The Impact of Informational and Social Category Work Group Diversity on Performance:

Large Sample Evidence from the Mutual Fund Industry *

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Abstract

This paper investigates the impact of work group diversity on performance. Analyzing a uniquely large sample of management teams from the U.S. mutual fund industry we find that the influence of diversity on performance depends on the dimension of diversity that is analyzed. While diversity in tenure and educational diversity of fund management team members is positively related to performance, gender diversity is negatively related to performance. Age diversity has no strong impact. Our results have important implications for the optimal composition of work groups and for investment strategies of fund investors.

1 Introduction

Over the past decades, the workforce in all industrialized countries has become increasingly heterogenous. A successful diversity management is now an important challenge for the modern corporations because work group composition can have important effects on team performance (see, e.g., Williams and O'Reilly (1998)).[1] However, the direction of the impact of diversity on team performance is still controversial (see, e.g., Siciliano (1996), and Jehn, Northcraft, and Neale (1999)). While some studies show that diverse teams outperform homogenous teams (see, e.g., Nemeth (1986), Jackson (1992), and Richard (2000)) other studies provide the opposite finding (see, e.g., Ancona and Caldwell (1992) and Timmerman (2000)). Thus, a clear indication for the optimal composition of work groups is still missing. This paper investigates the impact of several important diversity dimensions on performance in a uniquely large sample from the mutual fund industry. We examine the joint impact of tenure diversity, educational diversity, gender diversity, as well as age diversity.

In the literature, there are three main groups of diversity theories: social categorization, similarity/attraction, and information and decision making (see Williams and O'Reilly (1998)). While the first two theories predict a negative effect of diversity on performance, the latter theory stresses the positive effects of diversity on performance. Jehn, Northcraft, and Neale (1999) offer a convincing approach to reconcile these opposing predictions. They distinguish between informational diversity and social category diversity.[2] *Informational diversity* is defined as differences in knowledge bases, skills or perspectives of team members. These differences can arise if team members are heterogenous in terms of education or work experience. If informational diversity is high, the information set available to the team is large and different alternatives will be evaluated and criticized intensively because every team member might have a different opinion on how to solve a specific task (see, e.g.,

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[1] In this paper, we use work group and team as synonyms.

[2] Jehn, Northcraft, and Neale (1999) also look at a third dimension: value diversity. It measures the difference of group members' opinion on the group's real task or mission. Increased value diversity can cause task-related conflicts or relationship conflicts. As our data does not allow us to measure value diversity, we will not focus on this diversity dimension in our following investigation.

Pelled (1993)). These task-oriented conflicts might then enhance problem solving abilities, creativity and eventually lead to high-quality solutions and a better performance (see, e.g., Schwenk and Valacich (1994)). *Social category diversity* is defined as differences in social category membership. It can arise if team members differ in terms of gender or age or if they belong to different ethnical groups (see, e.g., Jackson (1992)). These differences can lead to reduced within-group communication, lower levels of cohesiveness and a lower level of satisfaction with the team. If teams fail to manage these disagreements, relationship-oriented conflicts arise with negative effects on performance (see, e.g., Williams and O'Reilly (1998), Tjosvold (1991)). In their study, Jehn, Northcraft, and Neale (1999) find only partial support for these predictions. Based on a survey conducted in a household goods company, they find no evidence for a negative impact of social category diversity on performance while they find a positive impact of informational diversity on performance. However, it is not clear whether their findings can be generalized, as they are based on a relatively small sample of work groups from one single company, rely on subjective survey data and could be driven by the priming effect of the organizational culture in that specific firm.

To circumvent these drawbacks, we use data from management teams in the equity mutual fund industry. Looking at this industry allows us to overcome major shortcomings of existing studies for several reasons. First, it offers an uniquely large number of observations taken from different companies covering the whole mutual fund industry.[3] This is a major advantage since we can investigate diversity over different organizational frameworks across the whole mutual fund industry. This allows us to examine diversity effects separate from the effects of the organizational culture in a specific company. Second, fund management teams in mutual fund companies fit the Hackman (1987) definition of work groups very well: team members see themselves and are perceived by others as an independent social entity within the mutual fund company and their performance affects others. Third, fund

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[3]We are aware of no study that investigates an comparable large number of management teams. In an overview, Milliken and Martins (1996) and Williams and O'Reilly (1998) cite studies on diversity and performance which are mostly based on small samples of up to about 100 teams from one or a small number of firms.

management teams work in a relatively homogenous environment with clearly defined tasks, i.e. every team in our sample has to manage an equity fund. Thus, they can be easily compared and our results are not influenced by different degrees of task difficulty or complexity that might affect team outcomes. Fourth, the decisions made by these management teams matter for promotion and remuneration (see, e.g., Khorana (1996)) which ensures that they exert effort to achieve a high fund performance. Additionally, they make repeated decisions over an extended period of time, typically working together for several years. Thus, findings are not biased by weakly incentivised, artificial and short-lived groups without sustained interdependence like the ones typically examined in experiments. Finally, the performance of fund management teams is easily quantifiable based on fund returns. Williams and O'Reilly (1998) mention the difficulty to measure performance as one of the main problems of existing studies on diversity. The finance literature has developed advanced metrics to reliably capture the performance of funds (see, e.g., Fama and French (1993) and Carhart (1997)). This is a major advantage compared to studies that have to rely on qualitative performance measures like ratings provided by the team leader (see, e.g., Pelled, Eisenhardt, and Xin (1999)) since fund performance measures do not depend on self-perceptions or subjective judgements.

This paper contributes to two main strands of the literature. First, it contributes to the broad empirical literature on work group diversity.[4] We extend this literature by jointly examining various dimensions of diversity within a uniquely large sample and by quantifying the benefits of successful diversity management in terms of higher fund returns. Second, our paper contributes to the literature on the determinants of fund performance. There are several papers on the impact of single managers' characteristics or the status of a fund as

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[4](See, e.g., Milliken and Martins (1996), Hambrick, Cho, and Chen (1996), Pelled, Eisenhardt, and Xin (1999), Kilduff, Angelmar, and Mehra (2000), and Groysberg, Polzer, and Elfenbein (2007)). For excellent overviews, see Milliken and Martins (1996) and Williams and O'Reilly (1998).

being single or team managed on fund performance.[5] However, ours is the first study to look at the impact of group diversity within fund management teams on fund performance.

2 Data and Methodology

2.1 Data and Summary Statistics

Our empirical analysis is based on data from the CRSP Survivor Bias Free Mutual Fund Database[6] as well as the Morningstar Principa Database CDs. The CRSP database covers virtually all U.S. open-end mutual funds and provides information on fund returns, investment objectives, fund managers and other fund characteristics. One major constraint of this database is that it does not include detailed information about fund managers. We obtain the fund managers' age, degree and tenure from the fund manager profiles provided by the Morningstar database.[7] We merge the CRSP mutual fund database with the mutual fund database published by Morningstar by matching funds based on various criteria such as fund name, fund segment and year. Where necessary, we hand match funds from both databases.

To investigate the influence of diversity within fund management teams on managerial outcomes, we focus on funds managed by more than one manager. Since we need to identify individual characteristics of fund managers, we only include management teams where the names of all members are explicitly given in the CRSP database.[8]

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[5]See, e.g., Chevalier and Ellison (1999b) on the impact of the fund manager's age on performance, Niessen and Ruenzi (2007) on the impact of the fund manager's gender on performance and Prather and Middleton (2002) and Baer, Kempf, and Ruenzi (2006) on the impact of team management on fund performance.

[6]Source: CRSP, Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. For a more detailed description of the CRSP database, see Elton, Gruber, and Blake (2001) and Carhart (1997).

[7]Age is not explicitly reported in the manager profiles. Following the method suggested in Chevalier and Ellison (1999a), we calculate a proxy for manager age based on information about the year a manager finished her degree.

[8]For differences between teams where the names of individual managers are known and anonymous teams, see Massa, Reuter, and Zitzewitz (2006).

We focus on actively managed well-diversified equity funds which invest more than 50% of their assets in U.S. stocks, excluding index, sector, bond, money market, balanced, and international funds. We use the ICDI objective codes as provided by Standard and Poor's Fund Services to define the market segment in which a fund operates. We concentrate on the following three standard segments: *Aggressive Growth*, *Growth and Income*, and *Long Term Growth*. Since our data on manager characteristics from Morningstar begins in 1996, our sample starts in 1996. Overall, our study covers the time period from January 1996 to December 2003.

We aggregate all share classes of the same fund to avoid multiple counting. Although multiple share classes are listed as separate entries in the CRSP database, they are backed by the same portfolio of assets and have the same portfolio managers. They usually only differ with respect to their fee structure which means that returns are highly correlated across different share classes of the same fund. We follow the approach in Daniel, Grinblatt, Titman, and Wermers (1997) to match share classes of a fund by fund names and characteristics such as fund management structure, turnover, and fund holdings in asset classes.

Our final sample contains 2,260 yearly observations of team managed funds. Summary statistics for this sample are presented in Table 1.

— Please insert TABLE 1 approximately here —

The funds in our sample have an average age of 11.3 years and an average size of 942.04 Million USD. The mean turnover ratio is 96.02% with a large variation ranging from 0.01% up to 684%. Expense ratios are distributed between 0.01% and 3.87% with a mean of 1.32. The mean (median) fund management team consists of 3.11 (3) team members, while the minimum number of team members is (by definition) 2 and the maximum number of team members is 15. The large variation in fund characteristics like age, size and turnover

might influence managerial outcomes, i.e. the performance of a fund management team, and mandates to control for them when investigating the impact of diversity on performance.

2.2 Diversity Measures

To capture team diversity with respect to informational diversity and social category diversity we develop four different diversity measures. Informational diversity is likely to arise as a function of differences among group members in work experience and education (see, e.g., Jehn, Northcraft, and Neale (1999)). To capture the degree of informational diversity we construct measures based on the fund managers' variations in industry tenure[9] and based on their degree-level.

Tenure diversity within a fund management team, $TenDiv_{i,t}$, is defined as the difference between the longest time a manager served in the industry, $MgerTen_{i,t}^{long}$, and the shortest industry tenure, $MgerTen_{i,t}^{short}$, of all members of fund i's management team in year t. The tenure of each manager in the mutual fund industry is captured by the first appearance of that manager in our sample.[10]

$$TenDiv_{i,t} = MgerTen_{i,t}^{long} - MgerTen_{i,t}^{short}. \tag{1}$$

Looking at the educational background of fund managers we find that managers vary in particular with respect to their level of degree (B.A., Master, PhD (or equivalent)). To

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[9]Additionally, we also calculate a measure on fund tenure diversity, i.e. the tenure of team members with the specific fund they manage. Results including this additional measure (not reported) are essentially identical to those presented in the paper. All results not reported in this paper are available from the authors upon request.

[10]This method might lead to some noise in our proxy as it is possible that some managers worked for an anonymous team earlier in their career and thus the starting date would not be correctly computed. Furthermore, the manager might have gained some experience in another area of fund management, e.g. in hedge funds. However, we do not expect this to be a very regular case or to systematically bias our results.

capture this difference we define a dummy variable, $EduDiv_{i,t}$, that is one if team members have different levels of degree, and zero otherwise:[11]

$$EduDiv_{i,t} = \begin{cases} 1 & different\ degree\ levels \\ 0 & uniform\ degree\ levels \end{cases}. \tag{2}$$

Social category diversity arises from explicit differences among group members in social category membership (see, e.g., Jackson (1992)). According to Jehn, Northcraft, and Neale (1999) essential social categories are gender and age. Based on these categories, we define our third and fourth diversity measure, respectively.[12] We define teams as gender diverse if they comprise male as well as female managers. Accordingly, gender diversity is indicated by a dummy variable, $GenDiv_{i,t}$, that is one if the respective team consists of male and female managers and zero if only male or only female managers are in the team.[13]

$$GenDiv_{i,t} = \begin{cases} 1 & male\ and\ female\ managers \\ 0 & only\ male\ or\ only\ female\ managers \end{cases}. \tag{3}$$

We measure age diversity, $AgeDiv_{i,t}$, as the difference in age between the oldest team member, $MgerAge_{i,t}^{old}$, and the youngest team member, $MgerAge_{i,t}^{young}$, in years:[14]

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[11]It would also be interesting to study the impact of diversity with respect to the field in which team members got their degree. Unfortunately, our data does not include this information.

[12]Other social categories are race or ethnicity. Unfortunately, we can not examine the impact of these diversity dimensions due to a lack of data availability.

[13]There are only about 2% female-only teams in the fund industry. This is in line with the low overall number of female managers in the fund industry (see, e.g., Niessen and Ruenzi (2007)).

[14]As alternative diversity measure with respect to age and tenure we use the standard deviation of team members age and tenure, respectively. Results (not reported) are qualitatively similar.

$$AgeDiv_{i,t} = MgerAge_{i,t}^{old} - MgerAge_{i,t}^{young}. \tag{4}$$

To investigate the distribution of our four diversity measures, we compute the mean and median values as well as the minimum and maximum values. Results are summarized in Table 2.

— Please insert TABLE 2 approximately here —

The mean value for industry tenure diversity, $TenDiv_{i,t}$, in our sample is 6.15 years. It varies between 0 years and 41.75 years. The mean value for our educational diversity proxy is 0.43, i.e. 43% of all funds in our sample are managed by teams where team members hold different levels of degree. The mean value for our gender diversity proxy is 0.28, i.e. 28% of all teams are mixed-gender teams. Finally, the mean age diversity is 5.73 years, ranging from a minimum of 0 years to a maximum of 38 years.

Figure 1 documents the development of the four diversity measures over the sample period from 1996 to 2003.

— Please insert FIGURE 1 approximately here —

Our proxies for diversity vary over time. Management teams become less diverse with respect to the age of their members (Panel A); the average age span falls from 7.3 years in 1996 to 4.4 years in 2003. In contrast, tenure diversity increases from about 5.3 years to 5.9 years. Panel B documents the percentage of gender mixed teams which is highest in the years 1999 and 2000 (about 30 %) starting at 17 % in 1996 and falling back to 23 % in 2003. With respect to the level of degree, about 43 % of all teams are diverse as defined above (Panel C). This percentage stays nearly constant between 1996 and 2001 and only

slightly decreases for the last two years of our sample. Overall, the different dimensions of diversity do not show an uniform trend over the sample period.

To get a first impression of the dependencies between our diversity measures, we compute correlations between them. Results are summarized in Table 3.

— Please insert TABLE 3 approximately here —

Correlations between the diversity dimensions range from -0.01 to 0.30 indicating that a team that for example is diverse in terms of gender is not necessarily also diverse in terms of age, tenure or education. Gender diversity generally exhibits lower correlations with the other diversity measures while the highest correlation of 0.30 is between age diversity and diversity in terms of tenure.

2.3 Performance Measures

To investigate the influence of diversity within the fund management team on the performance of a fund we analyze two performance measures. First, we compute the return of fund i in year t over the risk-free rate net of expenses, $Ret_{i,t}$. This measure allows us to directly assess how the value of fund shares develops. However, it does not take into account the riskiness of a fund's strategy. Therefore, we use a common measure of mutual funds' risk adjusted performance and calculate the yearly Carhart (1997) four-factor Alpha. This measure controls for the influence of the investment styles a fund management team is following. Thus, it allows us to directly compare the performance of different fund management teams independent of the investment styles a specific management team might pursue. It is obtained by running the following regression for each fund i and each year t:

$$R_{i,m,t} - R_{f,m,t} = \alpha_{i,t}^{FF} + \beta_{i,M,t}(R_{M,m,t} - R_{f,m,t}) + \beta_{i,S,t}SMB_{m,t}$$

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$$+\beta_{i,H,t}HML_{m,t} + \beta_{i,MO,t}MOM_{m,t} + \varepsilon^{FF}_{i,m,t}, \tag{5}$$

where $R_{i,m,t} - R_{f,m,t}$ denotes fund i's excess return over the risk-free rate in month m of year t and $R_{M,m,t} - R_{f,m,t}$ denotes the excess return of the fund's market segment over the risk-free rate, respectively.[15] $SMB_{m,t}$ is the return difference between small and large capitalization stocks, $HML_{m,t}$ denotes the return difference between high and low book-to-market stocks and $MOM_{m,t}$ is the return difference between stocks with high and low returns in the previous year for month m of year t.[16] High loadings mean that the fund follows a small-cap (SMB), value (HML), or momentum (MOM) strategy, respectively. The estimated alpha, $\hat{\alpha}^{FF}_{i,t}$, from (5) is our second performance measure for fund i in year t.[17]

3 Results

3.1 Impact of Diversity on Performance

We start our empirical investigation by relating our two performance measures to several dimensions of diversity as well as other potentially relevant drivers of fund performance:

$$
\begin{aligned}
Perf_{i,t} =\ & \alpha + \beta_1 \cdot TenureDiv_{i,t-1} + \beta_2 \cdot EducDiv_{i,t-1} + \beta_3 \cdot GenderDiv_{i,t-1} \\
& + \beta_4 \cdot AgeDiv_{i,t-1} + \beta_5 \cdot Perf_{i,t-1} + \beta_6 \cdot FundAge_{i,t-1} \\
& + \beta_7 \cdot FundSize_{i,t-1} + \beta_8 \cdot Turnover_{i,t-1} + \beta_9 \cdot Expenses_{i,t-1} + \varepsilon_{i,t}. \tag{6}
\end{aligned}
$$

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[15]Instead of using the excess return of the segment the fund belongs to we also use the market excess return. Results (not reported) are very similar.

[16]The market, the size, and the value portfolio returns were taken from Kenneth French's website http://mba.tuck.dartmouth.edu/pages/faculty/ken.french, while the momentum factor was kindly provided by Mark Carhart.

[17]These yearly alpha estimates are based on 12 monthly observations and will thus be noisy. However, we are not interested in a precise measure of a specific fund's performance, but in differences across a large cross-section of funds.

Here, $Perf_{i,t}$ denotes one of our performance measures, i.e. the excess return of fund i in year t over the risk free rate or the Carhart (1997) four factor alpha, respectively. Tenure diversity, $TenureDiv_{i,t-1}$, and educational diversity, $EducDiv_{i,t-1}$, of the management team of fund i at the end of year $t-1$ are our proxies for informational diversity (see Section 2). Social category diversity is proxied by gender diversity, $GenderDiv_{i,t-1}$, and age diversity, $AgeDiv_{i,t-1}$, of fund i's team members' at the end of year $t-1$, respectively.

We control for lagged performance, $Perf_{i,t-1}$, the logarithm of fund i's age in years, $FundAge_{i,t-1}$, the logarithm of its total net-assets in million USD, $FundSize_{i,t-1}$, its yearly turnover ratio, $Turnover_{i,t-1}$, and its expense ratio, $Expenses_{i,t-1}$.[18] Previous studies show that these variables can impact fund performance.[19] To ensure that we only compare funds that are operating within the same market segment, we estimate all our regressions with segment-fixed effects. Furthermore, we add time fixed effects to account for differences over our sample period. The simplest approach to estimate Model (6) is to run pooled regressions. However, this approach assumes independent errors. To allow for possible violations of this assumption, we take advantage of the panel structure of our data and estimate our model with panel corrected standard errors (PCSE). Using a PCSE specification allows us to accommodate panel data with autocorrelation and cross-correlation of the error terms and heteroscedasticity (see Beck and Katz (1995)). Results are presented in Table 4.

— Please insert TABLE 4 approximately here —

Panel A contains results where we use excess fund returns over the risk free rate as performance measure. In Column 1 the impact of informational diversity on fund returns is investigated. Diversity in tenure is significantly positive related to fund returns. The coefficient reflecting educational diversity is also positive but not significant. Results on the impact of social category diversity (Column 2) show that gender diversity is significantly

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[18] We lag our explanatory variables by one year to mitigate potential endogeneity problems.

[19] They are examined in Chen, Hong, Huang, and Kubik (2004), Barber and Odean (2000) and Brown and Goetzmann (1995), respectively.

negative related to fund returns while age diversity has no significant impact on performance. As some of our diversity measures are significantly correlated (see Table 3), we also examine the impact of informational and social category diversity on fund returns in one joint regression. This allows us to determine the marginal impact of each diversity measure. Results are contained in Column 3. Looking at the results for our proxies for informational diversity, we can confirm the significantly positive effect of tenure diversity. Additionally, education diversity now also has a significantly positive influence on fund returns. Regarding the impact of our social category diversity measures, we again find a significantly negative impact of gender diversity. Age diversity has still no significant impact on performance. All statistically significant effects are also economically significant. The coefficient of 0.0001 for the impact of industry tenure diversity indicates that, for example, a fund with a maximum industry tenure span of 20 years within its management team c.p. outperforms a fund where all managers have the same industry tenure by 2.43% p.a. Furthermore, a fund with educational diverse team members outperforms a fund where all managers have the same education by 1.10% p.a. Finally, a mixed-gender team underperforms a single-gender team by 1.82% p.a.[20] These results show that the impact of diversity on performance depends on the dimension of diversity we focus on. While informational diversity generally seems to improve returns, social category diversity has a negative impact on returns.

It is possible that diversity affects the riskiness of the decisions teams make. For example, Adams and Ferreira (2004) show a negative correlation between firm risk and gender diversity within corporate boards. Panel B contains results for the risk-adjusted fund performance measured by the Carhart (1997) four factor alpha.[21] This accounts for potential differences in managerial risk taking. Results are similar to those obtained using excess fund returns: the estimates for the impact of our informational diversity measures are positive (Column 1), but only the coefficient for the impact of tenure diversity is significant. Looking

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[20]Niessen and Ruenzi (2007) find no difference between the performance of female and male single managed funds. Thus the negative effect of gender diversity can not be attributed to the presence of a female in a team but to intra-group decision processes as suggested by Jehn, Northcraft, and Neale (1999).

[21]Alternatively, we use Jensen (1968) one-factor Alphas and Fama and French (1993) three-factor Alphas as performance measures. Results (not reported) remain stable.

at the results on the impact of social category diversity (Column 2), we again find a significantly negative influence of gender diversity. Other than before, we now also observe an unexpected marginally significant positive impact of age diversity. However, age diversity is highly correlated with industry tenure diversity (see Table 3). Thus, it might partially reflect the positive impact of the latter variable (see Column 1). Therefore, in Column 3 we again examine the joint influence of all diversity measures. Now, we indeed find a significant positive influence of industry tenure diversity and a significant negative influence of gender diversity, while age diversity has no significant influence anymore. The influence of industry tenure diversity and gender diversity is significant at the 5% and the 1% level, respectively. Their impact is also economically significant. Results indicate a deterioration of risk adjusted fund performance by 1.50% p.a. if the fund is managed by a gender-diverse team as compared to a fund managed by a single-gender team. Similarly as above, a fund with a maximum age span of 20 years outperforms a fund with team members of identical ages by 2.43% p.a. Generally, these findings support our previous results: informational diversity positively affects performance, while social category diversity hurts performance. This confirms the reasoning of Jehn, Northcraft, and Neale (1999).

3.2   Influence of Team Characteristics

It is possible that characteristics of the team or its members influence performance. For example, Simons, Pelled, and Smith (1999) argue that team size can influence decision making and group outcomes.[22] Furthermore, Bedeian and Mossholder (2000) emphasize the need to control for team size to avoid measurement artifacts due to a positive correlation between team size and diversity measures when teams are small. Thus, we add team size, measured as the logarithm of the number of team members, as additional explanatory variable in our regressions. Results for a regression using excess returns over the risk free rate as dependent variable are presented in Panel A of Table 5.

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[22]Yermack (1996) shows that the size of corporate boards can have an impact on firm performance.

— Please insert TABLE 5 approximately here —

Results in Column 1 of Panel A show that social category diversity still has a negative impact on returns while informational diversity is positively related to returns after controlling for team size. However, the positive influence of informational diversity is now additionally driven by educational diversity. Team size itself has a marginally positive impact on fund returns.

It is also possible that our diversity measures partly capture the influence of the average characteristics of the team members. For example, Chevalier and Ellison (1999b) show that managers with a higher degree level obtain a better performance. Our educational diversity measure can only attain a value larger than zero if at least one manager obtained a MBA or PhD degree.[23] Thus, we add the average age of all managers in fund i's management team at the end of year $t-1$, $MgerAge_{i,t-1}$, their average tenure, $MgerTenure_{i,t-1}$, and dummy variables indicating whether any of the team members has a MBA ($MgerMBA_{i,t-1}$) and a PhD ($MgerPhD_{i,t-1}$), respectively, as additional explanatory variables.[24] Results are presented in Column 2 of Panel A. They are qualitatively similar to those in Column 1. The only notable difference is a now strong impact of educational diversity on returns. The impact of the team member characteristics on fund returns are small. Only average industry tenure and the MBA dummy have a marginally significant positive impact on returns. In Column 3 we jointly examine the impact of team size and average characteristics of the team members. Results remain very similar, the only difference being that we now find no significant impact of team size anymore.

In Panel B we investigate the impact of diversity on fund performance as measured by the Carhart (1997) four-factor Alpha. Our findings from above are confirmed: diversity with respect to industry tenure has a positive impact on performance, while gender diversity has

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[23]Similarly, O'Reilly, Williams, and Barsade (1997) found an impact of ethnic diversity on innovation. However, this effect was driven by the share of Asians, rather than by diversity itself.

[24]We do not include a dummy for the presence of a women, as this dummy would be identical to our gender diversity measure. However, as mentioned earlier, gender per se has no impact on performance in the mutual fund industry (see Niessen and Ruenzi (2007)). Thus, we do not need to control for this attribute.

a negative impact on performance. However, in this case the impact of educational diversity is not significant anymore. Furthermore, the marginally significant positive impact of managers' industry tenure and of the MBA degree documented above can not be confirmed using risk-adjusted performance. Thus, managers with high tenure and managers with a MBA degree seem to follow riskier strategies than managers with short tenure and no MBA degree. This is in line with findings from Chevalier and Ellison (1999b) suggesting that young managers on average hold less risky positions to minimize the probability of job loss.

3.3   Impact of Diversity in Different Market Segments

Pelled, Eisenhardt, and Xin (1997) and Ancona and Caldwell (1992) show that the impact of diversity can depend on task design. While the task of managing a fund should be similar across market segments, we still examine the question whether our findings hold universally for all three market segments (i.e. Growth, Aggressive Growth, Long-Term Growth) or whether they are driven by the funds from one specific segment. We estimate Model (6) with excess returns as well as with the Carhart (1997) Four Factor Alpha as dependent variable for subsamples of funds belonging to the Aggressive Growth, Growth and Income and Long-Term Growth segment, respectively.[25] Results are presented in Table 6.

— Please insert TABLE 6 approximately here —

Panel A contains results where a fund's excess return over the risk free rate is the dependent variable. For all three segments, we find a positive estimate for the influence of informational diversity and, with the exception of age diversity in the long term growth segment, a negative estimate for the influence of social category diversity. The influence of tenure diversity (gender diversity) on performance is significantly positive (negative) in all segments. Very similar results are obtained if we examine the impact of diversity on

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[25]We also estimated the extended model from Table 5 including team size and additional team characteristics as explanatory variables. Results (not reported) are not affected by this.

the Carhart (1997) Four Factor Alpha (Panel B). The most pronounced influence emanates from gender diversity. Overall, these results show that team composition is an important driver of fund performance in all three segments.

3.4 Temporal Stability

To examine the temporal stability of our results we split up our sample into to two subperiods covering the years from 1996 to 1999 and from 2000 to 2003, respectively. Estimation results for the impact of diversity on performance for these subsamples are presented in Table 7.

— Please insert TABLE 7 approximately here —

Panel A presents results for the impact of diversity on excess fund returns over the risk free rate. Generally, results in both subperiods are in line with the findings from the full sample. In the 1996 to 1999 subperiod we now find a significantly negative impact of both social category diversity measures (gender diversity and age diversity), while only the impact of gender diversity is significant for the full sample. In the 2000 to 2003 subperiod we find a positive estimate for the influence of both informational diversity measures (tenure diversity and educational diversity). However, they are not significant in this subsample, while the impact of tenure diversity is significant for the full sample. Looking at the results in Panel B where we analyze the Carhart (1997) Four Factor Alpha we find somewhat stronger results. In this case, we generally find a negative impact of social category diversity and a positive impact of informational diversity. In both subsamples, the negative impact of gender diversity and the positive impact of tenure diversity is significant. Overall, these results show that our main findings are robust and do not depend on the specific sub-period we examine.

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Instead of splitting our sample in the middle, we also analyze subsamples consisting of bull and bear market years, respectively, and subsamples consisting of volatile and calm years, respectively. Results (not reported) are qualitatively similar for all subsamples.

3.5   Profitability of Investment Strategies based on Group Diversity

Finally, we investigate whether it would have been possible to generate abnormal returns with an investment strategy that takes into account the effects of fund management team diversity on performance.

First, we construct portfolios of funds managed by teams that have either a high degree of informational diversity, $InfoDiversity$, or a low degree of informational diversity, $InfoHomogeneity$. Funds with an above-median value of industry tenure diversity in a given year and at the same time with an above-median value of educational diversity in this year are assigned to the $InfoDiversity$ portfolio. Funds with a below-median value of industry tenure diversity and at the same time with a below-median value of educational diversity are assigned to the $InfoHomogeneity$ portfolio.

Second, we construct portfolios of funds managed by teams that have either a high degree of social category diversity, $SocialDiversity$, or a low degree of social category diversity, $SocialHomogeneity$. Funds with an above-median value of gender diversity and at the same time with an above-median value of age diversity are sorted into the $SocialDiversity$ portfolio. Funds with a below-median value of gender diversity and at the same time with a below-median value of age diversity are sorted into the $SocialHomogeneity$ portfolio.

Third, we combine the two approaches and construct a $SocialHomogeneity/$ $InfoDiversity$ portfolio as well as a $SocialDiversity/InfoHomogeneity$ portfolio. The first portfolio consists of all funds that belong to the $SocialHomogeneity$ and at the same time to the $InfoDiversity$ portfolio, while the latter portfolio consists of all funds that belong to the $SocialDiversity$ and at the same time to the $InfoHomogeneity$ portfolio.

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All these portfolios are re-balanced on a yearly basis. We calculate equally-weighted yearly returns of these portfolios as well as the respective difference between these equally weighted portfolio returns over our sample period.[26]

Based on our findings hitherto we expect the $InfoDiversity$ portfolio to outperform the $InfoHomogeneity$ portfolio, the $SocialHomogeneity$ portfolio to outperform the $SocialDiversity$ portfolio, and the $SocialHomogeneity/InfoDiversity$ portfolio to outperform the $SocialDiversity/InfoHomogeneity$ portfolio. Results are given in Table 8.

— Please insert TABLE 8 approximately here —

Results show that a portfolio consisting of funds with high informational diversity outperforms a portfolio consisting of funds with low informational diversity by 1.82% p.a. on a raw return basis and by 1.50% p.a. on a risk-adjusted basis, respectively. A portfolio consisting of funds managed by teams with high social category diversity underperforms a portfolio consisting of funds managed by teams with low social category diversity by 1.09% p.a. on a raw return basis and by 1.21% p.a. on a risk-adjusted basis, respectively. Finally, we find that the $SocialHomogeneity/InfoDiversity$ portfolio outperforms the $SocialDiversity/InfoHomogeneity$ portfolio by a statistically significant and economically meaningful 2.06% p.a. based on raw returns and by 2.18% p.a. based on risk-adjusted returns, respectively.[27]

Overall, these results show that the degree and the dimension of diversity within a fund management team is an important and valuable information for fund investors.

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[26]All portfolio strategies are also evaluated based on value weighted portfolios. Results (not reported) remain similar.

[27]The four factor Alphas of the $InfoDiversity$ and $InfoHomogeneity$ portfolios, the $SocialDiversity$ and $SocialHomogeneity$ portfolios as well as the $SocialHomogeneity/InfoDiversity$ and $SocialDiversity/InfoHomogeneity$ portfolios are not significantly different from zero.

3.6 Discussion and Caveats

Our results support the theoretical reasoning in Jehn, Northcraft, and Neale (1999). They suggest that social category diversity is negatively related to team performance. This is consistent with the view that social-category diversity leads to relationship-oriented conflicts in work groups. In a work group like a fund management team, where all members are supposed to contribute to a common task, relationship-oriented conflicts can deteriorate group interaction, communication and eventually performance (see, e.g., Jackson (1992)).

Kanter (1977) argues that characteristics that are possessed by a small fraction of the relevant population are more important in the creation of social categories than characteristics that are possessed by a larger fraction. Based on this finding, Randel (2002) suggests that gender diversity is more likely to lead to conflicts if the numerical distinctiveness of gender group composition is high, i.e. if there is a clear dominance of one of the sexes. The mutual fund industry is a clearly male-dominated environment.[28] Thus, conflicts caused by gender diversity are likely to arise and negatively influence performance. This is consistent with our findings of a strong negative influence of gender diversity on performance.

Age is also regularly viewed as one dimension of social category diversity (see, e.g., Jehn, Northcraft, and Neale (1999), Simons, Pelled, and Smith (1999) and Pelled, Eisenhardt, and Xin (1999)). In most of our specifications we find no or only weak evidence for a negative influence of age diversity, which agrees to the findings of the empirical studies reviewed in Williams and O'Reilly (1998). A possible reason why we find no strong effect of age diversity is the less pronounced numerical distinctiveness between younger and older managers as compared to the numerical distinctiveness between female and male managers. Thus, age is probably less salient than gender and consequently age diversity has a less pronounced negative influence (see, e.g., Pelled (1993)).[29] Furthermore, in our sample, age

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[28]Niessen and Ruenzi (2007) report a share of about 10% females in the U.S. mutual fund industry from 1994 to 2003.

[29]The idea that a more equal distribution of social categories in the sample leads to less negative effects of heterogeneity on performance is consistent with Blau (1977). Blau's Paradox posits that only moderate levels of diversity hurt performance, while a further increase in group heterogeneity mitigates this effect.

might also be a proxy for experience or status rather than for social category, i.e. young and old managers are likely to have varied status-seeking tendencies. Overbeck, Correll, and Park (2005) and Groysberg, Polzer, and Elfenbein (2007) show that teams with too many individuals seeking for high status do not collaborate well since their attempt to gain status disrupts information sharing.

With respect to informational diversity, our findings indicate that informational diversity is positively related to performance. Jehn, Northcraft, and Neale (1999) argue that this dimension of diversity leads to task-related conflicts and increases the probability of reaching the optimal solution (see, e.g., Schwenk and Valacich (1994)). In our study, the main driver of this finding is diversity with respect to industry tenure of the team members, i.e. a mixture of experienced managers and managers who just entered the industry seems to be an optimal combination to generate superior performance.[30] This finding is in line with Ancona and Caldwell (1992) who argue that teams consisting of members that differ with respect to their tenure at the firm know a different set of people, differ with respect to their technical skills and have a different perspective on the organization's history. This provides tenure diverse teams with a broader range of contacts and knowledge and eventually improves decision quality. In contrast, Pfeffer (1985), Katz (1980), and Roberts and O'Reilly (1979) argue that team members who entered at the same time have more shared experiences and have developed networks which new members might find difficult to enter. Based on this reasoning, we would expect tenure homogenous teams to perform better. Our findings provide no support for this idea.

Besides supporting the predictions of Jehn, Northcraft, and Neale (1999), the results of our paper also nicely fit with a related economic model developed by Lazear (1999). This model concludes that a potentially positive impact of diversity on performance hinges on

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[30]Informal discussions with industry professionals indicate that the top management in fund companies often actively sets up teams where more experienced team members work together with younger managers. Besides offering the opportunity for the unexperienced managers to learn from the more experienced managers, the main advantage of tenure diversity they mention is that older managers might have more oversight, while younger managers are more active.

three main determinants. First, information and skills of the team members have to be disjoint so that the total information set increases with the addition of team members. Second, the information has to be relevant for the task that has to be solved. Third, communication costs have to be small so that they do not offset potential benefits gained by the additional information. Transferred to our findings, informational diversity has a positive impact on performance since team members with different educational and professional background increase the set of relevant and (at least partially) disjoint information the team can use to solve its task. In contrast to this, social category diversity increases communication costs and is therefore negatively related to performance.

Interestingly, the fund industry is moving towards optimal diversity structures of fund management teams in recent years, which suggests that fund companies seem to be aware of the differences in the relation between diversity and performance. While gender diversity and age diversity have decreased in recent years (Panel A and C in Figure 1), there is a pronounced trend towards more tenure diverse teams over most of our sample period (Panel D in Figure 1). Thus, especially those team compositions that seem to be more successful, i.e. tenure diverse and gender homogenous teams, became more prominent in recent years.

While our sample has several important advantages, one important drawback of our study is that we only observe team outcomes and not the decision process or the behavior of individual group members. We cannot take a look into the 'black box' of dynamic group processes and decision making in teams (see, e.g., Pelled, Eisenhardt, and Xin (1997) and Pelled, Eisenhardt, and Xin (1999)). Our study also does neither include an analysis of worker morale or commitment of team members to their team nor an analysis of personal well-being and satisfaction of team members. Furthermore, while we have a rich data set at hand which contains many demographic variables as well as fund characteristics, there are still variables that might influence performance that we can not observe. Most importantly, the behavior and performance of team members might depend on their remuneration contracts. We can not observe these contracts. However, we have no reason to assume that

they are systematically different between the members of diverse and homogenous teams. Another limitation of our study is that our data does not allow for an investigation of other important diversity categories like race and ethnicity. However, as long as such diversity categories are not highly correlated with the diversity dimensions we examine, we should find no misleading results.

4   Implications and Conclusion

This paper is the first to investigate how diversity within fund management teams affects performance. Using a uniquely large database of U.S. team managed equity funds we transfer the controversial literature on the effect of group diversity on performance to the mutual fund industry. Our analysis of 2,260 management teams of U.S. equity funds from 1996 to 2003 shows that the impact of diversity on performance depends on the dimension of diversity that is investigated. While social category diversity, measured as gender and age diversity, is negatively related to performance, informational diversity, measured as tenure and educational diversity, is positively related to performance. Our results are stable over time and robust with respect to fund, manager, and team characteristics that might be related to fund performance. These findings suggest that diversity is not a good per se. They also helps to explain some of the seemingly contradictory evidence regarding the impact of group diversity on performance reported in earlier studies.

Our findings have important implications for the optimal composition of work groups. While teams with members of different industry tenure (and to a lesser degree also teams with members of different education) outperform teams that are homogenous in terms of industry tenure (and education), age diversity has no significant effect on performance. Furthermore, single-gender teams outperform mixed-gender teams. Thus, to benefit from increased creativity and innovation that is often attributed to diverse work groups, it is important to consider the dimension of diversity that is incorporated.

While we think the mutual fund industry is ideally suited to test diversity issues, one has still to be careful in transferring our results to other settings. Specifically, our finding of a negative impact of gender diversity could be driven by the fact that the numerical distinctiveness between male and female managers makes gender a salient social category in the clearly male dominated mutual fund industry. Thus, our results are transferable to organizations that are male dominated. In contrast, in a female-dominated sample, O'Reilly, Williams, and Barsade (1997) find not impact of gender diversity on performance. This shows that the conclusion not to employ females in teams based on the findings in this paper might be premature. In contrast, the negative effect of gender diversity might vanish, if the share of women employed actually rises to a level where women are not a salient minority.

Since 2004, by the adoption of amendments to Forms N-1A and N-2, the SEC requires fund companies to mention by name each member of a fund management team in their prospectuses. This allows investors to identify the members of fund management teams and get an idea about the diversity within each team. Our results show that this information might be of some relevance for fund investors: a portfolio consisting of funds managed by teams that are characterized by high informational diversity and low social category diversity would have outperformed a portfolio consisting of funds with low informational diversity and high social category diversity by up to 2.18%p.a. on a risk-adjusted basis.

An efficient implementation of diversity is particulary important in the mutual fund industry, since the number of management teams employed by fund companies has risen strongly during the past years (see, e.g., Baer, Kempf, and Ruenzi (2006)). Fund assets soared to 7.5 trillion USD in 2004 with a compound annual growth rate of 16 percent (see, e.g., Bogle (2005)) and many investors rely on mutual funds for their retirement provisions. Therefore, the impact of diversity on performance is especially important for fund investors, fund-of-fund managers, as well as financial advisors, financial planners and 401(k) plan sponsors.

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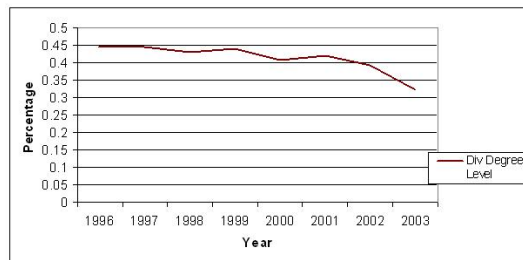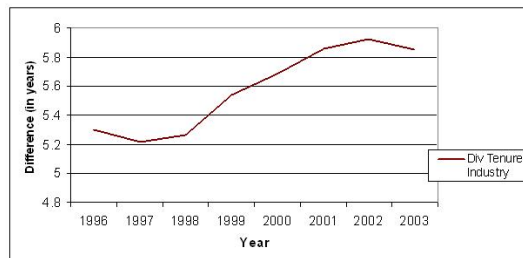
Figure 1: Diversity Measures over Time
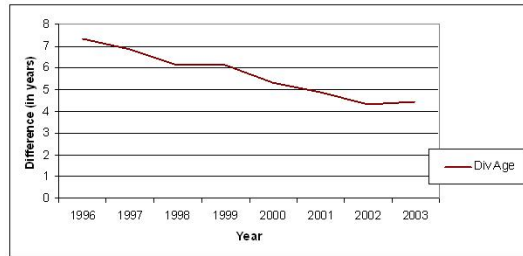
Panel A: Age Diversity
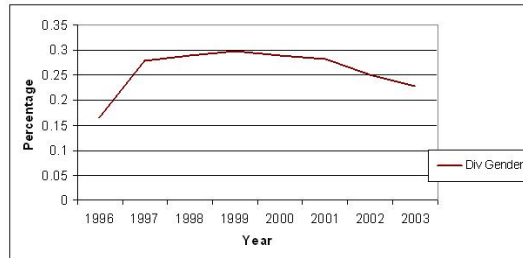
Panel B: Gender Diversity

Panel C: Degree Level Diversity

Panel D: Tenure Level Diversity

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Notes: This figure contains the development of our diversity measures over our sample period from 1996-2003. Panel A contains the average age difference within management teams in years. Panel B contains the share of mixed-gender teams for every year in our sample period. Panel C contains the share of management teams where members differ in terms of their degree, and Panel D contains the average tenure difference of management team members in years, respectively.

Table 1: Descriptive Statistics of Mutual Funds

	Mean	Median	Minimum	Maximum
Fund Age (in years)	11.30	7.00	1.00	79.00
Fund Size (in Millions)	942.04	262.20	1.00	52,837.00
Turnover Ratio (in percent)	96.02	76.00	0.01	684.00
Expenses (in percent)	1.32	1.25	0.01	3.87
Number of Team Members	3.11	3.00	2.00	15.00

Notes: This table presents summary statistics of the team managed equity mutual funds in our sample, i.e. funds that are managed by more than one manager. The number of observations is 2,260. The observed time period is from January 1996 to December 2003.

Table 2: Descriptive Statistics of Diversity Measures

	Mean	Median	Minimum	Maximum
Tenure Diversity	6.15	4.42	0.00	41.75
Educational Diversity	0.43	0.00	0.00	1.00
Gender Diversity	0.28	0.00	0.00	1.00
Age Diversity	5.73	2.00	0.00	38.00

Notes: This table presents summary statistics of the four diversity measures used in our analysis. Tenure Diversity is defined as the difference between the longest time a manager served in the industry and the shortest industry tenure of all members of a fund's management team. Educational Diversity is measured with a dummy variable, that is one if team members have different levels of degree, and zero otherwise. Gender Diversity is measured with a dummy variable, that is one if the respective team consists of male and female managers and zero if only male or only female managers are in the team. Age Diversity is measured as the difference in age between the oldest team member and the youngest team member in years. The number of observations is 2,260. The observed time period is from January 1994 to December 2003.

Table 3: Correlations between Diversity Measures

	Gender	Age	Tenure	Education
Gender	1.00	0.09***	0.01	0.17***
Age		1.00	0.30***	0.23***
Tenure			1.00	0.03**
Education				1.00

Notes: This table presents correlation coefficients between the four diversity measures gender, age, tenure and education. *** 1% significance, ** 5% significance, * 10% significance.

Table 4: Team Diversity and Performance

Panel A: Excess Fund Returns	Diversity-Dimensions		
	Informational	Social	All
Tenure Diversity	0.0001*		0.0001*
Education Diversity	0.0005		0.0009*
Gender Diversity		−0.0010**	−0.0015***
Age Diversity		0.0000	−0.0000
Lagged Returns	0.0176***	0.0180***	0.0186***
Fund Age	0.0010***	0.0008*	0.0010***
Fund Size	−0.0013***	−0.0011***	−0.0013***
Turnover	−0.0004	−0.0004	−0.0004
Expenses	−0.0282*	−0.0189*	−0.0117*
$adj.R^2$	0.6425	0.6358	0.6432

Panel B: Four Factor Alpha	Diversity-Dimensions		
	Informational	Social	All
Tenure Diversity	0.0001*		0.0001*
Education Diversity	0.0001		0.0001
Gender Diversity		−0.0008**	−0.0012***
Age Diversity		0.0001*	0.0003
Lagged Performance	0.0128***	0.0116***	0.0125***
Fund Age	−0.0002	−0.0001	−0.0001
Fund Size	−0.0005***	−0.0005***	−0.0005***
Turnover	−0.0003	−0.0003	−0.0002
Expenses	−0.0128**	−0.0179***	−0.0105**
$adj.R^2$	0.2110	0.2104	0.2128

Notes: This table reports the coefficients of the panel regression of the following general form: $Perf_{i,t} = \alpha + \beta_1 \cdot TenureDiv_{i,t-1} + \beta_2 \cdot EducDiv_{i,t-1} + \beta_3 \cdot GenderDiv_{i,t-1} + \beta_4 \cdot AgeDiv_{i,t-1} + \beta_5 \cdot Perf_{i,t-1} + \beta_6 \cdot FundAge_{i,t-1} + \beta_7 \cdot FundSize_{i,t-1} + \beta_8 \cdot Turnover_{i,t-1} + \beta_9 \cdot Expenses_{i,t-1} + \varepsilon_{i,t}$. The dependent variable, $Perf_{i,t}$, measures is the excess return of a fund i over the risk-free rate in year t (Panel A), or the abnormal return of a fund i in year t using the Four-Factor Model of Carhart (1997) (Panel B). Tenure diversity, $TenureDiv_{i,t-1}$, and educational diversity, $EducDiv_{i,t-1}$, of the management team of fund i at the end of year $t-1$ are our proxies for informational diversity. Social category diversity is proxied by gender diversity, $GenderDiv_{i,t-1}$, and age diversity, $AgeDiv_{i,t-1}$, of fund i's team members' at the end of year $t-1$, respectively. $Perf_{i,t-1}$ denotes fund i's abnormal return in the previous year $t-1$. $FundAge_{i,t-1}$ and $FundSize_{i,t-1}$ are the logarithm of fund age and total net assets, respectively. $Turnover_{i,t-1}$ denotes fund i's turnover ratio and $Expenses_{i,t-1}$ its expense ratio. All regressions are estimated with time and segment fixed effects. Significance is based on panel corrected standard errors. *** 1% significance, ** 5% significance, * 10% significance.

Table 5: Diversity, Team Characteristics and Fund Performance

Panel A: Excess Fund Returns		Control Variables	
	Team Size	Mger Characteristics	All
Tenure Diversity	0.0001*	0.0001*	0.0001*
Education Diversity	0.0008	0.0017**	0.0015**
Gender Diversity	−0.0017***	−0.0014**	−0.0015**
Age Diversity	−0.0000	−0.0000	−0.0000
Lagged Returns	0.0186***	0.0199***	0.0199***
Fund Age	0.0011**	0.0007**	0.0008**
Fund Size	−0.0014***	−0.0012***	−0.0012***
Turnover	−0.0004	−0.0001	−0.0002
Expenses	−0.0110	−0.0089	−0.0089
Team Size	0.0013*		0.0007
Mger Age		−0.0007	−0.0008
Mger Tenure		0.0013*	0.0013*
Mger MBA		0.0018*	0.0017*
Mger PhD		0.0006	0.0006
adj.R^2	0.6435	0.6415	0.6446

Table 5 continued: Diversity, Team Characteristics and Performance

Panel B: Four Factor Alpha		Control Variables	
	Team Size	Mger Characteristics	All
Tenure Diversity	0.0001*	0.0001*	0.0001*
Education Diversity	0.0001	0.0005	0.0005
Gender Diversity	−0.0012***	−0.0010***	−0.0010***
Age Diversity	0.0000	0.0000	0.0000
Lagged Performance	0.0125***	0.0136***	0.0135***
Fund Age	−0.0001	−0.0002	−0.0002
Fund Size	−0.0005***	−0.0005***	−0.0005***
Turnover	−0.0002	−0.0000	−0.0000
Expenses	−0.0105**	−0.0091*	−0.0092*
Team Size	0.0001		0.0002
Mger Age		−0.0011	−0.0011
Mger Tenure		0.0003	0.0003
Mger MBA		0.0007	0.0007
Mger PhD		−0.0011	−0.0011
adj.R^2	0.2124	0.2180	0.2181

Notes: This table reports the coefficients of the panel regression of the dependent variable, $Perf_{i,t}$, measured as the excess return of a fund i over the risk-free rate in year t (Panel A), or the abnormal return of a fund i in year t using the Four-Factor Model of Carhart (1997) (Panel B) on our four diversity dimensions *Gender Diversity*, *Age Diversity*, *Tenure Diversity*, *Educational Diversity* and control variables. $Perf_{i,t-1}$ denotes fund i's excess return over the risk-free rate in the previous year $t - 1$ (Panel A), or the lagged Carhart (1997) Four Factor Alpha (Panel B), respectively. *Fund Age* and *Fund Size* are the logarithm of fund age and total net assets, respectively. *Turnover* denotes fund i's turnover ratio and *Expenses* its expense ratio. *Team Size* is the number of team members. The average manager age and tenure within the team are denoted by *Mger Age*, *Mger Tenure*. The dummy variables *Mger MBA* and *Mger PhD* indicate whether any of the team members has a MBA or a PhD. All regressions are estimated with time and segment fixed effects. Significance is based on panel corrected standard errors. *** 1% significance, ** 5% significance, * 10% significance.

Table 6: Stability across Segments

Panel A: Excess Fund Returns

	(AG)	(GI)	(LG)
Tenure Diversity	0.0001*	0.0001*	0.0001*
Education Diversity	0.0023**	0.0005	0.0003
Gender Diversity	−0.0018*	−0.0007*	−0.0021***
Age Diversity	−0.0001	−0.0000	0.0000
Lagged Returns	0.0214***	0.0231*	0.0173***
Fund Age	0.0017**	0.0004	0.0007
Fund Size	−0.0021***	−0.0002***	−0.0012***
Turnover	−0.0013	−0.0001	-0.0005
Expenses	−0.0120*	−0.0139	−0.0082
adj.R^2	0.6227	0.7030	0.6789

Panel B: Four Factor Alpha

	(AG)	(GI)	(LG)
Tenure Diversity	0.0001*	0.0001*	0.0001*
Education Diversity	0.0005	0.0000	0.0001
Gender Diversity	−0.0021***	−0.0004**	−0.0013***
Age Diversity	0.0000	−0.0000	0.0000
Lagged Returns	0.0189***	0.0028*	0.0040*
Fund Age	−0.0004	−0.0002	−0.0005
Fund Size	−0.0010**	−0.0001	−0.0006***
Turnover	−0.0004	−0.0004	−0.0001
Expenses	−0.0088**	−0.0133**	−0.0144**
adj.R^2	0.2393	0.1833	0.2596

Notes: This table reports the coefficients of the panel regression of the following general form: $Perf_{i,t} = \alpha + \beta_1 \cdot TenureDiv_{i,t-1} + \beta_2 \cdot EducDiv_{i,t-1} + \beta_3 \cdot GenderDiv_{i,t-1} + \beta_4 \cdot AgeDiv_{i,t-1} + \beta_5 \cdot Perf_{i,t-1} + \beta_6 \cdot FundAge_{i,t-1} + \beta_7 \cdot FundSize_{i,t-1} + \beta_8 \cdot Turnover_{i,t-1} + \beta_9 \cdot Expenses_{i,t-1} + \varepsilon_{i,t}$. The dependent variable, $Perf_{i,t}$, measures is the excess return of a fund i over the risk-free rate in year t (Panel A), or the abnormal return of a fund i in year t using the Four-Factor Model of Carhart (1997) (Panel B). Tenure diversity, $TenureDiv_{i,t-1}$, and educational diversity, $EducDiv_{i,t-1}$, of the management team of fund i at the end of year $t-1$ are our proxies for informational diversity. Social category diversity is proxied by gender diversity, $GenderDiv_{i,t-1}$, and age diversity, $AgeDiv_{i,t-1}$, of fund i's team members' at the end of year $t-1$, respectively. $Perf_{i,t-1}$ denotes fund i's abnormal return in the previous year $t-1$. $FundAge_{i,t-1}$ and $FundSize_{i,t-1}$ are the logarithm of fund age and total net assets, respectively. $Turnover_{i,t-1}$ denotes fund i's turnover ratio and $Expenses_{i,t-1}$ its expense ratio. The sample is splitted into the three market segments Aggressive Growth (AG) in Column 1, Growth and Income (GI) in Column 2 and Long-term Growth (LG) in Column 3. All regressions are estimated with time fixed effects. Significance is based on panel corrected standard errors. *** 1% significance, ** 5% significance, * 10% significance.

Table 7: Temporal Stability

Panel A: Excess Fund Returns

	(1996-1999)	(2000-2003)
Tenure Diversity.	0.0002*	0.0000
Education Diversity	0.0005	0.0009
Gender Diversity	−0.0005*	−0.0022***
Age Diversity	−0.0001*	0.0000
Lagged Returns	0.0417***	0.0128***
Fund Age	0.0007	0.0009***
Fund Size	−0.0003	−0.0015***
Turnover	0.0077*	-0.0038*
Expenses	−0.0051	−0.0134*
adj.R^2	0.6163	0.6959

Panel B: Four Factor Alpha

	(1996-1999)	(2000-2003)
Tenure Diversity	0.0001**	0.0001*
Education Diversity	0.0002	0.0000
Gender Diversity	−0.0016**	−0.0011***
Age Diversity	−0.0001	−0.0001
Lagged Returns	0.0068	0.0134***
Fund Age	−0.0009	0.0005
Fund Size	−0.0005*	−0.0005***
Turnover	0.0032*	−0.0017*
Expenses	−0.0206*	−0.0069
adj.R^2	0.1917	0.2628

Notes: This table reports the coefficients of the panel regression of the following general form: $Perf_{i,t} = \alpha + \beta_1 \cdot TenureDiv_{i,t-1} + \beta_2 \cdot EducDiv_{i,t-1} + \beta_3 \cdot GenderDiv_{i,t-1} + \beta_4 \cdot AgeDiv_{i,t-1} + \beta_5 \cdot Perf_{i,t-1} + \beta_6 \cdot FundAge_{i,t-1} + \beta_7 \cdot FundSize_{i,t-1} + \beta_8 \cdot Turnover_{i,t-1} + \beta_9 \cdot Expenses_{i,t-1} + \varepsilon_{i,t}$. The dependent variable, $Perf_{i,t}$, measures is the excess return of a fund i over the risk-free rate in year t (Panel A), or the abnormal return of a fund i in year t using the Four-Factor Model of Carhart (1997) (Panel B). Tenure diversity, $TenureDiv_{i,t-1}$, and educational diversity, $EducDiv_{i,t-1}$, of the management team of fund i at the end of year $t-1$ are our proxies for informational diversity. Social category diversity is proxied by gender diversity, $GenderDiv_{i,t-1}$, and age diversity, $AgeDiv_{i,t-1}$, of fund i's team members' at the end of year $t-1$, respectively. $Perf_{i,t-1}$ denotes fund i's abnormal return in the previous year $t-1$. $FundAge_{i,t-1}$ and $FundSize_{i,t-1}$ are the logarithm of fund age and total net assets, respectively. $Turnover_{i,t-1}$ denotes fund i's turnover ratio and $Expenses_{i,t-1}$ its expense ratio. The sample is splitted into the time periods 1996-1999 (Column 1) and 2000-2003 (Column 2). All regressions are estimated with segment fixed effects. Significance is based on panel corrected standard errors. *** 1% significance, ** 5% significance, * 10% significance.

Table 8: Diversity Portfolio Performance

	Fund Returns	Fund Performance
Info Diversity - Info Homogeneity	0.0017*	0.0011*
Social Diversity - Social Homogeneity	−0.0009*	−0.0010*
Info Diversity - Social Homogeneity	0.0021**	0.0016**

Notes: The first line of is table presents the return difference (Column 1) and the performance difference based on the Carhart (1997) Four Factor Alpha (Column2) between portfolios consisting of funds where informational diversity is high and portfolios consisting of funds where informational diversity is low. The second line presents the return difference (Column 1) and the performance difference based on the Carhart (1997) Four Factor Alpha (Column2) between portfolios consisting of funds where social category diversity is high and portfolios consisting of funds where social category diversity is low. The third line presents the return difference (Column 1) and the performance difference based on the Carhart (1997) Four Factor Alpha (Column2) between portfolios consisting of funds where members are informational diverse and at the same time homogenous in terms of social category diversity and vice versa. Significance is based on two-sided t-test. *** 1% significance, ** 5% significance, * 10% significance.