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Partisan Bias in Fund Portfolios

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Abstract

We document that fund managers are more likely to allocate assets to firms managed by executives and directors with whom they share a similar political partisan affiliation. We find that this bias is not associated with improved fund performance. Funds with more partisan bias suffer from higher levels of idiosyncratic volatility than those with less bias. Partisan bias is more evident when fund managers are less experienced, in more informationally opaque firms, and when the U.S. president comes from fund managers' own party. These findings suggest that political partisan bias among fund managers may be due to in-group favoritism.

I. Introduction

Lacking investment skills or simply being too busy to invest, individual investors routinely delegate the management of their money to mutual funds. As trained investment professionals, mutual fund managers are expected to use their knowledge and skills to maximize their clients' wealth while managing the associated risks. However, the question as to how, in practice, fund managers form portfolios and allocate assets remains only partially answered. In this paper, we explore and find evidence for one factor that influences fund manager portfolio decisions: the alignment of political partisan preferences between fund managers and firm executives.

The ultimate goal of mutual funds is to maximize their clients' wealth by investing in the best portfolios of securities that match the funds' strategies (e.g., return-risk features). All fund managers face the same bundles of goods (i.e., investment vehicles) to choose from when picking securities, so we should not

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observe any systematic biases that are associated with fund manager personal backgrounds and preferences. However, prior research uncovers a number of such systematic biases. For example, several studies find that mutual fund managers show significant local bias. They prefer to hold stocks of companies that are from their own countries (French and Poterba (1991), Chan, Covrig, and Ng (2005)), from their own cities and states (Coval and Moskowitz (1999), (2001), Baik, Kang, and Kim (2010), Hochberg and Rauh (2013), and Sialm, Sun, and Zheng (2018)), and from the states where they grew up (Pool, Stoffman, and Yonker (2012)). In addition to local bias, prior research finds that personal traits and situational life circumstances exert an influence on the investment decisions of fund managers. Along these lines, Pool, Stoffman, Yonker, and Zhang (2019) show that mutual fund managers who suffered substantial losses in their home values from the collapse of the housing market significantly reduced the risks of the funds they managed. Hong and Kostovetsky (2012) find that mutual fund managers who value CSR put less weight on stocks from companies that they deem as lacking this quality. Shu, Sulaeman, and Yeung (2012) find that local religious beliefs influence mutual fund risk-taking behavior: funds located in areas with a higher proportion of Catholics relative to Protestants have higher fund volatilities.

How could partisan alignment between firm executives and mutual fund managers affect the investment decisions of fund managers? We propose one answer: People have a positive view of others who are similar to themselves, as documented in extensive research in social psychology. In their seminal work, Tajfel and Turner (1979) and Tajfel (1982) develop a social identity theory based on the idea that every individual self-identifies with certain social groups formed by perceived similarities. More importantly, the theory and related work suggest that people have in-group favoritism: the tendency to prefer others in the same group to those outside of their groups. As William Sumner, an early scholar of sociology, noted as far back as a century ago, "each group nourishes its own pride and vanity, boasts itself superior, exalts its own divinities, and looks with contempt on outsiders" (Sumner (1906), p. 13). This in-group favoritism significantly influences the behavior of economic agents (Akerlof and Kranton (2000), Chen and Li (2009), Benjamin, Choi, and Strickland (2010), and Lee, Lee, and Nagarajan (2014)). For example, Lee et al. find that alignment in partisan preferences between chief executive officers (CEOs) and independent directors significantly reduces these directors' monitoring effectiveness. The fact that these directors hold the same social identity changes the extent to which they monitor the CEO because of in-group favoritism.

Based on social identity theory, we predict that mutual fund managers tend to allocate more of the assets under their management to companies led by executives with whom they share similar political ideology and partisan affiliation (hereafter, politically similar firms). With aligned partisan preferences, fund managers and firm executives perceive each other as sharing a similar social identity and would consider each other as in-group peers. More specifically, mutual fund managers and firm managers who share a similar partisan preference will consider themselves as having a shared social identity (e.g., Republicans vs. Democrats, in the U.S. context), thus belonging to the same group.

In-group favoritism leads people to regard members of their own groups as superior to outsiders. Thus, under the influence of in-group favoritism, mutual fund managers will consider firms run by executives with a similar partisan affiliation to theirs as superior to others and will overweight their portfolios in these politically similar firms.

While in-group favoritism is one possible reason for why mutual fund managers may over-allocate assets to politically similar firms, there are two other potentially distinct mechanisms under which political similarity may influence mutual fund manager portfolio decisions. First, political similarity may provide an information channel through which fund managers are able to acquire value-related information about politically similar firms. Mutual fund managers and firm executives who hold similar political ideologies may belong to the same social clubs, may share similar social interests, and may even tend to live in close geographical proximity to each other.[1] This possibility means that fund managers may be socially connected with executives and directors with whom they share a similar partisan orientation. Research suggests that connected investors share information with each other. For example, Hong, Kubik, and Stein (2005) show that mutual fund managers who live in the same city tend to execute trades similarly. Using detailed data on the neighborhoods in which mutual fund managers live, Pool, Stoffman, and Yonker (2015) show that the overlap in holdings of funds whose managers reside in the same neighborhood is considerably higher than that of funds whose managers live in the same city but in different neighborhoods. They also suggest that these neighboring managers share valuable information; long-short strategies composed of stocks purchased minus those sold by neighboring managers deliver positive risk-adjusted returns. These two papers show that geographical proximity breeds social networks through which valuable information is transmitted. Cohen, Frazzini, and Malloy (2008) show another channel for information diffusion: school ties between firm directors and mutual fund managers. They show that mutual fund managers make better trades on firms whose directors attended the same universities with the fund managers.[2] In summary, fund managers may be connected to firm executives due to their aligned political partisan preferences. This connection would then allow these fund managers to acquire privileged access to value-relevant information for their politically similar firms, which would lead them to over-allocate funds to these firms.

The other possible channel through which partisan affiliation may influence mutual fund manager holdings is familiarity. Because fund managers and firm executives who share similar political views may be more likely to interact with each other (e.g., attending the same political events), fund managers may simply be more familiar with firms managed by executives with whom they share a

[1] See, for example, Bishop and Cushing (2008) and Sussel (2013), among others, for an empirical examination of how geographic sorting has happened along politically partisan lines over the past 3 decades.

[2] Butler and Gurun (2012) also show the importance of educational networks. They find that mutual fund managers are more likely to support higher compensation for CEOs who are part of their educational networks. Similarly, Akbas, Meschke, and Wintoki (2016) find that information flows to informed traders through directors' social networks.

partisan affiliation. Pool et al. (2012) find that mutual fund managers are more likely to invest in firms they are familiar with (those from their home states). It is possible that shared partisan affiliation will lead fund managers to invest more in politically similar firms simply because they are constantly exposed to, and more familiar with, those firms and their executives.

Using a sample of 1,298 actively managed mutual funds between 2000 and 2015, we investigate the impact of partisan affiliation on mutual fund manager investment behavior. We also try to identify the most relevant reason for this relation between political similarity and fund holdings. We determine the partisan affiliation of both fund managers and top firm executives based on their personal donations to the two major political parties in the United States and classify funds or firms as Republican (Democratic) leaning if net donations by the fund's managers or the firm's executives are to Republican (Democratic) politicians. A simple univariate analysis of the data following this classification reveals a striking pattern. Assuming there was no partisan bias, the percentage of a fund's total assets invested by Republican-leaning fund managers in either Democratic- or Republican-leaning firms should be similar to that invested by Democratic-leaning fund managers. However, we observe that the average share of total net assets (TNA) invested in Republican-leaning firms by Republican-leaning managers is about 8% higher than that invested by Democratic-leaning fund managers. In contrast, the average share of TNA invested in Democratic-leaning firms by Republican-leaning managers is about 3% lower than that invested by Democratic-leaning fund managers. Further inspection suggests that, among funds for which we can identify the partisan leaning of their managers, we find that they allocate about 43% of their assets to firms with whose executives they share a similar partisan affiliation and only about 33% of their assets to those firms whose executives have the opposite partisan affiliation. While this simple inspection based on sample averages is merely univariate and only allows limited inference, it provides the first piece of suggestive evidence for partisan bias among fund managers.

In multivariate tests, in which we control for a variety of firm and fund characteristics, as well as including firm-industry, firm-state, quarter, and fund fixed effects, we confirm these univariate patterns in the data. The results from our baseline multivariate models suggest that Republican (Democratic) fund managers allocate 4%–7% more of their funds' TNA to companies that are managed by Republican (Democratic) executives than Democratic (Republican) fund managers do. This effect is economically significant and is comparable in magnitude to the home-state effect documented in prior literature. Additional analysis suggests that this partisan bias is not driven by only either Republican- or Democratic-leaning funds and that partisan bias exists among fund managers across the partisan spectrum. We also find that partisan bias may heighten one aspect of the disposition effect: Fund managers are more likely to hold on longer to losing stocks of companies managed by executives who share their partisan orientation.

As we noted earlier, partisan bias can affect mutual fund manager investment behavior through in-group favoritism, the information channel, or familiarity. However, the implications for fund performance from each of these three channels are very different. We attempt to use these different implications to

distinguish which of these channels is most responsible for partisan bias in mutual fund manager asset allocation decisions. Under the information channel hypothesis, fund managers are able to acquire value-related information from politically similar firms. As long as this information gives fund managers a comparative advantage, they will exploit the advantage by overweighting their portfolio allocation toward firms in which they have positive information and underweighting firms in which they have negative information. Overall, if political partisan bias is due to the information channel, mutual fund managers who invest in politically similar firms should earn higher returns. In contrast, if partisan bias arises through familiarity or in-group favoritism rather than superior information, we would not expect managers who invest in politically similar firms to earn higher returns. Indeed, mutual funds with more of such biases may suffer higher levels of idiosyncratic risks because their fund managers reduce the pool of stocks they can use for diversification purposes.

We test these predictions by examining the relation between partisan bias in fund asset allocation and fund performance. We find that mutual funds that have more holdings in politically similar firms tend to perform worse than those with less partisan bias, although the economic magnitude of this underperformance may be considered small. However, we find that partisan bias leads to statistically and economically significantly higher levels of fund idiosyncratic volatility. Additional analysis indicates that more experienced mutual fund managers show less partisan bias in their portfolio allocations, and this bias is less severe when the information environment of the firm in which investments are made is less opaque. Taken together, these results suggest that partisan bias in fund allocation is more likely to be due to familiarity or in-group favoritism than to superior information about politically similar firms.

While fund performance and idiosyncratic volatility enable us to distinguish the information channel from both familiarity and in-group favoritism, they do not allow us to differentiate between the latter two channels. We next perform an additional test to investigate the relevance of these two channels. If partisan bias in portfolio allocation is due to in-group favoritism, it should be more evident during times when managers perceive their own group to be more dominant. Bonaparte, Kumar, and Page (2017) find that investors become more optimistic and perceive the markets to be less risky and more undervalued when their own party is in power. Therefore, in-group favoritism predicts that mutual fund managers would be more likely to allocate their portfolios toward politically similar companies when the party they favor is in power. In contrast, if partisan bias is merely due to familiarity, we should not observe a change in this bias following political transitions since familiarity with companies does not suddenly change with the party in office.

We split our sample into two periods based on the political party of the presidents who served between 2000 and 2015: Republican (2001–2008) and Democratic (2000 and 2009–2015). We find that Republican- (Democratic-) leaning fund managers are more likely to over-allocate assets toward politically similar firms when there is a Republican (Democratic) president in office but are less likely to do so when there is a Democratic (Republican) president. As we noted previously, it is unlikely that Republican (Democratic) fund managers would

suddenly become more or less familiar with a firm merely because of the election of a new president who is from the other side of the aisle. This result suggests that partisan bias in portfolio allocation is more likely to be due to mutual fund managers' in-group favoritism than to familiarity.

One potential alternative explanation for our results is that partisan bias is merely a proxy for a demographic similarity bias (i.e., a fund manager's preference for the stocks of firms whose executives share a similar observable demographic similarity to that of the fund manager). There is evidence that political partisanship in the United States is, at least in part, correlated with demographic factors such as gender and ethnicity.[3] Our results may thus simply reflect this demographic similarity bias. In additional analysis, we explore and ultimately discount this alternative explanation. We find that partisan bias remains significant even after including measures of these demographic similarities between fund managers and firm executives. Our inference also remains unchanged even after we account for the bias of fund managers toward investing in firms managed by executives that they went to school with.

Our paper makes at least three contributions to the literature that examines investor biases in portfolio allocation. Researchers identify a number of factors that lead to biases among investors, which include home biases, geographical proximity, and even cultural and linguistic proximity between firm executives and investors (Grinblatt and Keloharju (2001)). In this paper, we first identify another potential source of investor bias: shared political partisan affiliation. We show that this bias is different from other factors prior research uncovers. Second, we show that fund manager biases are not driven by only information or familiarity with the firms these managers invest in, two channels the literature tends to focus on when examining the allocation decisions of fund managers. Instead, we propose a new channel (in-group favoritism) and demonstrate that it is likely to be one of the underlying factors that drives partisan bias.

Third, our paper also contributes to the literature that examines the role of political partisanship on investor behavior (Hong and Kostovetsky (2012), Hutton, Jiang, and Kumar (2015), Bradley, Pantzalis, and Yuan (2016), and Moszoro and Bykhovsky (2016)). Along these lines, the closest paper to ours is that by Hong and Kostovetsky, who find that Democratic fund managers invest less in companies that they view as socially irresponsible: companies in the tobacco, firearms, or defense industries, or companies with bad employee relations or diversity records. While there is certainly a positive correlation between type of industry or corporate policy and the partisan leaning of executives, the correlation is far from perfect. Indeed, in our sample, there are examples of companies with Republican CEOs who espouse corporate social responsibility (CSR) and Democratic CEOs who run firms that do not especially espouse corporate responsibility.[4] We find that, after accounting for fund managers' preferences with respect to socially irresponsible firms, or firms in the "sin industries," as defined by Hong and

[3] Pew Research Center, Sept. 2016, "The Parties on the Eve of the 2016 Election: Two Coalitions, Moving Further Apart."

[4] In our sample, 23.8% firms in the sin industries, as defined by Hong and Kostovetsky (2012), have Democratic-leaning CEOs and 47.2% firms outside of the sin industries have Republican-leaning CEOs.

Kostovetsky, our inference remains unchanged. As such, our results are both orthogonal and complementary to theirs. Our results indicate that, even beyond the values a firm espouses, outright and overt preference for executives who share a similar partisan affiliation with fund managers may influence these managers' portfolio decisions.

The remainder of the paper is organized as follows: Section II describes our data and sample selection. In Section III, we define our measure of political similarity between funds and firms. We document our main empirical analyses and results in Section IV. Section V considers the special case of mutual fund managers' political partisan holdings in firms with high-profile CEOs. We conclude the paper in Section VI.

II. Data and Sample Selection

We use several data sources in this study. We obtain data on fund quarterly holdings and the market value of these holdings from the Thomson Reuters Mutual Fund database. Because our goal is to investigate mutual fund manager partisan preference and fund portfolio holdings, we follow Cohen et al. (2008) and restrict our sample to actively managed U.S. mutual funds with either of the following investment objectives: aggressive growth, growth, or growth and income. We also delete holdings of foreign companies because our political donation data cover only U.S. persons. In addition, we follow the practice in the literature (e.g., Pool et al. (2012)) and keep only observations where the actual date (RDATE) is equal to the Thomson vintage date (FDATE) to avoid the use of stale data. Because our data from BoardEx on firm executives and directors (see subsequent discussion) start from 2000 and end in 2015, we restrict our sample period to this same range. After applying all these required filters, our sample of Thomson data contains 4,873,421 observations that cover 1,836 unique funds and 16,655 different stocks.

We obtain individual donation data from the Center for Responsive Politics (CRP). The CRP database includes all campaign donations from the 1990 cycle to the 2016 cycle (the data start from year 1989). We obtain data on each individual's name, donation amounts, recipients of their donations, and recipients' party affiliation from the CRP data.[5] We calculate the total donations for each individual to Republican and Democratic politicians, respectively. We are able to use these data to determine the partisan affiliation of 4,719,630 unique donors.

Next, we obtain data on fund manager and firm director names from Morningstar Direct and BoardEx, respectively. From Morningstar, we obtain mutual fund manager names, their start and end dates at the funds, and Morningstar style categories for each fund. We obtain data on 8,996 managers for 5,566 distinct funds. We search the BoardEx database for executive and director names at firms

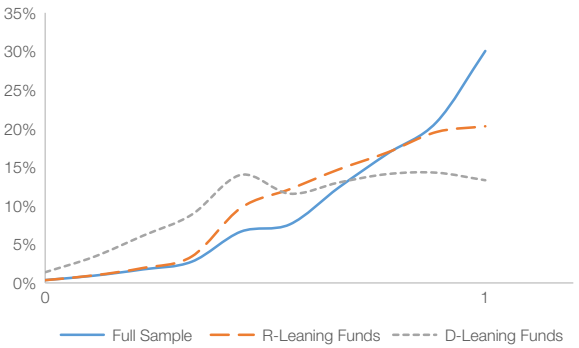
[5]The CRP collects campaign finance data from the Federal Election Commission (FEC), links donors and recipients (including recipients' party affiliation), and generously makes their organized data available. The CRP data can be accessed at http://www.opensecrets.org/. The data include the name of the donor and may also include information about the donor's location (state/zip) and occupation/employer.

covered by the CRSP database.[6] Our search finds 76,967 individuals for 7,675 different firms. We then search for these fund managers and firm directors in the CRP database for their donation histories.[7] Based on these donation data, we are able to determine the extent to which each firm and each fund leans toward the Democratic or Republican Party. Finally, we obtain data on our control variables from various resources. We gather trading data and fund locations from the Center for Research in Security Prices (CRSP). Our accounting data, firm location data, and data on stock index compositions are from Compustat. After merging all the data together, our baseline analysis contains 3,341,904 fund-quarterly holdings observations for 1,298 distinct actively managed mutual funds.

We provide summary statistics for our sample in Table 1. The mean (median) value of our key variable, POLITICAL_SIMILARITY (defined in detail in Section III), is 0.76 (0.81). Figure 1 plots the frequency distribution of this variable for the full sample and for Democratic- and Republican-leaning funds, respectively. The plot suggests a similar distribution of POLITICAL_SIMILARITY across both Republican and Democratic funds. In addition to the measures of political similarity and fund holdings, we also include the following key control variables. SAME_STATE is a binary variable with a value of

FIGURE 1
Political Similarity Index Frequencies

Figure 1 presents the frequency distribution of the POLITICAL_SIMILARITY index. We show the frequencies (as a percentage of the total sample) for the overall sample; we also show the frequencies after splitting the sample into two groups (funds managed by Republican-leaning managers and funds managed by Democratic-leaning managers). To facilitate comparison, we standardize the frequencies by the total counts for each group. Full sample represents all funds in our sample, R-leaning funds include only funds managed by Republican-leaning managers, and D-leaning funds include only funds managed by Democratic-leaning managers.



[6]We do this because mutual fund holdings data are generally only available for publicly traded firms.

[7]Our primary means of matching mutual fund managers and firm executives with the CRP data starts with the name of the donor: last name, first name, middle initial (where available), and suffix (if there is one in the name). To ensure the veracity of our matching, and to reduce the possibility of a mismatch, we further require a match with the donor's state or employer. For fund managers, we also carefully read their Morningstar Direct biographies and use information available from company Web sites, online searches, and social media accounts (e.g., LinkedIn profiles) to reduce the potential of mismatches. We focus only on donations made to either Republican or Democratic candidates, which make up well over 90% of the individual donations in the CRP data.

TABLE 1
Summary Statistics

Table 1 presents the summary statistics of our key variables. PERCENT_HELD is the percentage of TNA that a fund holds in a stock. POLITICAL_SIMILARITY is our measure of the political alignment between a fund and a firm's managers (donation weighted), as defined in detail in Section III. SAME_STATE is a variable with value of 1 (0 otherwise) if a fund and a firm are located in the same state. SIN is a variable with value of 1 (0 otherwise) if a firm belongs to one of the sin industries (tobacco, guns and defense, alcohol, and natural resources industries), as described in Hong and Kostovetsky (2012). CSR is measured as the residuals from the regressions of a firm's raw CSR score (measured as the firm's KLD index) on size and market-to-book ratio, following Hong and Kostovetsky. EDUCATION_CONNECTED is a variable with a value of 1 (0 otherwise) if any of the fund's managers attended the same university as any of the firm's executives. DEMOGRAPHIC_SIMILARITY is a variable that equals 0 if both gender and ethnic similarity between fund-firm pair equals 0, 1 if either equals 1, or 2 if both equal 1. FUND_REPUBLICAN_INDEX is the donation weighted average of individual net donations (where net donations are donations to Republicans minus donations to Democrats) at the fund. FUND_NET_ASSETS is the TNA of a fund. MANAGERIAL_EXPERIENCE is the average number of years fund managers have been associated with the fund. NUMBER_OF_ANALYSTS is the number of financial analysts who provide earnings forecasts for a firm. S&P_500 is a binary variable with value 1 if a firm belongs to the S&P 500 index, and 0 otherwise. MARKET_CAP is the firm's percentile rank of its market value of common equities. MARKET_TO_BOOK is the market-to-book value of a firm, defined as the market value of common equities divided by the book value of common equities. MORNINGSTAR_CATEGORY_HOLDING is the average portfolio weight in a stock for all funds in the same Morningstar category. R12 is the returns of a stock in the past 12 months. IVOL is fund idiosyncratic risk measured as the standard deviation of the residuals from quarterly regression of daily fund returns on Fama–French 3 factors and Carhart momentum. PERCENT_ALIGNED is the percentage of holdings in a fund invested in politically similar firms, defined as firms with POLITICAL_SIMILARITY > 0.995. NUMBER_OF_STOCKS is the number of stocks a fund holds. TEAM_MANAGED is a variable with value of 1 (0 otherwise) if the fund is team managed.

Variable	*N*	Mean	Std. Dev.	Q1	Median	Q3
PERCENT_HELD	3,341,904	0.8004	1.0539	0.1050	0.4697	1.1244
POLITICAL_SIMILARITY	3,341,904	0.7635	0.1991	0.6446	0.8050	0.9254
SAME_STATE	3,341,904	0.0659	0.2481	0	0	0
SIN	3,341,904	0.0172	0.1303	0	0	0
CSR	2,361,781	0	3.0272	−1.5595	−0.1480131	1.2689
EDUCATION_CONNECTED	2,340,528	0.3209	0.4668	0	0	1
DEMOGRAPHIC_SIMILARITY	3,341,904	0.7462	0.4734	0	1	1
FUND_REPUBLICAN_INDEX	3,341,904	0.1263	0.5018	0	0	0.3333
FUND_NET_ASSETS (MILLION)	3,341,904	6,870	31,000	159	592	2,110
MANAGERIAL_EXPERIENCE	2,977,233	6.9643	5.4248	3	5.5	9.5
NUMBER_OF_ANALYSTS	3,341,904	15.8504	12.2181	6	14	24
S&P_500	3,341,904	0.4069	0.4913	0	0	1
MARKET_CAP	3,341,904	49.5001	28.8661	25	49.5	74
MARKET_TO_BOOK	3,341,904	4.9708	93.8606	1.5853	2.5230	4.2115
MORNINGSTAR_CATEGORY_HOLDING	3,173,188	0.6125	0.6362	0.1593	0.4568	0.8724
R12	3,249,390	0.2276	0.9526	−0.0823	0.1345	0.3735
IVOL	21,489	0.2996	0.2141	0.1645	0.2389	0.3666
PERCENT_ALIGNED	21,489	0.1242	0.1736	0.0237	0.0616	0.1440
NUMBER_OF_STOCKS	21,489	127.6804	223.6113	52	75	116
TEAM_MANAGED	21,489	0.6759	0.4680	0	1	1

1 (0 otherwise) if a fund and a firm are located in the same state. SIN is a variable with a value of 1 (0 otherwise) if a firm belongs to one of the sin industries (tobacco, guns and defense, alcohol, and natural resources), as described by Hong and Kostovetsky (2012). FUND_NET_ASSETS is the TNA of a fund. MANAGERIAL_EXPERIENCE is the average number of years fund managers have been associated with a fund. NUMBER_OF_ANALYSTS is the number of financial analysts who provide earnings forecasts for a firm. MARKET_CAP is the percentile rank of a firm's market value of common equities. S&P_500 is a variable with a value of 1 (0 otherwise) if a firm is in the Standard & Poor's (S&P) 500 index. MARKET_TO_BOOK is the market-to-book value of a firm, defined as the market value of common equities divided by the book value of common equities. TEAM_MANAGED is a variable with a value of 1 (0 otherwise) if a fund is team managed. MORNINGSTAR_CATEGORY_HOLDING is the average portfolio weight in a stock for all funds in the same Morningstar category. R12 is the return on a firm's stock in the past 12 months.

III. Political Similarity between Funds and Firms

We follow a similar approach to that employed by Lee et al. (2014) in constructing the measure of partisan preference alignment between firms and mutual funds, which we label POLITICAL_SIMILARITY. We start by calculating the individual republican index (IND_REP) for each mutual fund manager and firm directors and executives. This index measures the extent to which an individual is "Republican," and we define it as the net donations to Republican politicians as a percentage of an individual's total donations, as follows:

$$(1)\quad \text{IND\_REP} = \frac{\text{TOTAL\_DONATIONS\_TO\_REPUBLICANS} - \text{TOTAL\_DONATIONS\_TO\_DEMOCRATS}}{\text{TOTAL\_DONATIONS\_TO\_REPUBLICANS} + \text{TOTAL\_DONATIONS\_TO\_DEMOCRATS}}.$$

We use the total personal donations an individual makes over the entire CRP data period to define this IND_REP index. There are two advantages to this approach. First, it mitigates the concern that individuals may be using the donations to directly influence a particular policy or bring a specific benefit to their firms. Individual donations are relatively small, so it is unlikely that individuals use this donation to obtain some specific corporate benefit. Second, total donations over several years are more likely to reflect the true political partisan affiliation of an individual, even if they occasionally contribute to the opposing political party (Hong and Kostovetsky (2012), Lee et al. (2014)). By construction, the IND_REP index varies from -1 to $+1$, where a value of -1 ($+1$) indicates that the firm or fund's managers are completely Democratic (Republican). Negative values (IND_REP < 0) mean that the firm or fund's managers are Democratic leaning; positive values (IND_REP > 0) suggest that the firm or fund's managers are Republican leaning.[8]

Next, we calculate measures for the firm level and fund level Republican index. We define a donation-weighted firm Republican index (FIRM_REP):

$$(2)\quad \text{FIRM\_REP} = \sum_{i=1}^{N} \frac{\text{TOTAL DONATION}_i}{\text{FIRM TOTAL DONATION}} \times \text{IND\_REP}_i,$$

where N is the number of directors the firm has, FIRM_TOTAL_DONATION is the total amount of donations that all top executives and directors in the firm make to Republican and Democratic politicians, and TOTAL_DONATION_i is the total donation amounts to Republican and Democratic politicians director i makes. We define FUND_REP in a similar fashion.

Finally, we obtain the measure of political partisan alignment between fund managers and firm directors for each fund-firm pair as follows:

$$(3)\quad \text{POLITICAL\_SIMILARITY} = 1 - \frac{|\text{FUND\_REP} - \text{FIRM\_REP}|}{2}.$$

By construction, POLITICAL_SIMILARITY $= 1$ if the fund and the firm it invests in have exactly the same partisan affiliation, and POLITICAL_SIMILARITY $=$ 0 if the fund and the firm have diametrically opposite partisan preferences.

[8] CRP data cover 352,508 firm directors and 3,505 fund managers. There are 6,231 unique firms and 922 unique funds that have directors and managers with donation records in the CRP data.

However, it is worth noting that, in our data set, some mutual funds and firms are managed by teams of managers who hold different political views. As a result, some funds and firms can be partially Republican/Democratic, or are "middle of the road" or "non-partisan." By construction, our POLITICAL_SIMILARITY measure is also high in cases where non-partisan fund managers invest in non-partisan firms. In robustness tests (detailed in Section I.C of the Supplementary Material), we exclude funds that are non-partisan because their managers have either never made any political donations or have given equally to Republican and Democratic candidates, and we find our inference is unchanged.

Throughout our analysis, we measure POLITICAL_SIMILARITY in two slightly different ways. As we describe previously, our first measure of POLITICAL_SIMILARITY is based on the campaign contributions of all of a firm's executives and directors. However, in practice, it is possible that a firm's political orientation may be more closely aligned with that of its top executives. Top executives are more visible and their partisan orientation may be more salient in the minds of fund managers. It may also be easier for fund managers to determine the partisan orientation of top executives with much less research than they would require for other executives and directors. As such, we also construct and use a second measure of political similarity using the political contributions of what we consider to be the firm's most visible top executives: the CEO, chairman, and chief financial officer (CFO).

IV. Empirical Analyses and Results

A. Partisan Bias and Portfolio Holdings: Panel Regressions

In this section, we begin our formal regression analyses of the effect of political similarity between fund managers and corporate executives on fund holdings. We carry out the analysis at the firm-fund level. Using mutual fund quarterly holding data, we calculate PERCENT_HELD, the percentage of total fund holdings that is invested in a particular firm by a mutual fund in a quarter. We then employ the following model to test our hypothesis:

$$\begin{aligned}(4)\quad \text{PERCENT\_HELD}_{i,j,t} &= \alpha + \beta \times \text{POLITICAL\_SIMILARITY}_{i,j,t} \\ &\quad + \Gamma' \,\text{CONTROLS} + \epsilon_{i,j,t},\end{aligned}$$

where subscript i denotes company i, j represents fund j, and t denotes quarter t. POLITICAL_SIMILARITY is the measure of political partisan alignment between fund managers and companies, as described in Section III. If political similarity between mutual fund managers and firm executives leads to overweighting in politically similar firms, we should observe a significant and positive coefficient estimate for β.[9]

[9]We note that our regression specification here does not include stocks that are not held by the fund. This is because the universe of firms that any fund would have otherwise considered is not directly observable. In robustness tests, we relax this restriction in two ways by allowing the fund's potential universe of stocks to include either i) those held by funds in a similar Morningstar category or ii) those in the same industry as those it already holds. We find that this does not affect our inference (see Section I.I of the Supplementary Material).

In Table 2, we present our results from estimating equation (4). As we note in Section III, we compute POLITICAL_SIMILARITY in two ways (based on all executives and directors and based on only the CEO/CFO/Chair) and we report analyses based on these two measures in Panels A and B, respectively. Fund holdings in a firm's stocks may vary for unobservable reasons that are specific to time and mutual fund, so we explicitly control for these unobservable characteristics by including quarter and fund fixed effects in all of our models. In column 1, we start by regressing the percentage of fund assets held in firm i, by fund j in quarter t (PERCENT_HELD), on our key variable of interest, POLITICAL_SIMILARITY.[10] As shown, the estimated coefficient on POLITICAL_SIMILARITY is 0.0610 ($t = 4.23$) in Panel A, where POLITICAL_SIMILARITY is based on all executives and directors. In Panel B,

TABLE 2

Fund Manager Partisan Bias and Fund Holdings

Table 2 presents the results from the regression analysis of partisan bias on fund holdings. The dependent variable is PERCENT_HELD, the percentage of TNA a fund holds in a stock. In Panel A, we define a firm's political leaning based on political contributions from the CEO, CFO, Chair, and all other members of the board of directors. In Panel B, we define a firm's political leaning based on political contributions from the CEO, CFO, and Chair of the board of directors only. All variables are as defined in Table 1. t-statistics based on robust standard errors clustered by fund are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. All Executives

Variable	1	2	3	4	5	6	7
POLITICAL_SIMILARITY	0.0610***	0.0332***	0.0331***	0.0344***	0.0448***	0.0353***	0.0321***
	(4.23)	(2.77)	(2.76)	(2.89)	(3.55)	(2.80)	(2.69)
SAME_STATE			0.0150**				
			(2.46)				
SIN × FUND_REPUBLICAN_INDEX				0.0384**			
				(2.35)			
CSR × FUND_REPUBLICAN_INDEX					−0.0030**		
					(−2.52)		
EDUCATION_CONNECTED						0.0082**	
						(1.97)	
DEMOGRAPHIC_SIMILARITY							0.0111***
							(4.09)
SIN				−0.1040***			
				(−4.36)			
CSR					0.0003		
					(0.52)		
FUND_REPUBLICAN_INDEX				−0.0093	0.0050		
				(−0.81)	(1.58)		
MARKET_CAP		0.0041***	0.0041***	0.0041***	0.0046***	0.0048***	0.0041***
		(10.18)	(10.18)	(10.19)	(12.34)	(15.62)	(10.15)
MARKET_TO_BOOK		−6.38e−06*	−6.36e−06*	−6.43e−06*	2.68e−05	−0.0012***	−6.44e−06*
		(−1.88)	(−1.88)	(−1.89)	(1.08)	(−3.29)	(−1.89)
MORNINGSTAR_CATEGORY_HOLDING		0.5780***	0.5780***	0.5780***	0.5400***	0.5230***	0.5780***
		(39.01)	(39.01)	(39.02)	(40.21)	(42.54)	(38.99)
R12		0.0222***	0.0222***	0.0222***	0.0380***	0.0558***	0.0222***
		(8.48)	(8.48)	(8.49)	(9.78)	(11.30)	(8.50)
CONSTANT	0.7210***	0.0061	0.0062	0.0049	−0.0356	0.0251	−0.0047
	(36.80)	(0.14)	(0.14)	(0.11)	(−0.56)	(0.53)	(−0.11)
INDUSTRY FE	No	Yes	Yes	Yes	Yes	Yes	Yes
FIRM STATE FE	No	Yes	Yes	Yes	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FUND FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,341,904	2,952,812	2,952,812	2,952,812	2,361,779	2,340,528	2,952,812
Adj. R^2	0.001	0.236	0.236	0.236	0.216	0.241	0.236

(continued on next page)

[10] In untabulated results, we perform all of our tests using equally weighted values of POLITICAL_SIMILARITY and find that our results are qualitatively and quantitatively similar (see Section I.B of the Supplementary Material).

TABLE 2 (continued)
Fund Manager Partisan Bias and Fund Holdings

Panel B. CEO, CFO, and Chair

Variable	1	2	3	4	5	6	7
POLITICAL_SIMILARITY	0.0235*** (2.92)	0.0172** (2.58)	0.0172** (2.57)	0.0185*** (2.81)	0.0144** (2.12)	0.0155** (2.23)	0.0165** (2.48)
SAME_STATE			0.0151** (2.47)				
SIN × FUND_REPUBLICAN_INDEX				0.0394** (2.40)			
CSR × FUND_REPUBLICAN_INDEX					−0.0022* (−1.88)		
EDUCATION_CONNECTED						0.0074* (1.70)	
DEMOGRAPHIC_SIMILARITY							0.0113*** (4.16)
SIN				−0.1050*** (−4.41)			
CSR					−0.0012* (−1.92)		
FUND_REPUBLICAN_INDEX				−0.0090 (−0.79)	−0.000270 (−0.022)		
MARKET_CAP		0.0041*** (10.21)	0.0041*** (10.21)	0.0041*** (10.22)	0.0046*** (12.43)	0.0044*** (13.67)	0.0041*** (10.18)
MARKET_TO_BOOK		−6.41e−06* (−1.89)	−6.39e−06* (−1.88)	−6.45e−06* (−1.90)	2.70e−05 (1.09)	−6.41e−06* (−1.84)	−6.47e−06* (−1.90)
MORNINGSTAR_CATEGORY_HOLDING		0.5780*** (39.01)	0.5780*** (39.01)	0.5780*** (39.01)	0.5400*** (40.26)	0.5770*** (39.72)	0.5780*** (38.98)
R12		0.0222*** (8.48)	0.0222*** (8.48)	0.0222*** (8.48)	0.0377*** (9.70)	0.0359*** (10.18)	0.0222*** (8.49)
CONSTANT	0.7560*** (47.79)	0.0219 (0.52)	0.0219 (0.52)	0.0206 (0.49)	−0.0095 (−0.15)	0.2000 (0.02)	0.2490*** (4.68)
INDUSTRY FE	No	Yes	Yes	Yes	Yes	Yes	Yes
FIRM STATE FE	No	Yes	Yes	Yes	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FUND FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,341,904	2,952,812	2,952,812	2,952,812	2,361,781	2,340,528	2,952,812
Adj. R^2	0.001	0.236	0.236	0.236	0.217	0.244	0.236

the estimated coefficient on POLITICAL_SIMILARITY is 0.0235 ($t = 2.92$), where POLITICAL_SIMILARITY is based on the CEO/CFO/Chair. These findings are consistent with our prediction that mutual fund managers tend to hold more stocks from politically similar firms.

While we include fund and quarter fixed effects in our analysis in column 1 of Table 2, other time-varying firm characteristics may affect both fund holdings and political similarity.[11] In column 2, we follow the literature by including the following as control variables: market capitalization, market-to-book value, the percentage of the firm's stock held by other funds in the same Morningstar style category, and stock returns over the past 12 months. We also include industry and firm state fixed effects.[12] We find that our inference remains the same and the coefficient estimate on POLITICAL_SIMILARITY remains positive and

[11] In Section I.A of the Supplementary Material, we consider a range of higher order fixed effects, including fund × firm, firm × quarter, and industry × firm state × quarter fixed effects, and find that these do not change our inference.

[12] A firm's state is where the firm has its headquarters, while industry fixed effects are based on the Fama–French 48 industry classification. To alleviate possible concerns that the Fama–French industry classification may not accurately encapsulate a firm's industry, in unreported tests, we replicate our analysis using industry fixed effects defined by the text-based measure of Hoberg and Phillips (2010), (2016) and find that our inference is unchanged.

significant when it is based on all executives and directors, as in Panel A, or on the CEO/CFO/Chair, as in Panel B.[13]

To understand the economic significance of our findings, we note, for example, that the results in column 2 of Panel B (where POLITICAL_SIMILARITY is based on CEO/CFO/Chair) indicate that mutual fund managers invest about 0.0172% more of their assets in firms with whose executives they share identical partisan preferences than in firms with executives with diametrically opposite preferences. Given that the typical percentage of mutual fund holdings in a firm is 0.47%, our finding translates to a 3.66% increase in holdings. In other words, a fund with Republican (Democratic) managers invests almost 4% more in a firm run by Republican (Democratic) top executives than in a firm run by Democratic (Republican) top executives. When we do a similar calculation based on column 2 of Panel A (where POLITICAL_SIMILARITY is based on all executives and directors), we find that a fund with Republican (Democratic) managers invests almost 7% more in a firm run by Republican (Democratic) executives than in a firm run by Democratic (Republican) executives. These findings suggest that there is an economically and statistically significant bias among mutual fund managers based on their partisan affiliation.

While we document an economically significant partisan bias among mutual fund managers, this relation might be due to a number of potential alternative explanations that have been documented in the literature. We examine each of these in turn.

1. Same State Bias

Findings in the literature suggest that fund managers tend to allocate a disproportionate share of their assets to firms located in the states or cities in which the fund itself is located (e.g., Coval and Moskowitz (1999), (2001), Baik et al. (2010), Hochberg and Rauh (2013), and Sialm et al. (2018)). Given the potential correlation between states and partisan identification, our partisan bias might simply reflect the same state bias.

To address this possibility, we estimate equation (4) while including the binary variable, SAME_STATE, which equals 1 if a firm and a fund are in the same state, and 0 otherwise. As shown in column 3 of Panels A and B, we find a positive and significant coefficient on SAME_STATE, which is consistent with the literature that mutual fund managers tend to hold more local stocks. However, even with the inclusion of the SAME_STATE variable, we find that political similarity continues to be a significant determinant of mutual fund portfolio holdings.

2. Partisan Bias toward "Socially Responsible" Firms

Hong and Kostovetsky (2012) find that Democratic-leaning fund managers are more likely to avoid investing in firms from industries that they view as sin industries and in firms that score poorly on an index of CSR. However, Democratic-leaning firm managers may also be more likely than Republican ones to avoid

[13]In the analysis here, we cluster standard errors by fund. In additional analysis (reported in Table IA5 of the Supplementary Material), we replicate the analysis while double clustering at both the fund and firm level, as well as the fund and quarter level, and find that our inference remains unchanged.

working in these industries and may be more likely to push their firms toward adopting policies that boost their firms' reputation for CSR. Our results may thus simply reflect fund manager preferences for certain industries that they deem socially responsible rather than a preference for firms managed by co-partisans.

We examine this alternative explanation in columns 4 and 5 of both panels in Table 2. In column 4, we introduce the binary variable, SIN, which equals 1 for firms in the tobacco, firearms, or defense industries, as in Hong and Kostovetsky (2012), and we interact SIN with FUND_REPUBLICAN_INDEX, our measure of the extent to which fund managers lean Republican. In column 5, we follow Hong and Kostovetsky (2012) in defining a firm's CSR score and interact CSR with FUND_REPUBLICAN_INDEX.[14] Consistent with prior literature, we find that Democratic-leaning fund managers are less likely to invest in firms in the sin industries (the interaction of SIN and FUND_REPUBLICAN_INDEX is significantly positive) and are more likely to invest in firms that score higher on CSR activities. Nevertheless, our finding of a positive relation between political similarity and fund holdings remains unchanged even after we account for the tendency of some partisan fund managers to avoid companies that they view as socially irresponsible.

3. School Ties and Educational Similarity

Cohen et al. (2008) find that fund managers invest more in companies whose executives attended the same higher educational institutions as they did. Managers who share school ties may also share similar partisan identification, so it is possible that our partisan bias may simply reflect shared educational networks.

We address this possibility in column 6 of both panels in Table 2. For each corporate executive or director, we collect data (from BoardEx) regarding from which universities they received their undergraduate, graduate, or professional degrees. We collect similar data for each fund manager from their Morningstar bios. We create a binary variable, EDUCATION_CONNECTED, which equals 1 (0 otherwise) if any of the fund's managers attended the same university as any of the firm's executives.[15] We find evidence similar to that in Cohen et al. (2008): Fund managers invest more in firms with whose executives they share school ties. Nevertheless, our finding of a positive relation between political similarity and fund holdings remains unchanged even after we account for shared educational networks between fund managers and corporate executives.

4. Demographic Similarity Bias

As we note in Section I, a potential explanation for our results is that partisan bias could simply be a proxy for a demographic preference bias (i.e., a fund manager's preference for the stocks of firms whose executives share a similar observable demographic similarity to that of the fund manager). There is evidence that political partisanship in the United States is, at least in part, correlated with demographic factors such as gender and ethnicity. There is also recent evidence

[14] Specifically, we measure a firm's CSR score as the residuals from the regressions of a firm's raw CSR score (measured as the firm's KLD index) on size and market-to-book ratio.

[15] We thank Stefan Jaspersen and Peter Limbach for helping us to assemble the education network data by sharing the mutual fund education manager data from Jaspersen and Limbach (2018).

(Jaspersen and Limbach (2018)) that fund managers may overweight firms that have executives with whom they share similar demographic characteristics. We explore this potential alternative explanation by explicitly controlling for demographic (gender and ethnicity) similarity between fund managers and firm directors in our regression of fund holdings and partisan similarity.

We create a variable, DEMOGRAPHIC_SIMILARITY, in two steps. In the first step, we define the gender and ethnicity similarity between a fund and a firm. We calculate gender distance as the absolute value of the difference between the percentage of female managers on a fund's management team and the percentage of female directors among a firm's executives and directors. We then define gender similarity as a binary variable with a value of 1 if the gender distance between a fund and a firm is greater than the sample median, and 0 otherwise. We obtain gender information for firm executives and directors directly from BoardEx. For fund managers, we identify their gender from reading their Morningstar bios. In cases where gender was not explicitly obvious from their bios, we classify managers into male or female based on their first names. We also define ethnic similarity as a binary variable that takes a value of 1 when firm executives share the same ethnicity with fund managers, and 0 otherwise. We obtain the ethnicity for each fund manager and firm executive based on their first and last names. We search these names in the Ethnea database, which is an ethnicity classification tool developed by the Torvik Research Group, to obtain the country of origin for each individual (Torvik Research Group, n.d.). We then assign these individuals into 1 of 10 ethno-cultural groups based on the classifications in the Global Leadership & Organizational Behavior Effectiveness (GLOBE) Study (Global Leadership & Organizational Behavior Effectiveness [GLOBE], n.d.). In the second step, we assign a value of 0 if both Gender Similarity and Ethnicity Similarity equal 0 for a fund-firm pair, a value of 1 if either Gender Similarity or Ethnicity Similarity equals 1, and a value of 2 if both Gender Similarity and Ethnicity Similarity equal 1.

We present the results in which we control for demographic similarity between fund managers and firm directors in column 7 in both panels of Table 2. As shown, our finding of a positive relation between political similarity and fund holdings remains unchanged even with the inclusion of the demographic similarity variable. Thus, preference for demographic similarity does not appear to explain partisan bias in fund portfolios.

5. Robustness Tests and Other Alternative Explanations

We carry out several robustness tests of our results. For example, we find that our inference remains unchanged when we exclude presidential election years (Section I.E of the Supplementary Material). Further analysis also suggests that partisan bias is not driven by either Democratic or Republican fund managers but is pervasive across both groups (Section I.G of the Supplementary Material).

We also consider the effects of political geography on our results. Along these lines, we consider the potential effects on our results of very partisan states that host concentrations of particular industries (California, with the high-tech industries, and Texas, with the energy industry, are notable examples). Fund managers in these states who may specialize in the locally dominant industry may

also feel compelled to make contributions to the state's dominant party, thus making their holdings seem especially partisan. Our results indicate that mutual fund partisan bias in partisan states is not different from that in non-partisan states (Section I.F of the Supplementary Material). Furthermore, we show that excluding stocks of firms in politically sensitive industries (as defined in Addoum and Kumar (2016)) does not change our findings (Section I.H of the Supplementary Material).

B. Fund Holdings around Fund Manager Changes

The previous analyses suggest that fund managers are more likely to hold stocks of firms managed by executives who have similar partisan affiliation. While the inclusion of fund fixed effects indicates that our results are robust to "within-fund" analysis, Cohen et al. (2008) and Pool et al. (2012) suggest that fund manager changes provide an additional and powerful identification window to examine whether manager personal preferences affect the holdings of their funds. In this section, we investigate whether changes in a fund's management associated with a change in the fund's partisan affiliation also change the partisan bias of the fund's holdings.

We classify funds (firms) with net donations to Republican candidates as Republican-leaning funds (firms) and those with net donations to Democratic candidates as Democratic-leaning funds (firms). For Republican- (Democratic-) leaning funds, we consider holdings of Republican- (Democratic-) leaning firm stocks as aligned holdings. We then track the changes in fund partisanship (FUND_REP, as defined in Section III) for each fund every quarter. Because we use the lifetime donations of individuals to define their partisan affiliation, an increase (decrease) in FUND_REP represents one of the following events: an addition of Republican (Democratic) managers, a removal of Democratic (Republican) managers, or a replacement of Democratic (Republican) managers with Republican (Democratic) managers. In all cases, we predict an increase in holdings of Republican (Democratic) stocks with an increase (decrease) in FUND_REP. For the analysis, we define our treatment funds as those that experienced manager changes that resulted in changes of partisan affiliation of the fund's management. We identify 1,340 such fund-quarters. We also define a set of control funds as the funds in the same Morningstar category as the treatment funds with the closest value of assets under management that did not experience a fund manager change in that quarter.

To formally test the treatment effect of a change in the partisan affiliation of the fund manager, we estimate the following difference-in-differences model for the period from 2 quarters before the change in manager until 3 quarters after the change:

$$\begin{aligned}(5)\qquad \text{ALIGNED}_{it} &= \alpha + \sum_{\tau=-2}^{\tau=3} \beta_\tau(\text{TREAT} \times \text{PERIOD}_\tau) + \beta_x(\text{TREAT}) \\ &\quad + \kappa_\tau(\text{PERIOD}_\tau) + \eta_i + d_t + \epsilon_{it}.\end{aligned}$$

For treatment funds, ALIGNED is the percentage of the fund's assets invested in firms run by executives who share the incoming fund manager's partisan orientation. For control funds, it is the percentage of the fund's assets invested

in firms run by executives who share the partisan orientation of the incoming fund manager at the associated treatment funds.[16] The omitted reference quarter (PERIOD = 0) is the quarter in which the fund manager change happened in the treatment funds. We also include a full set of fund fixed effects (η) and quarter fixed effects (d). The variable TREAT is a binary variable that equals 1 for the funds that experience a change in fund manager that resulted in changes of partisan affiliation of the fund's management (0 otherwise). Crucially, β is an estimate of the difference between treatment and control funds (in percentage of the fund's assets invested in firms whose executives share the incoming treatment fund manager's partisan affiliation), relative to the difference between treatment and control funds in the omitted reference period (i.e., PERIOD 0).

In addition to the "period-by-period" model in equation (5), we also estimate a more aggregated difference-in-differences model consisting of three periods: a "prior" period consisting of the 2 quarters immediately before the quarter in which the fund manager change happened; the omitted reference period, which is the quarter in which the fund manager change happened; and a "post" period consisting of the 3 quarters after the fund manager change happened. This model allows us to estimate the aggregate average treatment effect following the fund manager change while also assessing the validity of the "parallel trends assumption" of no change in trends prior to fund manager changes. This model is as follows:

$$\begin{aligned}(6)\ \text{ALIGNED}_{it} \quad = \quad & \alpha + \beta_1(\text{TREAT} \times \text{PRIOR}) + \beta_2(\text{TREAT} \times \text{POST}) \\ & + \beta_3(\text{TREAT}) + \kappa_1(\text{PRIOR}) + \kappa_2(\text{POST}) + \eta_i + d_t + \epsilon_{it}.\end{aligned}$$

PRIOR is a binary variable that equals 1 (0 otherwise) for the 2 quarters before and POST is a binary variable that equals 1 (0 otherwise) for the 3 quarters after the fund manager change.

We summarize the results of our key estimates from equations (5) and (6) in Figure 2.[17] We plot dots representing estimates of the period-by-period interactions with treatment funds (β_τ from equation (5)) and vertical bars indicating their 90% confidence intervals. The estimates show that, in the quarters immediately before the one in which treatment funds experienced a fund manager change, there is no difference between the percentage of holdings allocated to firms run by executives belonging to the party of the incoming manager at the treatment fund and the control funds (relative to the difference between treated and control funds in the reference quarter, which is the quarter of the change). However, after the change, treatment funds invest more of their assets in firms run by executives who share the partisan orientation of the incoming fund manager. Each of the three interactions between TREATMENT and PERIOD is significantly positive and different from 0 for the 3 quarters after the change.

[16] This test means that if the incoming fund manager at the treatment fund is a Republican (Democrat), we will examine the difference, between treatment and control funds, in the change of the percentage of funds allocated to firms run by Republican (Democratic) executives, following the arrival of the incoming manager at the treatment fund.

[17] Further details of the regression estimates are provided in Table IA2 of the Supplementary Material.

FIGURE 2

Fund Holdings around Fund Manager Changes (difference-in-differences estimates)

Figure 2 shows estimates of the effect on aligned holdings of fund manager changes that are associated with a change in the partisan affiliation of the fund managers. The TREATMENT funds are those that experience the fund manager change that results in the change of partisan affiliation. The CONTROL funds are those in the same Morningstar style category as the treatment fund that have the closest value of assets under management. The horizontal axis denotes the period, and the vertical axis shows the estimated difference between treatment and control funds. PERIOD 0 is the quarter in which the fund manager change happened. The dependent variable is the percentage of the fund invested in firms run by executives whose partisan orientation aligns with that of the incoming manager at the treatment funds. The key explanatory variables are the interactions of the period-by-period binary variables and the binary TREATMENT variable, where each period represents quarters relative to that in which the fund manager change happened. In the aggregate specification, the coefficients of interest are the interactions between the TREATMENT variable and a PRIOR (POST) binary variable, where PRIOR (POST) equals 1 for all the quarters before (after) the manager change. Regressions are estimated relative to the omitted quarter in which the fund manager change happened and include fund and quarter fixed effects. Coefficient estimates of the period-by-period interactions are plotted as dots with their 90% confidence intervals shown as vertical lines. Coefficient estimates of the aggregate PRIOR ($\beta = -0.34\%, t = -1.037$) and POST ($\beta = 1.31\%, t = 5.077$) interactions are shown with horizontal lines, and their 90% confidence intervals are indicated as boxes around these lines.

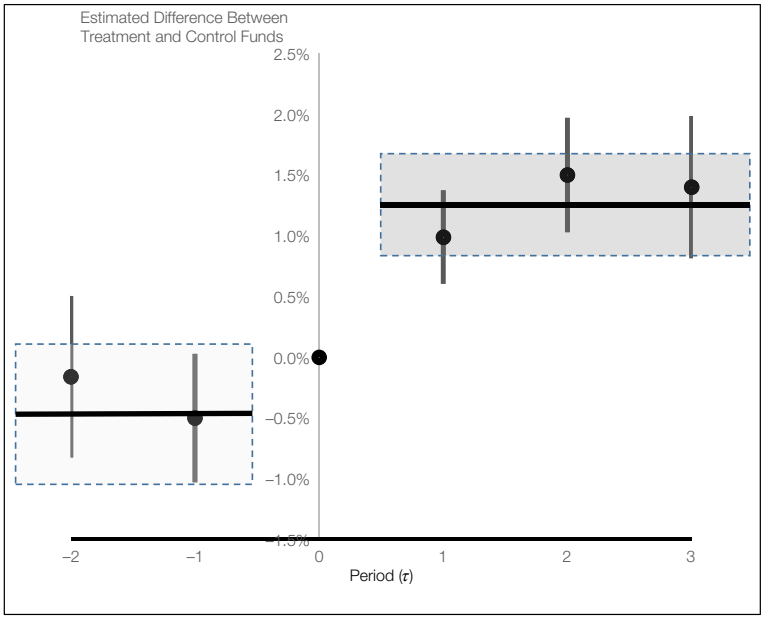


Figure 2 also shows the estimated coefficients on the interactions between the more aggregated time period variables and the treatment variable (β_1 and β_2, in equation (6)). The point estimates are drawn as horizontal lines, and their 90% confidence intervals are depicted as boxes around these horizontal lines. Again, we observe that, prior to the quarter in which the treatment funds experienced a change in fund manager, there is no significant difference between treatment and control funds in holdings of firms run by executives belonging to the party of the incoming manager at the treatment fund. After the change in fund manager, treatment funds increased the proportion of their funds invested in firms run by executives with political preferences aligned with those of the incoming fund manager by about 1.3 percentage points. This difference, as shown by the horizontal line and confidence interval in the post-change period, is significantly different from zero.

C. Fund Holdings around CEO Changes

The analysis in Section IV.B shows that the fund holdings of firms whose executives share aligned partisan leaning with the incoming manager increase after the manager changes. If the political partisan leaning of firm executives is a factor that influences fund managers' portfolio choices, we should also observe fund managers adjusting their holdings in firms that experience changes of partisan leaning due to executive turnover. In this section, we perform such an analysis around CEO turnover.

Using the same rationale as in Section IV.B, we classify funds' holdings of politically similar firms as aligned holdings. We keep track of changes of CEOs in our sample firms where the incoming CEO and the departing CEO hold different partisan leanings. To address the possible endogeneity concern that CEO changes are due to their political partisan orientation, we limit our CEO change events to those where the departing CEO left due to death or natural retirement (left the CEO role at age 65 or above). We identify 476 firm-years that had these CEO changes as our treatment firms. For each treatment firm, we identify the firm in the same Fama–French 48 industry that is closest in size as the control firm. We then calculate the percentage of the firm's shares that are held by funds with managers sharing the partisan affiliation of the incoming CEOs in the treatment firms (for both treatment and control firms) over the period from 2 years prior to 3 years after such CEO turnover.

We carry out the difference-in-differences estimates using regression specifications similar to the ones (in equations (5) and (6)) for changes in holdings around fund manager changes. The only differences are those for the CEO change analyses: i) for treatment firms, ALIGNED is the percentage of the firm's stock held by fund managers who share the incoming CEO's partisan orientation, while for control firms, it is the percentage of the firm's shares held by fund managers who share the partisan orientation of the incoming CEO at the associated treatment firm, and ii) PERIOD represents years rather than quarters.

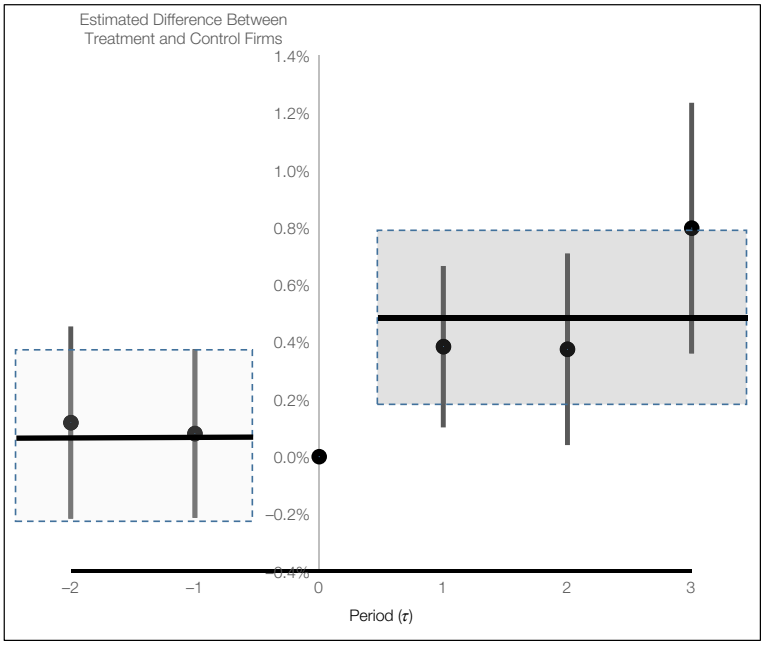
We summarize the results of our key estimates from the difference-in-differences estimates around CEO turnover in Figure 3.[18] We plot dots representing estimates of the period-by-period interactions with treatment firms and vertical bars indicating their 90% confidence intervals. We also show the estimated coefficients on the interactions between the more aggregated time period variables and the treatment variable. The figure shows that, prior to the year in which the treatment firms experienced a change in CEO, there was no significant difference between treatment and control firms in the percentage of their shares held by fund managers aligned with the party of the incoming CEO at the treatment firm. After the change in CEO, the percentage of the treatment firms' shares held by fund managers politically aligned with the incoming CEO increased by 0.5 percentage points more than that in control firms, which, as shown by the horizontal line and confidence interval in the post-turnover period, is significantly different from 0.

[18]Further details of the regression estimates are provided in Table IA3 of the Supplementary Material.

FIGURE 3

Fund Holdings around CEO Changes (difference-in-differences estimates)

Figure 3 shows estimates of the effect on aligned holdings of CEO turnover that are associated with a change in the partisan affiliation of the CEO. The TREATMENT firms are those that experience a CEO change that results in the change of partisan affiliation. The CONTROL firms are those in the same industry that are closest in size to the treatment firm. The horizontal axis denotes the period, and the vertical axis shows the estimated difference between treatment and control firms. PERIOD 0 is the year in which the CEO change happened. The dependent variable is the percentage of the firm's stock held by funds managed by individuals whose partisan orientation aligns with that of the incoming CEO at the treatment firms. The key explanatory variables are the interactions of the period-by-period binary variables and the binary TREATMENT variable, where each period represents years relative to that in which the CEO change happened. In the aggregate specification, the coefficients of interest are the interactions between the treatment variable and a PRIOR (POST) binary variable, where PRIOR (POST) equals 1 for all the years before (after) the CEO change. Regressions are estimated relative to the omitted year in which the CEO change happened and include firm and year fixed effects. Coefficient estimates of the period-by-period interactions are plotted as dots with their 90% confidence intervals shown as vertical lines. Coefficient estimates of the aggregate PRIOR ($\beta = 0.10\%, t = 0.579$) and POST ($\beta = 0.49\%, t = 2.773$) interactions are shown with horizontal lines, and their 90% confidence intervals are indicated as boxes around these lines.



D. Partisan Bias and Fund Performance

Having demonstrated that mutual fund manager partisan bias is positively associated with holdings in politically similar firms, we turn to examining the factors that drive this association. As we discussed in Section I, political similarity between fund managers and corporate directors could lead fund managers to tilt their investments toward these firms for three possible reasons: information, familiarity, and in-group favoritism. Among these three reasons, the information channel has a distinctly different implication for fund performance from the other two. If political similarity between fund managers and firm directors provides a channel by which fund managers obtain superior information that leads them to overweight their investments in politically similar firms, we should observe superior performance by politically aligned funds. This relation does not necessarily

hold if the reason for partisan bias is either familiarity or in-group favoritism, which do not predict improved performance for politically aligned holdings.

We thus investigate whether or not overweighting in politically similar firms leads to superior performance. We compare the performance of funds with the most holdings of politically similar firms to those with the least. Because our measures of political similarity between fund managers and firm executives are continuous, we define holdings in firms with POLITICAL_SIMILARITY > 0.995 (the 90th percentile of POLITICAL_SIMILARITY in our sample) as aligned.[19] We then calculate the variable PERCENT_ALIGNED as the percentage of holdings in aligned stocks for each fund in every quarter, to represent the degree to which a fund is aligned toward politically similar firms.

We present the results of our analysis in Table 3. We start with portfolio analysis in Panel A. We assign each fund to a portfolio decile every month based on its value of PERCENT_ALIGNED, and these portfolios are rebalanced quarterly based on reported mutual fund holdings. We report the alpha (α) from a regression of monthly returns on 3 factors from Fama and French (1993) (the excess return on the market, the return difference between a portfolio of "small" and "big" stocks, and the return difference between a portfolio of "high" and "low" book-to-market stocks) and a momentum factor from Carhart (1997), which is the return difference between a portfolio of stocks with high returns in the past year and a portfolio of stocks with low returns in the past year. For brevity, we report only the portfolio αs from Decile 1 (funds with the least aligned holdings) and Decile 10 (funds with the most aligned holdings), as well as α from a portfolio that buys funds with the least aligned holdings and short funds with the most aligned holdings. The results show that neither α from Decile 1 nor from Decile 10 is significantly different from 0. In addition, portfolio α from the long-short portfolio is not significant at conventional levels. These results indicate that funds with more partisan holdings do not outperform those with less partisan holdings.

It is possible that portfolio analysis does not account for individual fund characteristics that may be correlated with mutual fund holdings. We thus also conduct a regression analysis. For each fund and in every quarter, we compute its average daily fund abnormal return, which we define as α obtained from regressions of daily fund returns on daily values of the 3 Fama–French factors and the Carhart momentum factor. We then regress this abnormal return (α) on PERCENT_ALIGNED as well as four additional fund characteristics that may be related to fund performance: the number of stocks held in the fund, fund TNA, a binary variable for whether or not the fund is team managed, and managerial experience. The results presented in Panel B of Table 3 show a significantly negative relation between average daily abnormal returns and the percentage of fund assets invested in politically similar stocks (PERCENT_ALIGNED). If we consider, for example, the specification that includes quarter fixed effects and in which POLITICAL_SIMILARITY is based on executives and directors, funds consisting of only politically similar holdings have daily abnormal returns that

[19] We replicate this analysis using the 100th percentile and 75th percentile as the threshold, respectively, and find similar results to that reported.

TABLE 3

Fund Manager Partisan Bias and Fund Performance

Table 3 examines the effect of fund manager partisan bias on fund performance. For each fund in our sample, we create a variable, PERCENT_ALIGNED, which is the percentage of holdings in a fund invested in politically similar firms, defined as firms with POLITICAL_SIMILARITY > 0.995. In Panel A, we assign each fund to a portfolio every month based on its value of PERCENT_ALIGNED, and these portfolios are rebalanced quarterly based on mutual fund holdings. We report the ALPHA (α) from a regression of monthly returns on the 3 factors from Fama and French (1993): the excess return on the market, the return difference between a portfolio of small and big stocks, and the return difference between a portfolio of high and low book-to-market stocks, augmented with a momentum factor from Carhart (1997), which is the return difference between a portfolio of stocks with high returns in the past year and a portfolio of stocks with low returns in the past year. In Panel B, the dependent variable is individual fund daily abnormal return, which is defined as the ALPHA (α) obtained from regressions of daily fund returns on the 3 Fama–French factors and the Carhart momentum factor every quarter. All Directors and Executives indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, Chair, and all other members of the board of directors; CEO, CFO, and Chair indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, and Chair of the board of directors only. All other variables are as defined in Table 1. *t*-statistics based on robust standard errors clustered at both the fund and quarter levels are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Portfolio Analysis

	ALPHA (α)	*t*-Statistics
All Directors and Executives		
Decile 1	−0.005%	−0.07
Decile 10	−0.063%	−0.063
Diff (1 – 10)	0.058%	0.60
CEO, CFO, and Chair		
Decile 1	−0.094%	−1.52
Decile 10	−0.090%	−1.08
Diff (1 – 10)	−0.004%	−0.07

Panel B. Regression Analysis

	All Directors and Executives		CEO, CFO, and Chair	
Variable	1	2	3	4
PERCENT_ALIGNED	−0.0410***	−0.0180**	−0.0230***	−0.0162***
	(−3.91)	(−2.51)	(−3.43)	(−2.69)
NUMBER_OF_STOCKS	3.39e−06**	3.59e−06**	4.02e−06**	3.82e−06**
	(2.14)	(2.23)	(2.47)	(2.34)
FUND_NET_ASSETS	9.45e−05	−0.0003	0.0002	−0.0004
	(0.13)	(−0.44)	(0.23)	(−0.53)
TEAM_MANAGED	0.0020*	0.0006	0.0023*	0.0004
	(1.68)	(0.54)	(1.92)	(0.31)
MANAGERIAL_EXPERIENCE	0.0002*	9.30e−05	0.0002**	8.91e−05
	(1.88)	(0.95)	(2.05)	(0.91)
CONSTANT	−0.0112	−0.0045	−0.0130	−0.0020
	(−0.77)	(−0.43)	(−0.90)	(−0.19)
QUARTER FE	No	Yes	No	Yes
N	17,677	17,677	17,677	17,677
Adj. R^2	0.005	0.061	0.004	0.061

are 0.018% ($t = -2.51$) less than those with no politically similar holdings (or about 1.01% compounded over a quarter).

Taken together, our findings suggest that mutual funds with more holdings in politically similar firms may experience slightly worse performance than other funds, although the economic magnitude may be considered small. Nevertheless, these findings provide strong evidence that politically aligned funds almost certainly do not outperform other funds. Therefore, it is clear that the partisan affiliation–based bias among fund managers is not due to superior information.

E. Partisan Bias and Idiosyncratic Volatility

Our analysis from Section IV.D suggests that mutual funds with higher levels of partisan bias do not outperform those with less bias and may even suffer

from slightly worse fund performance. However, the fact that the analyses do not show extremely large profits from buying the least aligned funds while shorting the most aligned funds suggests that there may be relatively little economic costs to partisan bias. In this section, we investigate another potential cost of partisan bias: idiosyncratic risk. As Pool et al. (2012) note, any kind of mutual fund manager bias based on the manager's own personal preference could artificially limit the pool of stocks from which they can choose to form diversified portfolios. As we have noted, executives' partisan preferences tend to cluster within industries (Hong and Kostovetsky (2012)). Explicitly picking stocks based on the political partisan leaning of firm executives and directors might constrain the scope of stocks that fund managers can use to form diversified portfolios and exacerbate the over-allocation into stocks whose returns are closely correlated from being in the same (or similar) industry. This limitation means that a potential cost of partisan over-allocation is under-diversification. Portfolios with partisan biases may thus have greater idiosyncratic volatility.

To investigate this possibility, we start by calculating the quarterly idiosyncratic volatility for each fund. We calculate idiosyncratic volatility from the residuals obtained from regressing daily fund returns on daily values of the 3 Fama–French factors and the Carhart momentum factor. We define fund quarterly idiosyncratic volatility as the standard deviations of these daily residuals in each quarter. We present the results of our analysis in Table 4. In Panel A, we assign the mutual funds in our sample into deciles based on the extent of their partisan bias, where partisan bias is based on the percentage of the fund's assets invested in politically similar firms (PERCENT_ALIGNED), as described in Section IV.D. For each decile, we calculate the portfolio idiosyncratic volatility (IVOL) as the equally weighted average quarterly idiosyncratic volatility of all the funds in that decile. Column 1 documents the quarterly idiosyncratic volatility for each decile, column 2 shows the standard deviations of the idiosyncratic volatility in each decile, and column 3 provides the paired t-tests of the difference between each decile and Decile 10.

The results show that, in general, as we move from the least partisan funds (Decile 1) to the most partisan funds (Decile 10), we observe increasing idiosyncratic volatility. The t-statistics in column 3 show that funds in Decile 10 have significantly larger idiosyncratic volatility than those in other deciles. We repeat the analysis in Panel B of Table 4 with the value weighted average quarterly idiosyncratic volatility of all the funds in that decile (where idiosyncratic volatility is value weighted using total fund net assets). The results are similar to those reported in Panel A.

The results from the portfolio analyses in Panels A and B show that idiosyncratic volatility increases with fund partisan bias. However, it is important to note, as we did with returns, that there may be other fund characteristics related to both individual fund risk and mutual fund holdings (Pool et al. (2012)). To account for these factors, we carry out a regression of idiosyncratic volatility on PERCENT_ALIGNED while controlling for the number of stocks held in the fund, fund net assets, a binary variable for whether or not the fund is team managed, and managerial experience.

We present our results in Panel C of Table 4. In the specification without quarter fixed effects in which POLITICAL_SIMILARITY is based on all executives/directors (column 1), the estimated coefficient estimate on PERCENT_ALIGNED is 0.4050 ($t = 6.06$). This finding indicates that, for a typical fund,

TABLE 4

Fund Manager Partisan Bias and Fund Idiosyncratic Risks

Table 4 examines the effect of fund manager partisan bias on fund idiosyncratic risks. IVOL is the standard deviation of the residuals from running daily Fama–French 3-factor plus momentum quarterly regressions. In Panels A and B, we divide our sample into deciles based on funds' holdings of politically similar firms. In Panel C, we run regression analyses. The dependent variable is the IVOL, as defined previously. All Directors and Executives indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, Chair, and all other members of the board of directors; CEO, CFO, and Chair indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, and Chair of the board of directors only. All other variables are as defined in Table 1. *t*-statistics based on robust standard errors clustered at both the fund and quarter levels are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Deciles Based on Funds' Holdings of Politically Similar Firms (Equally Weighted)

IVOL (Equally Weighted)	Mean	Std. Dev.	*t*-Stat. for Diff. with Decile 10
All Directors and Executives			
Decile 1	0.2749	0.1858	−14.22***
Decile 2	0.2737	0.1707	−14.78***
Decile 3	0.2913	0.1995	−11.69***
Decile 4	0.2941	0.1903	−11.48***
Decile 5	0.2716	0.1864	−14.70***
Decile 6	0.2820	0.2194	−12.51***
Decile 7	0.2941	0.2181	−10.94***
Decile 8	0.3063	0.2197	−9.29***
Decile 9	0.3322	0.2376	−5.69***
Decile 10	0.3766	0.2725	n/a
CEO, CFO, and Chair			
Decile 1	0.2828	0.1605	−17.64***
Decile 2	0.2460	0.1659	−21.91***
Decile 3	0.2717	0.1884	−18.19***
Decile 4	0.2550	0.1932	−20.33***
Decile 5	0.2624	0.2039	−18.96***
Decile 6	0.2912	0.2098	−14.91***
Decile 7	0.3137	0.2202	−11.66***
Decile 8	0.3267	0.2254	−9.84***
Decile 9	0.3388	0.2328	−8.14***
Decile 10	0.4018	0.2720	n/a

Panel B. Deciles Based on Funds' Holdings of Politically Similar Firms (Weighted by Fund TNA)

IVOL (Weighted by Fund TNA)	Mean	Std. Dev.	*t*-Stat. for Diff. with Decile 10
All Directors and Executives			
Decile 1	0.2209	0.0926	−2.61**
Decile 2	0.2139	0.0929	−2.94***
Decile 3	0.2255	0.1057	−2.29**
Decile 4	0.2404	0.1196	−1.54
Decile 5	0.2008	0.1126	−3.32***
Decile 6	0.2073	0.1201	−2.95***
Decile 7	0.2181	0.1401	−2.30**
Decile 8	0.2272	0.1281	−2.04**
Decile 9	0.2653	0.1444	−0.43
Decile 10	0.2762	0.1354	n/a
CEO, CFO, and Chair			
Decile 1	0.2366	0.1067	−2.87***
Decile 2	0.1867	0.0759	−5.62***
Decile 3	0.2037	0.0927	−4.54***
Decile 4	0.1962	0.0942	−4.86***
Decile 5	0.1975	0.1254	−4.31***
Decile 6	0.2254	0.1311	−3.09***
Decile 7	0.2511	0.1303	−2.05**
Decile 8	0.2579	0.1385	−1.72**
Decile 9	0.2711	0.1419	−1.18
Decile 10	0.3013	0.1384	n/a

(continued on next page)

TABLE 4 (continued)
Fund Manager Partisan Bias and Fund Idiosyncratic Risks

Panel C. Regression Analyses

	All Directors and Executives		CEO, CFO, and Chair	
Variable	1	2	3	4
PERCENT_ALIGNED	0.4050***	0.2280***	0.3110***	0.2640***
	(6.06)	(4.62)	(7.46)	(8.17)
NUMBER_OF_STOCKS	−0.0001***	−0.0001***	−0.0001***	−0.0001***
	(−4.66)	(−4.43)	(−4.86)	(−4.64)
FUND_NET_ASSETS	−0.0154***	−0.0122***	−0.0152***	−0.0107***
	(−7.91)	(−6.64)	(−7.72)	(−6.07)
TEAM_MANAGED	−0.0109*	−0.0001	−0.0098	0.0060
	(−1.76)	(−0.03)	(−1.56)	(1.04)
MANAGERIAL_EXPERIENCE	0.0008	0.0019***	0.0006	0.0020***
	(1.40)	(3.52)	(1.15)	(3.78)
CONSTANT	0.5420***	0.4250***	0.5280***	0.3710***
	(12.33)	(11.63)	(11.82)	(10.78)
QUARTER FE	No	Yes	No	Yes
N	17,677	17,677	17,677	17,677
Adj. R^2	0.139	0.351	0.142	0.371

a 1-standard-deviation increase in partisan holdings leads to an approximately 29% increase in idiosyncratic volatility. The results from column 2, in which we control for quarter fixed effects, are similar to those in column 1: Partisan bias increases fund idiosyncratic volatility. The results in which POLITICAL_SIMILARITY is based on CEO/CFO/Chair (columns 3 and 4) are similar to those in columns 1 and 2, respectively.

The analysis of both stock returns and idiosyncratic volatility suggests that, while funds with more partisan holdings may attain returns that are slightly less than those with less partisan ones, funds with more partisan holdings have higher levels of idiosyncratic risks. This evidence suggests that funds with more partisan biases have lower return to risk ratios, which implies a real and significant cost of partisan bias in mutual fund portfolio allocation.

F. Fund Characteristics, Firm Characteristics, and Fund Partisan Bias

The analysis thus far suggests that partisan bias among mutual fund managers is not a consequence of superior information about firms whose executives have similar partisan affiliation to those of fund managers. If partisan bias arises from managerial preferences (such as familiarity or in-group favoritism) rather than superior information, there may be fund or firm characteristics that reduce or exacerbate the effect of partisan bias on fund holdings. We investigate the effect of several fund and firm characteristics in this section.

We start with fund characteristics and focus specifically on two factors: fund managerial experience and fund size. Experienced managers are more likely to be familiar with a broader range of metrics for portfolio selection and the consequences of relying on partisan preferences. We predict that experienced managers are less susceptible to partisan bias and, therefore, funds with more experienced managers have less partisan holdings. Larger funds have more resources to carry out research and are likely to be managed by more experienced fund managers. Their size also means that they face more scrutiny from investors with respect to

their portfolio choices, making them less susceptible to partisan bias. We predict that funds with more assets under management have less partisan holdings.

We test these predictions and present the results in Table 5. The results support our predictions. The effect of partisan bias on mutual fund holdings is significantly lower in larger funds. The estimated coefficient on the interaction between POLITICAL_SIMILARITY and FUND_NET_ASSETS is negative and significant. We also find that the effect of partisan bias on mutual fund holdings is significantly lower when the fund management team is more experienced; the estimated coefficient on the interaction between POLITICAL_SIMILARITY and MANAGERIAL_EXPERIENCE is also significantly negative.

Next, we examine if individual firm characteristics influence the extent to which partisan bias affects the over-allocation of fund assets to a particular firm. Our broad prediction here is that fund managers are less likely to steer their funds toward politically similar firms when those firms have a more transparent information environment and broader investor following. As pointed out by Pool et al. (2012), fund managers are less likely to believe that they possess valuable information on firms that are well known to the investment public. In addition, fund investment in firms with more transparent environments is more likely to face investor scrutiny. We propose three variables to proxy for the firm's information

TABLE 5

Fund Manager Partisan Bias and Fund Characteristics

Table 5 presents our analysis of the effect of fund characteristics on fund partisan bias. The dependent variable is PERCENT_HELD, the percentage of TNA a fund holds in a stock. All Directors and Executives indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, Chair, and all other members of the board of directors; CEO, CFO, and Chair indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, and Chair of the board of directors only. All other variables are as defined in Table 1. *t*-statistics based on robust standard errors clustered at the fund level are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	All Directors and Executives		CEO, CFO, and Chair	
Variable	1	2	3	4
POLITICAL_SIMILARITY	0.2980***	0.1070**	0.1510**	0.0615**
	(2.61)	(2.56)	(2.16)	(2.35)
FUND_NET_SIZE	−0.0498***		−0.0552***	
	(−5.17)		(−6.11)	
POLITICAL_SIMILARITY × FUND_NET_SIZE	−0.0134**		−0.0068**	
	(−2.47)		(−2.01)	
MANAGERIAL_EXPERIENCE		0.0467**		0.0327**
		(2.41)		(2.22)
POLITICAL_SIMILARITY × MANAGERIAL_EXPERIENCE		−0.0424**		−0.0252*
		(−2.09)		(−1.92)
MARKET_CAP	0.0042***	0.0041***	0.0042***	0.0041***
	(10.04)	(9.77)	(10.01)	(9.77)
MARKET_TO_BOOK	−6.56e−06**	−6.02e−06*	−6.55e−06**	−6.04e−06*
	(−2.13)	(−1.82)	(−2.11)	(−1.82)
MORNINGSTAR_CATEGORY_HOLDING	0.5770***	0.5790***	0.5770***	0.5790***
	(38.72)	(38.16)	(38.70)	(38.14)
R12	0.0232***	0.0360***	0.0232***	0.0359***
	(8.49)	(7.89)	(8.48)	(7.88)
CONSTANT	1.0020***	0.0017	1.1250***	0.0384
	(5.32)	(0.03)	(6.45)	(0.71)
INDUSTRY FE	Yes	Yes	Yes	Yes
FIRM STATE FE	Yes	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes	Yes
FUND FE	Yes	Yes	Yes	Yes
N	2,952,812	2,651,724	2,952,812	2,651,724
Adj. R^2	0.238	0.241	0.238	0.241

environment: the number of analysts following the firm, firm size (market capitalization), and whether or not the firm is in the S&P 500 index.

We test our prediction with respect to the firm's information environment and present the results in Table 6. The results generally support our prediction that partisan bias is less likely to affect fund allocations toward politically similar firms with transparent information environments. When POLITICAL_SIMILARITY is defined using all directors/executives, the coefficient estimates on the interactions between POLITICAL_SIMILARITY and each of NUMBER_OF_ANALYSTS, MARKET_CAP, and S&P_500 are all significantly negative. We find similar results when POLITICAL_SIMILARITY is defined using CEO/CFO/Chair, although the negative estimate on the interaction between POLITICAL_SIMILARITY and NUMBER_OF_ANALYSTS falls short of statistical significance in this case.

Taken together, the results in this section suggest that, while partisan bias appears to be due to managerial preference (either familiarity or in-group favoritism) rather than information, firm and fund characteristics moderate this bias. Larger funds and funds managed by more experienced managers appear to be less susceptible to partisan bias. The information environment of the firms that funds invest in also appears to moderate the extent to which partisan bias influences fund allocation to those firms. Political similarity between fund managers and corporate

TABLE 6
Fund Manager Partisan Bias and Security Characteristics

Table 6 presents our analysis of the effect of stock characteristics on fund partisan bias. The dependent variable is PERCENT_HELD, the percentage of TNA a fund holds in a stock. All Directors and Executives indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, Chair, and all other members of the board of directors; CEO, CFO, and Chair indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, and Chair of the board of directors only. All other variables are as defined in Table 1. *t*-statistics based on robust standard errors clustered at the fund level are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	All Directors and Executives			CEO, CFO, and Chair		
Variable	1	2	3	4	5	6
POLITICAL_SIMILARITY	0.1050***	0.0841***	0.0499***	0.0234	0.0614***	0.0293***
	(3.83)	(3.30)	(3.92)	(1.33)	(3.82)	(3.93)
POLITICAL_SIMILARITY × NUMBER_OF_ANALYSTS	−0.0288***			−0.0027		
	(−2.65)			(−0.35)		
POLITICAL_SIMILARITY × MARKET_CAP		−0.0011**			−0.0009***	
		(−1.98)			(−2.72)	
POLITICAL_SIMILARITY × S&P_500			−0.0422*			−0.0299**
			(−1.77)			(−2.11)
NUMBER_OF_ANALYSTS	−0.0004			−0.0207***		
	(−0.05)			(−3.40)		
S&P_500			0.00565			−0.0048
			(0.26)			(−0.31)
MARKET_CAP	0.0045***	0.0050***	0.0044***	0.0046***	0.0048***	0.0044***
	(11.80)	(8.13)	(10.07)	(11.81)	(9.78)	(10.09)
MARKET_TO_BOOK	−6.71e−06**	−6.38e−06*	−6.97e−06**	−6.81e−06**	−6.36e−06*	−7.00e−06**
	(−1.98)	(−1.88)	(−2.05)	(−2.01)	(−1.88)	(−2.06)
MORNINGSTAR_CATEGORY_HOLDING	0.5760***	0.5780***	0.5780***	0.5760***	0.5780***	0.5780***
	(38.82)	(39.02)	(39.09)	(38.80)	(39.01)	(39.08)
R12	0.0212***	0.0223***	0.0212***	0.0211***	0.0222***	0.0212***
	(7.93)	(8.52)	(8.70)	(7.91)	(8.50)	(8.69)
CONSTANT	−0.0623	−0.0332	−0.0233	0.0033	−0.0124	−0.0057
	(−1.26)	(−0.69)	(−0.51)	(0.07)	(−0.28)	(−0.13)
INDUSTRY FE	Yes	Yes	Yes	Yes	Yes	Yes
FIRM STATE FE	Yes	Yes	Yes	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes	Yes	Yes	Yes
FUND FE	Yes	Yes	Yes	Yes	Yes	Yes
N	2,952,812	2,952,812	2,952,812	2,952,812	2,952,812	2,952,812
Adj. R^2	0.236	0.236	0.236	0.236	0.236	0.236

executives appears to exert less influence on fund investment in larger and more transparent firms.

G. Familiarity versus In-Group Favoritism: Political Environment and Partisan Bias

Our analysis thus far suggests that partisan bias in portfolio allocation among mutual fund managers appears to be due to either in-group favoritism or familiarity rather than to superior information about politically similar firms. However, distinguishing which of these two is the dominant channel is difficult; both channels predict partisan bias with no superior performance, which is shown by our findings so far. Indeed, it is possible, maybe even likely, that both factors play a role in portfolio allocation to some extent. Nevertheless, in this section, we attempt to tease out which of the two channels, whether in-group favoritism or familiarity, may be more important in explaining fund manager partisan bias.

Our test relies on the observation that optimism among investors increases when the party to which they are ideologically inclined is in power at the federal level (Bonaparte et al. (2017)). If in-group favoritism is due to the innate belief in the superiority of one's in-group members (Jannati, Kumar, Niessen-Ruenzi, and Wolfers (2016)), we expect partisan bias to be exacerbated by the election of the party that the fund manager supports. Therefore, we would expect that when a Democratic (Republican) president holds office, Democratic (Republican) fund managers would exhibit stronger partisan bias. In contrast, if partisan bias is due mostly to familiarity, there should be no effect on partisanship regardless of which party is in office because fund managers are unlikely to suddenly become more or less familiar with a politically similar firm merely because the identity of the president has changed.

Our sample contains actively managed U.S. mutual funds that span the period from 2000 to 2015, so it covers the full extent or parts of three presidential administrations (the Clinton (2000), Bush (2001–2008), and Obama (2009–2015) administrations, respectively). To test if partisan bias changes under different presidents, we divide our sample into two groups, Democratic years and Republican years, based on which president was in office. Partisan influence might be more pronounced right after a change of power, so we limit our analysis to the first 2 years in each presidency.[20] For each fund, we define a FUND_REPUBLICAN_INDEX, which, as described in Section III, is net donations to Republican candidates, weighted by donations in team-managed funds (i.e., FUND_REP). The higher (lower) a fund's FUND_REPUBLICAN_INDEX, the more Republican- (Democratic-) leaning the fund is. We then estimate equation (4), separately for Republican years and Democratic years, while including the interaction between POLITICAL_SIMILARITY and FUND_REPUBLICAN_INDEX. If Republican fund managers become more partisan during a Republican presidency, then the coefficient on the interaction term will be positive in the Republican years; if Democratic fund managers become more partisan during a Democratic

[20] We also perform the analysis based on all years under each presidency and find similar results (see Table IA6 of the Supplementary Material). We find similar results when we restrict our sample to those years when either party had the presidency and control of Congress (see Table IA9 of the Supplementary Material).

presidency, the coefficient on the interaction term will be negative in the Democratic years.

We present our results in Table 7 and find support for our conjecture that fund managers become more partisan when the president is from the party they support. For example, in columns 1 and 2 of Panel A, in which political similarity is based on all executives and directors, we find that, under a Republican president, the estimated coefficient on the interaction between POLITICAL_SIMILARITY and FUND_REPUBLICAN_INDEX is 0.0366 ($t = 1.99$), which is significantly positive. In contrast, the estimated coefficient on this interaction term under a Democratic president is -0.0483 ($t = -2.74$), which is significantly negative. These results suggest that in-group favoritism appears to be a more important

TABLE 7

Fund Manager Partisan Bias and Political Environment

Table 7 presents our analysis of the effect of political environment on fund partisan bias. Panel A documents our analysis in which we define a firm's political leaning based on political contributions from the CEO, CFO, Chair, and all other members of the board of directors; Panel B documents our analysis in which we define a firm's political leaning based on political contributions from the CEO, CFO, and Chair of the board of directors only. Columns 1 and 3 in each panel document the analysis that uses the first 2 years under the Bush presidencies (2001, 2002, 2005, and 2006). Columns 2 and 4 in each panel document the analysis that uses the first 2 years under the Obama presidencies (2009, 2010, 2013, and 2014). The dependent variable is PERCENT_HELD, the percentage of TNA a fund holds in a stock. Following Pastor and Veronesi (2018), we define MARKET_EXCESS_RETURN as the market excess return in the previous quarter, REAL_GDP_GROWTH as real GDP growth in the previous quarter, and MARKET_VARIANCE as the variance of daily market returns in the previous quarter. All other variables are as defined in Table 1. *t*-statistics based on robust standard errors clustered at the fund level are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. All Directors and Executives

Variable	Republican President 1	Democratic President 2	Republican President 3	Democratic President 3
POLITICAL_SIMILARITY	0.0183	0.0230*	0.0222	0.0223
	(1.21)	(1.66)	(1.50)	(1.65)
FUND_REPUBLICAN_INDEX	0.00361	0.0437**	0.0039	0.0440**
	(0.16)	(2.05)	(0.17)	(2.07)
POLITICAL_SIMILARITY × FUND_REPUBLICAN_INDEX	0.0366**	−0.0483***	0.0366**	−0.0489***
	(1.99)	(−2.74)	(1.98)	(−2.78)
MARKET_CAP	0.0051***	0.0042***	0.0051***	0.0042***
	(12.03)	(7.73)	(12.02)	(7.73)
MARKET_TO_BOOK	−0.0003	−0.0022***	−0.0003	−0.0022***
	(−0.74)	(−5.12)	(−0.76)	(−5.12)
MORNINGSTAR_CATEGORY_HOLDING	0.4800***	0.5370***	0.4800***	0.5370***
	(36.28)	(33.83)	(36.28)	(33.83)
R12	0.0683***	0.0312***	0.0684***	0.0312***
	(8.93)	(6.07)	(8.92)	(6.07)
POLITICAL_SIMILARITY × MARKET_EXCESS_RETURN			0.1270	0.0069
			(0.78)	(0.06)
POLITICAL_SIMILARITY × REAL_GDP_GROWTH			−0.8510	0.9390
			(−1.07)	(1.56)
POLITICAL_SIMILARITY × MARKET_VARIANCE			0.0004	−0.0009
			(0.06)	(−0.52)
CONSTANT	0.0838	0.140***	0.0877	0.1620***
	(1.58)	(2.85)	(1.62)	(3.19)
INDUSTRY FE	Yes	Yes	Yes	Yes
FIRM STATE FE	Yes	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes	Yes
FUND FE	Yes	Yes	Yes	Yes
N	730,342	736,130	730,342	736,130
Adj. R^2	0.219	0.264	0.219	0.264

(continued on next page)

TABLE 7 (continued)
Fund Manager Partisan Bias and Political Environment

Panel B. CEO, CFO, and Chair

Variable	Republican President 1	Democratic President 2	Republican President 3	Democratic President 4
POLITICAL_SIMILARITY	0.0033	0.0138*	0.0095	0.0211**
	(0.43)	(1.91)	(0.73)	(2.57)
FUND_REPUBLICAN_INDEX	0.0004	0.0412*	0.0004	0.0416*
	(0.02)	(1.92)	(0.02)	(1.94)
POLITICAL_SIMILARITY × FUND_REPUBLICAN_INDEX	0.0428**	−0.0430***	0.0428**	−0.0435***
	(2.52)	(−2.65)	(2.51)	(−2.69)
MARKET_CAP	0.0051***	0.0042***	0.0051***	0.0042***
	(12.03)	(7.74)	(12.02)	(7.74)
MARKET_TO_BOOK	−0.0003	−0.0022***	−0.0003	−0.0022***
	(−0.75)	(−5.14)	(−0.75)	(−5.14)
MORNINGSTAR_CATEGORY_HOLDING	0.4800***	0.5370***	0.4800***	0.5370***
	(36.27)	(33.82)	(36.27)	(33.82)
R12	0.0683***	0.0312***	0.0683***	0.0312***
	(8.92)	(6.07)	(8.91)	(6.07)
POLITICAL_SIMILARITY × MARKET_EXCESS_RETURN			0.1230	0.0196
			(0.75)	(0.16)
POLITICAL_SIMILARITY × REAL_GDP_GROWTH			−0.9960	−0.0350
			(−1.00)	(−0.07)
POLITICAL_SIMILARITY × MARKET_VARIANCE			0.0002	−0.0038*
			(0.02)	(−1.84)
CONSTANT	0.0962*	0.1480***	0.0994*	0.1690***
	(1.87)	(3.03)	(1.84)	(3.37)
INDUSTRY FE	Yes	Yes	Yes	Yes
FIRM STATE FE	Yes	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes	Yes
FUND FE	Yes	Yes	Yes	Yes
N	730,342	736,130	730,342	736,130
Adj. R^2	0.219	0.264	0.219	0.264

factor in explaining partisan bias than familiarity. In Panel B, in which political similarity is based on the CEO/CFO/Chair, we find similar results.

The analysis in columns 1 and 2 of both panels in Table 7 assumes that risk premia remain constant over the political cycle. However, Pastor and Veronesi (2018) suggest and find some evidence that risk premia may change over the political cycle, as the cycle moves to, or from, Republican or Democratic presidencies. It is possible that fund managers may adjust their portfolio allocations in response to these changes in risk premia. If the salience of partisanship among fund managers also changes over the political cycle, our findings in columns 1 and 2 may be explained by the differences in risk aversion under the various presidencies. To assess this possibility, we augment the analysis in columns 1 and 2 by including the interaction of POLITICAL_SIMILARITY and lagged (by 1 quarter) values of three variables that Pastor and Veronesi suggest may proxy for risk aversion: MARKET_EXCESS_RETURN, REAL_GDP_GROWTH, and MARKET_VARIANCE (variance of daily market returns). We find that the inclusion of these variables does not change our inference that partisan bias may be more pronounced when the party that the fund manager supports holds the presidency (as reported in columns 3 and 4 of both panels in Table 7).

H. Fund Manager Partisan Bias and the Disposition Effect

There is some prior evidence that fund managers are not completely immune to the disposition effect reflected in selling winners too soon and keeping losers too long (e.g., Frazzini (2006), Jin and Scherbina (2011), and Cici (2012)). If our results thus far, at least in part, reflect in-group favoritism, one potential implication is that managers may exhibit a disposition effect that leads them to hold losing stocks of firms run by executives with whom they share partisan views. We examine this possibility directly in this section. Specifically, we interact POLITICAL_SIMILARITY with individual firm returns over the past 3 months (3_MONTH_CAR) and the past 12 months (R12), respectively, and include these interactions in our regressions of fund holdings on POLITICAL_SIMILARITY. We present the results in Panel A of Table 8. The results do indeed strongly suggest that managers are more likely to hold losing stocks if the fund managers and executives of the firm share similar partisan orientation. Across all our specifications, we find that the interaction between POLITICAL_SIMILARITY and

TABLE 8
Fund Manager Partisan Bias and the Disposition Effect

Table 8 presents the results from our analysis of the effect of partisan bias on the disposition effect. The dependent variable is PERCENT_HELD, the percentage of TNA a fund holds in a stock. All Directors and Executives indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, Chair, and all other members of the board of directors; CEO, CFO, and Chair indicates that a firm's political leaning is defined based on political contributions from the CEO, CFO, and Chair of the board of directors only. In Panel B, POLITICAL_SIMILARITY is based on all directors and executives. Republican president refers to the first 2 years under the Bush presidencies (2001, 2002, 2005, and 2006), and Democratic president refers to the first 2 years under the Obama presidencies (2009, 2010, 2013, and 2014). All other variables are as defined in Table 1. *t*-statistics based on robust standard errors clustered at the fund level are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Fund Manager Partisan Bias and the Disposition Effect

	All Directors and Executives		CEO, CFO, and Chair	
Variable	1	2	3	4
POLITICAL_SIMILARITY	0.0382***	0.0442***	0.0192***	0.0232***
	(3.24)	(3.65)	(3.02)	(3.54)
3_MONTH_CAR	0.1760***		0.1660***	
	(7.39)		(9.92)	
POLITICAL_SIMILARITY × 3_MONTH_CAR	−0.0729***		−0.0632***	
	(−2.62)		(−3.49)	
POLITICAL_SIMILARITY × R12		−0.0433***		−0.0306***
		(−3.32)		(−3.49)
MARKET_CAP	0.0045***	0.0045***	0.0045***	0.0045***
	(10.96)	(10.96)	(10.98)	(10.99)
MARKET_TO_BOOK	−0.0012***	−0.0012***	−0.0013***	−0.0012***
	(−3.76)	(−3.55)	(−3.76)	(−3.55)
MORNINGSTAR_CATEGORY_HOLDING	0.5200***	0.5240***	0.5200***	0.5240***
	(40.37)	(40.61)	(40.36)	(40.61)
R12	0.0316***	0.0802***	0.0315***	0.0691***
	(7.84)	(6.74)	(7.83)	(8.10)
CONSTANT	0.0285	0.0251	0.0472	0.0448
	(0.69)	(0.61)	(1.20)	(1.13)
INDUSTRY FE	Yes	Yes	Yes	Yes
FIRM STATE FE	Yes	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes	Yes
FUND FE	Yes	Yes	Yes	Yes
N	2,952,702	2,952,812	2,952,702	2,952,812
Adj. R^2	0.238	0.237	0.238	0.236

(continued on next page)

TABLE 8 (continued)
Fund Manager Partisan Bias and the Disposition Effect

Panel B. Fund Manager Partisan Bias, the Disposition Effect, and Political Environment

Variable	Republican President	Republican President	Democratic President	Democratic President
POLITICAL_SIMILARITY × FUND_REPUBLICAN_INDEX	0.0362**	0.0352*	−0.0530***	−0.0625***
	(1.97)	(1.88)	(−3.01)	(−3.45)
POLITICAL_SIMILARITY × FUND_REPUBLICAN_INDEX × 3_MONTH_CAR	0.0093		0.1990***	
	(0.19)		(4.46)	
POLITICAL_SIMILARITY × FUND_REPUBLICAN_INDEX × R12		0.0085		0.0547***
		(0.27)		(2.86)
POLITICAL_SIMILARITY × 3_MONTH_CAR	−0.0134		−0.1220***	
	(−0.27)		(−4.14)	
POLITICAL_SIMILARITY × R12		−0.0062		−0.0381***
		(−0.23)		(−2.70)
FUND_REPUBLICAN_INDEX × 3_MONTH_CAR	0.0074		−0.1380***	
	(0.20)		(−4.74)	
FUND_REPUBLICAN_INDEX × R12		0.0010		−0.0395***
		(0.05)		(−2.81)
FUND_REPUBLICAN_INDEX	0.0040	0.0035	0.0469**	0.0535**
	(0.18)	(0.15)	(2.20)	(2.50)
3_MONTH_CAR	0.1480***		0.1610***	
	(3.90)		(6.73)	
POLITICAL_SIMILARITY	0.01860	0.0191	0.0261*	0.0323**
	(1.21)	(1.20)	(1.89)	(2.30)
MARKET_CAP	0.0052***	0.0051***	0.0042***	0.0042***
	(12.12)	(12.00)	(7.72)	(7.74)
MARKET_TO_BOOK	−0.0002	−0.0003	−0.0023***	−0.0022***
	(−0.38)	(−0.75)	(−5.30)	(−5.14)
MORNINGSTAR_CATEGORY_HOLDING	0.4740***	0.4800***	0.5360***	0.5370***
	(36.17)	(36.27)	(33.63)	(33.82)
R12	0.0500***	0.0718***	0.0234***	0.0594***
	(7.78)	(3.70)	(5.20)	(4.94)
CONSTANT	0.0735	0.0839	0.1340***	0.1330***
	(1.39)	(1.58)	(2.70)	(2.71)
INDUSTRY FE	Yes	Yes	Yes	Yes
FIRM STATE FE	Yes	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes	Yes
FUND FE	Yes	Yes	Yes	Yes
N	730,331	730,342	736,100	736,130
Adj. R^2	0.221	0.219	0.265	0.264

past returns is significantly negative. Political similarity appears to exacerbate the disposition effect.

The analysis in Section IV.G suggests that fund managers demonstrate more partisan bias in their portfolio allocation decisions when the party they support is in power. This finding raises another possibility: The strong disposition effect we measure in Panel A of Table 8 may be even more pronounced when the party that the fund manager supports is in power. In other words, it is possible that fund managers may be more likely to hold on to losing stocks when the president from their own party is in power and less likely to do so when the president of the opposing party is in power. To investigate this possibility, we replicate the specification in Panel A of Table 8, separately for Republican and Democratic presidencies, while including a 3-way interaction between POLITICAL_SIMILARITY, past returns, and the extent to which the fund's managers lean Republican (FUND_REPUBLICAN_INDEX). A positive estimate on this triple interaction during Democratic presidencies or a negative estimate during the

Republican presidency indicates a heightened partisan disposition effect. The results, which we present in Panel B of Table 8, provide some evidence to support this possibility. While the 3-way interaction is not significant under the Republican presidency, it is positive during the Democratic presidencies.

Taken together, the results in this subsection provide broad support for our earlier findings that suggest partisan bias in fund manager portfolio allocation. The evidence strongly suggests that fund managers may be more reluctant to sell the losing stocks of firms run by co-partisans. There is also some evidence that this heightened disposition effect may be stronger when the party that the manager supports holds the presidency.

V. Partisan Holdings in the Companies of High-Profile Partisan CEOs

Our analysis thus far has relied on campaign contributions to identify the partisanship of both corporate executives and fund managers. The implicit assumptions are that fund managers who are interested in knowing the partisan beliefs of executives can look them up or that campaign contributions serve as a proxy for other ways of more easily ascertaining an executive's partisan orientation. However, there is considerable variation in the extent to which executives reveal their political partisan orientation. Many executives attempt to publicly downplay (or even conceal) their personal political beliefs (even after making campaign contributions that are tracked in the FEC database). In contrast, some executives are vocal about their political beliefs and openly campaign and fundraise for high-profile political candidates.[21] These anecdotal cases suggest that partisan bias should be observable when we base our determination of political leaning on the subset of prominent CEOs whose partisan affiliation is relatively easy to identify based on public comments, stances, or political activity. They also suggest that, in our broader sample, partisan bias may be more pronounced if the firm has a prominent CEO who has a clearly identifiable partisan affiliation. In this section, we investigate both of these possibilities.

To assemble a data set of prominent CEOs, we rely on the online aggregator http://www.nndb.com. This database of over 35,000 individuals includes biographies for "…persons for whom the public has demonstrated a permanent interest…" In other words, the data set includes individuals for which there is a non-trivial amount of public attention.[22] The online aggregator uses publicly available and easily accessible online sources to build a biographical profile for each individual it covers. For many of these individuals, the data set uses online reports of political activity to determine and report an individual's partisan affiliation.

[21] Examples include Jim Sinegal (founder and former CEO of Costco Inc.), who has hosted fundraisers for several Democratic candidates and spoke at the 2012 Democratic National Convention, and Bob Nardelli (former CEO of Home Depot Inc. and Chrysler Inc.), who hosted fundraisers and served as an advisor for George W. Bush.

[22] The threshold for inclusion is very high. NNDB notes that they cover only individuals with significant public interest. More details of the database, as well as sample biographies, are available in Section II of the Supplementary Material.

As such, we view any CEO who is included in this data set to be a prominent CEO whose political activity is relatively easy to determine.

We enter the names of each of the 9,482 CEOs from BoardEx in our sample period into the Notable Names Database (NNDB). We obtain an initial match for 1,470 individuals of which 324 have an identified partisan affiliation of Republican or Democrat. We define each of these CEOs with an identified partisan affiliation as a PROMINENT_PARTISAN_CEO. Then, using the process outlined in equations (1)–(3) in Section III, we create a measure of political similarity based solely on the partisan orientation of these prominent CEOs, which we term PROMINENT_PARTISAN_CEO_POLITICAL_SIMILARITY. In creating this measure, we assume that FIRM_REP in equation (3) is 1 if the firm has a prominent partisan CEO and this prominent CEO is a Republican, and −1 if the prominent CEO is a Democrat. Again, this measure of a firm's political leaning differs from our previous POLITICAL_SIMILARITY variable, which, as we have noted, uses the weighted campaign contributions of executives across all firms.

We estimate the effect of PROMINENT_PARTISAN_CEO_POLITICAL_SIMILARITY on fund holdings using equation (4) and report the results in Table 9. In column 1, we limit our sample to only those firm-years for which there is a prominent partisan CEO (about 10% of our sample). In column 2, we deploy the full sample as we have done with the rest of our analysis in the paper but use PROMINENT_PARTISAN_CEO_POLITICAL_SIMILARITY as our

TABLE 9

Partisan Bias When Political Similarity is Based on Partisan Affiliation of Prominent CEOs

Table 9 presents results from analyses in which political similarity is based on the partisan orientation of prominent CEOs (defined as PROMINENT_PARTISAN_CEO_POLITICAL_SIMILARITY). The dependent variable is PERCENT_HELD, the percentage of TNA a fund holds in a stock. Column 1 considers only firms that we identify as having a prominent CEO with easily identifiable partisan affiliation. Columns 2 and 3 include all firms. All other variables are as defined in Table 1. *t*-statistics based on robust standard errors clustered at the fund level are reported in parentheses. * and *** indicate significance at the 10% and 1% levels, respectively.

Variable	1	2	3
PROMINENT_PARTISAN_CEO_POLITICAL_SIMILARITY	0.0512*	0.0505*	
	(1.82)	(1.83)	
POLITICAL_SIMILARITY			0.0192*
			(1.69)
PROMINENT_CEO			−0.0215
			(−1.38)
POLITICAL_SIMILARITY × PROMINENT_CEO			0.0354*
			(1.79)
MARKET_CAP	0.0064***	0.0051***	0.0046***
	(10.13)	(8.68)	(11.30)
MARKET_TO_BOOK	0.0059***	−0.0006	−0.0016***
	(3.70)	(−0.87)	(−4.34)
MORNINGSTAR_CATEGORY_HOLDING	0.7190***	0.8120***	0.5190***
	(36.07)	(39.50)	(41.21)
R12	0.0439***	0.0251***	0.0325***
	(4.39)	(3.70)	(8.62)
CONSTANT	0.0292	0.0444	0.1120***
	(0.00)	(0.88)	(2.99)
INDUSTRY FE	Yes	Yes	Yes
FIRM STATE FE	Yes	Yes	Yes
QUARTER FE	Yes	Yes	Yes
N	297,785	2,952,994	2,952,994
Adj. R^2	0.314	0.371	0.234

measure of political similarity. The results in both columns 1 and 2 support the inference obtained from using the measure of POLITICAL_SIMILARITY based on campaign contributions as we have throughout the rest of the paper. We find a positive and significant relation between PROMINENT_PARTISAN_CEO_POLITICAL_SIMILARITY and fund holdings. This result suggests that, even when we construct an alternative measure of political similarity that is based on the political orientation of relatively prominent CEOs, our inference remains unchanged.

In column 3, instead of PROMINENT_PARTISAN_CEO_POLITICAL_SIMILARITY, we use our measure of POLITICAL_SIMILARITY as we have defined throughout the rest of the paper (i.e., we measure political similarity using campaign contributions of executives in all firms and not just those with prominent CEOs). We then also include an interaction of PROMINENT_PARTISAN_CEO with POLITICAL_SIMILARITY. The question we ask here is whether the positive relation between fund holdings and the similarity in political leanings become more salient when the firm has a prominent CEO with identifiable partisan affiliation. The results presented in column 3 suggest that this is indeed the case. The estimated coefficient on the interaction of PROMINENT_PARTISAN_CEO with POLITICAL_SIMILARITY is positive and significant. Taken together, the results in this subsection suggest that, even when political similarity is based on the partisanship of prominently partisan CEOs (rather than just the campaign contributions of all executives and directors), we continue to observe a positive relation between fund allocation and political similarity. We also find evidence that, when there is political similarity between funds and firms (based on campaign contributions), fund allocation is more significant when the firm has a prominent CEO whose partisan orientation is relatively easy to determine.

VI. Conclusions

In this paper, we show that mutual fund managers' partisan preferences have an influence on their portfolio choices. Specifically, our results suggest that fund managers are more likely to invest in companies managed by executives with whom they share similar partisan preferences. Our analysis shows that overweighting stocks of politically similar firms may be costly to fund investors; funds with more partisan bias perform slightly worse than those with less bias and have significantly inflated fund idiosyncratic risks. This particular piece of evidence suggests that the alignment of partisan preference between mutual fund managers and firm executives does not provide an information channel through which fund managers can exploit value-related information. Additional tests indicate that in-group favoritism appears to be one likely explanation for our findings. Fund managers treat firm executives who share similar partisan preferences as their in-group peers and, consequently, view these firms as superior investments. With this perception, mutual fund managers tend to hold more shares in these firms.

The ultimate goal of mutual fund managers is to maximize the returns of their funds while limiting the risks. As professional money managers, mutual fund managers are expected to behave in the best interest of their clients by not investing based on their own political ideology or partisan preference. However, our

results indicate that mutual fund managers may be influenced by their in-group favoritism and overweight their portfolios in politically similar firms. This bias, instead of contributing to their funds' performance, may be costly to their clients. Partisan bias may thus represent another potential agency cost between fund managers and their clients.

Supplementary Material

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References

Addoum, J. M., and A. Kumar. "Political Sentiment and Predictable Returns." *Review of Financial Studies*, 29 (2016), 3471–3518.

Akbas, F.; F. Meschke; and M. B. Wintoki. "Director Networks and Informed Traders." *Journal of Accounting and Economics*, 62 (2016), 1–23.

Akerlof, G. A., and R. E. Kranton. "Economics and Identity." *Quarterly Journal of Economics*, 115 (2000), 715–753.

Baik, B.; J.-K. Kang; and J.-M. Kim. "Local Institutional Investors, Information Asymmetries, and Equity Returns." *Journal of Financial Economics*, 97 (2010), 81–106.

Benjamin, D. J.; J. J. Choi; and A. J. Strickland. "Social Identity and Preferences." *American Economic Review*, 100 (2010), 1913–1928.

Bishop, B., and R. Cushing. *The Big Sort: Why the Clustering of Like-Minded Americans is Tearing Us Apart*. Boston, MA: Houghton Mifflin Harcourt Publishing (2008).

Bonaparte, Y.; A. Kumar; and J. K. Page. "Political Climate, Optimism, and Investment Decisions." *Journal of Financial Markets*, 34 (2017), 69–94.

Bradley, D.; C. Pantzalis; and X. Yuan. "The Influence of Political Bias in State Pension Funds." *Journal of Financial Economics*, 119 (2016), 69–91.

Butler, A. W., and U. G. Gurun. "Educational Networks, Mutual Fund Voting Patterns, and CEO Compensation." *Review of Financial Studies*, 25 (2012), 2533–2562.

Carhart, M. M. "On the Persistence in Mutual Fund Performance." *Journal of Finance*, 52 (1997), 57–82.

Chan, K.; V. Covrig; and L. Ng. "What Determines the Domestic Bias and Foreign Bias? Evidence from Mutual Fund Equity Allocations Worldwide." *Journal of Finance*, 60 (2005), 1495–1534.

Chen, Y., and S. X. Li. "Group Identity and Social Preferences." *American Economic Review*, 99 (2009), 431–457.

Cici, G. "The Prevalence of the Disposition Effect in Mutual Funds' Trades." *Journal of Financial and Quantitative Analysis*, 47 (2012), 795–820.

Cohen, L.; A. Frazzini; and C. Malloy. "The Small World of Investing: Board Connections and Mutual Fund Returns." *Journal of Political Economy*, 116 (2008), 951–979.

Coval, J. D., and T. J. Moskowitz. "Home Bias at Home: Local Equity Preference in Domestic Portfolios." *Journal of Finance*, 54 (1999), 2045–2073.

Coval, J. D., and T. J. Moskowitz. "The Geography of Investment: Informed Trading and Asset Prices." *Journal of Political Economy*, 109 (2001), 811–841.

Fama, E. F., and K. R. French. "Common Risk Factors in the Returns on Stocks and Bonds." *Journal of Financial Economics*, 33 (1993), 3–56.

Frazzini, A. "The Disposition Effect and Underreaction to News." *Journal of Finance*, 61 (2006), 2017–2046.

French, K. R., and J. M. Poterba. "Investor Diversification and International Equity Markets." *American Economic Review*, 81 (1991), 222–226.

Global Leadership & Organizational Behavior Effectiveness (n.d.). Retrieved from https://globeproject.com/.

Grinblatt, M., and M. Keloharju. "How Distance, Language, and Culture Influence Stockholdings and Trades." *Journal of Finance*, 56 (2001), 1053–1073.

Hoberg, G., and G. Phillips. "Product Market Synergies and Competition in Mergers and Acquisitions: A Text-Based Analysis." *Review of Financial Studies*, 23 (2010), 3773–3811.

Hoberg, G., and G. Phillips. "Text-Based Network Industries and Endogenous Product Differentiation." *Journal of Political Economy*, 124 (2016), 1423–1465.

Hochberg, Y. V., and J. D. Rauh. "Local Overweighting and Underperformance: Evidence from Limited Partner Private Equity Investments." *Review of Financial Studies*, 26 (2013), 403–451.
Hong, H., and L. Kostovetsky. "Red and Blue Investing: Values and Finance." *Journal of Financial Economics*, 103 (2012), 1–19.
Hong, H.; J. D. Kubik; and J. C. Stein. "Thy Neighbor's Portfolio: Word-of-Mouth Effects in the Holdings and Trades of Money Managers." *Journal of Finance*, 60 (2005), 2801–2824.
Hutton, I.; D. Jiang; and A. Kumar. "Political Values, Culture, and Corporate Litigation." *Management Science*, 61 (2015), 2905–2925.
Jannati, S.; A. Kumar; A. Niessen-Ruenzi; and J. Wolfers. "In-Group Bias in Financial Markets." Working Paper, University of Miami (2016).
Jaspersen, S., and P. Limbach. "Knowing Me, Knowing You? Similarity to the CEO and Fund Managers' Investment Decisions." Working Paper, University of Cologne (2018).
Jin, L., and A. Scherbina. "Inheriting Losers." *Review of Financial Studies*, 24 (2011), 786–820.
Lee, J.; K. J. Lee; and N. J. Nagarajan. "Birds of a Feather: Value Implications of Political Alignment between Top Management and Directors." *Journal of Financial Economics*, 112 (2014), 232–250.
Moszoro, M., and M. Bykhovsky. Political Cognitive Biases Effects on Fund Managers' Performance." Working Paper, University of California, Berkeley and Harvard University (2016).
Pastor, L., and P. Veronesi. "Political Cycles and Stock Returns." Working Paper, University of Chicago (2018).
Pool, V. K.; N. Stoffman; and S. E. Yonker. "No Place Like Home: Familiarity in Mutual Fund Manager Portfolio Choice." *Review of Financial Studies*, 25 (2012), 2563–2599.
Pool, V. K.; N. Stoffman; and S. E. Yonker. "The People in Your Neighborhood: Social Interactions and Mutual Fund Portfolios." *Journal of Finance*, 70 (2015), 2679–2732.
Pool, V. K.; N. Stoffman; S. E. Yonker; and H. Zhang. "Do Shocks to Personal Wealth Affect Risk-Taking in Delegated Portfolios?" *Review of Financial Studies*, 32 (2019), 1457–1493.
Shu, T.; J. Sulaeman; and P. E. Yeung. "Local Religious Beliefs and Mutual Fund Risk Taking Behaviors." *Management Science*, 58 (2012), 1779–1796.
Sialm, C.; Z. Sun; and L. Zheng. "Home Bias and Local Contagion: Evidence from Funds of Hedge Funds." Working Paper, University of Texas and University of California, Irvine (2018).
Sumner, W. G. *Folkways: A Study of the Sociological Importance of Usages, Manners, Customs, Mores, and Morals*. Boston: Ginn and Company (1906).
Sussel, J. "New Evidence for the Big Sort Hypothesis: An Assessment of Partisan Geographic Sorting in California 1992–2010." *PS: Political Science & Politics*, 46 (2013), 768–773.
Tajfel, H. "Social Psychology of Intergroup Relations." *Annual Review of Psychology*, 33 (1982), 1–39.
Tajfel, H., and J. Turner. "An Integrative Theory of Intergroup Conflict." In *The Social Psychology of Intergroup Relations*, Monterey: Brooks Cole (1979).
Torvik Research Group (n.d.). Retrieved from http://abel.lis.illinois.edu/resources.html.