

# Playing favorites: Conflicts of interest in mutual fund management

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## 1 Introduction

The nature of asset management is that investors contract with an advisory firm to provide portfolio management services in exchange for a fee. The scale economies inherent in portfolio management suggest that advisory firms commonly contract with many different clients simultaneously. As has long been recognized, advisory firms and portfolio managers may have incentives to self-deal or to favor their most lucrative clients over others. The recent literature has found direct evidence of this. For example, Gaspar et al (2006) find that mutual fund families are able to strategically transfer performance to the funds that generate more profits for the family, such as those offering higher fee rates or attracting greater assets under management. Chaudhuri et al (2013) provide similar evidence for the segment of asset managers serving institutional clients with separate accounts. This literature provides evidence that managers are able to boost the returns of portfolios offering greater profits to the advisory firm through cross-subsidization from less profitable portfolios. Some examples of cross-subsidization activities include cross-trades across client portfolios, front running the execution of trades by more favorable portfolios, and strategic allocations of underpriced IPO shares.

One of the more acute settings for cross-subsidization incentives is the simultaneous management of both mutual fund and hedge fund portfolios, referred to in the literature as “side-by-side management.” Because of the large incentive fee component of manager compensation that is standard in the hedge fund industry, there is naturally a concern that the differences in compensation structure across these portfolios would induce a manager to favor hedge fund clients at the expense of mutual fund clients. This issue has been studied by Nohel et al (2010), Cici et al (2010), and Chen and Chen (2009), with mixed results. Nohel et al and Chen and Chen find that mutual funds with side-by-side managers actually outperform otherwise similar peer

funds. They interpret this benefit for fund investors as possibly arising from the ability of the mutual fund industry to retain skilled managers by allowing them to also manage lucrative hedge funds, or from the effective policies and internal controls of advisory firms that deter cross-subsidizing actions. However, Cici et al find evidence consistent with favoritism and conclude that mutual fund investors are harmed by side-by-side management. The contradicting evidence suggests that this issue remains unresolved.

Subsequent to the sample period of these studies, the SEC mandated new fund disclosures beginning in 2005 to alert investors to these potential conflicts of interest and the fund's policies on mitigating them. Specifically, the SEC requires funds to disclose the number of other accounts concurrently managed along with their assets under management for each fund manager with day-to-day responsibilities for the fund. The SEC also requires the separate reporting of the subset of these accounts and assets that are subject to performance-based fees (PBFs). In addition, these accounts need to be divided into three different categories, specified by the SEC as registered investment companies, other pooled investment vehicles, and separately managed accounts.<sup>1</sup> Registered investment companies typically mean mutual funds, not only those managed for the fund family but also those managed on behalf of another family through a sub-advisory contract. Pooled investment vehicles can include hedge funds, but they can also include commingled trusts, 529 plans, or funds managed for sale to investors outside the U.S. Separately managed accounts typically include separate accounts managed on behalf of defined benefit and defined contribution pension plans, insurance companies, foundations, and other institutional clients.

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<sup>1</sup> The exact wording used by the SEC is "other accounts," but we call them "separately managed accounts" to clearly define what type of accounts they represent and to differentiate them from the other categories of assets used by the SEC, such as registered investment companies and pooled investment vehicles.

These disclosures allow us to conduct new tests on potential conflicts of interest inherent in side-by-side management. We hand collect data from mutual fund prospectuses filed between 2005 and 2011 for domestic equity funds in the largest 30 fund families in CRSP, ranked by 2005 total net assets. Because we rely on the definitions outlined by the SEC in the required disclosures, we take a broader view of side-by-side management relative to the literature, which identifies side-by-side management by matching firm and manager names that appear in both mutual fund and hedge fund databases. In our sample, we identify managers with side-by-side assets as those with PBFs in pooled investment vehicles and/or separately managed accounts. We do not classify managers with PBFs in *only* registered investment companies as side-by-side managers. This classification is motivated by the fact that registered investment companies are required by regulation to have symmetric incentive fees, where performance below a benchmark index is punished to the same degree that performance above the benchmark is rewarded. In contrast, pooled investment vehicles and separately managed accounts are not subject to such regulations and are allowed to have asymmetric incentive fees, whereby incentive fees are a percentage of outperformance or gains, but performance below a benchmark does not necessarily result in lower fees.

We find that mutual funds with at least one side-by-side manager underperform funds with no side-by-side managers by 4.4 basis points a month, or 52.8 basis points a year, in Carhart alpha. This effect is statistically and economically significant. In further analyses, we find that this effect is stronger in single-manager funds than in team-managed funds, consistent with the idea that it is easier for managers of single-manager funds to strategically shift returns to other accounts with PBFs. We also investigate whether the negative impact of side-by-side arrangements are mitigated when the fund itself has a PBF. Elton et al (2003) find that mutual

funds with PBFs outperform those with only asset-based fees. We find somewhat consistent evidence in that these own-fund PBFs do seem to mitigate the negative impact of side-by-side management, but this effect is not statistically different from zero. This finding is consistent with our conjecture that PBFs paid by mutual funds provide weaker incentives than PBFs offered by pooled investment vehicles and separately managed accounts.

Our dataset holds several advantages over datasets used in previous studies. First, our data are collected from regulatory filings, with extensive checks and verifications to ensure quality and accuracy of the hand-collected data. Because the information is required by the SEC, it should be reasonably accurate and complete. Our data are not subject to the selection bias from selective reporting of funds or manager names. This aspect of our dataset stands in contrast to previous studies that match mutual fund databases to hedge fund databases, which are incomplete and self-reported, in addition to having only end-of-period manager names and not historical names. Mutual fund manager names in CRSP and Morningstar Principia can also be incomplete and prone to error (Patel and Sarkissian, 2014). The second advantage of our dataset is that it includes data on the number and assets under management of separately managed accounts with PBFs. The previous literature on side-by-side management has focused primarily on hedge funds, but our data reveal that assets managed in pooled investment vehicles (which include hedge funds) are substantially smaller than assets managed in separately managed accounts (with or without PBFs). The third advantage of our dataset is that it contains details for each manager at each actively-managed domestic equity mutual fund in the top 30 families, which account for 74% of total assets under management in the mutual fund industry as of March 2005.

We make several contributions to the fund literature. First, we provide new evidence in the debate on the impact of side-by-side management. Second, our analyses take into account the features of asset management that are most often ignored in the literature. We show that asset managers commonly manage substantial assets outside the mutual fund industry. We also show that team management is a pervasive organizational structure. Previous studies ignore the fact that fund managers in their sample manage assets outside the fund industry (e.g., Gaspar et al), or that restricting the sample to funds with named managers (thus excluding many team-managed funds) has possibly become an inappropriate sample selection criterion due to the fact that in recent years more than two thirds of funds are managed by teams. Third, we provide new evidence regarding the impact of incentive fees offered by mutual funds on their performance.

Our paper proceeds as follows. Section 2 describes our data collection methodology and presents summary statistics on our sample. Section 3 discusses results from our regression analyses. Section 4 concludes.

## **2 Data**

### **2.1 Data collection**

We obtain data on a fund manager's other accounts under management from the Statement of Additional Information, which is a required supplementary document to the fund's prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS). The SEC requires all funds to report this information every fiscal year starting with filings after February 28, 2005. Because of the complexity of the data collection effort required, we focus on the funds from the largest 30 fund families in CRSP, ranked by total assets of domestic equity funds under

management, as of March 31, 2005.<sup>2</sup> Specifically, for these 30 families we hand collect accounts managed information for all actively-managed domestic equity mutual funds available in the *CRSP Survivor-Bias-Free U.S. Mutual Fund Database* from 2005 to 2011. These families represent 74% of actively-managed domestic equity industry assets. We identify domestic equity funds by relying on Lipper objective codes (CA, EI, G, GI, I, MC, MR, and SG) and eliminate index funds based on the funds' names. In cases where the Lipper code is missing in a quarter we use the codes from surrounding quarters. We further drop variable annuities and target date funds from our sample, since these funds include a large component of fixed income investments in their portfolios.<sup>3</sup> We include all funds in CRSP that exist from 2005 to 2011 that meet our data filters from these 30 families. Thus, we add funds as these families start new funds or acquire existing funds from other families during the sample period, and retain funds until they merge or liquidate.<sup>4</sup>

In order to match CRSP mutual funds to their corresponding SEC filings, we obtain the links to fund prospectuses through quarterly indexes provided by the SEC.<sup>5</sup> The matches are implemented based on exact name or ticker matches.<sup>6</sup> For any remaining unmatched funds, we

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<sup>2</sup> Hand-collection by family results in the most accurate data due to differences across families in reporting conventions. For example, some families report information on other managed accounts and whether the manager has accounts with PBFs in easy-to-collect tabular form, while other families report this information in text form, including in footnotes. Collecting the data by family minimizes omissions and errors due to families' tendencies to use the same format for all of their funds. We also employed numerous data checks that give us a high degree of confidence in the integrity of the data.

<sup>3</sup> Our regression results are actually stronger if we include variable annuities and target date funds in our final sample.

<sup>4</sup> We use MGMT\_CD in CRSP to assign funds to families (or if missing, mgmt.\_name). When a family in the original list of top 30 merges with another family in the top 30 we include those funds under the surviving family's brand (e.g., Smith Barney Funds were acquired by Legg Mason Funds in 2006 and both were in our original list in 2005). But, when a family merges with a family outside our original list of top 30, we follow those funds only until the merger becomes effective (e.g., Merrill Lynch funds are acquired by Blackrock, which was not in our original list of top 30, and therefore not added to the sample).

<sup>5</sup> Available at <ftp://ftp.sec.gov/edgar/full-index/>

<sup>6</sup> Since February 6, 2006, the SEC required mutual funds to include tickers in their filings. We use a computer script to obtain tickers directly from the SEC Edgar website. Note that even though the SEC provides a listing of fund tickers on its website, this listing does not contain historical data.



identify close name matches and manually verify whether they are correct. Our matching procedures result in a success rate of 97% of the CRSP funds in our sample.

For each fund-year observation, we hand collect the names of all portfolio managers “responsible for the day-to-day management of the fund” as required by the SEC and reported in the filings. For each manager-fund-year observation, we record the number of other accounts concurrently managed along with their assets under management, both of which are required by the SEC to be put in one of three categories: *registered investment companies*, *pooled investment vehicles*, or *separately managed accounts*.<sup>7</sup> The SEC also requires the separate reporting of the subset of these accounts and assets that are subject to PBFs. Families typically include an explicit statement that no accounts have PBFs if this is the case. We also record the effective date at which the information on accounts managed is applicable, as we rely on this date to match to the corresponding data from CRSP.<sup>8</sup> We provide a sample filing in Appendix A.

The SEC-required categories allow us to paint a picture as to the nature of the assets each manager controls (possibly jointly with other managers as part of a team), and via the information on PBFs, whether their incentives might differ across their managed accounts (clienteles). Registered investment companies typically mean mutual funds, but they could be mutual funds managed for the fund family or managed on behalf of another family through a sub-advisory contract, or as the underlying funds in variable annuity contracts. Pooled investment vehicles include hedge funds, but can also include commingled trusts, 529 plans, or funds managed for sale to investors outside the U.S. Separately managed accounts typically

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<sup>7</sup> We change the term “Other Accounts” to “Separately Managed Accounts” in our paper to clearly define the nature of these other accounts.

<sup>8</sup> For example, if the effective date of the account and ownership information is November 2008, we match this observation to CRSP observations that run from November 2008 to November 2009 or the next available effective date.

include separate accounts managed on behalf of defined benefit and defined contribution pension plans, insurance companies, foundations, or other institutional clients. We would like to note a caveat that the SEC does not require mutual funds to disclose the identity or performance of these other accounts. As a result, we are unable to conduct tests examining how side-by-side management impacts the returns of pooled investment vehicles or separately managed accounts with PBFs.

## **2.2 Side-by-side management**

Cici et al (2010), Nohel et al (2010), and Chen and Chen (2009) test whether mutual fund investors are harmed by the simultaneous management of mutual funds and hedge funds. They each identify their sample by a comparison of the CRSP mutual fund database with one or more hedge fund databases. Nohel et al and Chen and Chen compare a list of manager names in CRSP or Morningstar Principia to a hedge fund database to identify side-by-side managers. As these authors acknowledge, hedge fund databases are incomplete and self-reported, in addition to having only end-of-period manager names and not historical names. Moreover, mutual fund manager names in CRSP and Morningstar Principia are also incomplete and prone to error (Patel and Sarkissian, 2014). For example, whereas all funds in our sample list managers by name in the SEC filing, in the CRSP database 27% of the funds in our sample only have ‘team-managed’ listed in the manager field. Thus, a significant number of side-by-side managers could potentially be missed by comparing names in databases, suggesting the number of funds with side-by-side relationships is likely underestimated by this sampling method. In fact, 31% of our sample funds with PBFs are listed in CRSP as ‘team-managed’ and therefore would not be identified as side-by-side managers using the name-matching methodology.

Due to concerns about the selection bias inherent in self-reported hedge fund databases, Cici et al (2010) identify overlap at the advisory firm level for families offering both mutual funds and hedge funds. They consider all of the mutual funds from a family offering a hedge fund to be classified as side-by-side funds. This method likely overstates the extent of side-by-side relationships within that family. While some families report that every fund in the family has a fund manager concurrently managing portfolios that are subject to PBFs (e.g., Dimensional Fund Advisors), in most families the percentage of funds with side-by-side managers is much lower. For example, we identify Franklin Templeton as providing both mutual funds and hedge funds, but our sample shows that only 7% of Franklin Templeton mutual funds are managed by side-by-side managers.

While this case illustrates the issue of overestimating the number of side-by-side funds, the methodology of identifying overlap at the advisory firm level can also underestimate the number of side-by-side funds in other instances. This happens when mutual funds are subadvised by side-by-side managers employed at other families, and the hiring family does not offer any hedge fund. For example, while Vanguard does not have any in-house managers who are concurrently managing assets with PBFs, the family outsources management to subadvisors who have assets under management with PBFs. One such manager is Joseph G. Paul, who is employed by AllianceBernstein, a family that Vanguard hires to manage the Windsor fund. In our data this manager is listed as managing pooled investment vehicles with PBFs under both AllianceBernstein and Vanguard. The sampling method used by Cici et al would miss any subadvised funds employing side-by-side managers from other families.

In this paper, we define a side-by-side fund manager as one who manages (or co-manages) a mutual fund and concurrently has another portfolio outside the mutual fund industry

subject to PBFs, as reported at the manager level to the SEC in the Statement of Additional Information. This captures the notion of a fund manager facing a potential conflict of interest whereby she concurrently manages a portfolio that offers greater incentive compensation than the mutual fund she manages. However, this is a broader definition of side-by-side management than that used in the previous literature. Given that the typical incentive fee component of hedge fund compensation is large (e.g., 20%), it is natural that the side-by-side literature focuses solely on side-by-side hedge funds. However, our data do not allow us to definitively identify whether the managers subject to PBFs actually manage hedge funds. Instead, we define side-by-side management as having PBFs in pooled investment vehicles and separately managed accounts. We do not include in this definition the PBFs in registered investment companies, since they are required to be symmetric (fulcrum fees) and are not particularly lucrative for funds (Elton et al., 2003). The fee structures of separately managed accounts are privately negotiated between the advisory firms and their clients, and thus we cannot observe the level of these incentive fees. However, ADV forms filed by several asset management firms disclose that the PBFs for separately managed accounts range from 10% to 20% of the account's performance over a stated benchmark. A report prepared by Callan Associates for the North Dakota Investment Board reveals that some asset managers are paid as high as 35% of excess returns.<sup>9</sup> These anecdotal examples provide some supporting evidence that the PBFs in separately managed accounts are not trivial and provide a significant source of conflicts of interest for the side-by-side managers.

We undertake two different exercises to validate the accuracy and reliability of our data. First, we focus on the fund families with no side-by-side arrangements according to our dataset. We then collect the ADV forms filed with the SEC by these fund management companies. In

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<sup>9</sup> Memo available at <http://www.nd.gov/rio/SIB/Publications/CallanAssoc2010.pdf>

Item 5 of the ADV form, question E asks whether “you are compensated for your investment advisory services by ...” with performance-based fees as one of the possible answers. We verify that none of these management companies choose “performance-based fees” as an answer to question E. Second, we examine observations from Nohel et al’s sample to validate that the SEC filings accurately provide data on mutual fund managers who also manage hedge funds. Because disclosures on other accounts and PBFs are only required by the SEC starting in 2005, we focus on 2005 and 2006 observations in Nohel et al’s sample.<sup>10</sup> Their sample includes a significant number of equity funds in smaller families as well as bond funds. We collect all SEC filings of actively managed equity funds in their sample that meet our criteria, but also include families outside the top 30. In these filings, we especially focus on the disclosure of PBFs in pooled investment vehicles.

We confirm that for 81% of observations in Nohel et al’s sample in 2005 and 2006, the corresponding SEC filings also report that the mutual fund managers have pooled investment vehicles with PBFs. In another 12% of observations, the filings explicitly state that their managers do not have any other accounts with PBFs. The reason for this difference is that the managers reported in hedge fund databases are principals of the hedge funds but do not necessarily assume the day-to-day operations of the funds. The SEC only requires disclosures of other accounts in which the mutual fund managers also assume day-to-day responsibilities. In the remaining 7% of Nohel et al’s sample, SEC filings do not clearly indicate the existence or lack of other accounts with PBFs. Our conclusion from this exercise is that the SEC filings generally provide accurate data on side-by-side arrangements. In some cases, disagreement on what constitutes a side-by-side relationship may arise. One might argue that hedge fund principals still

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<sup>10</sup> Their sample ends in 2006.

retain some influence on day-to-day managers and that they also suffer from conflicts of interests due to the significant incentive fees charged by hedge funds. However, for the purpose of our paper, we strictly rely on the SEC definition of a fund manager as a person with day-to-day responsibility for the operations of the fund.

### **2.3 Summary statistics on side-by-side management and fund characteristics**

Our hand-collected dataset consists of 13,019 manager-fund-year observations. Table 1 contains summary statistics on the prevalence of side-by-side management in this sample. We report summary statistics each year for the set of unique fund managers. All summary statistics in Table 1 are reported as of the year of effective date (fund fiscal year-end date) rather than the year of the filing date.<sup>11</sup> Funds report information on accounts managed at the manager level and exclude the assets of the fund itself in assets under management.<sup>12</sup> Thus, by including unique managers in each year we avoid double-counting since for a manager of multiple funds the information on the other accounts and assets should be the same at all his reporting funds.<sup>13</sup> Table 1 Panel A contains a summary of the percentage of managers who manage portfolios other than the reporting fund itself and the assets under management of these other portfolios. Note that the assets under management include assets assigned to the manager as part of a team and may not be his sole responsibility.

The first column of Table 1 Panel A shows that the top 30 fund families by assets employed about 700 unique domestic equity fund managers in any given year in our sample

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<sup>11</sup> For example, the filing date of the disclosure can be February, 2009, while the effective date of the data is November, 2008. Generally speaking, filings disclosed in the first couple of months in a year include data from the previous year.

<sup>12</sup> Some families state that the reported assets include the fund itself. In this case we subtract the fund's assets from the total assets managed in registered investment companies.

<sup>13</sup> There may be slight differences in data for a manager in a year, due to differences in timing as well as in the sizes of reporting funds. We average all observations for a manager in a year to arrive at manager-year level data for this table.

period. The next column shows that it is quite rare for any manager to just manage a single fund. About 95% of fund managers have additional accounts, and 88% of all fund managers manage additional registered investment companies, averaging \$14.7 billion in mutual fund assets on average. Interestingly, it is reasonably common for managers to have day-to-day responsibility for assets outside the mutual fund industry. Fifty-six percent of fund managers manage other pooled investment vehicles and 67% manage other separately managed accounts. Of these managers with some outside assets, the pooled investment vehicle assets average \$1.9 billion and the separately managed account assets average \$5.8 billion. While these outside assets are substantial, the typical manager has 76% of all the assets she manages in the mutual fund industry. There is variation across managers, however. The manager at the 25<sup>th</sup> percentile has 60% of the assets she manages in the fund industry, while the manager at the 75<sup>th</sup> percentile has all of her assets in the fund industry (not tabulated). The year by year numbers suggest that management activities outside the fund industry are fairly stable throughout our sample period.

Table 1 Panel B contains manager-level information on the prevalence of PBFs and the assets under management for accounts with PBFs. We find that a little over one-quarter of the managers manage any assets with PBFs. The next three columns show that PBFs are more common in registered investment companies and in separately managed accounts, where approximately 12.6% and 15.3% of managers have them, respectively. The 12.6% of managers with PBFs in registered investment companies indicate that they are more common than typical fund-level statistics reported in the prior literature. For example, Elton et al (2003) report that only 2% of funds representing 10% of industry mutual fund assets have PBFs in 1999. Papini (2006) reports similar findings in that only 5% of mutual funds in 2005 have PBFs, and that these are more prevalent in certain large families, such as Vanguard, Fidelity, and Janus

according to Strategic Insight of New York. Given that our sample contains the 30 largest families, the larger prevalence in our sample is expected.

Managers who also manage hedge-fund assets are most likely to be classified in the category of PBF pooled investment vehicles, with only 7% of all managers in this category. The average assets in this category (\$268 million) are relatively small compared to the registered investment companies (\$3.1 billion) and separately managed accounts (\$1.64 billion) with PBFs, but are relatively close to the average side-by-side hedge fund assets of \$292 million in 2005 reported by Nohel et al (2010). The similarity of these numbers suggests that the pooled investment vehicle category captures side-by-side hedge fund assets. It also suggests that hedge fund assets represent a very small percentage of the typical manager's assets under management.

Table 1 Panel C provides information on how often managers have only one category of assets with PBFs, versus simultaneously managing assets in multiple categories. On average 7.6% of managers have PBFs in only registered investment companies. Only 2% of managers have PBFs in only pooled investment vehicles, whereas 9.5% of managers have PBFs in only separately managed accounts. The small numbers of managers with PBFs in pooled investment vehicles is another reason that we define side-by-side managers as those with PBFs in pooled investment vehicles and/or separately managed accounts. An additional 7.4% have a mixture of accounts in either type as well as in registered investment companies. Thus, we estimate that 18.9% of mutual fund managers have accounts with asymmetric incentive fees that they manage simultaneously with mutual fund assets.

Massa et al (2010) and Bar et al (2011) document that the percentage of mutual funds with a single-manager declined, while the percentage with a team of managers rose, from 1994



to 2004. Patel and Sarkissian (2014) show that this trend continued until their sample ended in 2010, when 71% of funds have multiple managers. Table 2 contains a summary of our sample where we also find pervasive team management. Unlike Table 1 which uses data at the unique manager-year level, Table 2 uses fund-manager-year observations to document trends in single-manager funds and team-managed funds over time. The typical fund in our sample has 2.4 managers and only 39.4% of funds have a single manager. Comparing our numbers to those of Patel and Sarkissian (2014) who examine a broader sample of funds suggests that the top 30 families in our sample have similar rates of team management to the full sample. In 2010 we find that 35% of funds have a single manager, whereas they report 29%. Similarly, they report that 25% of funds have four or more managers, while we find that 23% of funds of the top 30 families have four or more managers.

Table 3 reports summary statistics at the fund level after we match our hand-collected data with CRSP. To arrive at this sample, we first average manager-level data across all members of a team to obtain fund-year observations. We then merge these yearly data to CRSP monthly returns by matching the effective date (fiscal year-end date) to the following 12 months of CRSP returns, or until the next effective date, whichever is earlier.<sup>14</sup> Since Evans (2010) shows that fund performance is subject to incubation bias, we eliminate fund months with less than 24 months since inception and with total net assets below \$1M in the previous month. Our final sample consists of 46,028 fund-month observations from 2004 to 2011 (our filings start in 2005, but some filings report data effective as of 2004 fiscal year-end dates).

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<sup>14</sup> Mutual funds typically have the same fiscal year end date every year, but sometimes these year-end dates can be changed, and thus the effective date for reporting data may be different across years.

We generate several variables based on the SEC data to use in our tests. SBS\_PBF is our main variable of interest, which is an indicator variable equal to 1 if the fund has at least one manager with PBFs in either pooled investment vehicles or separately managed accounts. We also consider an alternative definition of side-by-side management, ANY\_PBF, which is equal to 1 if any of the fund's managers has PBFs in any category of assets. Another indicator variable, RIC\_PBF\_ONLY, is equal to 1 if the fund's managers have PBFs only in registered investment companies. We use this variable to specifically evaluate whether the weaker incentives provided by PBFs in other mutual funds would lead to any subsequent underperformance for the reporting fund. TEAM is an indicator variable, which is equal to 1 if the fund is managed by a team instead of a single manager. OWN\_PBF is an indicator variable equal to 1 if the reporting fund pays its own managers PBFs to incentivize them to increase performance. The data for this variable are collected from NSAR forms filed with the SEC. Specifically, we use a computer script to pull data from the SEC Edgar database and focus on the fund's answer to Question 51 of the NSAR form: "Was your advisory fee during the period based in whole or in part on its investment performance?" The indicator variable OWN\_PBF is constructed based on the fund's answer to this question. Lastly, AVG\_MGR\_RIC\_PCT is the percentage of total assets under management held in registered investment companies (including the reporting fund itself), averaged across managers of the same fund in a year.

Table 3 shows that about 25% of the fund-years in our sample have managers with side-by-side arrangements, whereas another 10% of observations have PBFs in only registered investment vehicles. The table also shows that 15% of the reporting funds in our sample pay their own managers with PBFs. This number is higher than similar statistics reported in previous studies, which cover samples from earlier years. Deli (2002) reports that 7% of funds for the

fiscal year 1997 have advisory contracts with performance fees. His sample consists of 5,198 open-end (including equity and fixed income) funds and closed end funds. Using a sample of 476 equity, balanced and special funds between 1982 and 1987, Golec (1992) find that around 6% of the funds in his sample are rewarded with PBFs. The main reason of our higher statistics is that we focus on the top 30 fund families. In particular, a high percentage of funds that belong to three families - Riversource, Fidelity, and Vanguard - have PBFs, pushing up the mean in our sample.<sup>15</sup> As a check of our data, we examine all equity funds within and outside the top 30 families and find that roughly 5% of all funds have PBFs between 2005 and 2011, a consistent finding with the previous literature. Lastly, similar to what we have discussed in Table 1 Panel A, registered investment companies account for most of the managers' total assets under management, at 80.1% of total assets.

Even though on average 25% of mutual funds in our sample have managers with side-by-side arrangements, there is significant variation across families with regards to how many funds are managed by side-by-side managers. In some families, 100% of funds have side-by-side managers. In contrast, other families have no funds with side-by-side managers. Table 3 Panel B shows the names of families with the highest and lowest percent of side-by-side funds. In short, for five families, the percent of funds with side-by-side managers ranges between 90% and 100%, whereas eight other families have no funds with side-by-side managers. In one-third of families, there is no within-family variation with regards to the SBS\_PBF variable. These 10 families either have 100% of funds with side-by-side managers or have no side-by-side fund at all. As a result, our regressions need to utilize the variation across families to identify the impact of side-by-side management.

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<sup>15</sup> In Riversource, we find that 83% of the funds use performance fees in their advisory contracts. In Fidelity and Vanguard, the percentages of funds with PBFs are 47% and 24% respectively.

### 3 Results

#### 3.1 Impact of side by side management on mutual fund performance

We explore the performance of mutual funds with side-by-side managers in a regression setting.

For each performance measure, we estimate the following panel regression:

$$\begin{aligned} Performance_{i,t} = & \alpha + \beta_1(Variable - of - interest)_{i,t-1} + \beta_2(Log(TNA))_{i,t-1} + \\ & \beta_3(Log(Family TNA))_{i,t-1} + \beta_4(Flow)_i + \beta_5(Log(Age))_{i,t-1} + \beta_6(Expenses)_{i,t-1} + \\ & \beta_7(Turnover)_{i,t-1} + \beta_8(Total Load)_{i,t-1} + \beta_9(Return)_{i,t-1} + \beta_{10}(Volatility)_{i,t-1} + \\ & Year Fixed Effects + Style Fixed Effects + \epsilon_{i,t} \end{aligned}$$

We use four different performance measures in our tests. The first three measures are abnormal returns after adjusting for the factor loadings using the one factor model (CAPM), the Carhart (1997) four-factor model, and the Ferson and Schadt (1996)'s conditional factor model.<sup>16</sup> To calculate the factor-adjusted return of a fund in each month, we first estimate the factor loadings of unconditional and conditional models using 3 years of past monthly fund returns. We then subtract the expected return, calculated using factor estimates, from the fund return in order to determine the factor-adjusted return.<sup>17</sup> Our final measure is the return gap of Kacperczyk et al (2008), which is the difference between the fund's actual gross return and the gross return implied by the fund's lagged reported holdings. All of our control variables are lagged at least

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<sup>16</sup> In one factor model, we use the excess returns on the market portfolio as the sole factor. Carhart (1997) model include the excess return on the market portfolio plus three mimicking factor portfolios: SMB (small minus large capitalization stocks), HML (high B/M minus low B/M stocks), MOM (the return difference between stocks with high and low returns). Our specification of the conditional model includes Carhart's (1997) four factors plus an interaction term between the excess market returns and four macro-economic variables. Consistent with the previous research, we use 1-month Treasury bill yield, dividend yield of the CRSP VW index, the term premium (the yield spread between a long term and one year Treasury bill), and default premium (the yield spread between Moody's Baa and Aaa corporate bonds).

<sup>17</sup> We estimate our regressions starting from 2002 to obtain abnormal returns in 2005.

one month. The standard errors for all panel regressions are clustered at the fund level. Table 4 Panel A and Panel B present the coefficient estimates of these regressions with our four performance measures as the dependent variables: Jensen's alpha, Carhart alpha, Ferson and Schadt's conditional alpha, and return gap. As an exploratory step, we first use ANY\_PBF as the independent variable of interest to investigate the performance of mutual funds with at least one manager with any type of PBFs. The results shown in column (1) of Panel A indicate that these funds underperform the no-PBF funds by 6.8 basis points per month in Jensen's alpha and 4.1 basis points in Carhart alpha. In the second and third specifications, we evaluate which type of PBFs matter more in impacting fund returns.

Next, we focus on the SBS\_PBF variable to compare the performance of funds with at least one side-by-side manager to funds without (which include those with managers who have PBFs in other registered investment companies). We find that side-by-side funds underperform by 7.3 basis points per month (Jensen's alpha) and 4.4 basis points (Carhart alpha), or 87.6 and 52.8 basis points per year, respectively. In the third specification, we include both SBS\_PBF and RIC\_PBF\_ONLY, the indicator variable for funds with managers with PBFs only in other registered investment companies. The omitted category for comparison here is funds with no PBFs at all. The coefficients on SBS\_PBF are very similar in both the second and third specifications, whereas the coefficients on RIC\_PBF\_ONLY are close to zero. These results suggest that side-by-side management is the source of the underperformance, and not the symmetric PBFs within the mutual fund assets.

Table 4 Panel B presents regression results using two other performance measures: Ferson and Schadt's conditional alpha and return gap. The coefficients on our main variables of interest in this panel are very similar to those reported in Panel A, both qualitatively and

quantitatively. Taken together, the results show that side-by-side management hurts fund performance, consistent with the conflicts of interest hypothesis. The underperformance in return gap suggests that fund managers are able to strategically shift returns from mutual funds to other pooled investment vehicles and separately managed accounts with PBFs.

### **3.2 Single-managed funds vs. team-managed funds**

As we show in Table 2, team management has become more prevalent in the mutual fund industry in recent years. However, some prior studies have not taken into account this feature of asset management in their tests of the impact of side-by-side management. Specifically, given that strategically transferring performance would require neither coordination nor the tacit approval of co-managers, we would expect that managers of single-manager funds would find it easier to favor other accounts with PBFs relative to team-managed funds. As such, we would expect that the underperformance of mutual funds with side-by-side managers would be stronger in single-managed funds than in team-managed funds.

Table 5 documents the results of our tests. In all specifications except return gap, the coefficients on the stand-alone term of SBS\_PBF are negative and statistically significant, suggesting that when the TEAM indicator variable takes a value of 0 (meaning single-manager funds), those with side-by-side managers underperform those without by 11.4 basis points a month in Jensen's alpha, 7.1 basis points a month in Carhart alpha, and 18.3 basis points a month in Ferson and Schadt's conditional alpha. The only exception is return gap, which is lower for team-managed funds with side-by-side managers.

### 3.3 Impact of own-fund PBFs

In this section, we evaluate the performance of mutual funds that pay their own managers incentive fees. As we discuss previously, the PBFs in mutual funds, called fulcrum fees, are small in magnitude and also required to be symmetric. As such, we do not expect the existence of own-fund PBFs to provide enough counteracting incentives to offset the conflicts of interest for managers with side-by-side arrangements.

Table 6 presents the results of our analysis. The coefficients on `SBS_PBF` are negative and statistically significant in all four specifications, suggesting that when there are no own-fund PBFs (`OWN_PBF` equals 0) side-by-side management hurts fund performance. This is consistent with our earlier findings reported in Table 4. The coefficients on the interaction term are positive in three of four specifications, which suggest that the PBFs offered by mutual funds for their own managers seem to mitigate somewhat the negative effects of side-by-side management, but the impact is not statistically significant. These results show that mutual fund incentive fees are not significant enough to counteract the high-powered incentives provided by the asymmetric fees used in pooled investment vehicles and separately managed accounts.

### 3.4 The relative importance of mutual fund industry and fund performance

In this section, we investigate another source of incentives for mutual fund managers, the relative importance of the mutual fund industry in the manager's total portfolio of assets under management. We measure this relative importance by calculating the percentage of a manager's total assets under management held in registered investment companies. We average this percentage across all managers of the same fund in a year and call this variable `AVG_MGR_RIC_PCT`. We hypothesize that if mutual funds are more important to a manager

(i.e. higher percentage of assets held in registered investment companies), she has more incentives to allocate effort and performance to these mutual fund assets.

Table 7 provides evidence consistent with this conjecture. The relative importance measure is positively correlated with all four performance measures. The effect is economically and statistically significant. This effect seems to dominate the negative impact of side-by-side management, as the coefficient on SBS\_PBF is no longer statistically significant in two of the four specifications.

## **4 Conclusion**

The potential conflicts of interests arising from the side-by-side management evoke some debate in the recent literature. Papers focusing on the simultaneous management of mutual funds and hedge funds (Nohel, Wang, Zheng (2010), Cici, Gibson and Moussawi (2010)) have come to opposite conclusions regarding whether this practice is harmful or beneficial to mutual fund investors. Nohel et al find superior performance in funds with managers who also manage hedge funds, suggesting that side-by-side management is a way to keep talented managers within the family. However, Cici et al find that side-by-side management leads to underperformance by the mutual funds, suggesting that managers favor more lucrative hedge funds at the expense of mutual funds.

To shed additional light on this unresolved question, in this paper, we investigate the performance effect of side-by-side management using the SEC mandated disclosures beginning in 2005. According to the SEC, the rationale behind this mandate is to enable investors to assess the potential conflicts of interests as a result of side-by-side management. Advisor firms share similar concerns in fund prospectuses and argue that they implement various policies to



eliminate them. Our results show that these concerns are warranted. We find that funds with side-by-side managers underperform its peers without side-by-side managers, particularly when a fund is managed by a single manager. Mutual funds with PBFs seem to be able to mitigate the negative impact of side-by-side management, albeit the effect is weak. The most important and dominant factor that mitigates the effects of side-by-side management is the relative importance of the mutual fund industry in the manager's total portfolio of assets under management. Overall, our results cast doubt on the effectiveness of the monitoring and governance mechanisms that advisor firms put in place to mitigate the conflicts of interests due to side-by-side management.

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## Appendix A. Sample SEC Filing containing information on management of other portfolio accounts by fund managers

AllianceBernstein Value Funds Prospectus (Statement of Additional Information)<sup>1</sup>

### EQUITY INCOME FUND.

The management of, and investment decisions for, the Fund's portfolio are made by the Adviser's U.S. Equity Senior Investment Management Team. Mr. Christopher W. Marx, Mr. Joseph G. Paul, Mr. John D. Phillips, Jr. and Mr. Greg L. Powell are the investment professionals with the most significant responsibility for the day-to-day management of the Fund's portfolio.

The following tables provide information regarding registered investment companies other than the Fund, other pooled investment vehicles and other accounts over which the Fund's portfolio managers also have day-to-day management responsibilities. The tables provide the numbers of such accounts, the total assets in such accounts and the number of accounts and total assets whose fees are based on performance. The information is provided as of the Fund's fiscal year ended November 30, 2010.

#### REGISTERED INVESTMENT COMPANIES (excluding the Fund)

Portfolio Manager	Total Number of Registered Investment Companies Managed	Total Assets of Registered Investment Companies Managed	Number of Registered Investment Companies Managed with Performance-based Fees	Total Assets of Registered Investment Companies Managed with Performance-based Fees
Christopher W. Marx	61	\$10,880,000,000	1	3,768,000,000
Joseph G. Paul	153	\$29,019,000,000	3	6,492,000,000
John D. Phillips, Jr.	61	\$10,880,000,000	1	3,768,000,000
Greg L. Powell	151	\$29,015,000,000	3	6,492,000,000

#### POOLED INVESTMENT VEHICLES

Portfolio Manager	Total Number of Pooled Investment Vehicles Managed	Total Assets of Pooled Investment Vehicles Managed	Number of Pooled Investment Vehicles Managed with Performance-based Fees	Total Assets of Pooled Investment Vehicles Managed with Performance-based Fees
Christopher W. Marx	50	\$ 1,495,000,000	None	None
Joseph G. Paul	237	\$13,665,000,000	9	365,000,000
John D. Phillips, Jr.	50	\$ 1,495,000,000	None	None
Greg L. Powell	223	\$11,978,000,000	6	318,000,000

<sup>1</sup> This filing available at [http://www.sec.gov/Archives/edgar/data/910036/000091957411001864/d1170239\\_485-b.txt](http://www.sec.gov/Archives/edgar/data/910036/000091957411001864/d1170239_485-b.txt)

OTHER ACCOUNTS

Portfolio Manager	Total Number of Other Accounts Managed	Total Assets of Other Accounts Managed	Number of Other Accounts Managed with Performance- based Fees	Total Assets of Other Accounts with Performance- based Fees
Christopher W. Marx	32,647	\$18,376,000,000	5	166,000,000
Joseph G. Paul	33,024	\$62,015,000,000	43	4,732,000,000
John D. Phillips, Jr.	32,647	\$18,376,000,000	5	166,000,000
Greg L. Powell	33,024	\$62,015,000,000	43	4,732,000,000

## **Table 1: The prevalence of side-by-side management by mutual fund managers**

We use data from the Statement of Additional Information, which is a required supplementary document to the fund's prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS) to identify other managed accounts disclosed by mutual fund managers. The sample includes all managers of actively-managed domestic equity mutual funds in the CRSP Mutual Fund Database that belong to the largest 30 fund families in CRSP, ranked by total domestic equity mutual fund assets in March 2005. For these 30 families, we include each manager listed as having day-to-day responsibility for managing the fund in the Statement of Additional Information. Funds are required to disclose every fiscal year the number of accounts and the assets under management in three categories: registered investment Companies, pooled investment vehicles, and separately managed accounts. The SEC also requires funds to disclose if any of the other managed accounts are subject to PBFs, and the assets under management in each category subject to this incentive fee. In each panel, we report statistics as of the effective date of the information listed in the prospectus. The sample contains some observations with effective dates in 2004 and 2011, but we exclude these partial years in the table below. However, in the row "All manager-years" we include observations from these partial years as well. The data collected are manager-fund-year observations, but we average observations across all funds for a manager in a year to arrive at the manager-year dataset used for this table. Panel A contains the percentage of all manager-years disclosing any of these account types, as well as the percentage disclosing accounts under the three SEC-required categories. Panel A also contains the average assets under management for each category, for those manager-years that have non-zero assets in each of these categories. The final column reports the average percentage of each manager's assets under management that are registered investment companies (mutual funds), including the TNA of the disclosing fund. Panel B contains the percentage of manager-years with any accounts subject to PBFs, as well as the percentage of manager-years of each account category type subject to PBFs. Panel B also contains the average assets under management subject to PBFs for each category, for those manager-years that have non-zero assets with PBFs in these categories. Panel C provides a breakdown of types of accounts subject to PBFs, indicating managers that have only one type versus managers with multiple types of accounts with PBFs concurrently.

**Panel A: Management of additional managed accounts and average assets under management by mutual fund managers**

Year	Total number of unique managers	Percent of all managers with				For managers with non-zero additional accounts Average assets under management (\$MM) in:			For all managers
		any additional managed accounts	other registered investment companies	other pooled investment vehicles	other separately managed accounts	other registered investment companies	other pooled investment vehicles	other separately managed accounts	Percent of assets in registered investment companies
2005	675	94.7%	87.7%	54.5%	67.0%	12,929	855	6,220	78.5%
2006	713	94.5%	87.0%	55.7%	62.8%	15,344	2,031	6,674	79.0%
2007	746	94.9%	88.9%	56.2%	66.9%	17,883	3,000	8,758	75.7%
2008	736	95.1%	88.5%	59.5%	67.1%	13,432	2,263	6,643	73.9%
2009	775	95.6%	88.9%	57.9%	68.3%	13,134	1,557	3,853	73.4%
2010	740	95.7%	89.3%	57.3%	65.0%	16,367	1,482	5,037	77.4%
All manager-years	5,000	95.0%	88.3%	56.4%	66.5%	14,673	1,894	5,845	76.4%

**Panel B: Outside accounts and assets under management with PBFs (PBFs) by mutual fund managers**

Year	Total number of managers	Percent of all managers with PBFs (PBFs) in:				For managers with non-zero additional accounts Average assets under management (\$MM) with PBFs in:		
		any outside accounts	other registered investment companies	other pooled investment vehicles	other separately managed accounts	other registered investment companies	other pooled investment vehicles	other separately managed accounts
2005	675	19.4%	7.9%	5.0%	12.3%	3,545	185	1,405
2006	713	23.0%	11.1%	6.6%	14.3%	3,017	414	2,244
2007	746	25.6%	13.3%	6.2%	15.7%	3,741	311	2,864
2008	736	28.4%	13.2%	7.9%	16.3%	2,953	319	1,774
2009	775	31.7%	13.8%	9.2%	18.3%	2,574	143	1,065
2010	740	29.1%	15.5%	6.8%	15.7%	2,781	232	920
All manager-years	5,000	26.4%	12.6%	7.0%	15.3%	3,109	268	1,641



**Panel C: Combinations of PBFs in outside accounts by mutual fund managers**

Year	Total number of managers	Percent of all managers with:							
		No PBF outside accounts	Only one type of account with PBFs			Combinations of types of accounts with PBFs			
			Only registered investment companies	Only pooled investment vehicles	Only separately managed accounts	registered investment companies and pooled investment vehicles	registered investment companies and separately managed accounts	pooled investment vehicles and separately managed accounts	all three types of accounts
2005	675	80.6%	4.4%	1.8%	8.0%	0.9%	1.9%	1.8%	0.6%
2006	713	77.0%	6.3%	1.5%	7.6%	0.8%	2.5%	2.8%	1.4%
2007	746	74.4%	6.4%	1.7%	9.0%	1.7%	4.0%	1.6%	1.1%
2008	736	71.6%	7.7%	2.7%	10.3%	1.6%	2.4%	2.2%	1.4%
2009	775	68.3%	8.5%	2.7%	12.1%	2.2%	1.9%	3.1%	1.2%
2010	740	70.9%	9.9%	1.1%	10.3%	2.4%	2.2%	2.2%	1.1%
All manager -years	5,000	73.6%	7.6%	2.0%	9.5%	1.6%	2.4%	2.3%	1.1%

**Table 2: Number of funds and managers per fund by year**

Data on manager names are collected from the Statement of Additional Information, which is a required supplementary document to the fund's prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS). The sample includes all managers of actively-managed domestic equity mutual funds in the CRSP Mutual Fund Database that belong to the largest 30 fund families in CRSP, ranked by total domestic equity mutual fund assets in March 2005. This table uses data at the fund-manager level to document trends in singer-manager funds and team-managed funds.

Year	Total number of funds	Average number of managers	% of funds with:			
			1 manager	2 managers	3 managers	4 or more managers
2005	575	2.18	47.3%	24.2%	13.6%	15.0%
2006	603	2.25	44.6%	26.0%	11.1%	18.2%
2007	623	2.35	40.4%	29.1%	10.3%	20.2%
2008	638	2.34	40.4%	28.8%	11.3%	19.4%
2009	639	2.56	36.3%	29.4%	11.0%	23.3%
2010	605	2.63	34.9%	29.8%	12.6%	22.8%
All years	4,106	2.40	40.4%	28.1%	11.8%	19.8%

**Table 3 Panel A: Summary statistics at the fund-month level**

We use data from the Statement of Additional Information, which is a required supplementary document to the fund's prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS) to identify other managed accounts disclosed by mutual fund managers. The sample includes all managers of actively-managed domestic equity mutual funds in the CRSP Mutual Fund Database that belong to the largest 30 fund families in CRSP, ranked by total domestic equity mutual fund assets in March 2005. Data on fund returns and characteristics are obtained from the CRSP Mutual Fund Database. SEC data are averaged across managers of the same fund in a year to arrive at fund-year observations. These yearly observations are matched to CRSP monthly returns and characteristics based on SEC effective dates. SBS\_PBF is an indicator variable equal to 1 if the fund has at least one manager with PBFs in either pooled investment vehicles or separately managed accounts. ANY\_PBF is an indicator variable equal to 1 if any of the fund's managers has PBFs in any category of assets. RIC\_PBF\_ONLY is equal to 1 if the fund's managers have PBFs only in registered investment companies. TEAM is equal to 1 if the fund is managed by a team instead of a single manager. OWN\_PBF is equal to 1 if the reporting fund pays its own managers PBFs. The data for this variable are collected from NSAR forms filed with the SEC. AVG\_MGR\_RIC\_PCT is the percentage of total assets under management held in registered investment companies (including the reporting fund itself), averaged across managers of the same fund in a year.

Statistics	Mean	Median	Std. Deviation	P1	P90
TNA	3729.3	811.3	10900.8	64.1	7735.1
RETURN	0.35%	0.83%	5.34%	-6.67%	6.24%
AGE	205.0	141.0	191.4	46.0	479.0
FLOW	-0.02%	-0.53%	3.96%	-2.69%	2.81%
TURNOVER	77.4%	59.0%	71.0%	14.0%	160.0%
EXP. RATIO	1.1%	1.1%	0.4%	0.5%	1.6%
LOAD	2.3%	2.1%	2.1%	0.0%	5.2%
FAM. TNA	361,697.9	143,359.1	466,807.6	53,297.4	1,302,803.9
FAM. TNA (EQUITY)	60,624.4	22,654.1	99,736.9	2,954.7	178,131.8
# OF MANAGERS	2.4	2.0	1.8	1.0	5.0
ANY_PBF	35.5%	0.0%	47.9%	0.0%	100.0%
SBS_PBF	25.2%	0.0%	43.4%	0.0%	100.0%
RIC_PBF_ONLY	10.3%	0.0%	30.5%	0.0%	100.0%
TEAM	61.6%	100.0%	48.6%	0.0%	100.0%
OWN_PBF	15.1%	0.0%	35.8%	0.0%	100.0%
AVG_MGR_RIC_PCT	80.1%	91.7%	24.7%	40.6%	100.0%

**Table 3 Panel B: Families with the highest and lowest percentage of managers with side-by-side management**

This table illustrates the variation across families with regards to the percentage of funds with side-by-side managers. Side-by-side managers are defined as those charging PBFs in pooled investment vehicles or in separately managed accounts. We use data from the Statement of Additional Information, which is a required supplementary document to the fund’s prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS) to identify other accounts with PBFs managed by mutual fund managers.

<b>Families where percent of funds with side-by-side managers between 90% and 100%</b>	
Fund family’s name	Percent of funds with side-by-side managers
CALAMOS ADVISORS LLC	100%
DIMENSIONAL FUND ADVISORS INC	100%
ROYCE & ASSOCIATES LLC	94%
ALLIANCEBERNSTEIN LP	94%
PIMCO ADVISORS	92%

<b>Families where percent of funds with side-by-side managers equal 0</b>	
Fund family’s name	Percent of funds with side-by-side managers
AMERICAN CENTURY INVESTMENT MGMT INC	0%
AMERICAN FUNDS	0%
BANK OF NEW YORK	0%
DODGE & COX	0%
DAVIS SELECTED ADVISERS LP	0%
MFS INVESTMENT MANAGEMENT	0%
OPPENHEIMERFUNDS INC/CENTENNIAL	0%
T ROWE PRICE ASSOCIATES INC	0%

#### **Table 4: Impact of side-by-side management on mutual fund performance**

We use data from the Statement of Additional Information, which is a required supplementary document to the fund's prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS) to identify other managed accounts disclosed by mutual fund managers. The sample includes all managers of actively-managed domestic equity mutual funds in the CRSP Mutual Fund Database that belong to the largest 30 fund families in CRSP, ranked by total domestic equity mutual fund assets in March 2005. Data on fund returns and characteristics are obtained from the CRSP Mutual Fund Database. SEC data are averaged across managers of the same fund in a year to arrive at fund-year observations. These yearly observations are matched to CRSP monthly returns and characteristics based on SEC effective dates. *SBS\_PBF* is an indicator variable equal to 1 if the fund has at least one manager with PBFs in either pooled investment vehicles or separately managed accounts. *ANY\_PBF* is an indicator variable equal to 1 if any of the fund's managers has PBFs in any category of assets. *RIC\_PBF\_ONLY* is equal to 1 if the fund's managers have PBFs only in registered investment companies. Regressions include year and style fixed effects. Standard errors are clustered at the fund level.

**Panel A: Jensen's alpha and Carhart alpha**

Variables	Jensen's alpha			Carhart alpha		
	(1)	(2)	(3)	(4)	(5)	(6)
ANY_PBF	-0.068 (-3.8)***			-0.041 (-2.7)***		
SBS_PBF		-0.073 (-3.4)***	-0.077 (-3.6)***		-0.044 (-2.5)**	-0.046 (-2.6)***
RIC_PBF_ONLY			-0.047 (-1.7)*			-0.029 (-1.2)
LOG(TNA)	-0.016 (-2.6)***	-0.016 (-2.7)***	-0.016 (-2.6)***	-0.011 (-2.1)**	-0.011 (-2.1)**	-0.011 (-2.1)**
LOG(FTNA)	-0.021 (-2.7)***	-0.028 (-3.5)***	-0.024 (-2.9)***	-0.022 (-3.3)***	-0.026 (-3.8)***	-0.023 (-3.2)***
FLOW	0.323 (1.3)	0.318 (1.3)	0.322 (1.3)	0.260 (1.2)	0.257 (1.2)	0.259 (1.2)
LOG(AGE)	0.046 (3.5)***	0.048 (3.7)***	0.046 (3.5)***	0.021 (1.8)*	0.022 (1.9)*	0.021 (1.8)*
EXP. RATIO	-11.593 (-4.1)***	-12.285 (-4.3)***	-11.896 (-4.1)***	-13.725 (-5.5)***	-14.137 (-5.6)***	-13.897 (-5.4)***
TURNOVER	0.069 (4.4)***	0.067 (4.3)***	0.069 (4.4)***	0.052 (3.9)***	0.051 (3.8)***	0.052 (3.9)***
LOAD	0.030 (0.1)	0.050 (0.1)	0.026 (0.1)	-0.019 (-0.0)	-0.007 (-0.0)	-0.022 (-0.1)
RETURN	3.043 (15.4)***	3.045 (15.4)***	3.044 (15.4)***	3.181 (14.0)***	3.182 (14.0)***	3.181 (14.0)***
VOLATILITY	2.807 (3.6)***	2.751 (3.5)***	2.807 (3.6)***	3.469 (4.6)***	3.435 (4.6)***	3.469 (4.6)***
Constant	0.464 (3.9)***	0.545 (4.5)***	0.501 (4.1)***	0.368 (3.5)***	0.416 (3.9)***	0.389 (3.5)***
Observations	38957	38957	38957	38957	38957	38957
R-squared	0.022	0.022	0.022	0.025	0.025	0.025

**Table 4 Panel B: Conditional alpha and return gap**

Variables	Conditional alpha			Return gap		
	(1)	(2)	(3)	(4)	(5)	(6)
ANY_PBF	-0.064 (-2.6)***			-0.023 (-2.6)***		
SBS_PBF		-0.089 (-3.2)***	-0.089 (-3.2)***		-0.035 (-3.4)***	-0.034 (-3.4)***
RIC_PBF_ONLY			-0.007 (-0.2)			0.002 (0.2)
LOG(TNA)	-0.013 (-1.5)	-0.013 (-1.5)	-0.013 (-1.5)	-0.005 (-1.5)	-0.005 (-1.6)	-0.005 (-1.6)
LOG(FTNA)	-0.028 (-2.7)***	-0.038 (-3.4)***	-0.037 (-3.2)***	0.006 (1.4)	0.002 (0.5)	0.002 (0.4)
FLOW	0.115 (0.3)	0.113 (0.3)	0.114 (0.3)	0.126 (1.1)	0.125 (1.1)	0.124 (1.1)
LOG(AGE)	0.018 (0.9)	0.020 (1.1)	0.020 (1.0)	0.018 (2.6)***	0.019 (2.7)***	0.019 (2.7)***
EXP. RATIO	-16.431 (-4.2)***	-17.322 (-4.4)***	-17.263 (-4.4)***	-0.810 (-0.4)	-1.199 (-0.6)	-1.218 (-0.6)
TURNOVER	0.055 (2.5)**	0.054 (2.5)**	0.055 (2.5)**	0.017 (2.0)**	0.016 (1.9)*	0.016 (1.9)*
LOAD	0.374 (0.6)	0.366 (0.5)	0.362 (0.5)	-0.217 (-0.7)	-0.217 (-0.7)	-0.216 (-0.7)
RETURN	5.229 (14.3)***	5.231 (14.4)***	5.231 (14.3)***	-0.296 (-3.5)***	-0.296 (-3.5)***	-0.296 (-3.5)***
VOLATILITY	10.741 (6.7)***	10.732 (6.7)***	10.740 (6.7)***	3.202 (7.6)***	3.199 (7.6)***	3.196 (7.6)***
Constant	0.383 (2.4)**	0.494 (3.0)***	0.487 (2.8)***	-0.221 (-3.1)***	-0.175 (-2.4)**	-0.173 (-2.3)**
Observations	38957	38957	38957	35761	35761	35761
R-squared	0.024	0.024	0.024	0.011	0.011	0.011

**Table 5: Impact of side-by-side management on single-managed funds vs. team-managed funds**

We use data from the Statement of Additional Information, which is a required supplementary document to the fund's prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS) to identify other managed accounts disclosed by mutual fund managers. The sample includes all managers of actively-managed domestic equity mutual funds in the CRSP Mutual Fund Database that belong to the largest 30 fund families in CRSP, ranked by total domestic equity mutual fund assets in March 2005. Data on fund returns and characteristics are obtained from the CRSP Mutual Fund Database. SEC data are averaged across managers of the same fund in a year to arrive at fund-year observations. These yearly observations are matched to CRSP monthly returns and characteristics based on SEC effective dates. SBS\_PBF is an indicator variable equal to 1 if the fund has at least one manager with PBFs in either pooled investment vehicles or separately managed accounts. TEAM is equal to 1 if the fund is managed by a team instead of a single manager. Regressions include year and style fixed effects. Standard errors are clustered at the fund level.

Variables	Jensen's alpha	Carhart alpha	Conditional alpha	Return gap
SBS_PBF	-0.114 (-3.1)***	-0.071 (-2.4)**	-0.183 (-3.8)***	-0.000 (-0.0)
TEAM	0.005 (0.3)	0.003 (0.2)	-0.039 (-1.5)	0.005 (0.5)
SBS_PBF * TEAM	0.059 (1.3)	0.040 (1.1)	0.141 (2.6)**	-0.049 (-2.7)***
LOG(TNA)	-0.016 (-2.7)***	-0.011 (-2.1)**	-0.014 (-1.5)	-0.004 (-1.5)
LOG(FTNA)	-0.028 (-3.4)***	-0.026 (-3.7)***	-0.042 (-3.7)***	0.003 (0.7)
FLOW	0.317 (1.3)	0.256 (1.2)	0.110 (0.3)	0.128 (1.1)
LOG(AGE)	0.047 (3.6)***	0.021 (1.9)*	0.019 (1.0)	0.020 (2.8)***
EXP. RATIO	-12.954 (-4.6)***	-14.587 (-5.7)***	-18.832 (-4.7)***	-0.558 (-0.3)
TURNOVER	0.067 (4.3)***	0.051 (3.8)***	0.055 (2.5)**	0.018 (2.1)**
LOAD	0.004 (0.0)	-0.034 (-0.1)	0.504 (0.8)	-0.232 (-0.8)
RETURN	3.044 (15.4)***	3.181 (14.0)***	5.232 (14.4)***	-0.296 (-3.5)***
VOLATILITY	2.870 (3.6)***	3.513 (4.6)***	10.847 (6.8)***	3.124 (7.4)***
Constant	0.552 (4.5)***	0.421 (3.9)***	0.580 (3.4)***	-0.200 (-2.6)**
Observations	38957	38957	38957	35761
R-squared	0.022	0.025	0.025	0.011



**Table 6: Side-by-side management vs. own-fund PBFs**

We use data from the Statement of Additional Information, which is a required supplementary document to the fund's prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS) to identify other managed accounts disclosed by mutual fund managers. The sample includes all managers of actively-managed domestic equity mutual funds in the CRSP Mutual Fund Database that belong to the largest 30 fund families in CRSP, ranked by total domestic equity mutual fund assets in March 2005. Data on fund returns and characteristics are obtained from the CRSP Mutual Fund Database. SEC data are averaged across managers of the same fund in a year to arrive at fund-year observations. These yearly observations are matched to CRSP monthly returns and characteristics based on SEC effective dates. SBS\_PBF is an indicator variable equal to 1 if the fund has at least one manager with PBFs in either pooled investment vehicles or separately managed accounts. OWN\_PBF is equal to 1 if the reporting fund pays its own managers PBFs. The data for this variable are collected from NSAR forms filed with the SEC. Regressions include year and style fixed effects. Standard errors are clustered at the fund level.

Variables	Jensen's alpha	Carhart alpha	Conditional alpha	Return gap
SBS_PBF	-0.081 (-3.5)***	-0.047 (-2.5)**	-0.096 (-3.2)***	-0.023 (-1.7)*
OWN_PBF	-0.023 (-0.8)	-0.023 (-0.9)	-0.066 (-2.0)*	0.036 (2.0)**
SBS_PBF * OWN_PBF	0.064 (1.2)	0.034 (0.8)	0.074 (1.0)	-0.048 (-1.4)
LOG(TNA)	-0.016 (-2.5)**	-0.011 (-2.0)**	-0.012 (-1.4)	-0.010 (-1.9)*
LOG(FTNA)	-0.027 (-3.4)***	-0.024 (-3.3)***	-0.032 (-2.7)***	-0.002 (-0.3)
FLOW	0.322 (1.3)	0.256 (1.2)	0.105 (0.3)	-0.167 (-0.7)
LOG(AGE)	0.047 (3.6)***	0.021 (1.9)*	0.018 (1.0)	0.017 (1.9)*
EXP. RATIO	-12.196 (-4.3)***	-14.161 (-5.6)***	-17.469 (-4.4)***	-1.473 (-0.6)
TURNOVER	0.068 (4.3)***	0.052 (3.9)***	0.057 (2.6)***	-0.004 (-0.2)
LOAD	0.002 (0.0)	-0.036 (-0.1)	0.293 (0.4)	-0.475 (-1.4)
RETURN	3.044 (15.4)***	3.181 (14.0)***	5.227 (14.3)***	-0.367 (-3.3)***
VOLATILITY	2.789 (3.5)***	3.462 (4.6)***	10.801 (6.7)***	3.865 (6.9)***
Constant	0.533 (4.5)***	0.397 (3.6)***	0.435 (2.6)**	-0.130 (-1.4)
Observations	38957	38957	38957	36003
R-squared	0.022	0.025	0.025	0.009

**Table 7: The relative importance of assets under management in registered investment companies and mutual fund performance**

We use data from the Statement of Additional Information, which is a required supplementary document to the fund's prospectus filed with the SEC (form N-1A with form type 485BPOS or 485APOS) to identify other managed accounts disclosed by mutual fund managers. The sample includes all managers of actively-managed domestic equity mutual funds in the CRSP Mutual Fund Database that belong to the largest 30 fund families in CRSP, ranked by total domestic equity mutual fund assets in March 2005. Data on fund returns and characteristics are obtained from the CRSP Mutual Fund Database. SEC data are averaged across managers of the same fund in a year to arrive at fund-year observations. These yearly observations are matched to CRSP monthly returns and characteristics based on SEC effective dates. SBS\_PBF is an indicator variable equal to 1 if the fund has at least one manager with PBFs in either pooled investment vehicles or separately managed accounts. AVG\_MGR\_RIC\_PCT is the percentage of total assets under management held in registered investment companies (including the reporting fund itself), averaged across managers of the same fund in a year. Regressions include year and style fixed effects. Standard errors are clustered at the fund level.

Variables	Jensen's alpha	Carhart alpha	Conditional alpha	Return gap
SBS_PBF	-0.054 (-2.5)**	-0.026 (-1.4)	-0.068 (-2.4)**	-0.014 (-1.2)
AVG_MGR_RIC_PCT	0.106 (2.8)***	0.098 (2.8)***	0.114 (2.1)**	0.079 (3.1)***
LOG(TNA)	-0.021 (-3.3)***	-0.016 (-2.8)***	-0.018 (-1.9)*	-0.012 (-2.3)**
LOG(FTNA)	-0.027 (-3.3)***	-0.024 (-3.6)***	-0.036 (-3.2)***	0.002 (0.5)
FLOW	0.302 (1.2)	0.242 (1.2)	0.096 (0.3)	-0.210 (-0.8)
LOG(AGE)	0.048 (3.8)***	0.022 (2.0)**	0.021 (1.1)	0.014 (1.5)
EXP. RATIO	-12.118 (-4.2)***	-13.983 (-5.5)***	-17.144 (-4.3)***	-1.506 (-0.6)
TURNOVER	0.064 (4.0)***	0.048 (3.6)***	0.051 (2.3)**	-0.003 (-0.1)
LOAD	0.068 (0.1)	0.010 (0.0)	0.385 (0.6)	-0.537 (-1.5)
RETURN	3.046 (15.4)***	3.183 (14.0)***	5.232 (14.4)***	-0.254 (-1.5)
VOLATILITY	2.618 (3.3)***	3.313 (4.4)***	10.590 (6.6)***	3.636 (5.8)***
Constant	0.476 (3.9)***	0.352 (3.2)***	0.420 (2.5)**	-0.192 (-2.0)**
Observations	38957	38957	38957	36043
R-squared	0.022	0.025	0.025	0.007