

Diverse Hedge Funds

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Abstract

We explore the value of diversity for hedge funds. We show that fund management teams with heterogeneous education backgrounds, experiences, and nationalities, outperform homogeneous teams by 3.59% to 6.23% per annum after adjusting for risk. An event study of diversity-enhancing manager team transitions together with an instrumental variable analysis that exploits the demographic diversity at hedge fund founders' hometowns help address endogeneity. Diverse teams outpace homogeneous teams by exploiting a wider range of long-horizon investment opportunities and avoiding behavioral biases. Diversity also allows hedge funds to circumvent capacity constraints. Consequently, performance persists more for diverse teams.

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1. Introduction

“Our goal is a level of diversity in investment management firms that reflects the diversity in the world in which we live.”

– David Swensen, CIO, Yale Investments Office, 2 October 2020.¹

Investment funds are often managed by teams of portfolio managers. Anecdotal evidence suggests that driven by homophily, portfolio managers prefer working alongside other managers with similar backgrounds. For instance, it is not uncommon for investment firms to be staffed by portfolio managers who attended the same university, worked at the same investment bank, or originate from the same country.² To address the diversity issues confronting asset management firms, industry associations have commissioned reports that seek to improve diversity and inclusion practices at investment management companies.³ Moreover, institutional investors such as the Yale University Endowment fund, the California Public Employees Retirement System, the John D. and Catherine T. MacArthur Foundation have begun to require that investment firms reveal the diversity of their ownership, leadership, and workforce, with a view towards compelling them to improve diversity.⁴ These developments beg the question: what are the implications of diversity (and by association homophily) for the performance of fund management teams?

In this study, we explore the value of diversity for hedge fund management teams. Whereas extensive research analyze gender diversity in corporate boardrooms and reach

¹See “Yale’s David Swensen puts money managers on notice about diversity.” *The Wall Street Journal*, 23 October 2020.

²For example, the vast majority of the partners at the now defunct Long-Term Capital Management worked at Salomon Brothers and attended the Massachusetts Institute of Technology (Lowenstein, 2000). Similarly, all the founding partners at Domeyard, a high-frequency trading hedge fund, graduated from the Massachusetts Institute of Technology (Cohen, Malloy, and Foreman, 2015).

³See, for example, “The Alternatives. A Practical Guide to How Hedge Fund Firms Large and Small Can Improve Diversity and Inclusion,” commissioned by the Alternative Investment Management Association (<https://www.aima.org/sound-practices/guides-to-sound-practices/the-alternatives.html>).

⁴See “Hedge funds face mounting pressure with diversity questionnaire,” *Bloomberg*, 10 November 2020. The pressure to address diversity extends to large corporations as well. See, for example, “Church of England steps up pressure on firms to improve diversity,” *The Guardian*, 17 January 2021, “Companies make bold promises about greater diversity, but there’s a long way to go,” *CNBC*, 11 June 2020, and “Five years of tech diversity reports – and little progress,” *Wired*, 1 October 2019.

mixed conclusions about its implications for firm value (Adams and Ferreira, 2009; Ahern and Dittmar, 2012; Kim and Starks, 2016), we focus on diversity measured along dimensions that more closely relate to manager functional expertise: education, work experience, and nationality.⁵ We argue that these dimensions better capture the prior training, experiences, and ethos of portfolio managers. For example, managers who enrolled in the same university likely took the same courses under the same professors. Similarly, managers who worked at the same investment bank likely attended the same training program for junior analysts and traders, and adopted the same workplace norms.⁶ Likewise, managers from the same country were likely moulded by the same schooling system during childhood. By analyzing diversity based on these dimensions, we can potentially provide greater clarity on the mechanisms through which diversity fosters variation in investment performance.

Theoretically, it is not clear that diversity should add value in asset management. Diverse teams could exploit a wider array of investment opportunities by harnessing the heterogeneous experiences and skill sets of their team members (Boone and Hendriks, 2009; Singh and Fleming, 2010; Corritore, Goldberg, and Srivastava, 2019), which should translate into superior investment returns. Moreover, by working alongside other managers from different backgrounds, fund managers in diverse teams could become more aware of their own biases and entrenched ways of thinking (Rock and Grant, 2016), and therefore avoid costly behavioral biases. Similarly, members of a heterogeneous team could more effectively serve as checks and balances for each other (Phillips, Liljenquist, and Neale, 2009), which should engender more prudent risk management and lower operational risk. Yet, based on the notion that similarity breeds connection (Ingram and Roberts, 2000; McPherson, Smith-Lovin, and Cook, 2001; Cohen, Frazzini and Malloy, 2008), the operational challenges associated with motivating, coordinating, and communicating with diverse team members could lead

⁵Specifically, Adams and Ferreira (2009) and Ahern and Dittmar (2012) show that gender diversity in the board reduces firm value while Kim and Starks (2016) argue that gender diversity can increase firm value when the inclusion of women increases the heterogeneity in functional expertise at the board. Gompers and Wang (2020) show that venture capital deal and fund performance improves following the hiring of female general partners at venture capital firms. However, their results may well be driven by the appointment of the new female partners as board directors for the portfolio companies backed by such venture capital firms. Our baseline performance results are qualitatively unchanged when we analyze diversity based on gender and ethnicity.

⁶Lewis (1989) provides a discussion of the training program at Salomon Brothers.

to execution problems that hurt performance.

The hedge fund industry is an important and interesting laboratory in which to study diversity for four reasons. First, hedge funds are regarded as some of the most sophisticated investors in financial markets (Brunnermeier and Nagel, 2004). They typically employ complex and relatively unconstrained strategies that involve short sales, derivatives, and leverage. The complex nature of their investment strategies should benefit from the heterogeneous skill sets possessed by a diverse team.⁷ The relative absence of investment constraints imply that they could fully exploit those diverse skill sets. In contrast, mutual funds pursue relatively simple and constrained strategies. Second, since hedge funds tend to be managed by small teams, which are more prone to homophily (Klocke, 2007), much of the economic benefits from diversity, if any, could be untapped. Indeed, anecdotal evidence suggests that hedge fund industry suffers from a diversity and inclusion problem.⁸ Third, diverse hedge funds by exploiting a wider range of investment opportunities could be more resilient to the capacity constraints that limit the investment gains from allocating capital to skilled managers (Berk and Green, 2004). Diversity could therefore have welfare implications for fund investors. Fourth, since hedge funds (with the exception of shareholder activists) do not typically appoint directors onto the boards of their portfolio companies, by analyzing hedge funds, as opposed to venture capital or private equity funds, one can more cleanly distinguish from the widely studied board diversity effects.

Our results suggest that team diversity is associated with superior investment performance. Portfolio sorts based on diversity measures that capture heterogeneity in manager education, work experience, and nationality indicate that diverse teams outperform homogeneous teams by between 5.25% to 5.80% per annum after adjusting for co-variation with the Fung and Hsieh (2004) factors. By limiting all our analyses to fund returns that are reported post database listing, we ensure that the results are free from backfill bias (Fung and Hsieh, 2009; Bhardwaj, Gorton, and Rouwenhorst, 2014; Jorion and Schwarz, 2019). We further show that differences in fund incentives (Agarwal, Daniel, and Naik, 2009), share-

⁷For example, an equity long/short hedge fund with portfolio managers that only have prior experience at long-only investment firms could benefit from hiring a portfolio manager with experience at a short seller.

⁸See “Hedge funds fall flat when it comes to diversifying their ranks,” Bloomberg, 7 October 2020.

holder restrictions (Aragon, 2007), age (Aggarwal and Jorion, 2010), and size (Getmansky, 2012; Ramadorai, 2013) cannot explain our findings. After accounting for the explanatory power of these fund characteristics, the abnormal returns of diverse teams still exceed those of homogeneous teams by between 3.59% to 6.23% per annum.

To allay concerns that our findings could be driven by risk exposures that are not captured by covariation with the Fung and Hsieh (2004) seven factors, we consider a myriad of possible omitted factors including the Fama and French (1993) value factor, the Carhart (1997) momentum factor, the Pástor and Stambaugh (2003) liquidity factor, the Agarwal and Naik (2004) call and put equity option-based factors, the Frazzini and Pedersen (2014) betting-against-beta factor, the Bali, Brown, and Caglayan (2014) macroeconomic uncertainty factor, the Fama and French (2015) profitability and investment factors, as well as an emerging markets equity factor. The abnormal return spread between diverse and homogeneous teams easily survives the inclusion of these additional factors in the performance evaluation model. The outperformance of diverse hedge funds extends beyond fund alpha. Relative to homogeneous funds, diverse funds deliver higher Sharpe ratios, information ratios, Goetzmann, Ingersoll, Spiegel, and Ross (2007) manipulation-proof performance measures, and Berk and van Binsbergen (2015) managerial skill.

Endogeneity does not explain the superior performance of hedge funds managed by diverse teams. To address concerns that time-invariant differences between homogeneous and diverse funds simultaneously explain diversity differences and variation in fund performance, we analyze the transition from a homogeneous team to a non-homogeneous team in an event study. We study scenarios whereby a homogeneous team improves diversity by hiring a new manager from a different background. Given their low baseline diversity levels, homogeneous teams should experience the greatest performance impact from an improvement in diversity.⁹ To allay concerns that observable time-varying differences in fund characteristics drive our results, we employ a difference-in-differences methodology. The difference-in-differences estimates indicate that relative to other similar homogeneous teams and to the prior 36-month period, homogeneous teams that enhance diversity see their risk-adjusted fund returns in-

⁹Homogeneous teams are teams where *all* members of the team attended the same university, or worked at the same firm, or have the same nationality.

crease by between 4.36% to 7.37% per annum in the 36-month period following the diversity improvement. Inferences remain qualitatively unchanged when we (i) vary the length of the event window, (ii) extend the sample to all teams, as opposed to only homogeneous teams, that experience diversity-enhancing manager additions or (iii) study manager additions that diminish diversity. To cater for unobserved time-varying differences between diverse and homogeneous funds, we run an instrumental variable analysis with the economic and racial diversity of the inhabitants at the hedge fund founding partner's hometown (or partners' hometowns) as the instrument and find that the impact of diversity on fund performance is even larger after instrumenting for team diversity. Our instrument leverages on the concept of organizational imprinting (Marquis and Tilcsik, 2013; Simsek, Fox, and Heavey, 2015) and is robust to alternative specifications.

Next, we test whether the superior performance of hedge funds operated by diverse teams can be attributed to diversity while shedding light on the underlying mechanisms. The diversity story posits that by leveraging on the heterogeneous skill sets, experiences, and backgrounds of their team members, diverse teams are able to exploit a wider range of investment opportunities. Consistent with this view, relative to homogeneous teams, diverse teams arbitrage more of the prominent stock anomalies identified by Stambaugh, Yu, and Yuan (2015). These stock anomalies include net stock issues, composite equity issues, accruals, net operating assets, asset growth, investment-to-assets, financial distress, O-score, momentum, gross profitability, and return on assets. The diversity story also predicts that hedge funds with long-term capital, which can therefore arbitrage the long-horizon investment opportunities envisaged by Stein (2005), are better placed to overcome the operational challenges associated with managing a diverse team. In line with this view, diverse teams outpace homogeneous teams more when they operate funds that impose longer redemption, notice, and lock-up periods. Finally, consonant with the notion that working alongside other managers from different backgrounds helps fund managers become more aware of their own biases and entrenched ways of thinking (Rock and Grant, 2016), diverse teams are less susceptible to behavioral biases. Specifically, relative to homogeneous teams, diverse teams are less prone to the disposition effect, overconfidence, and the preference for lotteries, which Odean (1998), Barber and Odean (2000, 2001), and Bali, Cakici, and Whitelaw (2011) argue

are detrimental to investment performance.

Team diversity confers other benefits for hedge funds. Consonant with the view that team members with heterogeneous experiences and backgrounds could more effectively serve as checks and balances for each other, we find that hedge funds operated by diverse teams are more prudent when managing risk. Their returns feature depressed residual volatilities, lower downside risks, smaller maximum monthly losses, and shallower maximum drawdowns, suggesting that they eschew idiosyncratic and tail risk. Moreover, in line with the notion that team diversity helps curb errant behavior by fund managers, hedge funds run by diverse teams exhibit lower operational risk (Brown, Goetzmann, Liang, and Schwarz, 2008; 2009; 2012). They are less likely to terminate their funds (after controlling for past investment performance), report fewer regulatory, civil, and criminal violations to the SEC, and feature lower ω -scores, an instrument for operational risk (Brown et al., 2009). Moreover, they are less likely to report suspicious fund returns that feature a paucity of negative returns, a discontinuity around zero, an adjusted R^2 that is statistically indistinguishable from zero, and a high number of repeated returns, transgressions that may be indicative of return misreporting and fraud (Bollen and Pool, 2009; 2012).¹⁰

Diversity also provides an interesting lens with which to explore the well-publicized capacity constraints (Getmansky, 2012; Ramadorai, 2013; Yin, 2016) and performance persistence (Agarwal and Naik, 2000; Kosowski, Naik, and Teo, 2007; Jagannathan, Malakhov, and Novikov, 2010) effects in hedge funds. We find that diverse teams, by exploiting more varied investment opportunities, are able to sidestep capacity constraints at the fund level. Consequently, capacity constraints mainly afflict funds operated by homogeneous teams. In line with the logic of Berk and Green (2004), we show that performance persists strongly among funds managed by diverse teams as they are better able to accommodate additional capital from return-chasing fund investors (Agarwal, Green, and Ren, 2018) without sacrificing future performance. In contrast, we observe little evidence of performance persistence among funds operated by homogeneous teams.

¹⁰One caveat is that as Jorion and Schwarz (2014) note, a return discontinuity around zero may instead reflect the imputation of incentive fees.

Our work provides novel results on the value of diversity in asset management. In doing so, we contribute to two strands of hedge fund research. The first strand investigates the underpinnings of hedge fund alpha and finds that motivated (Agarwal, Daniel, and Naik, 2009), geographically proximate (Teo, 2009), emerging (Aggarwal and Jorion, 2010), low R-squared (Titman and Tiu, 2011), and distinctive (Sun, Wang, and Zheng, 2012) hedge funds outperform. We show that hedge funds operated by diverse teams also outperform. The second strand studies the antecedents of hedge fund operational risk and finds that sensation seeking (Brown, Lu, Ray, and Teo, 2018) and manager testosterone (Lu and Teo, 2021) can lead to elevated operational risk. Our results suggest that homophily can also engender greater operational risk.

The results resonate with work on team diversity that has focused predominantly on the implications of gender diversity (Adams and Ferreira, 2009; Ahern and Dittmar; 2012; Kim and Starks; 2016) and other forms of diversity (Adams, Akyol, and Verwijmeren, 2018; Bernile, Bhagwat, and Yonker, 2018; Giannetti and Zhao, 2019) in *corporate boards*.¹¹ Exceptions include Bär, Niessen, and Ruenzi (2009) who obtain mixed results when studying the implications of heterogeneity in manager industry tenure, education duration, age, and gender for mutual fund performance, Gompers and Wang (2020) who find that gender diversity improves performance for venture capital funds, and Evans, Prado, Rizzo, and Zambrana (2021) who show that ideologically diverse mutual funds outperform ideologically homogeneous mutual funds by a modest 40 basis points per year.¹² To our best knowledge, we are the first to explore the implications of team diversity for hedge funds. By studying diversity based on dimensions that more closely relate to manager functional experience and expertise, i.e., educational institution, work experience, and nationality, we obtain more consistent and

¹¹Our findings also relate to work on homophily which shows that homophily can reduce the monitoring effectiveness of corporate boards (Hwang and Kim, 2009), increase the likelihood of outside appointees to the board (Berger, Kick, Koetter, and Schaeck, 2013), improve communication and coordination between venture capitalists and start-up executives (Hegde and Tumlinson, 2014), and increase the propensity by retail bank clients to follow financial advice (Stolper and Walter, 2018).

¹²Specifically, Bär, Niessen, and Ruenzi (2009) show that mutual fund performance is positively related to industry tenure and education duration diversity, not related to age diversity, and negatively related to gender diversity. While not directly related to our work since they do not investigate team diversity, Bär, Kempf, and Ruenzi (2011) show that team managed mutual funds tend to take on less extreme positions and are less likely to achieve extreme performance outcomes relative to non-team managed mutual funds.

economically larger estimates of the investment performance benefits from diversity relative to Bär, Niessen, and Ruenzi (2009) and Evans et al. (2021), respectively. Since hedge funds (unlike venture capital funds) do not typically appoint directors onto the boards of their portfolio companies, relative to those of Gompers and Wang (2020), our results are less confounded by board diversity effects. By relating diversity to the breath and duration of the investment opportunities that hedge funds pursue as well as their insusceptibility to behavioral biases, we provide insights into the mechanisms through which diversity improves investment outcomes.¹³

2. Data and methodology

2.1. Hedge fund data

We study the relation between team diversity and hedge fund performance using monthly net-of-fee returns and assets under management (henceforth AUM) data of live and dead hedge funds reported in the Lipper TASS, Morningstar, Hedge Fund Research (henceforth HFR), and BarclayHedge commercial databases from January 1994 to June 2016. We focus on data from January 1994 onward as the hedge fund commercial databases do not track dead funds prior to January 1994 and therefore contain survivorship bias.

In our fund universe, we have a total of 43,083 hedge funds comprising 17,368 live funds and 25,715 dead funds. In view of concerns that funds with multiple share classes could cloud the analysis, we exclude duplicate share classes from the sample. This leaves a total of 27,751 hedge funds, of which 10,228 are live funds and 17,523 are dead funds. While 6,996 funds appear in multiple databases, many funds belong to only one database. Specifically, there

¹³Manconi, Rizzo, and Spalt (2020) provide empirical evidence that firms with diverse top management teams are perceived negatively by the market. However, they do not provide insights into the underlying drivers of those biased expectations. Since they evaluate diversity by measuring the textual similarity of senior executive biographies, their findings could be confounded by similarities in the writing styles or choice of words employed in the biographies, which are unrelated to executive diversity. Their top-down measure of diversity, while computationally efficient, does not shed light on what types of diversity matter for investor expectations. Unlike them, we focus on the performance of diverse firms (in asset management) as opposed to *perceptions* of diverse firms and employ bottom-up diversity measures.

are 7,085, 3,336, 5,512, and 4,822 funds that appear only in the Lipper TASS, Morningstar, HFR, and BarclayHedge databases, respectively, highlighting the advantage of collecting hedge fund data from multiple databases. In addition to fund returns and AUM, the hedge fund databases contain information on fund manager names, fund fees, redemption terms, inception dates, investment strategies, and other fund characteristics.

As per Agarwal, Daniel, and Naik (2009), we classify funds into four broad investment styles: Security Selection, Multi-process, Directional Trader, and Relative Value. Security Selection funds take long and short positions in undervalued and overvalued securities, respectively. They typically take positions in equity markets. Multi-process funds employ multiple strategies that take advantage of significant events, such as spin-offs, mergers and acquisitions, bankruptcy reorganizations, recapitalizations, and share buybacks. Directional Trader funds wager on the direction of market prices of currencies, commodities, equities, and bonds in the futures and cash markets. Relative Value funds bet on spread relations between prices of financial assets while aiming to minimize market exposure.

As listing on commercial databases is not mandatory for hedge funds, hedge fund data are susceptible to self-selection biases. For example, hedge funds often include returns prior to fund listing dates onto the databases. Because funds that have good track records tend to go on to list on databases so as to attract investment capital, the backfilled returns tend to be higher than non-backfilled returns, which leads to a backfill bias (Liang, 2000; Fung and Hsieh, 2009; Bhardwaj, Gorton, and Rouwenhorst, 2014). To alleviate concerns about backfill bias, throughout this paper, we analyze hedge fund returns reported post fund database listing date. For funds from databases that do not provide listing date information, we rely on the Jorion and Schwarz (2019) algorithm to back out fund database listing dates.

In this paper, we estimate hedge fund performance relative to the Fung and Hsieh (2004) seven factors. The Fung and Hsieh (2004) factors are S&P 500 return minus risk free rate (SNPMRF), Russell 2000 return minus S&P 500 return (SCMLC), change in the constant maturity yield of the U.S. 10-year Treasury bond appropriately adjusted for the duration (BD10RET), change in the spread of Moody's BAA bond over 10-year Treasury bond appropriately adjusted for duration (BAAMTSY), bond PTFS (PTFSBD), currency PTFS

(PTFSFX), and commodity PTFS (PTFSCOM), where PTFS is primitive trend following strategy. Fung and Hsieh (2004) show that their seven-factor model captures up to 84% of the variation in aggregate hedge fund index returns.

2.2. Measuring diversity

We define team diversity as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. For example, if all the members of a team received degrees from Harvard University, the education-based team diversity measure is zero. Conversely, if none of the members of a team went to the same university, the education-based diversity team measure is one. Likewise, if all team members worked at Goldman Sachs at some point in their careers, the work experience-based team diversity measure is zero. If none of the team members worked at the same firm prior to running the fund, the work experience-based team diversity measure is one.

More formally, we have

$$DIVERSITY_EDU_{im} = 1 - \max_{u \in U} (UNIVERSITY_{im}^u) / T_{im} \quad (1)$$

$$DIVERSITY_EXP_{im} = 1 - \max_{w \in W} (WORKPLACE_{im}^w) / T_{im} \quad (2)$$

$$DIVERSITY_NATION_{im} = 1 - \max_{n \in N} (NATIONALITY_{im}^n) / T_{im} \quad (3)$$

where $DIVERSITY_EDU_{im}$, $DIVERSITY_EXP_{im}$, and $DIVERSITY_NATION_{im}$ are the education-, work experience-, and nationality-based team diversity measures for fund i in month m , T_{im} is the total number of team members for fund i in month m , $UNIVERSITY_{im}^u$ is the number of team members who studied at university u prior to month m , $WORKPLACE_{im}^w$ is the number of team members who worked at workplace w prior to month m , $NATIONALITY_{im}^n$ is the number of team members with nationality n

prior to month m , U is the set of all universities, W is the set of all workplaces, and N is the set of all nationalities.

An advantage of our measure is that it focuses on the strongest connection established across managers within a team, thereby avoiding some of the problems associated with other alternative measures of diversity. Specifically, a diversity measure based on the negative of the Herfindahl-Hirschman concentration index or on the Teachman (1980) entropy-based index may not accurately characterize team diversity for dimensions such as work experience and education whereby multiple institutions (i.e., past employers and universities) could be assigned to the same manager. For instance to compute the Herfindahl-Hirschman index education based diversity measure one would have to focus on say the undergraduate institution attended by each manager, effectively ignoring connections forged by managers who attended the same graduate school (e.g., Harvard Business School) or between managers who attended the undergraduate school and managers who attended the post graduate school within the same educational institution (e.g., Harvard College and Harvard Business School). Similarly to compute the Herfindahl-Hirschman index experience based diversity measure, one would have to focus on say the most recent past employer, ignoring valuable information from connections forged via previous past employers. A disadvantage of our measure is that it ignores other weaker secondary connections between managers in team. For example, if three members of a five-person team studied at Stanford University while the other two members attended Columbia University, the value of our education-based diversity measure would be the same as that for another five-person team where three members studied at Stanford University, the fourth member attended New York University, and the fifth member graduated from Yale University. We will show that our findings are qualitatively unchanged when we employ alternative diversity measures based on the negative of the Herfindahl-Hirschman index or on the Teachman (1980) index instead. An advantage of focusing on manager education, past employment, and nationality is that these dimensions more closely correspond to manager functional expertise and experience. Nonetheless, we will show that our inferences do not change when we study diversity based on gender or ethnicity.

To ensure that there are enough team members so that the team diversity measures can be sensibly computed, we limit the analysis to teams with three or more members.¹⁴ This reduces the sample of hedge funds to 13,367 funds of which 5,387 are live funds and 7,980 are dead funds. We obtain education institution and prior employment information for 2,540 managers operating 3,807 funds by manually searching manager LinkedIn pages and matching based on manager and fund management company names. We collect both the undergraduate and postgraduate educational institutions attended by the manager so as to accommodate connections between managers who attended different schools/programs within the same university (e.g., The College at the University of Chicago and the University of Chicago Booth School of Business). To determine manager nationality, we rely on nationalize.io, an application programming interface for predicting nationality from a name.¹⁵ We obtain manager nationality information for 9,392 managers running 11,615 funds. The nationality classification does not rely on LinkedIn data and, therefore, the analysis of the nationality-based diversity measure addresses any sample selection concerns related to the LinkedIn data. Table A1 of the Internet Appendix reveals that the differences in fund characteristics (except for lockup period) between funds with LinkedIn information and those without LinkedIn information are all statistically indistinguishable from zero. Therefore, we cannot reject the null that the LinkedIn sample is representative of the broader fund sample.

Panel A of Table 1 reports the top ten universities attended by, the former employers of, and nationalities of the hedge fund managers in our sample. The top ten universities include Harvard University, University of Pennsylvania, Columbia University, New York University, University of Chicago, Yale University, Cornell University, University of Virginia, Massachusetts Institute of Technology, and Stanford University.¹⁶ The top ten former em-

¹⁴As we shall show, inferences are qualitatively unchanged when we analyze funds managed by teams with two or more members. There are 16,307 such funds in our combined hedge fund database. Therefore, 58.76% of the funds in our sample are managed by teams with at least two members.

¹⁵See <https://nationalize.io/#overview>. In results that are available upon request, we show that our findings using the nationality-based diversity measure are robust to employing data from [Forebears.io](https://forebears.io) to estimate manager nationality. See <https://forebears.io/onograph/>.

¹⁶The set of top five universities attended by hedge fund managers reported in Panel A of Table 1 coincides with the set of top five universities attended by mutual fund portfolio managers reported in Table I of Cohen, Frazzini, and Malloy (2008): Harvard University, University of Pennsylvania, University of Chicago, New York University, and Columbia University.

ployers include Goldman Sachs, Morgan Stanley, Merrill Lynch, JP Morgan, UBS, Credit Suisse, Deutsche Bank, Lehman Brothers, Bear Stearns, and Citigroup. It is not surprising that these are all large financial institutions. It is unsurprising too that a significant proportion (32.33%) of the hedge fund managers in our sample are from the United States. The other nationalities in the top ten include Canada, France, Great Britain, Italy, Australia, China, India, the Czech Republic, and Denmark.

[Insert Table 1 here]

Panel B of Table 1 presents summary statistics from the distributions of the diversity measures as well as of the fund returns and characteristics from our hedge fund sample. We observe relatively more heterogeneity in the universities attended by members within the same hedge fund team and relatively less heterogeneity in the former workplaces and nationalities of members within the same team. The respective means for the diversity measures based on education, work experience, and nationality are 0.841, 0.670, and 0.661.¹⁷ Panel C of Table 1 reports summary statistics from the distributions of the diversity measures broken down by investment style. It shows that the diversity measures do not vary significantly across investment styles although there is some evidence that relative value funds tend to be more homogeneous at least in terms of education and work experience. Panel D of Table 1 reveals the correlations between the diversity measures, fund returns, and fund characteristics. It indicates that team diversity is positive correlated with fund returns, management fees, fund age, and redemption periods and negatively correlated with performance fees. One reason why diversity positively relates to fund age could be that diverse funds have a better survival rate. Also, the positive relation between fund redemption period and team diversity could be consistent with the notion that it may be relatively easier for diverse teams to harness the collective expertise of their team members if they have access to patient capital. We will explore the relation between team diversity and fund returns in greater detail and in a multivariate setting in Section 3.1.

¹⁷Based on the education, experience, and nationality team diversity measures, there are 322 (8.46%), 876 (23.01%), and 1,663 (14.32%) fully homogeneous funds, as well as 2,632 (69.14%), 1,501 (39.43%), and 6,060 (52.17%) fully diverse funds, respectively.

3. Empirical results

3.1. Fund investment performance

To understand the relation between team diversity and investment performance, for each of our diversity measures, we sort hedge funds into five equal-weighted groups based on their team diversity measures every January 1st. Portfolio 1 comprises hedge funds managed by diverse teams for which the diversity measure equals one. Portfolio 5 comprises hedge funds managed by homogeneous teams for which the diversity measure equals zero. Hedge funds operated by other teams are allocated to the remaining three portfolios based on team diversity.¹⁸ Next, we link the post-formation returns over the next 12 months across years to form a single return series for each portfolio. We then evaluate performance relative to the Fung and Hsieh (2004) seven-factor model and base statistical inferences on White (1980) heteroscedasticity consistent standard errors.

The results reported in Table 2 reveal that hedge funds managed by diverse teams outperform those managed by homogeneous teams. Panel A indicates that hedge fund teams with divergent education backgrounds outperform those with similar education backgrounds by an economically meaningful 5.25% per annum (t -statistic = 3.35) after adjusting for covariation with the Fung and Hsieh (2004) factors. Panels B and C suggest that hedge fund teams with disparate work experiences and nationalities also outperform teams with matching work experiences and nationalities by 5.25% per annum (t -statistic = 3.35) and 5.80% per annum (t -statistic = 2.60), respectively, after adjusting for risk. We obtain similar results when we focus on fund excess return instead of fund alpha.

[Insert Tables 2 and 3 here]

Table 3 reports results from several robustness tests for the portfolio sorts. It indicates that inferences do not change when we value-weight the portfolios nor do they change when

¹⁸Since the sort is based on team diversity, a discrete variable, the numbers of hedge funds in each of remaining three portfolios are very close but not necessarily identical to each other.

we exclude small funds with AUM below US\$50m, which are less relevant for large institutional investors. We also obtain similar results when we separately augment the Fung and Hsieh (2004) model with (i) the Fama and French (1993) *HML* value factor and the Carhart (1997) *UMD* momentum factor, (ii) the Fama and French (2015) *RMW* profitability and *CMA* investment factors, (iii) the Pástor and Stambaugh (2003) *PS* traded liquidity factor, (iv) the Frazzini and Pedersen (2014) *BAB* betting-against-beta factor, (v) the Bali, Brown, and Caglayan (2014) *MACRO* macroeconomic uncertainty factor, (vi) the Agarwal and Naik (2004) *CALL* out-of-the-money call option and *PUT* out-of-the-money put option factors, and (vii) the *EM* emerging markets factor derived from the MSCI Emerging Markets index.

One concern is that funds sorted on team diversity may differ significantly in other fund characteristics that explain fund performance. To determine the incremental explanatory power of team diversity on fund performance, we estimate the following pooled OLS regression:

$$\begin{aligned}
 ALPHA_{im} = & \alpha + \beta_1 DIVERSITY_i + \beta_2 MGT FEE_i + \beta_3 PER F FEE_i \\
 & + \beta_4 HWM_i + \beta_5 LOCKUP_i + \beta_6 LEVERAGE_i + \beta_7 AGE_{im-1} \\
 & + \beta_8 REDEMPTION_i + \beta_9 \log(FUNDSIZE_{im-1}) \\
 & + \sum_k \beta_{10}^k STRATEGYDUM_i^k + \sum_l \beta_{11}^l YEARDUM_m^l + \epsilon_{im}, \quad (4)
 \end{aligned}$$

where *ALPHA* is fund alpha, *DIVERSITY* is a placeholder for the team diversity measure, *MGT FEE* is management fee, *PER F FEE* is performance fee, *HWM* is the high-water mark indicator, *LOCKUP* is lock-up period, *LEVERAGE* is the leverage indicator, *AGE* is fund age since inception, *REDEMPTION* is redemption period, *FUNDSIZE* is fund AUM, *STRATEGYDUM* is the fund strategy dummy, and *YEARDUM* is the year dummy. Fund alpha is the monthly abnormal return from the Fung and Hsieh (2004) model, where the factor loadings are estimated over the prior 24 months.¹⁹ We estimate three sets of regressions that correspond to the following diversity measures: (i) *DIVERSITY_EDU* which measures diversity in education, (ii) *DIVERSITY_EXP* which captures diversity in work experience,

¹⁹Inferences do not change when we use factor loadings estimated over the past 36 months instead.

and (iii) *DIVERSITY_NATION* which encapsulates diversity in nationality. We also estimate the analogous regressions on monthly fund excess returns to ensure that our findings are not by-products of the risk adjustment methodology. Statistical inferences are based on White (1980) robust standard errors clustered by fund and month.

The regression results reported in Columns 1 to 6 of Table 4 reinforces the findings from the portfolio sorts. They indicate that after controlling for the explanatory power of various fund characteristics, team diversity is still positively related to fund performance. Specifically, the coefficient estimate on *DIVERSITY_EDU* reported in Column 2 indicates that a one-unit increase in education-based diversity is synonymous with an economically significant 6.23% per annum increase in fund alpha. Similarly, the coefficient estimates on *DIVERSITY_EXP* and *DIVERSITY_NATION* reported in Columns 4 and 6 reveal that one-unit increases in work experience- and nationality-based diversity are associated with 4.56% per annum and 3.59% per annum increases in fund alpha, respectively.

The signs of the coefficient estimates on the fund control variables broadly agree with the extant literature. As per Aggarwal and Jorion (2010), fund age is negatively associated with performance. Consonant with Getmansky (2012), Ramadorai (2013), and Yin (2016), fund size negatively relates to performance. In line with Aragon (2007), fund redemption period positively relates to performance.

[Insert Table 4 and Figure 1 here]

Figure 1 graphs three binned scatter plots that illustrate the relation between fund monthly abnormal returns and the three measures of team diversity. The lines of best fit through the scatter plots corroborate the central finding from the portfolio sorts and regressions, i.e., that diversity positively relates to fund performance.

Next, we conduct a series of tests to gauge the robustness of our regression results. First, to address concerns that hedge fund residuals may be correlated across different funds within the same month, we estimate Fama and MacBeth (1973) regressions on fund performance. We base statistical inferences on Newey and West (1987) standard errors with lag structure as per Newey and West (1994). Second, to verify that our findings are not affected by

incubation bias (Fung and Hsieh, 2009), we rerun the regressions after excluding the first 24 months of returns for each fund. Third, to check that serial correlation in fund returns is not inflating the test statistics and affecting inferences, we reestimate the regressions on unsmoothed fund returns and alphas, which we construct by employing the procedure of Getmansky, Lo, and Makarov (2004). Fourth, to ensure that our results are not driven by the imputation of fund fees, we redo the analysis on gross returns and alphas. To back out prefee fund returns, we calculate high-water marks and performance fees by matching each capital outflow to the relevant capital inflow, assuming as per Agarwal, Daniel, and Naik (2009) that capital leaves the fund on a first-in, first-out basis. Columns 7 to 12 of Table 4 and Panels A to C of Table 5 reveal that our findings are robust to these adjustments.²⁰ Table A2 of the Internet Appendix reveals that diverse hedge funds also exhibit higher Sharpe ratios, information ratios, manipulation-proof performance measures (Goetzmann et al., 2007), and Berk and van Binsbergen (2015) skill relative to homogeneous funds.

[Insert Table 5 here]

3.2. Endogeneity

To address endogeneity concerns that relate to time-invariant differences between homogeneous and diverse teams we conduct an event study to investigate fund performance before and after an increase in team diversity. We focus on events in which a fully homogeneous team transitions to one that is more diverse with the inclusion of a new team member who attended a different university, worked at a different employer, or originated from a different country. For example, for the event study that focuses on education-based diversity, the treatment group consists of funds managed by homogeneous teams, where all managers attended the same university, that subsequently included a new manager who attended a different university (or universities) relative to the existing managers in the team. Likewise, for the event study that focuses on experience-based diversity, the treatment group consists

²⁰In results that are available upon request, we show that the findings remain qualitatively unchanged when we control for past one-year or two-year fund alpha in the spirit of Jagannathan, Malakhov, and Novikov (2010).

of funds managed by homogeneous teams, where all managers worked for the same former employer, that subsequently included a new manager who worked for a different former employer (or employers) as the existing managers in the team. The homogeneous team provides a useful starting point for understanding the value of diversity as any improvement in diversity is likely to have the greatest impact on the performance of such teams given their low initial diversity levels. We choose as the event window the period starting 36 months prior to the inclusion of the new manager and ends 36 months after the inclusion of the new manager. To be included in the sample, a fund must have monthly return information during the period that starts 36 months before and ends 36 months after the inclusion of the new manager. This leaves 95, 198, and 371 funds for the education-, experience-, and nationality-based diversity analyses, respectively.

To account for endogeneity concerns stemming from observable time-varying differences in fund characteristics between funds managed by homogeneous teams and those managed by diverse teams, we match treatment hedge funds with control hedge funds based on fund performance in the 36-month pre-event period and conduct a difference-in-differences analysis. For example, in the fund alpha analysis, treatment funds are matched to control funds by minimizing the sum of the absolute differences in monthly fund alpha in the 36-month pre-event period. For the education-based diversity event study, the control group consists of funds managed by teams where the managers attended the same university and that did not subsequently hire a new manager who studied at a different university. Similarly, for the experience-based diversity event study, the control group consists of funds managed by teams where all the managers worked at the same employer and that did not subsequently hire a new manager who worked at a different employer.

[Insert Table 6 and Figure 2 here]

Table 6 indicates that relative to other homogeneous teams and to the prior 36-month period, homogeneous teams that enhanced diversity (by hiring a new manager from a different background) increase their returns by between 3.64% to 6.82% per annum and improve their risk-adjusted returns by between 4.36% to 7.37% per annum in the 36-month period

following the diversity change. These results are economically meaningful and statistically significant at the 5% level. Figure 2 illustrates the cumulative abnormal returns of the treatment and control groups from the event study. It visually reinforces the results from Table 6 and indicates that homogeneous teams that improve diversity subsequently outperform other comparable homogeneous teams that did not. Table A3 of the Internet Appendix indicates that the results are robust to (i) narrowing the event window to 24 months before and after the event, (ii) widening the event window to 48 months before and after the event, and (iii) analyzing the effects of diversity-enhancing manager additions for all funds instead of just funds managed by homogeneous teams. In results that are available upon request, we find that inferences remain unchanged when we analyze the effects of diversity-diminishing manager additions at diverse teams.

Next, to cater for unobservable time-varying differences between funds managed by homogeneous teams and those managed by diverse teams, we conduct an instrumental variable analysis. The instrument that we use is the diversity of the inhabitants at the hedge fund founding partner's hometown. We argue that due to diversity imprinting during childhood (Marquis and Tilcsik, 2013; Simsek, Fox, and Heavey, 2015), hedge fund founders who grew up in more economically and racially diverse cities are also more likely to set up funds that feature more diverse teams.

Specifically, we compute the diversity of the residents at a founder's hometown as the average of the income and racial diversity of the city where the hedge fund founder attended high school. US city income distributions and racial profiles are derived from US census data. We are able to obtain high school information, via LinkedIn or via a Google search, for 240 hedge fund founding partners who manage 754 funds.²¹

The first-stage results in Columns 1 to 3 of Table 7 confirm this prediction. The diversity of the residents at a hedge fund founder's hometown is a positive and significant predictor of a fund's team diversity, regardless of whether team diversity is based on manager educa-

²¹Income and racial diversity is one minus the respective Herfindahl-Hirschman concentration measure divided by 10000. The Herfindahl-Hirschman measures are based on city-level income and racial distributions obtained from the American Community Survey in 2014 (which is the earliest date for which the information is available). See <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2014/>.

tion, work experience, or nationality, with F-statistics that all exceed the threshold of ten prescribed by Stock, Wright, and Yogo (2002).

The exclusion restriction is that conditional on covariates, the demographic diversity of a founder's hometown affects fund investment performance only through its impact on fund team diversity. One concern is that hedge fund founders who grew up in more economically diverse hometowns would also more likely belong to more extreme socioeconomic status groups, and therefore they could be more driven (if they belong to low socioeconomic status groups) or equipped (if they belong to high socioeconomic status groups) to outperform as hedge fund managers later on in life. However, as we shall show our results are qualitatively similar when we instrument for team diversity with founder's hometown racial diversity only.

Columns 4 to 6 of Table 7 report the second-stage results for the fund alpha equation. After instrumenting for team diversity, funds managed by diverse teams continue to outperform those managed by homogeneous teams. A comparison with the equivalent naïve OLS estimates in Columns 7 to 9 of Table 7 shows that the coefficient estimates are larger after instrumenting for team diversity. Table A4 of the Internet Appendix indicates that our results are robust when we instrument for team diversity using the founder's hometown income diversity or racial diversity or both. Collectively, these findings suggest that endogeneity is unlikely to drive our results.

[Insert Table 7 here]

3.3. Underlying mechanisms

Is the positive relation between the team diversity measures and hedge fund performance driven by diversity? In this section, we investigate whether our results can be attributed to diversity. In the process, we shed light on the mechanisms underpinning our findings.

If the superior performance of diverse teams is driven by diversity, we postulate that diverse teams should be able to exploit a wider range of investment opportunities in financial markets by leveraging on the heterogeneous experiences and expertise of their team mem-

bers. In particular, they should be positioned to arbitrage more of the 11 prominent stock market anomalies identified by Stambaugh, Yu, and Yuan (2015). These anomalies include net stock issues (Ritter, 1991), composite equity issues (Daniel and Titman, 2006), accruals (Sloan, 1996), net operating assets (Hirshleifer, Hou, Teoh, and Zhang, 2004), asset growth (Cooper, Gulen, and Schill, 2008), investment-to-assets (Titman, Wei, and Xie, 2004), financial distress (Campbell, Hilscher, and Szilagyi, 2008), O-score (Ohlson, 1980), momentum (Jegadeesh and Titman, 1993), gross profitability (Novy-Marx, 2013), and return on assets (Chen, Novy-Marx, and Zhang, 2014).

To test, every January 1st, we sort hedge funds into five groups based on each of the team diversity measures. Next, for each fund, we compute the loadings on the 11 prominent stock anomalies. Then, we average across the funds within each group the number of stock anomalies per fund with positive and statistically significant (at the 5% level) loadings. The results reported in Table 8 reveal that funds managed by diverse teams load on more stock market anomaly factors than do funds managed by homogeneous teams. These findings suggest that, relative to homogeneous teams, diverse teams do indeed exploit a wider array of investment opportunities.

[Insert Tables 8 and 9 here]

If diversity drives the superior performance of diverse teams, we should find that the positive relation between team diversity and fund performance is stronger for funds with access to long-term capital. Following Stein (2005), we argue that funds with long redemption periods, lengthy redemption notice periods, and extended lock-ups are able to arbitrage more long-horizon investment opportunities as they attract more patient capital. By attacking long-horizon mispricings, they should have time to overcome the operational problems associated with motivating, coordinating, and communicating with a diverse group of team members.

To test, we first sort hedge funds into three groups based on (i) redemption period, (ii) notice period, and (iii) lock-up period.²² Next, we reestimate the Eq. (4) regressions on fund

²²The low, middle, and high redemption period groups comprise funds with redemption periods that do

alpha for each of the three groups without fund redemption period and lock-up period as control variables. The coefficient estimates reported in Table 9 reveal that consistent with the notion that it is easier to harvest the benefits of diversity when arbitraging long-horizon opportunities and managing patient capital, diverse teams outperform homogeneous teams most when they operate funds that impose long redemption periods, lengthy notice periods, and extended lock-up periods. Conversely, consistent with the idea that it is more difficult to reap the benefits of diversity when arbitraging short-horizon opportunities and managing transient capital, diverse teams outperform homogeneous teams least when they manage funds with short redemption periods, brief notice periods, and minimal lock-up periods.

According to Rock and Grant (2016), a more diverse workplace serves to keep team members' biases in check and make them question their assumptions. Therefore, the diversity story further posits that diverse teams should be less susceptible to behavioral biases. To test, using Thomson Financial 13-F data on long-only stock holdings of hedge fund firms, we construct quarterly hedge fund trading behavior metrics, namely *DISPOSITION*, *OVERCONFIDENCE*, and *LOTTERY*, that proxy for the disposition effect, overconfidence-induced excessive trading, and the preference for lottery-like stocks. *DISPOSITION* is the percentage of gains realized minus the percentage of losses realized as in Odean (1998). *OVERCONFIDENCE* is the difference between the return that quarter of the portfolio of stocks held by the fund at the end of the prior year and the return that same quarter of the actual portfolio of stocks held by the fund as per Barber and Odean (2000, 2001). *LOTTERY* is the maximum daily stock return over the past one month averaged across stocks held by the fund as in Bali, Cakici, and Whitelaw (2011). According to Odean (1998), Barber and Odean (2000, 2001), and Bali, Cakici, and Whitelaw (2011) such biases are detrimental to investment performance. Next, we estimate multivariate regressions on these trading behavior metrics with the team diversity measures as the main independent variables of interest while controlling for the other fund characteristics in Eq. (4).

not exceed 15 days, with redemption periods that exceed 15 days but do not exceed one month, and with redemption periods that exceed one month, respectively. The low, middle, and high notice period groups are defined analogously. The low, middle, and high lock-up period groups comprise funds with no lock-ups, with lock-up periods that are less than or equal to a year, and with lock-up periods that exceed a year, respectively. The discrete nature of the redemption period, notice period, and lock-up period data prevents us from sorting funds into equal terciles based on their share restrictions.

[Insert Table 10 here]

Table 10 reveals that hedge funds operated by diverse teams are indeed less susceptible to such behavioral biases. The coefficient estimates on the diversity measures are all negative and, with the exception of one, all statistically significant at the 5% level. Collectively, the results are consistent with the view that our findings are driven by diversity and shed light on the mechanisms underlying the relation between team diversity and fund performance.

3.4. Fund investment and operational risk

Due to the absence of group think, hedge fund partners working in more diverse teams could better serve as checks and balances for each other when it comes to risk taking. Therefore, we postulate that diverse teams are more prudent when taking on investment risk. In particular, since bearers of idiosyncratic risk forgo risk premia and bearers of tail risks could face significant drawdowns and sudden fund closure (Duarte, Longstaff, and Yu, 2007), diversity should negatively relate to idiosyncratic and downside risk.

To test, we estimate multivariate regressions on fund investment risk metrics such as idiosyncratic risk (*IDIORISK*), downside beta (*DOWNSIDEBETA*), maximum loss (*MAXLOSS*), and maximum drawdown (*MAXDRAWDOWN*) with the independent variables from Eq. (4). *IDIORISK* is the standard deviation of fund monthly residuals from the Fung and Hsieh (2004) model. *DOWNSIDEBETA* is downside beta relative to the S&P 500. *MAXLOSS* is maximum monthly loss. *MAXDRAWDOWN* is maximum cumulative loss. The investment risk measures are estimated over each nonoverlapping 24-month period post fund inception. To maximize the number of observations, the downside beta are computed over non-contiguous 24-month periods.

Columns 1 to 3 of Panel A in Table 11 indicate that diverse teams bear lower idiosyncratic risk than do homogeneous teams. In addition, Columns 4 to 12 of Panel A in Table 11 reveal that, relative to homogeneous teams, diverse teams deliver returns that exhibit lower downside betas, smaller maximum monthly losses, and shallower maximum drawdowns, indicating that they are more successful at avoiding tail risks.

[Insert Table 11 here]

Similarly, we posit that team diversity could also lead to lower operational risk as team members from different backgrounds are better able to restrain the fraudulent actions of specific individuals in the team. To check, we estimate multivariate regressions on fund operational risk variables such as fund termination indicator (*TERMINATION*), Form ADV violation indicator (*VIOLATION*), and ω -Score (*OMEGA*). *TERMINATION* takes a value of one after a hedge fund stops reporting returns to the database and states that it has liquidated that month. *VIOLATION* takes a value of one when the hedge fund manager reports on Item 11 of Form ADV that the manager has been associated with a regulatory, civil, or criminal violation. *OMEGA* is an operational risk instrument derived from fund performance, volatility, age, size, fee structure, and other fund characteristics as per Brown et al. (2009).

We analyze fund termination, since Brown et al. (2009) find that operational risk is more important than financial risk for explaining fund failure. The sample size in our analysis of fund termination is limited to TASS and HFR funds since only TASS and HFR provide the reason for why a fund stopped reporting returns. The regression on fund termination includes, in addition to the controls featured in Eq. (4), past 24-month fund returns as well to control for past fund performance. Item 11 disclosures on Form ADV provide insights into unethical behavior that lead to deviations from expected standards of business conduct that precipitate regulatory action and lawsuits, as well as civil and even criminal violations. The ω -Score is based on a canonical correlation analysis that related a vector of responses from Form ADV to a vector of fund characteristics in the TASS database, across all hedge funds that registered as investment advisors in the first quarter of 2006. Since only TASS provides data on manager personal capital – one of the fund characteristics used to compute the ω -Score – we only compute the ω -Score for TASS funds, as per Brown et al. (2009).

Panel B of Table 11 shows that diverse teams are less likely to terminate their funds, report fewer violations to the SEC, and exhibit lower ω -Scores. The marginal effects reveal that relative to hedge funds operated by homogeneous teams, hedge funds operated by

diverse teams have a 2.37% to 6.97% lower probability of terminating in any given year.²³ Similarly, compared to hedge fund firms run by homogeneous teams, hedge fund firms run by diverse teams have a 9.70% to 14.90% lower likelihood of reporting a violation to the SEC in any given year. Given that the unconditional probability of fund termination in any given year is 7.31% and the unconditional probability that a fund reports a violation to the SEC in any given year is 3.43%, these results are economically meaningful. They suggest that relative to homogeneous teams, diverse teams are associated with lower operational risk.

To further test the view that diverse teams exhibit lower operational risk, we estimate analogous probit regressions on the probability that hedge funds trigger the four performance flags that are most often linked to funds with reporting violations as per Panel B of Table 5 in Bollen and Pool (2012): %Negative, Kink, Maxrsq, and %Repeat. %Negative is triggered by a low number of negative returns. Kink is triggered by a discontinuity at zero in the hedge fund return distribution. Maxrsq is triggered by an adjusted R^2 that is not significantly different from zero. %Repeat is triggered by a high number of repeated returns. The probit regressions include as dependent variables the following four indicator variables that correspond to the aforementioned performance flags: %NEGATIVE, KINK, MAXRSQ, and %REPEAT. Each indicator variable takes a value of one when the corresponding flag is triggered by the fund over each non-overlapping 24-month period post inception. Panel C of Table 11 shows that diverse teams are less likely to trigger these performance flags, which Bollen and Pool (2009; 2012) show may be indicative of return misreporting and fraud.

3.5. Fund capacity constraints

Next, we relate team diversity to hedge fund capacity constraints. Several studies have shown that hedge funds are affected by fund-level capacity constraints and that small funds tend to outperform large funds (Getmansky, 2012; Ramadorai, 2013; Yin, 2016). We postulate that diverse teams, by leveraging on the heterogeneous experiences of their team members,

²³Specifically, the marginal effect reported in Column 1 of Table 9 indicates that the difference in probability of fund termination between funds managed by educationally diverse versus educationally homogeneous teams equals $100 * (1 - (1 - 0.006)^{12}) = 6.97\%$.

exploit a wider range of investment opportunities and, therefore, are less susceptible to fund level capacity constraints.

To test, for each team diversity measure, we first sort hedge funds every January 1st into terciles based on team diversity. Next, for each diversity tercile, we estimate regressions on fund performance (returns and alphas) with the log of last month's fund size as the independent variable of interest. We also include as independent variables the other fund controls from Eq. (4).

The results reported in Table 12 suggest that the fund-level capacity constraints are largely confined to hedge funds managed by homogeneous teams. Regardless of the diversity measure that we consider, the coefficient estimates on the logarithm of fund size in the performance regressions are negative and statistically significant at the 5% level only for funds in the low-diversity tercile. Conversely, for funds in the high-diversity tercile, the coefficient estimates on the logarithm of fund size in the performance regressions are positive and statistically significant at the 5% level. The economies of scale that apply to diverse teams could stem from the efficiencies in research and trading resources as well as the superior access to company management teams that come with size (Perold, 2006). Collectively, the results suggest that team diversity allows hedge funds to circumvent the well-known capacity constraints at the fund level.

[Insert Table 12 here]

3.6. Fund performance persistence

Fund-level capacity constraints make it difficult for skilled fund managers to maintain outperformance as they grapple with capital inflows from return-chasing fund investors. Therefore, fund performance persistence (Agarwal and Naik, 2000; Kosowski, Naik, and Teo, 2007; Jagannathan, Malakhov, and Novikov, 2010) should be concentrated in hedge funds managed by diverse teams given their ability to sidestep fund-level capacity constraints.

To test, we first sort hedge funds every January 1st into terciles based on team diversity.

Next, within each diversity tercile, we sort hedge funds every January 1st into quintiles based on past two-year Fung and Hsieh (2004) fund alpha and string the post-formation returns over the next 12 months across years to form a single return series for each quintile portfolio. As per the baseline portfolio sorts, we evaluate the performance of the portfolios relative to the Fung and Hsieh (2004) model and base statistical inferences on White (1980) heteroscedasticity consistent standard errors.

The alphas of the winner-minus-loser spread portfolios reported in Panel A of Table 13 reveal that performance persistence is mostly concentrated in fund managed by diverse teams. Regardless of the team diversity measure that we employ, among funds operated by teams with top-tercile diversity scores, the spreads between the past winner and past loser quintiles are economically meaningful, i.e., between 6.63% and 8.25% per annum, and statistically significant at the 5% level. In contrast, among funds managed by teams with bottom-tercile diversity scores, the spreads between the past winner and past loser quintiles are statistically indistinguishable from zero at the 10% level. These results undergird the view that team diversity, by ameliorating the impact of capacity constraints, allows skilled fund managers to preserve future fund performance in the wake of capital inflows.

[Insert Table 13 here]

One concern is that by using the same asset pricing model to sort funds and estimate performance, we could pick up any model bias that appears between ranking and formation periods. Therefore, we also perform a double sort on team diversity and past 24-month fund *returns*, and then evaluate the post-formation fund alpha of the resultant portfolios. Panel B of Table 13 indicates that our conclusions remain unchanged with this adjustment.

4. Robustness tests

To test whether our results are driven by the way we measure diversity, we redo the baseline performance regressions with alternative diversity measures based on one minus the

Herfindahl-Hirschman index (scaled by 10,000) as well as the Teachman (1980) entropy metric used by Jehn, Northcraft, and Neale (1999) and Pelled, Eisenhardt, and Xin (1999).²⁴ To evaluate the strength of the findings over the sample period, we split the sample period into two (January 1994 to December 2004 and January 2005 to June 2016) and reestimate the baseline performance regressions. To ameliorate concerns that fixed effects based on the Agarwal, Daniel, and Naik (2009) broad investment strategy classification do not adequately capture differences in performance across strategies, we adopt a more granular classification comprising the following 12 investment strategies: CTA, Emerging Markets, Event-Driven, Global Macro, Equity Long/Short, Equity Long Only, Market-Neutral, Multi-Strategy, Relative Value, Short Bias, Sector, and Others, and redo the baseline performance regressions. To check that our results also apply to two-person teams, we reestimate the baseline regressions after including hedge funds managed by such teams in the sample. To ensure that our results are not driven by shareholder activists, we redo the baseline regressions after excluding shareholder activists, which we identify using information in 13D filings. Multicollinearity concerns notwithstanding, we also estimate performance regressions that include *all* three diversity measures as independent variables. Table A5 of the Internet Appendix indicates that our findings are robust to these adjustments.

To test whether our findings also apply to gender and ethnic diversity, we rerun the portfolio sorts and baseline performance regressions for team diversity measures based on manager gender and ethnicity, which we estimate using the genderize.io and NamSor application programming interfaces, respectively.²⁵ We note that our gender-based team diversity measure classifies all-female (and all-male) teams as homogeneous. Therefore, the addition of female fund managers to a team does not always improve gender diversity. Tables A6 and A7 of the Internet Appendix reveal that inferences do not change when we study diversity based on gender and ethnicity.

²⁴Since these alternative diversity measures do not allow for multiple institutions to be assigned to each manager, to compute these measures, we focus on the undergraduate institution of the manager (for the education based diversity measures) and on the most recent former employer of the manager (for the employment based diversity measure).

²⁵See <https://genderize.io> and <https://www.namsor.com>.

5. Conclusion

Despite the trillions of dollars managed by professional fund managers, the prevalence of teams in delegated portfolio management, and the pressure faced by the fund management industry to increase the diversity of its leadership ranks, we know relatively little about how diversity in fund management teams relates to investment performance. In this study we investigate the implications of team diversity on hedge funds. Hedge funds are uniquely positioned to fully harness the value of diversity given the complex and relatively unconstrained strategies that they employ. Yet, they are often managed by homogeneous teams that comprise managers with common education backgrounds, work experiences, and nationalities.

We establish four main results. First, we show that hedge funds managed by diverse teams outpace those managed by homogeneous teams by between 5.25% to 5.80% per annum after adjusting for risk. The outperformance cannot be attributed to hedge fund database-induced biases, co-variation with other fund characteristics that explain fund performance, or omitted risk factors. Our findings are not a by-product of unobserved factors that simultaneously affect both team diversity and fund performance. An event study analysis reveals that relative to comparable funds and to the previous 36-month period, homogeneous hedge funds that subsequently experience diversity-enhancing manager additions deliver greater fund alphas of between 4.36% to 7.37% per annum in the following 36-month period. After instrumenting for team diversity, using as the instrument the diversity of inhabitants at the fund founder's hometown, we find that diverse teams still outperform homogeneous teams.

Second, the superior performance of diverse teams can be traced to diversity. Consistent with the diversity view, diverse teams outpace homogeneous teams by arbitraging a more heterogeneous set of the prominent stock anomalies, by leveraging on long-term capital to capitalize on long-horizon investment opportunities, and by avoiding behavioral biases such as the disposition effect, overconfidence, and the preference for lotteries. These results provide insights into the mechanisms through which diversity engenders superior investment performance.

Third, diversity leads to more prudent risk management. Diverse funds eschew tail risk, exhibit lower operational risk, and report fewer suspicious returns. These results are consistent with the view that the members of a diverse team, by serving as effective checks and balances for each other, help curb idiosyncratic and errant behavior.

Fourth, diversity provides insights into the widely studied capacity constraints and performance persistence effects in hedge funds. Diverse teams, by harnessing a wider range of investment opportunities are able to circumvent capacity constraints that afflict homogeneous teams. Consequently, the performance of diverse teams persists more than that of homogeneous teams. Indeed, evidence suggests that fund-level capacity constraints apply almost exclusively to funds operated by homogeneous teams while performance persistence mainly characterizes funds managed by diverse teams.

These findings convey the value of diversity for hedge funds. Not only are the returns of funds managed by diverse teams superior to those of homogeneous teams, they are also more resilient to tail risks and less susceptible to capacity constraints. Our results are especially important for fund management firms that are reevaluating the diversity of their workforce and for hedge fund investors who are keen to overcome the capacity constraints that limit the returns from allocating capital to skilled fund managers.

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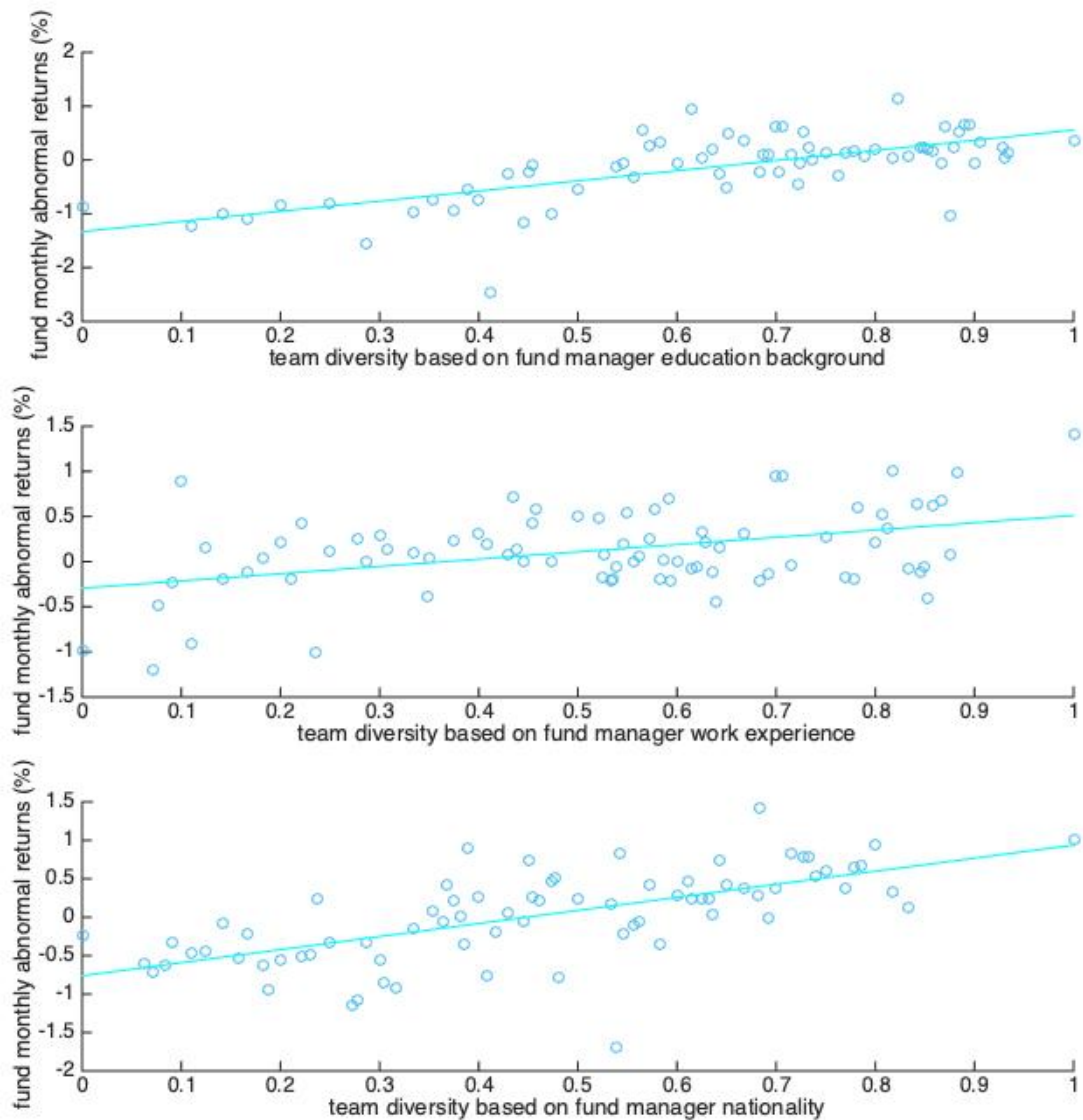


Figure 1: Binned scatter plots of fund monthly abnormal return against team diversity. Fund monthly abnormal return is estimated relative to the Fung and Hsieh (2004) model, where the factor loadings are estimated over the prior 24 months. Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. Fund monthly abnormal return observations are sorted into 100 groups based on fund team diversity. The scatter plots graph the average monthly abnormal return for each group against its average team diversity. The lines represent the lines of best fit through the scatter plots. The sample period is from January 1994 to June 2016.

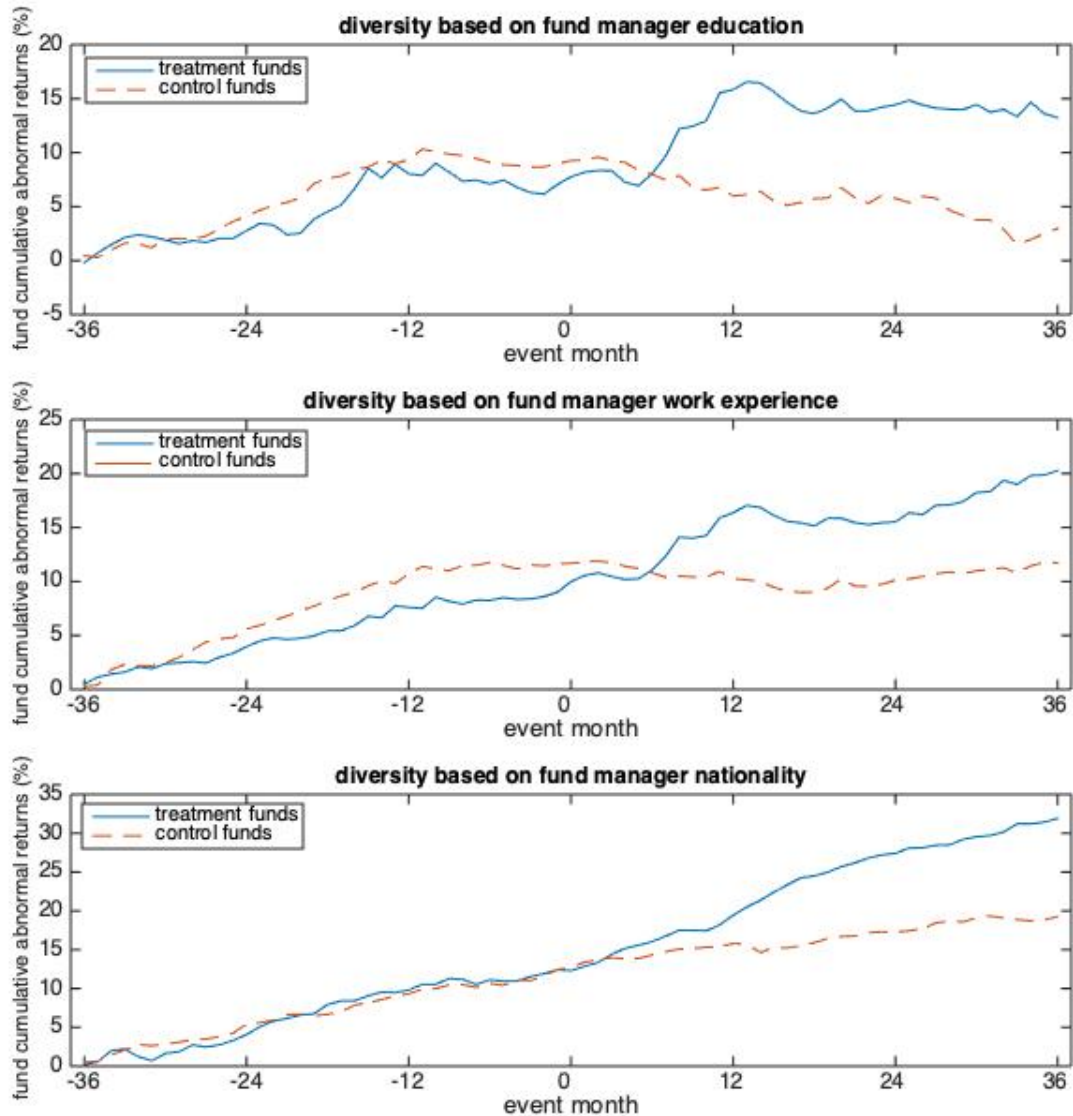


Figure 2: Event study analysis of diversity-enhancing manager additions to homogeneous hedge fund teams. Fund abnormal return is Fung and Hsieh (2004) seven-factor monthly alpha with factor loadings estimated over the last 24 months. Event month is the month that a homogeneous team increases its education, experience, or nationality-based diversity score with the inclusion of a new team member from a different background. Homogeneous teams comprise managers who all attended the same university, worked at the same employer, or originate from the same country. To be included in the analysis, a hedge fund must survive at least 36 months before and after the event month. Funds in the control group are matched to funds in the treatment group by minimizing the sum of the absolute differences in monthly fund alpha in the 36-month pre-event period.

Table 1: **Summary statistics**

This table reports summary statistics on the universities attended by, the former workplaces of, and the nationalities of the hedge fund managers in our sample as well as the diversity measures and key variables used in the study. *DIVERSITY_EDU* is team diversity based on manager education. *DIVERSITY_EXP* is team diversity based on manager work experience. *DIVERSITY_NATION* is team diversity based on manager nationality. Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. *RETURN* is the monthly hedge fund net-of-fee return. *MGT FEE* is management fee in percentage. *PER FEE* is performance fee in percentage, *HWM* is high-water mark indicator. *LOCKUP* is lock-up period in years. *LEVERAGE* is leverage indicator. *AGE* is fund age in years, *REDEMPTION* is redemption period in months, and *FUNDSIZE* is fund size in US\$m. Panel A reports the top ten universities attended by, former workplaces of, and nationalities of hedge fund managers. Panel B reports the distribution of the diversity measures and key variables. Panel C reports the distribution of the diversity measures by investment strategy. Panel D reports the correlation between the diversity measures and the key variables. The sample period is from January 1994 to June 2016.

Panel A: Top ten universities, former workplaces, and nationalities of hedge fund managers

No.	University/Workplace/Nationality	Number of managers	Percentage of managers	Number of funds	Percentage of funds
Subpanel A: Top ten universities					
1	Harvard University	205	7.87%	209	4.36%
2	University of Pennsylvania	161	6.18%	174	3.63%
3	Columbia University	141	5.41%	147	3.07%
4	New York University	138	5.30%	146	3.05%
5	University of Chicago	87	3.34%	90	1.88%
6	Yale University	72	2.76%	75	1.57%
7	Cornell University	66	2.53%	65	1.36%
8	University of Virginia	59	2.26%	61	1.27%
9	Massachusetts Institute of Technology	55	2.11%	59	1.23%
10	Stanford University	54	2.07%	59	1.23%
Subpanel B: Top ten former workplaces					
1	Goldman Sachs	117	4.49%	119	2.48%
2	Morgan Stanley	109	4.18%	114	2.38%
3	Merrill Lynch	99	3.80%	105	2.19%
4	JP Morgan	95	3.65%	104	2.17%
5	UBS	78	2.99%	83	1.73%
6	Credit Suisse	69	2.65%	72	1.50%
7	Deutsche Bank	55	2.11%	64	1.34%
8	Lehman Brothers	52	2.00%	60	1.25%
9	Bear Stearns	47	1.80%	54	1.13%
10	Citigroup	43	1.65%	50	1.04%
Subpanel C: Top ten nationalities					
1	United States	2417	32.33%	3589	26.12%
2	Canada	499	6.68%	807	5.87%
3	France	497	6.65%	892	6.49%
4	Great Britain	418	5.59%	767	5.58%
5	Italy	337	4.51%	710	5.17%
6	Australia	336	4.49%	658	4.79%
7	China	288	3.85%	501	3.65%
8	India	259	3.46%	332	2.42%
9	Czech Republic	240	3.21%	454	3.30%
10	Denmark	231	3.09%	449	3.27%

Panel B: Distribution of diversity measures and key variables

Diversity measure/variable	Mean	25%	Median	75%	std dev
<i>DIVERSITY_EDU</i>	0.841	0.667	1.000	1.000	0.249
<i>DIVERSITY_EXP</i>	0.670	0.474	0.667	1.000	0.318
<i>DIVERSITY_NATION</i>	0.661	0.444	0.667	1.000	0.333
<i>RETURN</i>	0.463	-1.08	0.457	2.05	5.179
<i>MGTFEE</i>	1.426	1.000	1.500	2.000	0.588
<i>PERFFEE</i>	17.390	20.000	20.000	20.000	6.516
<i>HWM</i>	0.729	0.000	1.000	1.000	0.445
<i>LOCKUP</i>	0.256	0.000	0.000	0.250	0.517
<i>LEVERAGE</i>	0.592	0.000	1.000	1.000	0.492
<i>AGE</i>	6.468	2.583	5.083	8.917	5.244
<i>REDEMPTION</i>	2.063	1.000	1.000	3.000	2.656
<i>FUNDSIZE</i>	441.380	18.900	68.540	249.960	2732.220

Panel C: Distribution of diversity measures by investment strategy

Investment strategy	No. of funds	Mean	25%	Median	75%	std dev
Subpanel A: <i>DIVERSITY_EDU</i>						
Directional Trader	587	0.843	0.688	1.000	1.000	0.247
Relative Value	468	0.793	0.571	1.000	1.000	0.264
Security Selection	2152	0.852	0.692	1.000	1.000	0.237
Multiprocess	600	0.866	0.722	1.000	1.000	0.242
Subpanel B: <i>DIVERSITY_EXP</i>						
Directional Trader	649	0.696	0.500	0.714	1.000	0.310
Relative Value	426	0.563	0.300	0.500	1.000	0.327
Security Selection	2101	0.685	0.500	0.667	1.000	0.311
Multiprocess	631	0.682	0.500	0.667	1.000	0.310
Subpanel C: <i>DIVERSITY_NATION</i>						
Directional Trader	1750	0.694	0.500	0.667	1.000	0.305
Relative Value	1048	0.665	0.400	0.667	1.000	0.325
Security Selection	6386	0.654	0.417	0.667	1.000	0.335
Multiprocess	997	0.670	0.417	0.700	1.000	0.355

Panel D: Correlations between diversity measures and key variables

Diversity measure/variable	<i>DIVERSITY_EDU</i>	<i>DIVERSITY_EXP</i>	<i>DIVERSITY_NATION</i>
<i>DIVERSITY_EDU</i>	1.000		
<i>DIVERSITY_EXP</i>	0.662	1.000	
<i>DIVERSITY_NATION</i>	0.264	0.275	1.000
<i>RETURN</i>	0.024	0.021	0.013
<i>MGTFEE</i>	0.025	0.010	0.104
<i>PERFFEE</i>	-0.090	-0.044	-0.062
<i>HWM</i>	-0.115	-0.125	-0.081
<i>LOCKUP</i>	0.032	-0.098	0.049
<i>LEVERAGE</i>	-0.006	0.036	0.109
<i>AGE</i>	0.050	0.061	0.088
<i>REDEMPTION</i>	0.043	0.040	0.138
<i>FUNDSIZE</i>	-0.019	0.012	-0.002

Table 2: **Portfolio sorts on hedge fund team diversity**

Every January 1st, hedge funds are sorted into five portfolios based on the diversity of their fund management teams. Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. Portfolio performance is estimated relative to the Fung and Hsieh (2004) factors. The Fung and Hsieh (2004) factors are S&P 500 return minus risk free rate (SNPMRF), Russell 2000 return minus S&P 500 return (SCMLC), change in the constant maturity yield of the U.S. 10-year Treasury bond appropriately adjusted for the duration (BD10RET), change in the spread of Moody's BAA bond over 10-year Treasury bond appropriately adjusted for duration (BAAMTSY), bond PTFS (PTFSBD), currency PTFS (PTFSFX), and commodity PTFS (PTFSCOM), where PTFS is primitive trend following strategy. Panels A, B, and C report results for team diversity based on education, experience, and nationality, respectively. The t -statistics are derived from White (1980) standard errors. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Hedge fund portfolio	Number of funds	Excess return (annualized)	t -statistic of excess return	Alpha (annualized)	t -statistic of alpha	SNPMRF	SCMLC	BD10RET	BAAMTSY	PTFSBD	PTFSFX	PTFSCOM	Adj. R ²
Panel A: Diversity based on education													
Portfolio 1 (high diversity)	2,632	5.62**	3.49	3.63**	3.53	0.29**	0.17**	-0.42	-2.34**	-0.00	0.02**	0.00	0.586
Portfolio 2	267	0.45	0.25	-0.93	-0.60	0.12**	0.21**	-1.30*	-3.10**	-0.01	-0.01	-0.00	0.334
Portfolio 3	307	2.80	1.77	0.98	0.86	0.15**	0.23**	-1.23**	-2.87**	-0.02**	0.02*	0.00	0.517
Portfolio 4	279	1.58	0.97	0.28	0.22	0.20**	0.06*	-1.14*	-3.27**	-0.01	0.02**	0.00	0.422
Portfolio 5 (low diversity)	322	-0.74	-0.37	-1.63	-1.37	0.21**	0.11**	0.38	-1.63**	0.00	0.01*	-0.00	0.370
Spread (1-5)		6.36**	2.80	5.25**	3.35	0.08	0.06	-0.80	-0.71	-0.01	0.01**	0.00	0.221
Panel B: Diversity based on experience													
Portfolio 1 (high diversity)	1,501	5.75**	3.77	4.02**	3.97	0.28**	0.18**	-0.34	-2.18**	-0.00	0.02**	0.00	0.583
Portfolio 2	440	2.72	1.56	0.72	0.58	0.33**	0.01	-1.54**	-2.29**	-0.01	0.01*	0.01	0.531
Portfolio 3	530	3.49	1.84	1.32	0.94	0.27**	0.18**	-1.49**	-3.49**	-0.01	0.01	0.01	0.493
Portfolio 4	460	2.29	1.18	-0.12	-0.10	0.34**	0.13**	-2.20**	-3.83**	-0.01	0.02*	-0.01	0.637
Portfolio 5 (low diversity)	876	0.09	0.06	-1.23	-1.03	0.23**	0.15**	-0.27	-1.85**	0.01	0.01	0.01	0.400
Spread (1-5)		5.66**	3.71	5.25**	3.35	0.05	0.03	-0.07	-0.33	-0.01	0.01*	-0.01	0.233
Panel C: Diversity based on nationality													
Portfolio 1 (high diversity)	3,997	9.94	5.47	8.08**	5.43	0.27**	0.19**	-1.11	-2.06**	-0.00	0.01*	0.01	0.365
Portfolio 2	629	4.49	3.33	2.87**	3.08	0.26**	0.09**	-0.61	-2.14**	-0.01	0.02**	0.01	0.548
Portfolio 3	977	4.71	3.29	3.27**	2.98	0.24**	0.13**	-1.40**	-2.61**	0.01	0.02**	0.01	0.447
Portfolio 4	958	2.87	2.12	0.99	1.22	0.29**	0.13**	-0.72*	-1.99**	-0.00	0.01*	0.00	0.664
Portfolio 5 (low diversity)	1,090	4.38	2.19	2.28	1.37	0.29**	0.18**	-0.96	-1.96*	-0.01	0.01	0.00	0.342
Spread (1-5)		5.56*	2.06	5.80**	2.60	-0.02	0.01	-0.15	-0.10	0.01	0.00	0.01	0.213

Table 3: **Portfolio sorts on hedge fund team diversity, robustness tests**

This table reports the alphas and factor loadings for the high-minus-low diversity spread portfolio from the quintile sort on fund diversity. Every January 1st, hedge funds are sorted into five portfolios based on the diversity of the fund management team. Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. In Columns 1 and 2, spread portfolio performance is estimated relative to the Fung and Hsieh (2004) model. For the other columns, spread portfolio performance is estimated relative to an augmented Fung and Hsieh (2004) model. HML is the Fama and French (1993) value factor. UMD is the Carhart (1997) momentum factor. RMW and CMA are the Fama and French (2015) profitability and investment factors, respectively. PS is the Pástor and Stambaugh (2003) traded liquidity factor. BAB is the Frazzini and Pedesen (2014) betting-against-beta factor. MACRO is the Bali, Brown, and Caglayan (2014) macroeconomic uncertainty factor. CALL and PUT are the Agarwal and Naik (2004) out-of-the-money call and put option based factors. EM is the emerging markets factor derived from the MSCI Emerging Markets index. FH denotes the Fung and Hsieh model. The loadings on the Fung and Hsieh factors are omitted for brevity. Panels A, B, and C report results for team diversity based on education, experience, and nationality, respectively. The t -statistics are derived from White (1980) standard errors. The sample period is from January 1994 to June 2016. *, **, *** denote significance at the 5% and 1% levels, respectively.

Risk model	Portfolio	Alpha	HML	UMD	RMW	CMA	PS	BAB	MACRO	CALL	PUT	EM	Adj R ²
Panel A: Diversity in education													
FH (value-weighted)	Spread	6.024**											0.079
	t -statistic	3.62											
FH (funds with AUM>50M)	Spread	6.420**											0.055
	t -statistic	4.82											
FH + HML + UMD	Spread	5.304**	-0.022	0.001									0.11
	t -statistic	5.09	-0.77	0.05									
FH + RMW + CMA	Spread	5.724**			-0.000	-0.001							0.121
	t -statistic	5.42			-0.89	-1.54							
FH + PS	Spread	5.256**					0.003						0.108
	t -statistic	5.09					0.22						
FH + BAB	Spread	5.256**						-0.000					0.108
	t -statistic	4.98						-0.00					
FH + MACRO	Spread	5.376**							-0.030				0.110
	t -statistic	5.15							-0.72				
FH + CALL + PUT	Spread	4.848**								0.114	-0.061		0.122
	t -statistic	3.86								0.70	-0.36		
FH + EM	Spread	5.376**										5.642**	0.135
	t -statistic	5.29										2.89	

Table 3: Continued

Risk model	Portfolio	Alpha	HML	UMD	RMW	CMA	PS	BAB	MACRO	CALL	PUT	EM	Adj R ²
Panel B: Diversity in experience													
FH (value-weighted)	Spread	7.464**											0.036
	<i>t</i> -statistic	3.62											
FH (funds with AUM>50M)	Spread	6.132**											0.028
	<i>t</i> -statistic	4.82											
FH + HML + UMD	Spread	6.120**	-0.010	-0.051									0.016
	<i>t</i> -statistic	5.09	-0.18	-1.38									
FH + RMW + CMA	Spread	5.832**			0.000	-0.000							0.010
	<i>t</i> -statistic	5.42			0.37	-0.58							
FH + PS	Spread	5.772**					0.018						0.011
	<i>t</i> -statistic	5.09					0.67						
FH + BAB	Spread	5.868**						-0.006					0.009
	<i>t</i> -statistic	4.98						-0.15					
FH + MACRO	Spread	5.616**							0.050				0.010
	<i>t</i> -statistic	5.15							0.62				
FH + CALL + PUT	Spread	6.480**								-0.333	-0.115		0.018
	<i>t</i> -statistic	3.86								-1.33	-0.44		
FH + EM	Spread	5.916**										5.311	0.016
	<i>t</i> -statistic	2.96										1.38	
Panel C: Diversity in nationality													
FH (value-weighted)	Spread	4.620**											0.096
	<i>t</i> -statistic	2.64											
FH (funds with AUM>50M)	Spread	5.712**											0.078
	<i>t</i> -statistic	5.62											
FH + HML + UMD	Spread	5.328**	-0.046*	0.003									0.139
	<i>t</i> -statistic	7.18	-2.20	0.24									
FH + RMW + CMA	Spread	5.844**			-0.001*	-0.001*							0.158
	<i>t</i> -statistic	7.82			-2.22	-2.06							
FH + PS	Spread	5.232**					0.007						0.122
	<i>t</i> -statistic	7.06					0.75						
FH + BAB	Spread	5.652**						-0.038*					0.140
	<i>t</i> -statistic	7.52						-2.43					
FH + MACRO	Spread	5.184**							0.015				0.121
	<i>t</i> -statistic	6.92							0.50				
FH + CALL + PUT	Spread	5.088**								-0.025	-0.111		0.132
	<i>t</i> -statistic	5.60								-0.21	-0.91		
FH + EM	Spread	5.340**										4.437**	0.153
	<i>t</i> -statistic	7.34										3.17	

Table 4: **Multivariate regressions on hedge fund performance**

This table reports results from multivariate OLS and Fama-MacBeth regressions on hedge fund performance. The dependent variables include hedge fund return (*RETURN*) and alpha (*ALPHA*). *RETURN* is the monthly hedge fund net-of-fee return. *ALPHA* is the Fung and Hsieh (2004) seven-factor monthly alpha where factor loadings are estimated over the last 24 months. The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. The other independent variables include fund characteristics such as management fee (*MGTFEE*), performance fee (*PERFEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size ($\log(FUNDSIZE)$) as well as dummy variables for fund investment strategy. The OLS regressions also include dummy variables for year. The *t*-statistics, in parentheses, are derived from robust standard errors clustered by fund and month for the OLS regressions and from Newey and West (1987) standard errors with lag structure as per Newey and West (1994) for the Fama and MacBeth (1973) regressions. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	Dependent variable											
	OLS regressions						Fama-MacBeth (1973) regressions					
	<i>RETURN</i>	<i>ALPHA</i>	<i>RETURN</i>	<i>ALPHA</i>	<i>RETURN</i>	<i>ALPHA</i>	<i>RETURN</i>	<i>ALPHA</i>	<i>RETURN</i>	<i>ALPHA</i>	<i>RETURN</i>	<i>ALPHA</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
<i>DIVERSITY_EDU</i>	0.362** (7.48)	0.519** (6.58)					0.430 (1.90)	0.610** (3.61)				
<i>DIVERSITY_EXP</i>			0.275** (7.35)	0.380** (5.04)					0.448** (3.81)	0.407** (3.20)		
<i>DIVERSITY_NATION</i>					0.335** (12.94)	0.299** (6.19)					0.307** (6.51)	0.463** (3.24)
<i>MGTFEE</i>	0.043 (0.97)	0.023 (0.42)	0.039 (0.88)	0.018 (0.32)	0.005 (0.25)	-0.029 (-1.16)	0.038 (0.89)	0.019 (0.43)	0.024 (0.55)	0.014 (0.30)	0.049 (1.59)	0.020 (0.75)
<i>PERFEE</i>	-0.001 (-0.49)	0.006 (1.17)	-0.002 (-0.66)	0.005 (1.04)	0.000 (0.04)	0.004* (1.97)	0.018 (0.92)	0.004 (0.54)	0.019 (0.99)	0.005 (0.61)	0.006 (1.39)	0.006 (1.59)
<i>HWM</i>	-0.000 (-0.00)	-0.117 (-1.31)	0.004 (0.09)	-0.112 (-1.25)	0.003 (0.07)	-0.093** (-3.35)	0.065 (1.00)	-0.159 (-1.53)	0.056 (0.85)	-0.158 (-1.51)	0.014 (0.36)	-0.068 (-1.59)
<i>LOCKUP</i>	-0.005 (-0.09)	0.067 (0.51)	0.019 (0.36)	0.098 (0.73)	0.099* (2.53)	0.126 (1.05)	91.585 (1.70)	0.456 (1.33)	91.311 (1.69)	0.530 (1.46)	0.094* (2.16)	0.181 (0.92)
<i>LEVERAGE</i>	0.038 (1.23)	0.049 (1.14)	0.037 (1.22)	0.048 (1.13)	0.055 (1.89)	0.083** (2.97)	0.714 (0.97)	0.162 (1.68)	0.189 (0.63)	0.168 (1.67)	0.012 (0.32)	0.047 (1.33)
<i>AGE</i>	-0.002 (-0.53)	-0.007 (-1.30)	-0.003 (-0.82)	-0.008 (-1.58)	-0.016** (-5.89)	-0.019** (-5.30)	0.003 (0.43)	-0.022 (-1.85)	0.003 (0.50)	-0.021 (-1.85)	-0.017** (-3.40)	-0.023** (-4.31)
<i>REDEMPTION</i>	0.014* (2.28)	0.020* (2.40)	0.015* (2.42)	0.022* (2.57)	0.006 (1.19)	-0.001 (-0.29)	-0.472 (-1.14)	0.015* (2.25)	-0.475 (-1.14)	0.013* (2.08)	0.011 (1.90)	0.008 (1.26)
$\log(FUNDSIZE)$	-0.004 (-0.35)	0.019 (1.59)	-0.004 (-0.31)	0.019 (1.58)	-0.066** (-9.86)	-0.009 (-1.10)	-0.067 (-1.82)	0.011 (0.68)	-0.060 (-1.61)	0.011 (0.71)	-0.091** (-7.16)	-0.034 (-1.78)
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
R ²	0.025	0.006	0.025	0.006	0.018	0.007	0.143	0.090	0.145	0.090	0.060	0.044
N	131,497	106,307	131,497	106,307	512,556	381,800	131,497	106,307	131,497	106,307	512,556	381,800

Table 5: **Additional multivariate regressions on hedge fund performance**

This table reports results from additional multivariate OLS regressions on hedge fund performance. The dependent variables include hedge fund return (*RETURN*) and alpha (*ALPHA*). *RETURN* is the monthly hedge fund net-of-fee return. *ALPHA* is the Fung and Hsieh (2004) seven-factor monthly alpha where factor loadings are estimated over the last 24 months. The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. The other independent variables include fund characteristics such as management fee (*MGT_FEE*), performance fee (*PERF_FEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size ($\log(FUND_SIZE)$) as well as dummy variables for year and fund investment strategy. The coefficient estimates on the fund control variables are omitted for brevity. Panel A reports results from returns adjusted for incubation bias. Panel B reports results from returns adjusted for serial correlation. Panel C reports results from prefee returns. The *t*-statistics, in parentheses, are derived from robust standard errors clustered by fund and month. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	Dependent variable					
	<i>RETURN</i> (1)	<i>ALPHA</i> (2)	<i>RETURN</i> (3)	<i>ALPHA</i> (4)	<i>RETURN</i> (5)	<i>ALPHA</i> (6)
Panel A: Adjusted for incubation bias						
<i>DIVERSITY_EDU</i>	0.399** (8.68)	0.519** (6.23)				
<i>DIVERSITY_EXP</i>			0.298** (7.31)	0.381** (4.96)		
<i>DIVERSITY_NATION</i>					0.342** (10.27)	0.297** (5.94)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.026	0.007	0.026	0.007	0.018	0.007
N	109,217	103,700	109,217	103,700	376,313	371,489
Panel B: Adjusted for serial correlation in returns						
<i>DIVERSITY_EDU</i>	0.181** (3.67)	0.507** (5.96)				
<i>DIVERSITY_EXP</i>			0.170** (5.36)	0.386** (4.57)		
<i>DIVERSITY_NATION</i>					0.089** (4.36)	0.302** (5.91)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.032	0.006	0.032	0.006	0.021	0.006
N	114,570	92,955	114,570	92,955	455,476	339,732
Panel C: Prefee returns						
<i>DIVERSITY_EDU</i>	0.233** (4.09)	0.238* (2.19)				
<i>DIVERSITY_EXP</i>			0.222** (4.86)	0.192* (2.18)		
<i>DIVERSITY_NATION</i>					0.357** (11.89)	0.153** (2.79)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.034	0.014	0.034	0.014	0.029	0.006
N	131,497	82,045	131,497	82,045	512,556	381,800

Table 6: Event study with difference-in-differences analysis

This table reports results from an event study analysis of hedge fund performance around an increase in the diversity of the fund management team. Alpha is Fung and Hsieh (2004) seven-factor monthly alpha with factor loadings estimated over the last 24 months. Event month is the month that a homogeneous team increases its education, experience, or nationality-based diversity score with the inclusion of a new team member from a different background. Homogeneous teams comprise managers who all attended the same university, worked at the same employer, or originate from the same country. The period “before” is the 36-month period before the event month and the period “after” is the 36-month period after the event month. To be included in the analysis, a hedge fund must survive at least 36 months before and after the event month. Funds in the control group are matched to funds in the treatment group based on fund alpha in the 36-month pre-event period. For example, in the fund alpha analysis, funds in the control group are matched to funds in the treatment group by minimizing the sum of the absolute differences in monthly fund alpha in the 36-month pre-event period. Panels A, B, and C report results for team diversity based on education, experience, and nationality, respectively. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Fund performance attribute	Before (1)	After (2)	After-before (3)	<i>t</i> -statistic (4)
Panel A: Diversity in education				
Fund return (percent/month), treatment group	0.475	0.718	0.242	1.63
Fund return (percent/month), control group	0.465	0.266	-0.199	-1.84
Difference in return (percent/month)			0.441	2.40
Fund alpha (percent/month), treatment group	0.133	0.570	0.437	2.45
Fund alpha (percent/month), control group	0.192	0.015	-0.177	-1.88
Difference in alpha (percent/month)			0.614	3.04
Panel B: Diversity in experience				
Fund return (percent/month), treatment group	0.484	0.738	0.253	2.24
Fund return (percent/month), control group	0.456	0.406	-0.050	-0.52
Difference in return (percent/month)			0.303	2.05
Fund alpha (percent/month), treatment group	0.218	0.451	0.233	1.85
Fund alpha (percent/month), control group	0.253	0.123	-0.130	-1.20
Difference in alpha (percent/month)			0.363	2.18
Panel C: Diversity in nationality				
Fund return (percent/month), treatment group	0.505	0.902	0.397	1.64
Fund return (percent/month), control group	0.460	0.288	-0.172	-1.83
Difference in return (percent/month)			0.569	2.19
Fund alpha (percent/month), treatment group	0.240	0.813	0.573	2.05
Fund alpha (percent/month), control group	0.238	0.214	-0.024	-0.25
Difference in alpha (percent/month)			0.597	2.02

Table 7: **Instrumental variable analysis**

This table reports results from using an instrumental variable (IV) approach to examine whether the observed differences in fund performance between hedge funds with different team diversity values reflect unobserved differences that endogenously determine team diversity. Our instrument for team diversity exploits the propensity of hedge fund founding partners who grew up in more diverse cities to set up hedge funds with more diverse teams. *DIVERSITY_HOMETOWN* is the average of the income and racial diversity of the hedge fund founder's US hometown where diversity is one minus the respective Herfindahl concentration measure scaled by 10000. The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). Columns 1 to 3 show the first stage regression of team diversity on *DIVERSITY_HOMETOWN* and the group of control variables used in Table 4. The other independent variables include fund characteristics such as management fee (*MGT_FEE*), performance fee (*PER_FEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size ($\log(\text{FUNDSIZE})$) as well as dummy variables for fund investment strategy. Columns 4 to 6 show the second stage results where the dependent variable is hedge fund alpha. Alpha is the Fung and Hsieh (2004) seven-factor monthly alpha where factor loadings are estimated over the last 24 months. For comparison, Column 7 to 9 reports results from regressions analogous to those reported in Columns 4 to 6 but without instrumenting for hedge fund team diversity. The *t*-statistics, in parentheses, are derived from robust standard errors that are clustered by fund and month are in parentheses. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	Dependent variable								
	IV first stage			IV second stage			OLS regressions		
	<i>DIVERSITY_EDU</i>	<i>DIVERSITY_EXP</i>	<i>DIVERSITY_NATION</i>	<i>ALPHA</i>	<i>ALPHA</i>	<i>ALPHA</i>	<i>ALPHA</i>	<i>ALPHA</i>	<i>ALPHA</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
<i>DIVERSITY_EDU</i>				1.468** (2.75)	1.371** (3.12)	0.672* (2.19)	0.655** (2.93)	0.793** (2.98)	0.311** (2.69)
<i>DIVERSITY_EXP</i>									
<i>DIVERSITY_NATION</i>									
<i>MGT_FEE</i>	-0.000 (-0.02)	-0.061 (-1.96)	-0.019 (-1.03)	-0.073 (-0.84)	0.000 (0.00)	-0.060 (-1.00)	-0.086 (-1.02)	-0.041 (-0.46)	-0.039 (-0.66)
<i>PER_FEE</i>	0.002 (0.87)	0.009* (2.05)	0.000 (0.11)	0.011 (1.44)	0.004 (0.60)	0.006 (0.96)	0.011 (1.36)	0.006 (0.64)	0.007 (1.10)
<i>HWM</i>	-0.037 (-0.93)	-0.124 (-1.79)	-0.087 (-1.81)	0.353* (2.09)	0.432** (2.68)	0.210* (2.06)	0.330 (1.86)	0.383* (1.98)	0.266** (2.62)
<i>LOCKUP</i>	0.100 (1.16)	-0.067 (-0.48)	0.053 (1.05)	0.299 (0.59)	0.519 (1.19)	0.152 (1.09)	0.139 (0.28)	0.309 (0.56)	0.103 (0.77)
<i>LEVERAGE</i>	0.029 (0.81)	0.052 (1.09)	0.083* (2.00)	0.301* (2.30)	0.280* (2.09)	0.118 (1.53)	0.233* (1.98)	0.243* (2.12)	0.085 (1.13)
<i>AGE</i>	0.006* (2.10)	0.004 (1.02)	0.008* (2.09)	0.022 (1.15)	0.026 (1.43)	-0.006 (-0.61)	0.009 (0.55)	0.013 (0.79)	-0.012 (-1.57)
<i>REDEMPTION</i>	-0.005 (-0.74)	0.000 (0.02)	0.022 (1.95)	-0.020 (-0.46)	-0.022 (-0.52)	0.008 (0.69)	-0.033 (-0.79)	-0.032 (-0.82)	-0.018 (-1.42)
$\log(\text{FUNDSIZE})$	-0.002 (-0.24)	0.023* (2.00)	0.002 (0.25)	-0.055 (-1.43)	-0.083* (-2.25)	-0.034 (-1.72)	-0.063 (-1.74)	-0.086* (-2.21)	-0.032 (-1.71)
<i>DIVERSITY_HOMETOWN</i>	3.185** (6.17)	3.840** (5.60)	1.878** (3.99)						
F-test: <i>DIVERSITY_HOMETOWN</i> = 0	38.07	31.36	15.92						
Strategy Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.330	0.294	0.158	0.008	0.009	0.007	0.006	0.007	0.006
N	20752	20752	45111	16409	16409	33909	16409	16409	33909

Table 8: Diversity and stock market anomalies

This table reports the average number of prominent stock market anomalies with statistically significant loadings at the 5% level among funds sorted by team diversity. Every January 1st, hedge funds are sorted into five groups based on the diversity of the hedge fund management team. For each fund, the loadings on the 11 prominent stock anomalies identified by Stambaugh, Yu, and Yuan (2015) are computed over the next year. The number of anomalies with positive and statistically significant loadings at the 5% level are then averaged across funds within each team diversity group. Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. The stock market anomalies include net stock issues (Ritter, 1991), composite equity issues (Daniel and Titman, 2006), accruals (Sloan, 1996), net operating assets (Hirshleifer, Hou, Teoh, and Zhang, 2004), asset growth (Cooper, Gulen, and Schill, 2008), investment-to-assets (Titman, Wei, and Xie, 2004), financial distress (Campbell, Hilscher, and Szilagyi, 2008), O-score (Ohlson, 1980), momentum (Jegadeesh and Titman, 1993), gross profitability (Novy-Marx, 2013), and return on assets (Chen, Novy-Marx, and Zhang, 2014). The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

	Number of stock market anomalies with significant loadings per fund for funds sorted by		
	diversity in education	diversity in work experience	diversity in nationality
Panel A: All funds			
Portfolio 1 (high diversity)	0.59**	0.62**	0.54**
Portfolio 2	0.37**	0.36**	0.33**
Portfolio 3	0.33**	0.39**	0.25**
Portfolio 4	0.31**	0.29**	0.41**
Portfolio 5 (low diversity)	0.42**	0.45**	0.36**
Spread (1-5)	0.17**	0.17**	0.18**
Panel B: Equity-focused funds			
Portfolio 1 (high diversity)	0.72**	0.76**	0.68**
Portfolio 2	0.48**	0.57**	0.45**
Portfolio 3	0.58**	0.35**	0.30**
Portfolio 4	0.36**	0.34**	0.44**
Portfolio 5 (low diversity)	0.48**	0.48**	0.46**
Spread (1-5)	0.24*	0.28**	0.22**

Table 9: Diversity and fund shareholder restrictions

This table reports results from multivariate OLS regressions on fund alpha for funds that are first sorted on their shareholder restrictions. The dependent variable is Fung and Hsieh (2004) seven-factor monthly fund alpha where factor loadings are estimated over the last 24 months (*ALPHA*). The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. The other independent variables include fund characteristics such as management fee (*MGT_FEE*), performance fee (*PERFFEE*), high-water mark indicator (*HWM*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), and log of fund size ($\log(FUNDSIZE)$) as well as dummy variables for fund investment strategy and year. The coefficient estimates on the fund control variables are omitted for brevity. The *t*-statistics, in parentheses, are derived from robust standard errors clustered by fund and month. The low, middle, and high redemption period groups in Panel A comprise funds with redemption periods that do not exceed 15 days, with redemption periods that exceed 15 days but do not exceed one month, and with redemption periods that exceed one month, respectively. The low, middle, and high notice period groups in Panel B are defined analogously. The low, middle, and high lock-up period groups in Panel C comprise funds with no lock-ups, with lock-up periods that are less than or equal to a year, and with lock-up periods that exceed a year, respectively. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	Dependent variable = <i>ALPHA</i>								
	Fund groups based on shareholder restrictions								
	Low (1)	Middle (2)	High (3)	Low (4)	Middle (5)	High (6)	Low (7)	Middle (8)	High (9)
Panel A: Funds sorted on redemption period									
<i>DIVERSITY_EDU</i>	0.321*	0.464**	0.520**						
	(2.03)	(4.89)	(4.44)						
<i>DIVERSITY_EXP</i>				0.190	0.349**	0.499**			
				(1.78)	(4.91)	(5.74)			
<i>DIVERSITY_NATION</i>							-0.059	0.278**	0.359**
							(-0.67)	(6.78)	(3.51)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.012	0.005	0.009	0.012	0.005	0.010	0.010	0.010	0.006
N	16171	47649	52214	16171	47649	52214	110619	172673	148785
Panel B: Funds sorted on notice period									
<i>DIVERSITY_EDU</i>	0.317*	0.549**	0.575**						
	(2.31)	(3.23)	(7.32)						
<i>DIVERSITY_EXP</i>				0.051	0.330*	0.527**			
				(0.40)	(2.52)	(7.94)			
<i>DIVERSITY_NATION</i>							0.074	0.118	0.363**
							(1.01)	(1.62)	(5.88)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.009	0.004	0.012	0.008	0.004	0.013	0.012	0.008	0.008
N	17653	29989	68392	17653	29989	68392	106469	79508	246100
Panel C: Funds sorted on lock-up period									
<i>DIVERSITY_EDU</i>	0.472**	0.392**	0.606**						
	(5.75)	(3.52)	(3.66)						
<i>DIVERSITY_EXP</i>				0.345**	0.437**	0.503**			
				(4.28)	(5.74)	(5.46)			
<i>DIVERSITY_NATION</i>							0.144**	0.355**	0.465**
							(2.96)	(2.78)	(3.85)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.005	0.018	0.027	0.005	0.018	0.029	0.008	0.029	0.009
N	74218	29063	12753	74218	29063	12753	288668	15729	127680

Table 10: **Diversity and behavioral biases**

This table reports results from multivariate regressions on quarterly hedge fund trading behavior measures. The dependent variables include *DISPOSITION*, *OVERCONFIDENCE*, and *LOTTERY*. *DISPOSITION* is percentage of gains realized (PGR) minus percentage of losses realized (PLR) as in Odean (1998). *OVERCONFIDENCE* is the difference between the return that quarter of the portfolio of stocks held by the fund at the end of the prior year and the return that same quarter of the actual portfolio of stocks held by the fund as per Barber and Odean (2000, 2001). *LOTTERY* is the maximum daily stock return over the past one month averaged across stocks held by the fund as in Bali, Cakici, and Whitelaw (2011). The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. The other independent variables include fund characteristics such as management fee (*MGT_FEE*), performance fee (*PER_FEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size (*FUND_SIZE*) as well as dummy variables for fund investment strategy and year. The coefficient estimates on the fund control variables are omitted for brevity. The *t*-statistics, in parentheses, are derived from robust standard errors clustered by fund. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	Dependent variable								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	<i>DISPOSITION</i>			<i>OVERCONFIDENCE</i>			<i>LOTTERY</i>		
<i>DIVERSITY_EDU</i>	-0.018* (-2.04)			-0.044* (-2.34)			-0.006** (-3.24)		
<i>DIVERSITY_EXP</i>		-0.014* (-2.31)			-0.043** (-3.17)			-0.003* (-2.00)	
<i>DIVERSITY_NATION</i>			-0.034** (-4.15)			-0.015 (-1.23)			-0.006** (-4.94)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.012	0.012	0.012	0.006	0.006	0.006	0.021	0.021	0.015
N	23275	23275	29270	98590	98590	132368	99226	99226	139267

Table 11: **Multivariate regressions on hedge fund investment risk, operational risk, and performance flags**

This table reports results from multivariate regressions on hedge fund investment risk, operational risk, and performance flags. The dependent variables include investment risk metrics, such as idiosyncratic risk (*IDIORISK*), downside beta (*DOWNSIDEBETA*), maximum monthly loss (*MAXLOSS*), and maximum drawdown (*MAXDRAWDOWN*), operational risk metrics, such as fund termination indicator (*TERMINATION*), Form ADV violation indicator (*VIOLATION*), and ω -Score (*OMEGA*), and performance flags, such as %NEGATIVE, *KINK*, *MAXRSQ*, and %REPEAT. *IDIORISK* is the standard deviation of monthly hedge fund residuals from the Fung and Hsieh (2004) model. *DOWNSIDEBETA* is the downside beta relative to the S&P 500. *MAXLOSS* is the maximum monthly loss. *MAXDRAWDOWN* is the maximum cumulative loss. *TERMINATION* takes a value of one after a hedge fund stops reporting returns to the database and states that it has liquidated that month. *VIOLATION* takes a value of one when the hedge fund manager reports on Item 11 of Form ADV that the manager has been associated with a regulatory, civil, or criminal violation. *OMEGA* is an operational risk instrument as per Brown, Goetzmann, Liang, and Schwarz (2009). *KINK* takes a value of one when any of the funds managed by a firm exhibits a discontinuity at zero in its return distribution. %NEGATIVE takes a value of one when any of the funds managed by a firm reports a low number of negative returns. *MAXRSQ* takes a value of one when any of the funds managed by a firm features an adjusted R² that is not significantly different from zero. %REPEAT takes a value of one when any of the funds managed by a firm reports a high number of repeated returns. The investment risk metrics and performance flags are estimated over each non-overlapping 24-month period after fund inception. To maximize the number of observations, the computation of downside beta leverages on observations derived from non-contiguous 24-month periods. The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). The other independent variables include fund characteristics such as management fee (*MGTFFEE*), performance fee (*PERFFEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size ($\log(FUNDSIZE)$) as well as dummy variables for year and fund investment strategy. The regressions on *TERMINATION* also control for past 24-month fund return (*PRIOR_RETURN*). The coefficient estimates for these fund control variables are omitted for brevity. For the investment risk and performance flag regressions, the *t*-statistics, in parentheses, are derived from robust standard errors that are clustered by fund and year. For the operational risk regressions, the *t*-statistics or *z*-statistics (in the case of the Cox regression) in parentheses are derived from robust standard errors that are clustered by fund. The marginal effects are in brackets. For the Cox regressions, we report the hazard ratios. Panel A, B, and C report regressions on fund investment risk, operational risk, and performance flags, respectively. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	Panel A: Regressions on fund investment risk											
	<i>IDIORISK</i>			<i>DOWNSIDEBETA</i>			<i>MAXLOSS</i>			<i>MAXDRAWDOWN</i>		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>DIVERSITY_EDU</i>	-2.078** (-7.62)			-0.232** (-4.54)			-1.469 (-1.90)			-0.847** (-3.29)		
<i>DIVERSITY_EXP</i>		-1.671** (-7.35)			-0.299** (-6.80)			-1.846** (-3.03)			-0.796** (-3.83)	
<i>DIVERSITY_NATION</i>			-0.923** (-5.75)			-0.204** (-4.37)			-1.736** (-3.98)			-0.903** (-6.38)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.087	0.091	0.104	0.117	0.145	0.112	0.170	0.172	0.140	0.151	0.153	0.122
N	4429	4429	17608	1233	1233	3858	4429	4429	17608	3977	3977	16702

Panel B: Regressions on fund operational risk

Independent variable	Dependent variable											
	TERMINATION			VIOLATION			OMEGA					
	Logit	Cox	Logit	Cox	Logit	Logit	Cox	Logit	Cox	Logit	Cox	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>DIVERSITY_EDU</i>	-0.522** (-6.54) [0.006]		-1.650** (-6.15)				-0.613** (-3.63) [0.149]			-0.117** (-3.62)		
<i>DIVERSITY_EXP</i>		-0.267** (-4.58) [0.003]			-1.297** (-4.44)			-0.589** (-4.71) [0.143]			-0.059* (-2.07)	
<i>DIVERSITY_NATION</i>			-0.285** (-6.51) [0.002]			-1.349** (-7.11)			-0.445** (-3.27) [0.097]			-0.053* (-2.21)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.111	0.110	0.174	0.079	0.078	0.108	0.039	0.043	0.023	0.820	0.819	0.799
N	123106	123106	445790	123481	123481	449120	1620	1620	2271	1025	1025	1749

Panel C: Regressions on fund performance flags

Independent variable	Dependent variable											
	%NEGATIVE			KINK			MAXRSQ			%REPEAT		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>DIVERSITY_EDU</i>	-0.237* (-2.42) [-0.038]		-0.359** (-3.17) [-0.090]				-0.921** (-6.83) [-0.062]			-0.208* (-2.30) [-0.072]		
<i>DIVERSITY_EXP</i>		-0.018 (-0.24) [-0.003]			-0.326** (-4.41) [-0.082]			-0.826** (-7.66) [-0.064]			-0.146* (-2.32) [-0.043]	
<i>DIVERSITY_NATION</i>			-0.587** (-9.50) [-0.090]			-0.179** (-4.27) [-0.052]			-0.180* (-2.41) [-0.012]			-0.225** (-5.09) [-0.066]
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.129	0.127	0.123	0.066	0.068	0.035	0.168	0.177	0.103	0.121	0.121	0.133
N	4379	4379	17608	4396	4396	17608	4373	4373	17608	4396	4396	17608

Table 12: **Diversity and fund capacity constraints**

This table reports results from multivariate regressions on hedge fund performance for funds sorted by fund management team diversity. Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. The dependent variables include hedge fund return (*RETURN*) and alpha (*ALPHA*). *RETURN* is the monthly hedge fund net-of-fee return. *ALPHA* is the Fung and Hsieh (2004) seven-factor monthly alpha where factor loadings are estimated over the last 24 months. The independent variable of interest is the log of fund size ($\log(FUNDSIZE)$). The other independent variables include fund characteristics such as management fee (*MGTFFEE*), performance fee (*PERFFEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), and redemption period in months (*REDEMPTION*) as well as dummy variables for year and fund investment strategy. The coefficient estimates on these fund control variables are omitted for brevity. Panels A, B, and C report results for team diversity based on education, experience, and nationality, respectively. The *t*-statistics, in parentheses, are derived from robust standard errors that are clustered by fund and month. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variables	Dependent variable					
	<i>RETURN</i>			<i>ALPHA</i>		
	Diversity group			Diversity group		
	High	Medium	Low	High	Medium	Low
Panel A: Diversity in education						
$\log(FUNDSIZE)$	0.041* (2.03)	-0.000 (-0.00)	-0.055** (-2.81)	0.078** (2.77)	0.014 (1.10)	-0.046** (-2.63)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.033	0.018	0.032	0.009	0.006	0.008
N	42860	44671	43966	34828	36565	34914
Panel B: Diversity in experience						
$\log(FUNDSIZE)$	0.045* (2.14)	0.018 (1.32)	-0.082** (-3.47)	0.097** (3.98)	0.004 (0.22)	-0.061** (-3.21)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.015	0.034	0.041	0.004	0.010	0.010
N	46116	43047	45225	37927	34761	35631
Panel C: Diversity in nationality						
$\log(FUNDSIZE)$	0.026* (2.57)	-0.017 (-1.68)	-0.057** (-4.83)	0.039** (4.05)	-0.015 (-1.17)	-0.070** (-4.93)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.018	0.017	0.016	0.007	0.009	0.007
N	168161	170171	174224	125743	126810	129247

Table 13: Diversity and fund performance persistence

This table reports fund portfolio alphas from double sorts on fund diversity and past fund performance. Every January 1st, hedge funds are sorted into three groups based on team diversity in education, work experience, or nationality. Thereafter, hedge funds in each group are sorted into five groups based on past 24-month Fung and Hsieh (2004) fund alpha (in Panel A) or on past 24-month fund return (in Panel B). Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. Hedge fund portfolio performance is estimated relative to the Fung and Hsieh (2004) factors. The Fung and Hsieh (2004) factors are S&P 500 return minus risk free rate (SNPMRF), Russell 2000 return minus S&P 500 return (SCMLC), change in the constant maturity yield of the U.S. 10-year Treasury bond appropriately adjusted for the duration (BD10RET), change in the spread of Moody's BAA bond over 10-year Treasury bond appropriately adjusted for duration (BAAMTSY), bond PTFS (PTFSBD), currency PTFS (PTFSFX), and commodity PTFS (PTFSKOM), where PTFS is primitive trend following strategy. The *t*-statistics are derived from White (1980) standard errors. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Hedge fund portfolio	Diversity in education			Diversity in work experience			Diversity in nationality		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Panel A: Sort on team diversity and past 24-month fund alpha									
Portfolio 1 (high past 24-month alpha)	8.10	2.91	0.86	9.09	4.51	0.00	10.35	7.92	2.17
Portfolio 2	2.20	0.23	1.25	3.66	2.11	-0.10	5.45	1.67	1.17
Portfolio 3	1.77	0.42	-1.38	2.64	0.67	-0.97	4.15	1.17	0.81
Portfolio 4	3.65	1.22	-1.07	4.89	3.60	-2.87	3.39	2.18	0.32
Portfolio 5 (low past 24-month alpha)	-0.15	-0.60	-1.79	1.78	2.85	-0.45	3.72	3.56	5.10
Spread (1-5)	8.25**	3.51*	2.65	7.30**	1.67	0.45	6.63**	4.36	-2.93
Panel B: Sort on team diversity and past 24-month fund return									
Portfolio 1 (high past 24-month return)	11.83	6.02	1.63	13.07	6.94	4.56	10.91	4.05	3.92
Portfolio 2	8.50	6.53	5.11	9.12	5.83	5.18	7.80	4.31	4.22
Portfolio 3	4.87	3.05	1.36	5.70	2.85	1.99	6.09	2.32	2.50
Portfolio 4	1.15	0.52	-2.40	1.83	-0.30	-1.60	3.24	0.66	0.35
Portfolio 5 (low past 24-month return)	-5.98	1.11	0.77	-5.37	-1.54	3.07	2.72	1.94	2.89
Spread (1-5)	17.81**	4.91**	0.86	18.44**	8.48**	1.50	8.18**	2.11*	1.03

Internet Appendix: Diverse Hedge Funds

Table A1: **Comparison of funds managed by teams of managers with and without LinkedIn information**

This table reports the fund characteristics of hedge funds managed by teams of managers with and without LinkedIn information. Teams comprise three or more fund managers. The fund characteristics include management fee in percentage, performance fee in percentage, high-water mark indicator, lockup period indicator, mean lockup period in days, redemption period in days, leverage indicator, monthly return in percentage, monthly alpha in percentage, monthly flow in percentage, and assets under management (AUM) in millions of US\$. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Fund characteristics	Funds managed by teams of managers				Spread	<i>t</i> -statistics
	with LinkedIn information		without LinkedIn information			
	Mean	Std dev	Mean	Std dev		
Management fee (%)	1.43	0.55	1.45	0.75	-0.01	-0.67
Incentive fee (%)	17.60	6.48	15.81	7.90	1.80	1.49
High-water mark indicator	0.74	0.44	0.70	0.46	0.04	1.09
Lockup indicator	0.18	0.38	0.27	0.44	-0.09**	-6.82
Lockup period (days)	189.70	217.18	145.55	196.71	44.15	1.22
Redemption period (days)	38.20	32.14	32.98	30.73	5.23	1.09
Leverage indicator	0.61	0.49	0.60	0.49	0.01	0.68
Monthly return (%)	0.49	1.59	0.52	1.61	-0.03	-1.06
Monthly alpha (%)	0.38	1.53	0.35	3.41	0.03	1.47
Monthly flow (%)	1.64	6.60	1.16	5.49	0.48	0.19
AUM (US\$m)	617.12	5790.34	323.65	1234.09	293.47	1.90

Table A2: **Multivariate regressions on hedge fund performance measures**

This table reports results from multivariate regressions on hedge fund performance measures. The dependent variables include hedge fund annualized Sharpe ratio (*SHARPE*), annualized information ratio (*IR*), manipulation-proof performance measure (*MPPM*), and skill (*SKILL*). *SHARPE* is mean fund excess return divided by standard deviation of fund returns. *IR* is mean fund abnormal return divided by standard deviation of fund residuals from the Fung and Hsieh (2004) regression. *MPPM* is fund manipulation-proof performance measure with risk aversion parameter $\rho = 3$ (Goetzmann, Ingersoll, Spiegel, and Ross, 2007). *SKILL* is the monthly gross fund excess return multiplied by fund size (in millions of US\$) as per Berk and van Binsbergen (2015). All performance measures, except *SKILL*, are measured over non-overlapping 24-month periods. The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. The other independent variables include fund characteristics such as management fee (*MGTTEE*), performance fee (*PERFEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size ($\log(FUNDSIZE)$) as well as dummy variables for fund investment strategy and year. The coefficient estimates on the fund control variables are omitted for brevity. The *t*-statistics, in parentheses, are derived from robust standard errors clustered by fund and month. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	Dependent variable											
	<i>SHARPE</i> (1)	<i>IR</i> (2)	<i>MPPM</i> (3)	<i>SKILL</i> (4)	<i>SHARPE</i> (5)	<i>IR</i> (6)	<i>MPPM</i> (7)	<i>SKILL</i> (8)	<i>SHARPE</i> (9)	<i>IR</i> (10)	<i>MPPM</i> (11)	<i>SKILL</i> (12)
<i>DIVERSITY_EDU</i>	0.280** (4.22)	0.389** (3.67)	0.360** (2.96)	4.830* (2.44)								
<i>DIVERSITY_EXP</i>					0.181** (4.12)	0.219** (3.12)	0.255** (2.88)	3.516* (2.20)				
<i>DIVERSITY_NATION</i>									0.271** (3.87)	0.225** (2.81)	0.221** (3.69)	8.365** (7.83)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.033	0.045	0.045	0.061	0.031	0.042	0.015	0.061	0.010	0.051	0.035	0.028
N	4071	4071	4071	102988	4071	4071	4071	102988	17317	17317	17317	378002

Table A3: Event study with difference-in-differences analysis, robustness tests

This table reports results from an event study analysis of hedge fund performance around an increase in the diversity of the fund management team. Alpha is Fung and Hsieh (2004) seven-factor monthly alpha with factor loadings estimated over the last 24 months. In the baseline specification, event month is the month that a fully homogenous team increases its education, experience, or nationality-based diversity from an initial value of zero with the inclusion of a new team member from a different background. Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. Therefore, teams with a diversity measure of zero comprise managers who all attended the same university, worked at the same employer, or originate from the same country. In the baseline specification, the period “before” is the 36-month period before the event month and the period “after” is the 36-month period after the event month. To be included in the analysis, a hedge fund must survive at least 36 months before and after the event month. Funds in the control group are matched to funds in the treatment group based on fund alpha in the 36-month pre-event period. For example, in the fund alpha analysis, funds in the control group are matched to funds in the treatment group by minimizing the sum of the absolute differences in monthly fund alpha in the 36-month pre-event period. Panels A, B, and C report results for team diversity based on education, experience, and nationality, respectively. Columns 1 to 4 present results where the event window is 24 months before and after the event. Columns 5 to 8 present results where the event window is 48 months before and after the event. Columns 9 to 12 present results for *all* teams that experience a diversity-enhancing manager addition as opposed to for just fully homogenous teams. Control funds are matched to treatment funds based first on team diversity in the pre-event period and then on fund performance in the pre-event period. The sample period is from January 1994 to June 2016. *, **, * denote significance at the 5% and 1% levels, respectively.

Fund performance attribute	Event window = 24 months, homogenous teams		Event window = 48 months, homogenous teams		Event window = 36 months, all teams							
	Before (1)	After (2)	Before (3)	After (4)	Before (5)	After (6)	Before (7)	After (8)	Before (9)	After (10)	After - before (11)	t-statistic (12)
Panel A: Diversity in education												
Fund return (percent/month), treatment group	0.519	0.942	0.422	2.52	0.519	0.602	0.083	0.87	0.475	0.618	0.142	0.96
Fund return (percent/month), control group	0.454	0.377	-0.076	-0.55	0.445	0.267	-0.177	-1.51	0.545	0.252	-0.293	-2.19
Difference in return (percent/month)			0.499	2.29			0.260	1.63			0.436	2.18
Panel B: Diversity in experience												
Fund alpha (percent/month), treatment group	0.176	0.697	0.521	2.38	0.106	0.581	0.475	2.50	0.323	0.624	0.301	5.16
Fund alpha (percent/month), control group	0.239	0.308	0.070	0.37	0.182	0.128	-0.054	-0.45	0.344	0.322	-0.022	-0.51
Difference in alpha (percent/month)			0.451	1.66			0.529	2.35			0.323	4.43
Panel C: Diversity in nationality												
Fund return (percent/month), treatment group	0.568	0.789	0.221	1.75	0.507	0.651	0.144	1.29	0.516	0.603	0.087	1.42
Fund return (percent/month), control group	0.553	0.298	-0.255	-1.96	0.406	0.255	-0.211	-2.22	0.474	0.345	-0.129	-2.98
Difference in return (percent/month)			0.476	2.63			0.355	2.42			0.216	2.88
Panel D: Diversity in nationality												
Fund alpha (percent/month), treatment group	0.226	0.660	0.435	3.30	0.221	0.643	0.422	3.27	0.262	0.566	0.303	2.50
Fund alpha (percent/month), control group	0.247	0.251	0.004	0.04	0.257	0.119	-0.138	-1.29	0.340	0.284	-0.056	-1.60
Difference in alpha (percent/month)			0.430	2.42			0.560	3.33			0.359	2.84
Panel E: Diversity in nationality												
Fund return (percent/month), treatment group	0.462	0.967	0.505	2.05	0.570	0.816	0.246	1.09	0.476	0.674	0.198	2.50
Fund return (percent/month), control group	0.413	0.329	-0.085	-0.83	0.499	0.366	-0.133	-1.62	0.412	0.251	-0.160	-4.13
Difference in return (percent/month)			0.589	2.21			0.379	1.58			0.359	4.06
Panel F: Diversity in nationality												
Fund alpha (percent/month), treatment group	0.244	0.919	0.675	2.47	0.293	0.788	0.495	1.88	0.292	0.444	0.152	2.04
Fund alpha (percent/month), control group	0.228	0.251	0.023	0.23	0.304	0.142	-0.161	-1.77	0.274	0.085	-0.189	-5.28
Difference in alpha (percent/month)			0.652	2.24			0.656	2.36			0.341	4.13

Table A4: Instrumental variable analysis, robustness tests

This table reports results from using an instrumental variable (IV) approach to examine whether the observed differences in fund performance between hedge funds with different team diversity values reflect unobserved differences that endogenously determine team diversity. Our instruments for team diversity exploits the propensity of hedge fund founding partners who grew up in more diverse cities to set up hedge funds with more diverse teams. *DIVERSITY_HOMETOWN_ECON* is the income diversity of the hedge fund founder's US hometown. *DIVERSITY_HOMETOWN_RACE* is the racial diversity of the hedge fund founder's US hometown. Diversity is one minus the respective Herfindahl concentration measure scaled by 10000. The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). Columns 1 to 3 show the first stage regression of team diversity on *DIVERSITY_HOMETOWN* and the group of control variables used in Table 4. The other independent variables include fund characteristics such as management fee (*MGTFFEE*), performance fee (*PERFFEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size ($\log(FUNDSIZE)$) as well as dummy variables for fund investment strategy. Columns 4 to 6 show the second stage results where the dependent variable is hedge fund alpha. Alpha is the Fung and Hsieh (2004) seven-factor monthly alpha where factor loadings are estimated over the last 24 months. The *t*-statistics, in parentheses, are derived from robust standard errors that are clustered by fund and month are in parentheses. Panel A and B report results where team diversity is instrumented with founder's hometown economic diversity and founder's hometown racial diversity, respectively. Panel C report results where team diversity is instrumented with founder's hometown economic diversity and racial diversity. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	IV first stage			Dependent variable		
	<i>DIVERSITY_EDU</i> (1)	<i>DIVERSITY_EXP</i> (2)	<i>DIVERSITY_NATION</i> (3)	<i>ALPHA</i> (4)	<i>ALPHA</i> (5)	<i>ALPHA</i> (6)
Panel A: Team diversity instrumented with founder hometown economic diversity						
<i>DIVERSITY_EDU</i>				2.230* (2.22)		
<i>DIVERSITY_EXP</i>					2.084* (2.29)	
<i>DIVERSITY_NATION</i>						1.689** (2.80)
<i>DIVERSITY_HOMETOWN_ECON</i>	5.596** (3.85)	6.184** (4.39)	3.132** (2.85)			
F-test: <i>DIVERSITY_HOMETOWN_ECON</i> = 0	14.82**	19.27**	8.12**			
Fund controls/ fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.207	0.175	0.091	0.011	0.012	0.008
N	20752	20752	45111	16409	16409	33909
Panel B: Team diversity instrumented with founder hometown racial diversity						
<i>DIVERSITY_EDU</i>				2.121* (2.57)		
<i>DIVERSITY_EXP</i>					1.376** (2.86)	
<i>DIVERSITY_NATION</i>						0.772* (2.32)
<i>DIVERSITY_HOMETOWN_RACE</i>	1.212** (4.08)	2.051** (5.01)	1.007** (3.72)			
F-test: <i>DIVERSITY_HOMETOWN_RACE</i> = 0	16.65**	25.10**	13.84**			
Fund controls/ fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.218	0.264	0.148	0.009	0.009	0.007
N	20752	20752	45111	16409	16409	33909
Panel C: Team diversity instrumented with founder hometown economic and racial diversity						
<i>DIVERSITY_EDU</i>				0.549** (2.90)		
<i>DIVERSITY_EXP</i>					0.561** (3.38)	
<i>DIVERSITY_NATION</i>						0.288** (3.34)
<i>DIVERSITY_HOMETOWN_ECON</i>	12.396** (3.27)	14.767** (3.08)	8.982* (2.30)			
<i>DIVERSITY_HOMETOWN_RACE</i>	3.246** (3.29)	3.650** (2.71)	2.558** (2.82)			
F-test: <i>DIVERSITY_HOMETOWN_ECON</i> = <i>DIVERSITY_HOMETOWN_RACE</i> = 0	130.58**	113.51**	31.39**			
Fund controls/ fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.637	0.557	0.426	0.008	0.009	0.007
N	20752	20752	45111	16409	16409	33909

Table A5: **Additional robustness tests**

This table reports results from multivariate OLS regressions on hedge fund performance. The dependent variables include hedge fund return (*RETURN*) and alpha (*ALPHA*). *RETURN* is the monthly hedge fund net-of-fee return. *ALPHA* is the Fung and Hsieh (2004) seven-factor monthly alpha where factor loadings are estimated over the last 24 months. The primary independent variables of interest are team diversity based on manager education (*DIVERSITY_EDU*), work experience (*DIVERSITY_EXP*), and nationality (*DIVERSITY_NATION*). Team diversity is defined as one minus the maximum number of team members with identical education backgrounds, work experiences, or nationalities scaled by the total number of team members. The other independent variables include fund characteristics such as management fee (*MGT_FEE*), performance fee (*PERF_FEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size ($\log(FUNDSIZE)$) as well as dummy variables for fund investment strategy and year. The coefficient estimates on the fund control variables are omitted for brevity. The *t*-statistics, in parentheses, are derived from robust standard errors clustered by fund and month. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variables					
Regressions on <i>RETURN</i>			Regressions on <i>ALPHA</i>		
<i>DIVERSITY_EDU</i>	<i>DIVERSITY_EXP</i>	<i>DIVERSITY_NATION</i>	<i>DIVERSITY_EDU</i>	<i>DIVERSITY_EXP</i>	<i>DIVERSITY_NATION</i>
(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Herfindahl Hirschman index-based diversity measures					
1.492*	0.354*	0.591*	1.563*	0.492**	0.493*
(2.21)	(1.99)	(2.45)	(1.99)	(2.60)	(2.39)
Panel B: Teachman (1980) entropy index-based diversity measures					
0.142**	0.171**	0.094**	0.125**	0.181**	0.063**
(3.20)	(3.34)	(4.28)	(2.90)	(3.52)	(2.75)
Panel C: Subsample period (1994 - 2004)					
0.254**	0.403**	0.303**	0.648**	0.447**	0.345*
(3.14)	(8.88)	(4.37)	(2.93)	(7.58)	(2.30)
Panel D: Subsample period (2005 - 2016)					
0.223**	0.294**	0.333**	0.589*	0.306**	0.179**
(3.31)	(6.97)	(11.18)	(2.31)	(6.51)	(4.46)
Panel E: Alternative investment strategy classification					
0.348**	0.281**	0.459**	0.516**	0.385**	0.434**
(6.74)	(7.16)	(7.07)	(6.28)	(4.88)	(6.08)
Panel F: Extended fund sample that includes two-person teams					
0.383**	0.287*	0.314**	0.524**	0.393**	0.288**
(5.86)	(2.42)	(10.29)	(6.34)	(4.62)	(5.79)
Panel G: Excluding shareholder activists					
0.356**	0.267**	0.339**	0.497**	0.428**	0.316**
(7.42)	(6.85)	(9.93)	(6.27)	(7.05)	(5.65)
Panel H: Including all diversity measures as independent variables in the regression					
0.199*	0.228**	0.234**	0.192*	0.343**	0.204**
(2.04)	(3.37)	(4.15)	(1.99)	(3.61)	(2.67)

Table A6: Portfolio sorts on hedge fund team diversity based on gender and ethnicity
 Every January 1st, hedge funds are sorted into five portfolios based on the diversity of their fund management teams. Team diversity is defined as one minus the maximum number of team members with identical gender or ethnicities scaled by the total number of team members. Portfolio performance is estimated relative to the Fung and Hsieh (2004) factors. The Fung and Hsieh (2004) factors are S&P 500 return minus risk free rate (SNPMRF), Russell 2000 return minus S&P 500 return (SCMLC), change in the constant maturity yield of the U.S. 10-year Treasury bond appropriately adjusted for the duration (BD10RET), change in the spread of Moody's BAA bond over 10-year Treasury bond appropriately adjusted for duration (BAAMTSY), bond PTFs (PTFSBD), currency PTFs (PTFSFX), and commodity PTFs (PTFSOM), where PTFs is primitive trend following strategy. Panels A and B report results for team diversity based on gender and ethnicity, respectively. The *t*-statistics are derived from White (1980) standard errors. The sample period is from January 1994 to June 2016. *, **, ** denote significance at the 5% and 1% levels, respectively.

Hedge fund portfolio	Number of funds	Excess return (annualized)	<i>t</i> -statistic of excess return	Alpha (annualized)	<i>t</i> -statistic of alpha	SNPMRF	SCMLC	BD10RET	BAAMTSY	PTFSBD	PTFSFX	PTFSOM	Adj. R ²
Panel A: Diversity based on gender													
Portfolio 1 (high diversity)	1,147	8.55**	6.49	6.87**	7.90	0.26**	0.17**	-0.77*	-1.49**	0.00	0.01**	0.00	0.588
Portfolio 2	1,148	6.41**	4.18	4.32**	4.19	0.29**	0.19**	-1.20**	-1.82**	-0.01	0.01	0.01	0.571
Portfolio 3	1,148	5.12**	3.30	3.07**	3.15	0.29**	0.15**	-0.96*	-2.95**	-0.01	0.01*	-0.00	0.628
Portfolio 4	1,149	4.79**	3.31	2.79**	3.20	0.28**	0.15**	-0.87*	-2.62**	-0.01	0.01*	-0.00	0.654
Portfolio 5 (low diversity)	8,775	4.15*	2.33	2.31	1.59	0.27**	0.18**	-1.09	-2.01**	-0.00	0.02*	0.01	0.368
Spread (1-5)		4.40*	1.99	4.56**	3.20	-0.01	-0.01	-0.32	0.52	0.00	-0.01	-0.01	0.173
Panel B: Diversity based on ethnicity													
Portfolio 1 (high diversity)	5,250	8.41	5.95	6.54**	6.26	0.27**	0.21**	-1.13	-1.95	-0.00	0.02	0.01	0.204
Portfolio 2	1,363	7.44	3.41	6.28**	2.89	0.19**	0.13**	-0.64	-1.50**	-0.00	0.02**	0.01	0.391
Portfolio 3	1,362	6.55	4.95	4.70**	5.61	0.26**	0.19**	-1.34**	-1.73**	-0.00	0.01**	0.01*	0.620
Portfolio 4	1,364	5.61	3.38	3.48**	3.30	0.33**	0.17**	-1.09**	-2.81**	-0.00	0.02**	0.00	0.619
Portfolio 5 (low diversity)	4,026	2.74	2.03	0.87	1.07	0.28**	0.15**	-0.96**	-2.22**	-0.00	0.01**	0.00	0.659
Spread (1-5)		5.67*	2.20	5.67**	3.59	-0.01	0.06	-0.17	-0.27	0.00	0.01	0.01	0.143

Table A7: **Regressions on gender and ethnic diversity**

This table reports results from multivariate OLS and Fama and MacBeth (1973) regressions on hedge fund performance. The dependent variables include hedge fund return (*RETURN*) and alpha (*ALPHA*). *RETURN* is the monthly hedge fund net-of-fee return. *ALPHA* is the Fung and Hsieh (2004) seven-factor monthly alpha where factor loadings are estimated over the last 24 months. The primary independent variables of interest are team diversity based on gender (*DIVERSITY_GENDER*) and team diversity based on ethnicity (*DIVERSITY_ETHNICITY*). *DIVERSITY_GENDER* is defined as one minus the maximum number of team members with the same gender scaled by the total number of team members. *DIVERSITY_ETHNICITY* is defined as one minus the maximum number of team members with the same ethnicity scaled by the total number of team members. The other independent variables include fund characteristics such as management fee (*MGT FEE*), performance fee (*PER F FEE*), high-water mark indicator (*HWM*), lock-up period in years (*LOCKUP*), leverage indicator (*LEVERAGE*), fund age in years (*AGE*), redemption period in months (*REDEMPTION*), and log of fund size ($\log(\text{FUNDSIZE})$) as well as dummy variables for fund investment strategy. The OLS regressions also include dummy variables for year. The *t*-statistics, in parentheses, are derived from robust standard errors clustered by fund and month for the OLS regressions and from Newey and West (1987) standard errors with lag structure as per Newey and West (1994) for the Fama and MacBeth (1973) regressions. The sample period is from January 1994 to June 2016. *, ** denote significance at the 5% and 1% levels, respectively.

Independent variable	Dependent variable							
	OLS regressions				Fama and MacBeth regressions			
	<i>RETURN</i>	<i>ALPHA</i>	<i>RETURN</i>	<i>ALPHA</i>	<i>RETURN</i>	<i>ALPHA</i>	<i>RETURN</i>	<i>ALPHA</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>DIVERSITY_GENDER</i>	0.365** (4.33)	0.276** (3.24)			0.394** (3.72)	0.312* (2.09)		
<i>DIVERSITY_ETHNICITY</i>			0.137** (5.86)	0.143** (5.03)			0.139** (4.80)	0.153** (3.59)
<i>MGT FEE</i>	0.005 (0.25)	-0.030 (-1.19)	-0.009 (-0.49)	-0.039 (-1.45)	0.050 (1.63)	0.018 (0.64)	0.050 (1.62)	0.016 (0.60)
<i>PER F FEE</i>	0.000 (0.07)	0.004* (1.97)	0.007 (1.65)	0.013** (6.71)	0.006 (1.40)	0.005 (1.56)	0.006 (1.35)	0.005 (1.53)
<i>HWM</i>	-0.005 (-0.13)	-0.098** (-3.46)	-0.076 (-1.36)	-0.163** (-5.19)	0.011 (0.29)	-0.058 (-1.46)	0.016 (0.42)	-0.055 (-1.36)
<i>LOCKUP</i>	0.099* (2.54)	0.126 (1.06)	0.066 (1.66)	0.081 (0.66)	0.095* (2.13)	0.184 (0.94)	0.093* (2.15)	0.183 (0.93)
<i>LEVERAGE</i>	0.054 (1.88)	0.081** (2.90)	0.048 (1.30)	0.083** (2.74)	0.013 (0.36)	0.059 (1.84)	0.014 (0.40)	0.056 (1.68)
<i>AGE</i>	-0.016** (-6.08)	-0.019** (-5.41)	-0.025** (-4.93)	-0.029** (-7.36)	-0.017** (-3.49)	-0.022** (-4.17)	-0.017** (-3.44)	-0.022** (-4.03)
<i>REDEMPTION</i>	0.007 (1.39)	-0.001 (-0.17)	0.026** (2.74)	0.019** (3.19)	0.011 (1.96)	0.007 (1.16)	0.011* (1.98)	0.007 (1.20)
$\log(\text{FUNDSIZE})$	-0.068** (-10.42)	-0.009 (-1.24)	-0.081** (-10.44)	-0.011 (-1.24)	-0.090** (-7.14)	-0.030 (-1.83)	-0.090** (-7.02)	-0.030 (-1.67)
Strategy fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	No	No	No	No
R ²	0.018	0.006	0.002	0.001	0.060	0.040	0.060	0.041
N	513427	381800	515333	383604	513427	381800	515333	383604