.006	0.006	0.049	0.050

Table A.3 – Performance of buys and sells: Controlling for CEO demographics

This table presents results from pooled OLS regressions that analyze the impact of similarity on the performance of trades in the next quarter. The regressions are similar to those in Table 6, except for additional controls for CEO demographics. These controls are *CEO age*, defined as the natural logarithm of the CEO's age in years, *CEO gender*, which is an indicator variable equal to one if the CEO is female, and CEO ethnicity fixed effects. The dependent variable is the next-quarter stock performance. Stock performance is either the compounded stock-characteristic adjusted stock return within the quarter of Daniel, et al. (1997) (*DGTW*) or the Carhart (1997) 4-factor alpha of the stock (*Carhart alpha*). Stock-level control variables are the same as in Table 2, valid in the quarter preceding the stock performance calculation, and suppressed for brevity. Regressions are run with fund-time and industry-time fixed effects. t-statistics (reported in parentheses) are based on standard errors clustered at the fund-stock level. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Dependent variable:	DGTW				Carhart alpha			
	SimilarityScore	*AllMatch^{Age}*	*AllMatch^{Ethnicity}*	*AllMatch^{Gender}*	*SimilarityScore*	*AllMatch^{Age}*	*AllMatch^{Ethnicity}*	*AllMatch^{Gender}*
Similarity × Buy	**0.114 *** **	**0.169 *** **	**-0.072 * **	**0.237 *** **	**0.110 *** **	**0.135 ** **	**-0.063 **	**0.219 *** **
	(5.16)	**(3.39)**	**(-1.65)**	**(6.92)**	**(4.34)**	**(2.34)**	**(-1.27)**	**(5.54)**
Buy	-0.163 ***	-0.074 ***	-0.052 ***	-0.231 ***	-0.144 ***	-0.055 ***	-0.036 *	-0.201 ***
	(-6.29)	(-4.48)	(-3.15)	(-7.95)	(-4.81)	(-2.89)	(-1.90)	(-5.99)
Similarity	-0.041 *	-0.075 *	0.058	-0.086	-0.045	-0.054	0.043	-0.088
	(-1.70)	(-1.89)	(1.56)	(-0.87)	(-1.61)	(-1.16)	(1.00)	(-0.74)
CEO age	-0.039	-0.043	-0.059	-0.059	-0.847 ***	-0.846 ***	-0.872 ***	-0.873 ***
	(-0.62)	(-0.67)	(-0.97)	(-0.97)	(-11.32)	(-11.12)	(-11.99)	(-12.00)
CEO gender	-1.058 ***	-1.070 ***	-1.065 ***	-1.040 ***	-1.245 ***	-1.253 ***	-1.243 ***	-1.226 ***
	(18.93)	(19.80)	(19.91)	(12.10)	(18.48)	(19.20)	(19.28)	(11.80)
CEO ethnicity fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stock controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund-time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	4,731,250	4,732,213	4,850,244	4,851,370	4,671,220	4,672,185	4,788,980	4,790,106
Adj. R-Squared	0.133	0.133	0.133	0.133	0.138	0.138	0.138	0.138

Table A.4 – Performance of net buys and net sells

This table presents results from pooled OLS regressions similar to those in Table 6. We replace the *Buy* indicator with a net buy indicator (*NB*) as in Kempf, Manconi, and Spalt (2017). *NB* is an indicator variable equal to one if the portfolio weight of the stock in the fund portfolio is higher than the portfolio weight that the stock would have if the fund had not changed its stock holdings from the previous quarter. t-statistics (reported in parentheses) are based on standard errors clustered at the fund-stock level. ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Dependent variable:	DGTW	Carhart alpha
Similarity Score × NB	**0.042 ****	**0.063 *****
	(2.28)	**(2.96)**
NB	-0.105 ***	-0.113 ***
	(-4.72)	(-4.43)
Similarity Score	0.098 ***	0.056 ***
	(5.33)	(2.59)
Stock controls	Yes	Yes
Fund-time fixed effects	Yes	Yes
Industry-time fixed effects	Yes	Yes
Number of observations	6,224,503	6,154,285
Adj. R-Squared	0.128	0.257

Table A.5 – Holdings performance

This table presents results from pooled OLS regressions that analyze the impact of similarity on the performance of stock holdings in the next quarter. The dependent variable is the next-quarter risk-adjusted stock performance, measured as a Carhart (1997) 4-factor alpha and defined as in Table 7. The main independent variables are either the *PctMgrMatch* variable in in the age, ethnicity, or gender dimension, the corresponding *AllMatch* dummy variable, or the *SimilarityScore*, all defined as in Table 2. Stock-level control variables are the same as in Table 2, valid in the quarter preceding the stock performance calculation, and suppressed for brevity. Regressions are run with fund-time and industry-time fixed effects. t-statistics (reported in parentheses) are based on standard errors clustered at the fund-stock level. Regressions are run with fund-time fixed effects and t-statistics (reported in parentheses) are based on standard errors clustered at the fund level ***, **, * denote statistical significance at the 1%, 5%, and 10% significance level, respectively.

Dependent variable:	Carhart alpha						
SimilarityScore	**0.076 *** **						
	(3.85)						
PctMgrMatch^{Age}		0.132 ***					
		(4.93)					
AllMatch^{Age}			0.096 ***				
			(3.23)				
PctMgrMatch^{Ethnicity}				-0.194 ***			
				(-8.18)			
AllMatch^{Ethnicity}					-0.149 ***		
					(-5.43)		
PctMgrMatch^{Gender}						1.152 ***	
						(18.08)	
AllMatch^{Gender}							1.097 ***
							(16.74)
Stock controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund-time f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-time f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5,516,503	5,518,881	5,518,881	5,665,820	5,665,820	5,667,510	5,667,510
Adj. R-Squared	0.131	0.131	0.131	0.131	0.131	0.131	0.131