THE COMPANY YOU KEEP: INVESTMENT MANAGER CLIENTELE AND MUTUAL FUND PERFORMANCE

By

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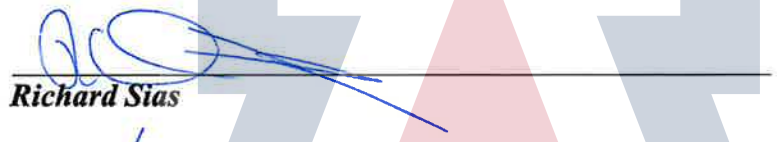
As members of the Dissertation Committee, we certify that we have read the dissertation prepared by ***William Beggs***, titled ***The Company You Keep: Investment Manager Clientele and Mutual Fund Performance*** and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.



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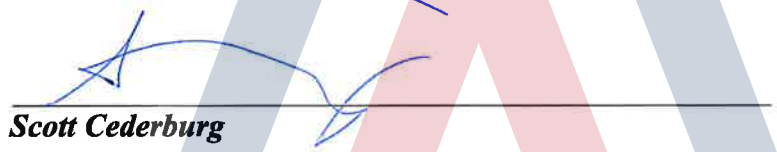

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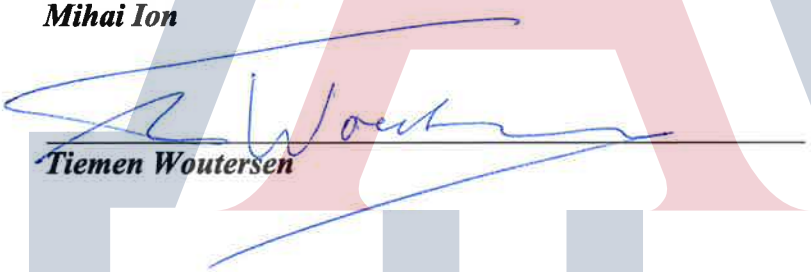

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Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copies of the dissertation to the Graduate College.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

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ABSTRACT

This paper examines how the composition of an investment adviser's client base (identified via Form ADV filings) relates to the performance of its mutual funds. Investment advisers catering to institutional clients realize statistically and economically superior risk-adjusted mutual fund performance relative to retail-oriented advisers. The findings are consistent with the empirical predictions of the Gârleanu and Pedersen (2018) model for asset management markets. The results suggest that institutional clients can identify differences in investment manager skill, particularly in market segments where retail mutual fund investors face higher search costs.

1. Introduction

There exists substantial variation in the clientele of investment advisory firms that manage mutual funds. Some firms cater to retail investors, either through their mutual fund business or separate accounts for individual investors (retail-oriented advisers). In recent decades, however, many firms, such as AQR Capital Management, who cater primarily to a sophisticated, institutional client base (institutional-oriented advisers), have either launched or expanded their footprint in the mutual fund industry. LSV Asset Management (LSV), for instance, opened its first mutual fund in 1999 (the LSV Value Equity Fund) five years after its founding in 1994.[1] The opening of this fund brought the firm's expertise in value investing, previously available only to institutional clients, to retail investors. This trend of institutional-oriented advisers opening mutual funds has continued as mutual fund assets have benefitted from growth in the popularity of defined contribution plans (e.g., Sialm, Starks, and Zhang, 2015). Since 1999, for example, LSV has added five more mutual funds to their line-up.

The relationship between mutual fund performance and the presence of institutional clients for an investment adviser, however, is not clear – recent studies suggest that it could be positive, neutral, or negative. First, recent theoretical work suggests mutual fund performance will be positively related to institutional clientele. Gârleanu and Pedersen (2018) argue that large and sophisticated investors can better identify manager skill because search costs are low relative to capital. Their model, similar to Grossman and Stiglitz (1980) for individual assets, addresses a

[1] According to their website, LSV managed $119 billion in value equity portfolios for 350 clients as of March 31, 2018. This implies an average client size of approximately $340 million. Since LSV only managed six mutual funds as of this date, this suggests that LSV's separate account clients have very high levels of capital relative to the typical retail investor. For example, LSV's client base consists of many large public pension plans such as the Louisiana State Employees' Retirement System (LASERS). As of March 31, 2018, LSV managed over $1 billion in assets in three different style mandates for LASERS. See https://lasersonline.org/investments/asset-allocation-charts/breakdown-of-asset-classes-with-managers/.

paradox in asset management markets. Specifically, public signals about asset managers such as their assets under management (AUM) cannot fully reveal which managers are more skilled or informed since, if they did, no investor would have an incentive to search and perform due diligence. The model therefore, predicts that mutual funds managed by institutional-oriented advisers will tend to outperform.[2] Recent empirical work, however, suggests an inverse relation between an adviser's mutual fund performance and the presence of more sophisticated, institutional clients. Specifically, Ben-Rephael and Israelsen (2018) and Del Guercio, Genc, and Tran (2018) find that advisers may favor more sophisticated, institutional clients at the expense of their mutual funds through favorable trade allocations and/or cross-subsidization. Ultimately, the link between an adviser's non-mutual fund clientele and their mutual fund performance is an empirical question.

In this paper, I investigate the relation between an investment adviser's clientele and the performance of the mutual funds they manage using Form ADV filings.[3] Investment advisers to mutual funds are required to annually file Form ADV with the U.S. Securities and Exchange Commission (SEC) and disclose the types of clients for which they manage assets. The mandatory filings provide a natural panel of client composition data that is free of selection biases. Importantly, Form ADV provides a granular breakdown of clientele and direct separate account clients are

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[2] Berk and Green (2004), in contrast, model a fully efficient asset management market where, due to rational fund flows eroding skilled managers' alpha, advisers' institutional clientele levels will be independent of future performance.

[3] Form ADV is a public filing but has historically been limited in its availability to the public. The full set of filings (since the inception of electronic filing in 2001) was only recently made available via Freedom of Information Act (FOIA) request to the SEC in 2015. Prior to that, Form ADV data had to be hand collected from the SEC's website and only the most recent filing for each adviser was available. Additionally, it is also likely that clients of asset managers have not recognized there is value in the information disclosed on Form ADV. As detailed above, prior academic literature has suggested the possibility of both a positive and negative relationship between the presence of institutional clients and mutual fund performance.

identified by type (e.g., high net worth individuals versus charitable organizations) allowing for reasonably accurate identification of each investment adviser's client base.[4] One confounding issue is the fact that some investment advisers delegate the portfolio management of their mutual funds to a sub-adviser. Chen et al. (2013) find that nearly one-third of mutual funds are sub-advised, i.e., a different investment adviser (the sub-adviser) provides portfolio management services to the fund and is ultimately responsible for generating the fund's performance track record. For example, The Hartford MidCap Fund (as well as many other Hartford Funds) is sub-advised by Wellington Management Company, LLP. To address this issue, the clientele of the fund's sub-adviser is used when assessing the performance of sub-advised funds (sub-adviser sample). Since this study concentrates on performance as an outcome variable, I primarily focus on this sample throughout the paper.

The empirical results reveal that mutual funds managed by institutional-oriented advisers outperform funds managed by retail-oriented advisers. In a sort of funds by lagged adviser clientele, funds managed by investment advisers with a percentage of institutional clients in the top half of the sample (approximately greater than 25% institutional clients) outperform funds whose adviser has no institutional clients by approximately 80 basis points annually as measured by 4-factor alpha. The economic magnitude of this difference in risk-adjusted performance is similar to other recent studies that examine how the operational characteristics of mutual fund management companies relate to fund performance. For example, Chen et al. (2013) find that outsourced mutual

[4] I focus on non-mutual fund clients to identify institutional clients (i.e., separate accounts and private funds). This approach is consistent with P&I and ICI data which indicate mutual fund shareholders are primarily retail investors. Gerakos, Linnainmaa, and Morse (2017) cite P&I surveys 2012 data which shows that out of $48 trillion in delegated institutional assets only $5 trillion was managed in mutual funds. The ICI's 2016 factbook offers a similar picture of institutional investment in mutual funds. According to their figures, $15.6 trillion was invested in mutual funds as of December 31, 2015. Of this, $13.5 trillion or 87% consisted of individual investors and $2.1 trillion consisted of institutional investors.

funds underperform those managed in-house by 50 basis points annually, and Del Guercio and Reuter (2014) find that broker-sold retail funds underperform direct-sold retail funds by approximately 110 basis points per year. Once fund and adviser controls are introduced, panel OLS regression estimates confirm that these results are not driven by other fund and/or adviser observables, style, or time effects. Furthermore, I document that multiple types of institutional clients contribute to the relationship (i.e., charities, government clients, and pension plans), and that significant differences in mutual fund performance realized by institutional and retail-oriented advisers persist for up to four years.

The second half of this study aims to understand why this relationship exists and persists. In a rational asset management market, mutual fund investors' flows would erode any predictable differences in performance. In particular, I examine whether a portion of this relationship can be attributed the Gârleanu and Pedersen (2018) mechanism that institutional clients exert greater search effort to identify differences in manager skill. While a growing body of literature points to clientele issues in investment management, the extant literature has focused largely on how the presence of more sophisticated clients affects governance and incentives for the asset manager.[5] This study is the first to test if search costs incurred by institutional clients play a role in the observed relationship between client sophistication and investment manager returns.

My approach to testing the search costs hypothesis is two-fold. The first set of tests considers the search costs mechanism from the perspective of the mutual fund investors. I start by investigating if the relationship between institutional clients and mutual fund returns is more pronounced in segments of the mutual fund industry where mutual fund investors have been

[5] See, for example, Del Guercio and Reuter (2014), Evans and Fahlenbrach (2012), and Del Guercio, Genc, and Tran (2018).

empirically shown to face higher search costs. When search costs are higher, mutual fund investors may be unable or unwilling to identify variation in manager skill and erode differences in performance via fund flows, allowing the observed effect to persist. I follow Sirri and Tufano (1998) in identifying three proxies for search costs in the mutual fund industry. Since mutual fund distribution and marketing decisions tend be made at the organizational level (e.g., Del Guercio and Reuter 2014), I focus on variables aggregated to the fund family level to proxy for search costs. The measures of search costs include: fund family size as measured by total net assets, the aggregate dollar value of marketing and distribution expenditures borne by the fund family's shareholders (i.e., 12b-1 fees and loads), and a measure of media attention. The media attention measure is taken from a recent study by Kaniel and Parham (2017) and is an indicator variable equal to one if the family has had a fund featured on the *Wall Street Journal*'s (WSJ) "Category Kings" lists in the recent past. Consistent with costly search contributing to the observed effect, I find evidence across all three proxies that the positive relationship between the presence institutional clientele and fund returns is stronger in the mutual fund market segments where mutual fund investors face higher search costs, i.e., smaller fund families, families with lower levels of marketing and distribution expenditures, and families garnering less media attention. These are segments of the mutual fund industry where institutional clients arguably hold an advantage in identifying variation in manager skill over retail mutual fund investors.

The second set of tests evaluates whether there is evidence that institutional clients exert greater effort in the manager search process. My tests broadly examine if institutional clients' use of operational characteristics and performance measures in the manager selection process is more discerning than mutual fund investors'.

First, I test if there is a relationship between an adviser's institutional client presence and the operational characteristics sought in manager searches undertaken by consultants to institutional plan sponsors. Though search costs incurred by institutional plan sponsors to find investment managers can take on many forms, a common approach involves hiring investment consulting firms to assist in the manager search and due diligence process.[6] A typical first step in this process requires investment advisers to submit information about their advisory business and investment products to consultants and plan sponsors via requests for proposal (RFPs) or due diligence questionnaires (DDQs) for evaluation and initial screening. Reviewing a sample of RFPs/DDQs reveals that a significant portion of due diligence efforts are focused on the investment adviser's conflicts of interest, incentives, and operational risk.[7] The adviser's Form ADV disclosures and other sources are used to test if these operational characteristics of interest to consultants and other investment professionals are associated with a greater presence of institutional clients for mutual fund advisers. The results show that the operational characteristics associated with higher levels of institutional clients for mutual fund advisers are remarkably similar to those sought by institutional consultants and plan sponsors in investment manager searches. Institutional-oriented advisers are larger (higher AUM), less likely to have financial industry affiliates (i.e., independent), less likely to be related to a brokerage firm, less likely to have prior legal/regulatory issues disclosed on their Form ADV, more likely to have direct employee ownership, more likely to have a Chief Compliance Officer (CCO) focused solely on

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[6] See literature that examines manager search by institutional plan sponsors such as Del Guercio and Tkac (2002), Goyal and Wahal (2008), and Jenkinson, Jones, and Martinez (2016).

[7] While some plan sponsors and consultants post RFPs/DDQs publicly, I also review DDQs embedded within consultant databases (e.g., eVestment Alliance, PSN/Informa, Wilshire, Callan, Cambridge, etc.).

regulatory compliance, more likely to claim compliance with the Global Investment Performance Standards (GIPS), and less likely to engage in agency cross-trading of client accounts.[8]

Second, I evaluate the performance measures institutional clients use when making manager hiring and firing decisions. While the institutional manager search process clearly goes beyond the examination of a manager's past performance, prior studies (Del Guercio and Tkac, 2002; Goyal and Wahal, 2008; Jenkinson, Jones, and Martinez, 2016) find that performance still plays a significant role in the manager selection and termination process. To the extent that performance is considered in manager evaluation, it would be expected that investment professionals hired by institutional plan sponsors use more sophisticated risk-adjusted measures of past performance than the typical retail mutual fund investor (e.g., 3-factor or 4-factor alphas as opposed to CAPM alpha). In these tests, I use the adviser's mutual fund performance to serve as a proxy for institutional client performance. There is a high likelihood that institutional separate accounts and mutual funds managed by the same adviser would realize relatively correlated performance as they typically share common trading desks, research analysts, and portfolio managers.[9] Consistent with this notion, I find that past mutual fund performance is positively associated with changes in institutional clients for the investment adviser. Consistent with the idea that institutional clients exert effort in the manager selection/termination process, results from horserace tests suggest that changes in institutional clients are best predicted by past 3-factor or 4-

[8] Advisers are required by Rule 206(4)-7 of the Investment Advisers Act of 1940 to appoint a Chief Compliance Officer (CCO) who is responsible for ensuring the firm has policies and procedures in place to prevent violations of securities laws. Some advisers' CCOs have operational responsibilities (e.g., Portfolio Manager, Chief Operating Officer, etc.) in addition to their duties as CCO. The GIPS standards are a set of standards governing the presentation of separate account composite performance set forth by the CFA Institute. The standards help to make separate account performance comparable across products and firms by ensuring that advisers do not cherry pick accounts or time periods and provide sufficient disclosures pertinent to performance evaluation.

[9] For example, Cliff Asness and Andrea Frazzini are listed portfolio managers on multiple mutual funds for AQR as well as private funds and separate account offerings.

factor alphas as opposed to CAPM alpha. In contrast, mutual fund flows tend to be more responsive to CAPM alpha which is consistent with recent studies by Berk and van Binsbergen (2016) and Barber, Huang, and Odean (2016).

To the best of my knowledge, this is the first study that directly compares the performance of institutional investment management firms to retail-oriented investment management firms. The use of mutual fund performance provides an 'apples-to-apples' comparison, as open-end mutual funds have the same regulatory, liquidity, and disclosure requirements. This study closely relates to literature that examines clientele issues for investment management firms. For instance, studies (i.e., Busse, Goyal, and Wahal, 2010 and Gerakos, Linnainmaa, and Morse, 2017) examine whether investment strategies marketed to institutional plan sponsors and their investment consultants via commercial databases garner positive abnormal returns.[10] Del Guercio and Reuter (2014) consider how different mutual fund distribution channels and clienteles (i.e., direct-sold versus broker-sold) impact mutual fund families' incentives and performance. I build on their work by examining how an organization's non-mutual fund client base relates to mutual fund performance.

This study is also related to prior work examining the side-by-side management of mutual funds and other types of clients.[11] Within this literature, the closest related paper is Evans and Fahlenbrach (2012) who examine how the presence of institutional clients invested in institutional mutual funds and separate accounts managed side-by-side (in the same strategy or product) with

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[10] Prior work that investigates the performance of institutional asset management firms identifies institutional asset management firms as the set of firms that report performance to commercial databases maintained or subscribed to by investment consultants that advise large institutional investors. I use regulatory filings as opposed to commercial databases to identify institutional asset management firms. These studies also examine the performance of separate account composites as opposed to mutual funds.

[11] For example, there is literature which examines the side-by-side management of hedge funds and mutual funds (e.g., Del Guercio, Genc, and Tran, 2018; Nohel, Wang, and Zheng, 2010; Cici, Gibson, and Moussawi 2010).

retail mutual funds impacts governance and incentives for the retail mutual funds. My work builds upon theirs in two important ways. First, I document an organizational level effect in the relationship between institutional clients and fund performance. This is consistent with marketing and distribution strategy being determined at the organization level as well as recent theoretical and empirical work by Brown and Wu (2015) who find that clients of asset managers weigh organizational skill in addition to fund skill in their investment decisions. Second, I document that a different mechanism contributes to the relationship. This is the first study to present evidence that clients' search and selection efforts also appear to play a role (in addition to governance and incentives for the manager) in accounting for the positive relationship between client sophistication and fund performance.[12]

The remainder of the paper is structured as follows: Section 2 presents the data, Section 3 establishes the positive relationship between institutional clientele and mutual fund performance, Section 4 tests the search costs hypothesis, Section5 discusses additional tests and Section 6 concludes.

2. Data and variables

2.1. Form ADV data

Section 203A of the Investment Advisers Act of 1940 requires that all investment advisers to mutual funds register with the SEC and submit an annual amendment to their Form ADV within

[12] Evans and Fahlenbrach (2012) acknowledge that more sophisticated institutional manager search processes may play a role in their findings, but their work exclusively focuses on a governance and incentives explanation for the results.

90 days of their fiscal year end. This provides a natural panel dataset free of selection biases.[13] Form ADV data was gathered via Freedom of Information Act (FOIA) request from the SEC and includes the complete sample of ADV filings between 2001 (the beginning of electronic filing) and March 2016.[14]

ADV Item 5D presents a breakdown of client types for each investment adviser. Designated client types include: "individuals", "high net worth individuals", "banking or thrift institutions", "investment companies", "business development companies", "pooled investment vehicles (other than investment companies)", "pension and profit sharing plans (but not the plan participants)", "charitable organizations", "corporations or other businesses not listed above", "state or municipal government entities", "other investment advisers", "insurance companies", and "other" entities. Advisers are required to select one of the following percentage band categories for each investor type: none, up to 10%, 11-25%, 26-50%, 51-75%, 76-99%, and 100%. Importantly, values refer to percent of clients rather than percent of assets. Although these values are likely to be positively correlated, it is possible that for a given manager, institutional investors comprise a large fraction of their clients but a much smaller fraction of their assets. On the other hand, a large number of institutional clients may be a stronger indication of manager vetting than a few institutional clients that account for the bulk of assets. Appendix A provides a sample Item 5D from a Form ADV filing.

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[13] Prior studies that examine institutional asset managers or the presence of institutional clients generally use commercial databases. The primary function of commercial databases is to market investment strategies, and managers have incentives to only advertise their best performing strategies. This may result in self-selection bias.

[14] There has been limited research in the finance literature conducted using Form ADV filings because previous researchers primarily used samples of hand gathered data. Two such studies examining mutual fund advisers include Chen et al. (2013) who examine the performance of outsourced mutual funds, and Casavecchia and Tiwari (2016) who examine how investment adviser cross-trading practices affect mutual fund performance. Dimmock and Gerken (2012) were the first to use a complete panel set of Form ADV filings and provide a thorough overview of the nature of information disclosed by each registered investment adviser.

A confounding issue in examining investment advisers to mutual funds is that some advisers delegate the portfolio management function of their mutual funds to other investment advisers, a practice known as sub-advising (e.g., Chen et al., 2013; Del Guercio, Reuter, and Tkac, 2007). If a fund is sub-advised, the investment adviser is likely involved in fund distribution and the selection/monitoring of sub-advisers while a sub-adviser(s) is responsible for managing the portfolio. To account for the possible separation of these functions, I focus on two samples of funds. The 'adviser sample' uses clientele and ADV data for each fund's investment adviser and includes the full sample of funds. I use the adviser sample when examining distribution and marketing outcome variables for funds, such as flows. The 'sub-adviser sample' focuses on the adviser that provides portfolio management services to the fund. For funds that are not sub-advised the investment adviser clientele and Form ADV data are used. If a fund is sub-advised, the sub-adviser's clientele and Form ADV data are used. I focus on the sub-adviser sample when examining portfolio management outcome variables such as performance. I drop fund-month observations (about 12% of the sample) which have more than one sub-adviser from the sub-adviser sample, because the relative roles (percent managed) of each sub-adviser is unknown.[15] Consistent with the sample from Chen et al. (2013), I find that 34% of fund-month observations are sub-advised and 22% of fund-month observations are outsourced to unaffiliated sub-advisers.

Because Form ADV reports the presence of client types within bands, I use band midpoints to approximate the composition of each adviser's client base. If individual investors are listed as 51-75% of clients, for instance, I assign a value of 63%. Table 1 presents investment adviser

[15] Data on sub-advisers are collected from N-SAR filings. I thank Leonard Kostevetsky for sharing this data, see Kostevetsky and Maconi (2018).

clientele summary statistics. Investment companies (mutual funds) are the largest client group accounting for 39.8% of the average adviser's clients in the adviser sample and 30.2% of clients in the sub-adviser sample.[16] Individual investors and high net worth individuals are the next two most important groups accounting for a combined 30.0% of clients in the adviser sample and 35.1% of clients in the sub-adviser sample. This is consistent with mutual funds being retail-oriented vehicles and mutual fund advisers also catering to the retail market segment in their separate account products. Because separate account clients are partitioned into specific clientele (e.g., individual investors versus charitable organizations), ADV disclosures provide a relatively precise picture of each adviser's non-mutual fund business.

One complication, however, is that Form ADV instructions allow for double counting within client categories. For example, if CalPERS is a separate account client of the investment adviser, they would count as both a municipal or state government entity as well as a pension plan. To address this issue, only mutually exclusive categories of clients are used. I begin by including municipal or state government entities (Public), corporations and other businesses (Corporate), and charitable organizations (Charity). Together these categories cover a substantial portion of entities in the public sector, private for-profit sector, and private non-profit sector respectively.[17]

Pooled investment vehicles (other than investment companies) (Private Funds) are also included in the measure of institutional clientele. Private funds managed by mutual fund advisers

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[16] Importantly, the investment companies and pooled investment vehicles client categories on Form ADV measure each fund as one client.

[17] In October of 2017, the SEC changed the nature of client type information disclosed on Form ADV. Advisers now disclose exact client percentages as opposed to percentage bands. The Form also asks registrants to categorize each client into the type they consider most appropriate. Thus, double counting will no longer be an issue for Form ADV client disclosures going forward.

are primarily long-only commingled funds but also include hedge funds.[18] To assess the sophistication of private funds as clients, I consider underlying shareholders who make buy and sell decisions in these funds. Since private funds may not make a public offering of their shares, they are generally limited to "accredited investors" or "qualified purchasers" to comply with Sections 3(c)(7) or 3(c)(1) of the Investment Company Act of 1940. This requires investors in private funds to have significant net worth, income or investable assets, i.e. institutional investors or high net worth individuals. Thus, private funds are included in the measure of institutional clientele for each mutual fund's investment adviser, calculated as

$$\%Inst.\ Clients_{j,t} = \%Public_{j,t} + \%Corporate_{j,t} + \%Charity_{j,t} + \%Private\ Funds_{j,t} \quad . \qquad (1)$$

Where $\%Public_{j,t}$ is the percentage of state or municipal government entities that make up investment adviser *j*'s client base in year *t*, $\%Corporate_{j,t}$ is the percentage of corporations or other businesses that make up investment adviser *j*'s client base in year *t*, $\%Charity_{j,t}$ is the percentage of charitable organizations that make up investment adviser *j*'s client base in year *t*; and $\%Private\ Funds_{j,t}$ is the percentage of pooled investment vehicles (other than investment companies) that make up investment adviser *j*'s client base in year *t.* Table 5 reruns baseline tests with a breakout of single client types from Form ADV. These results show that the baseline tests are not driven by a single client type and are not particularly sensitive to the decisions made to include certain types of clients in the measure. My classification algorithm appears to adequately partition advisers into retail-oriented versus institutional-oriented. For example, Appendix C provides a sample list of

[18] See Del Guercio, Genc, and Tran (2018). The summary statistics for their sample indicate that more than 50% of mutual fund managers also manage private funds, while less than 10% of portfolio managers simultaneously manage hedge funds.

firms in the top decile of *%Inst. Clients* for 2015 and shows that well-known institutional-oriented advisers (e.g., LSV, DE Shaw and GMO) are identified as such.

Table 1 shows that the average fund's adviser has 19.0% institutional clients in the adviser sample while the average percentage of institutional clientele in the sub-adviser sample is 23.9%. These numbers support findings in Del Guercio, Reuter, and Tkac (2007) who indicate mutual fund portfolio management is often outsourced to institutional separate account managers. Fig. 1 shows that the average percentage of institutional clients managed by mutual fund investment advisers has steadily increased during the sample period. This is consistent with the notion that institutional-oriented managers have been chasing the substantial flows to mutual funds attributed to the growth in popularity of defined contribution plans.[19] Fig. 2 presents histograms of the distribution of institutional clientele for the adviser sample and sub-adviser samples in the first and last years of the sample. The histograms show that many funds are managed by advisers with zero or near zero institutional clients, but that substantial variation exists. The adviser sample contains much more mass at or near zero institutional clients, particularly early in the sample period.

Form ADV data is also used to control for adviser characteristics and/or conflicts of interest which may influence fund performance. Control variables include the natural log of the adviser's total assets under management (*Log(AUM)*) and the natural log of the adviser's number of client accounts managed (*Log(Accts)*). I also account for the adviser's financial industry affiliations.[20] These include: an indicator variable measuring whether the adviser operates as or is affiliated with a commercial bank or trust company (*Related Bank*), an indicator variable capturing whether the

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[19] See the ICI 2016 factbook. Defined contribution plan mutual fund assets have tripled since 2000, reaching $3.6 trillion in 2015. This amounts to nearly a quarter of all assets invested in mutual funds.

[20] For example, Berzins, Liu, and Trzcinka (2013) show that asset management firms owned by investment banks tend to underperform. Similarly, Ferreira, Matos, and Pires (2018) show that asset management firms operated within commercial banking groups tend to underperform.

adviser operates as or is affiliated with a broker-dealer (*Related Brokerage*) and an indicator variable which denotes if the adviser operates as or is affiliated with an insurance company (*Related Insurance*). Lastly, I consider other factors which may influence the extent to which the adviser's interests are aligned with their clients'. These include: an indicator variable which captures whether adviser charges performance-based fees (*Performance Fees*) and the extent to which the adviser engages in the cross trading of client accounts (*Agency Cross Trade*). Table 1 presents descriptive statistics for these variables and Appendix A includes details on the sources and construction of each variable.

2.2. Mutual fund data and variables

Form ADV data are matched with the CRSP Survivor-Bias-Free US Mutual Fund Database on the investment adviser names provided by CRSP.[21] The sample covers 2003 to 2015.[22] CRSP provides information on fund returns, total net assets (TNA), investment objectives, and other fund characteristics. Fund characteristics and returns are aggregated across share classes on an asset-weighted basis using the CRSP class group variable (crsp_cl_grp). The oldest available share class is used to compute fund age. CRSP returns are net after fees, expenses and brokerage commissions but before any front-end or back-end loads. Net fund returns are converted to excess returns by subtracting the corresponding risk-free rate.[23] Monthly time series data on the market, size, value, momentum, investment, and profitability factors are from Kenneth French's website.

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[21] More than 97% of fund-month observations in CRSP are matched to the Form ADV data. Sub-adviser names and SEC (801-) numbers are from data provided by Leonard Kostevetsky.

[22] The sample begins in 2003 because lagged clientele data are used and many advisers did not begin filing Form ADV electronically until 2002.

[23] Data on the monthly risk-free rate are obtained from Kenneth French's website.

The analyses focus on diversified actively managed domestic equity funds. Index funds (identified via the CRSP index fund flag and fund names), ETFs, and variable annuities are excluded from the sample. The sample is further restricted (using the CRSP style code) to domestic equity funds with specified objectives of mid-cap, small-cap, micro-cap, growth, growth and income, and equity income. I require funds to have a minimum TNA value of $5 million as of the previous month end and at least 75% of their portfolio invested in common stocks. The adviser sample includes 267,132 fund-month observations from 3,463 unique mutual funds managed by 855 investment advisers. The sub-adviser sample includes 234,115 fund-month observations from 3,204 unique mutual funds managed by 1,099 investment advisers.

Tests focus on monthly 4-factor alphas for each fund computed as the difference between the fund's realized monthly excess return in month *t* and the fund's model benchmark return estimated for month *t*. The benchmark return is estimated by multiplying month *t* factor realizations with factor loadings estimated over the previous 24 months. The 4-factor model uses the market (MKT_RF), size (SMB), value (HML), and momentum (MOM) factors. For robustness, CAPM alpha and a 6-factor alpha are considered as additional performance measures. Analogously, one-month forward looking CAPM alpha is calculated using only the market factor. The 6-factor alpha adds the investment (CMA) and profitability (RMW) factors (Fama and French, 2015; Jordan and Riley, 2015) to the 4-factor model (Carhart 1997).

Tests include fund-level control variables that may influence performance including: the natural log of fund total net assets (*Log(TNA)*), fund turnover (*Turnover*), fund expense ratio (*Expense*), natural log of fund age (*Log(Age)*), the sum of fund flows over the previous 12 months (*Net Flows*) and the standard deviation of fund flows over the previous 12 months (*Std Flows*). The presence of more sophisticated investors in mutual funds is accounted for using the percentage

of fund assets derived from institutional share classes (*I Share*). It is also possible that institutional-oriented advisers circumvent the Berk and Green (2004) mechanism by closing their funds to new investors before they get too large, allowing advisers to generate abnormal returns.[24] To address this issue, I also include an indicator variable that denotes whether the fund is closed to new investors (*Closed*). Lastly, I construct an indicator variable which captures whether the fund is outsourced to a sub-adviser that is unaffiliated with the primary investment adviser (*Outsourced*) (i.e., Chen et al., 2013). All continuous variables are winsorized at 1 and 99 to account for the possibility of outliers. Mutual fund summary statistics are reported in Table 2. Data sources and details on the construction of each variable are contained in Appendix A.

3. Do mutual funds managed by institutional-oriented advisers earn higher returns?

3.1. Sorts of funds by lagged investment adviser clientele

The analysis begins by partitioning fund-month observations in both the adviser and sub-adviser samples into five groups based on lagged investment adviser institutional clientele and examining the means of mutual fund characteristics by group in Table 3. The five groups consist of funds managed by investment advisers with the following ranges of institutional clients: none, greater than 0% but less than or equal to 10%, greater than 10% but less than or equal to 25%, greater than 25% but less than or equal to 50%, and greater than 50%. Fixed clientele percentages are used to partition the sample as opposed to partitioning groups into an equal number of

[24] For example, Gupta and Sachdeva (2018) find evidence that hedge fund managers keep funds with high levels of employee investment artificially small to attain higher abnormal returns. Consistent with this possibility, I find that many investment consultant RFPs and DDQs ask the adviser what the AUM capacity is for their investment strategies.

observations (e.g., quintiles) to illustrate how mean fund characteristics and the distribution of observations change when considering the adviser sample as opposed to the sub-adviser sample.[25]

Table 3 reveals the primary result of this study – a strong positive relationship between institutional clientele and fund performance, as measured by 4-factor alpha, for both the adviser and sub-adviser samples. Economically, differences in mean monthly 4-factor alphas for the sub-adviser sample show that mutual funds managed by advisers with institutional client percentages in the top half of the sample (>25%), outperform funds managed by advisers with zero institutional clients by approximately 80 basis points annually. Statistically, differences in mean 4-factor alphas between the highest and lowest institutional clientele groups are significant at the 5% level or better in both samples (t-stats of 2.08 for the adviser sample and 4.15 for the sub-adviser sample).[26]

Table 3 also suggests that the relationship between the percentage of institutional clients and mutual performance may not be linear. While there are substantial increases in performance from lowest (equal to zero) to the second highest institutional client group (between 25% and 50%), performance slightly declines thereafter in highest clientele group (> 50%) by less than half of one basis point per month in the sub-adviser sample.[27] This suggests that once sufficient manager vetting has occurred, there may no longer be significant differences in performance associated with further changes in institutional clients. The nature of the relationship presents the possibility that perhaps institutional plan sponsors and consultants act as screening mechanism in avoiding

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[25] The highest institutional clientele group (>50%) makes up approximately the top quartile of the sub-adviser sample but only approximately the top decile of the adviser sample. The top two institutional clientele groups (>25%) make up approximately the top half of the sub-adviser sample but only the top quartile of the adviser sample.

[26] Standard errors are taken from univariate regressions and are clustered on investment adviser.

[27] Table 3 indicates that funds in the highest institutional client group tend to be larger and are more likely to be outsourced which may contribute to their lower performance relative to the second highest institutional clientele group.

particularly poor managers that operate in the retail mutual fund space.[28] Results tabulated using a piecewise linear regression in Table 10 of Section 5 allowing for kinks in the relationship at 25% and 50% confirm the effect from institutional clients on performance is most pronounced between 0% and 25% institutional clients for the investment adviser.

Table 3 also reveals relationships between other fund characteristics and the adviser's institutional clientele. Expense ratios decrease as institutional clientele increases which is consistent with the findings of Evans and Fahlenbrach (2012). However, the differences in expense ratios between the highest and lowest institutional clientele groups in both samples clearly do not fully account for the differences in net performance (at approximately 16 basis points annually). I also find that institutional-oriented advisers obtain a greater fraction of mutual fund assets from institutional share classes and are more likely to close their funds to new investors relative to retail-oriented advisers.

Lastly, there are substantial differences in fund outsourcing between the lowest and highest institutional clientele groups in both samples. The adviser sample shows that the bulk of outsourced funds are marketed or distributed by retail-oriented advisers while the sub-adviser sample indicates that a substantial portion of outsourced funds are managed by institutional-oriented advisers. The notion that retail-oriented advisers seek out institutional advisers' investment management expertise when outsourcing portfolio management duties for their funds speaks to the skill differences between the two types of firms. Moreover, the outsourcing relationship demonstrates that using only investment adviser clientele (as opposed to sub-adviser clientele) to examine the relationship between clientele and mutual fund performance misclassifies

[28] This would be consistent with the findings of Goyal and Wahal (2008) and Jenkinson, Jones, and Martinez (2016) who show that institutional plan sponsors and consultants lack skill in selecting institutional managers. In their samples, retail-oriented managers are likely screened out in the due diligence and RFP (request-for-proposal) processes.

many funds. Particularly, those whose investment adviser has lower levels of institutional clientele, because there exists a substantial fraction of retail-oriented advisers that sub-advise to institutional-oriented advisers. These differences, along with the fact that the presence of institutional clients among mutual fund advisers has been steadily increasing over the sample period (see Fig. 1), demonstrate the need to examine the relationship between institutional clientele and mutual fund performance using a panel regression setting, controlling for observables.

3.2. Panel regression results

Differences in risk-adjusted performance are next examined within a regression framework that controls for observables. Table 4 presents panel OLS regressions which regress monthly fund alphas on lagged measures of adviser institutional clientele and controls. Each regression includes investment objective-by-month fixed effects so that each performance measure is relative to other actively managed funds with the same investment style, operating in the same month. The regression specification closely follows Del Guercio and Reuter (2014) who test for a similar effect on performance stemming from an organization's mutual fund clientele. The main variable of interest is the percentage of institutional clients for each fund's investment adviser/sub-adviser (*%Inst. Clients*). Coefficient estimates on this variable are multiplied by 12, so the economic interpretation of the coefficients is the quantity of annual alpha (in percent) associated with a one percentage point change in the institutional clientele of the fund's investment adviser. I focus on the sub-adviser sample since 4-factor alpha is a portfolio management outcome variable. Standard errors in all columns are clustered on investment adviser.

Table 4 clearly demonstrates that mutual funds managed by institutional-oriented advisers realize higher risk-adjusted returns. The first three columns examine 4-factor alpha as the

dependent variable. The coefficient estimates on *%Inst. Clients* in all three columns are significant at the 1% level with t-statistics greater than three. In column (1) where 4-factor alpha is regressed on *%Inst. Clients* without control variables, the coefficient estimate indicates that a one percentage point increase in the percentage of institutional clients of the investment adviser is associated with 1.2 basis points higher annual 4-factor alpha.[29] The results in the remaining columns reveal that the other factors I consider do not drive the relation between an adviser's mutual fund performance and the extent to which an adviser's other fund and business characteristics arise from institutional clients, as the relation between institutional clientele and mutual fund performance changes little when introducing control variables into the model. Specifically, once controls are introduced in columns (2) and (3), the results show that a one percentage point increase in institutional clientele is associated with higher annual 4-factor alphas of approximately one basis point. The estimates are economically significant. Columns (5) and (6) of Table 4 focus on CAPM and 6-factor alpha as dependent variables. Coefficient estimates on *%Inst. Clients* in columns (5) and (6) are statistically significant (at the 1% and 5% levels respectively) with similar economic magnitudes.

Overall, the panel regression results confirm that mutual funds managed by institutional-oriented advisers earn higher risk-adjusted returns. The results are consistent with Gârleanu and Pedersen (2018) who predict that managers with sophisticated institutional clients should outperform. The next subsections briefly explore the robustness and persistence of these results.

3.3. Client type analyses

[29] While the economic magnitude of this estimate appears small compared to the differences in performance illustrated by the fund sorts in Table 3, a piecewise specification in Table 10 of Section 5 shows that this estimate is smaller because there is little benefit to increases in institutional clients once they make up at least one-quarter of the adviser's total clients.

This section addresses the robustness of the construction of the measure of institutional clientele. I replace *%Inst. Clients* with various client types on Form ADV as the explanatory variables of interest in the main regression specification. I also investigate if the results are consistent with predictions in the Gârleanu and Pedersen (2018) model on relative clientele sophistication and performance, i.e. does the composition of the adviser's direct separate account clients matter for the relationship? According to the Gârleanu and Pedersen (2018) model, there should be no significant differences in mutual fund performance predicted by an increased presence of direct individual or high net worth individual clients. Panel A of Table 5 considers the following client types as explanatory variables: individuals, high net worth individuals, private funds, and pure institutions (*%Public* + *%Corporate* + *%Charity*). In the Gârleanu and Pedersen (2018) model, noise allocators are assumed to be individuals. Thus, it would be expected that their presence has no association with fund performance. Since search costs are associated with capital levels, it could be argued that the presence of high net worth individual separate account investors may be more positively associated with performance than that of individuals. As predicted by the model, the presence of institutional clients should be positively related to fund performance and robust to the exclusion of private funds in the baseline measure. Since private fund shareholders can be institutions or high net worth individuals, it is theoretically ambiguous whether their presence would be positive and significantly associated with performance.

In columns (1) and (2) of Panel A, the coefficient estimates on the adviser's percentage of individual and high net worth individual clients are negative and positive respectively, but not statistically significant, which is consistent with the notion that individuals are noise allocators in the Gârleanu and Pedersen (2018) model. In column (3), the presence of private funds is positively associated with mutual fund performance, and the coefficient estimate is statistically significant at

the 5% level. In column (4), the coefficient estimate shows that the presence of pure institutions is positively associated with mutual fund 4-factor alpha and is statistically significant at the 1% level.

Panel B further breaks out institutional clientele by types to examine which types of institutions drive the main results. Column (1) examines state or municipal government entities *(%Public*), Column (2) examines corporations or other businesses *(%Corporate*), column (3) examines charitable organizations (*%Charity*), and column (4) examines pension or profit sharing plans (*%Pension Plans*) as explanatory variables. Recall that pension plans are excluded from *%Inst. Clients* to avoid double counting of clients (e.g., CalPERS is both a public and pension plan client). In Panel B, coefficient estimates for three out of the four institutional client types are statistically significant at the 5% level or better. Corporations or other businesses are the only institutional client type whose coefficient estimate is not statistically significant. This finding is consistent with the search costs hypothesis. Specifically, Goyal and Wahal (2008) note that public pension plans are much more likely to retain investment consultants to assist in manager search efforts than corporate pension plans at 82% versus 50% respectively.

Taken together, the estimates in Panel A and Panel B of Table 5 indicate the main results are not driven by only one client type and are consistent with the empirical predictions of Gârleanu and Pedersen on how client sophistication and performance should relate. Furthermore, the results show that the composition of an adviser's underlying separate account investors matters. While greater percentages of pension plan, government, and charitable organization clients are associated with better mutual fund performance, a greater presence of individuals and high net worth individuals are not.

3.4. How long do differences in performance persist?

The baseline tests provide evidence that significant differences in performance are realized by institutional and retail-oriented advisers over the course of the subsequent calendar year, but how long do these differences persist? Do mutual fund investors eventually locate institutional-oriented adviser's mutual funds and erode the differences in performance via fund flows? Table 6 addresses these questions by rerunning the baseline tests with prior lags of institutional clientele to determine how far in advance differences in clientele predict significant differences in performance. I consider lagged institutional clientele of up to five years in advance of the realized performance. To enter the sample in each column, observations are required have data available on lagged clientele for all five prior years.

The results in Table 6 reveal that differences in mutual fund performance realized by institutional and retail-oriented advisers persist for at least four years into the future as lags of *%Inst. Clients* of the order of four predict significant differences in realized mutual fund performance in column (4) of Table 6. The economic magnitudes and t-stats of the coefficients on lagged *%Inst. Clients* decay over time from column (1) to column (5) which suggests that the mutual fund market eventually reaches equilibrium and returns to efficiency. I find that the coefficient on the fifth lag of adviser institutional clientele is half of the magnitude of the first lag and is not statistically significant. The next section of this study aims to understand why mutual fund investors allow for these significant differences in performance to persist for so long. In particular, I offer evidence that differences in search efforts undertaken by institutional clients can help to explain this phenomenon.

3.5. Other robustness tests of the main result

Prior to conducting tests for the search costs hypothesis, I conduct a battery of robustness tests on the main regression results. I briefly describe these tests in this section and provide much greater detail in Section 5 of this paper. The robustness tests are contained in Table 10. I show that the results hold for the subsamples of both retail and institutional mutual funds which is consistent with results not being driven by retail-oriented distribution channels (e.g., Del Guercio and Reuter 2014). Further, I show that the results are robust to controlling for the adviser's decision to pursue institutional clients by introducing an indicator variable into the analyses that is equal to one if *%Inst. Clients* is equal to zero and zero otherwise. I find results are robust to the use of band midpoints on Form ADV by reconstructing *%Inst. Clients* using band maximums and minimums as opposed to midpoints. I control for the geography of the adviser by demonstrating that the baseline results hold when comparing the performance of advisers operating the same metropolitan statistical areas. Findings are relatively unchanged when excluding the financial crisis years (i.e., 2008 and 2009). Lastly, I consider alternate regression methodologies and my inferences remain intact. Specifically, I re-estimate coefficients using median regression and Fama-MacBeth regression.

4. Can costly search help to explain the differences in performance?

This section tests if selection efforts and search costs incurred by institutional clientele help to account for the observed relationship between institutional clients and fund performance. My approach consists of two key sets of tests.

First, I test whether differences in performance are more pronounced when institutional separate account investors hold an advantage in identifying investment managers over mutual fund shareholders. In particular, I show that the baseline results are stronger in mutual fund market

segments where prior literature has found that shareholders face higher search costs. The presence of institutional clients better predicts mutual fund performance among smaller mutual fund families, families with lower levels of marketing and distribution expenditures, and families with garnering less attention from the media. These are market segments where enhanced search efforts may yield the most benefit.

Second, I present evidence that the institutional clients in my sample incur search costs. Specifically, I examine the operational characteristics and performance measures that institutional clients use to select managers. Operational characteristics that predict higher levels of institutional clients for mutual fund advisers are remarkably similar to those sought in institutional consultants' and plan sponsors' manager searches. This suggests that the institutional clients in the sample have likely retained investment professionals to conduct manager searches. Further consistent this notion, results from performance horserace tests show that institutional clients use more sophisticated measures of performance to allocate their capital than mutual fund investors. I find that changes in institutional clients tend to be best predicted by 3-factor or 4-factor alphas while mutual fund flows are better predicted by CAPM alphas.

4.1. The impact of search costs on differences in returns

This section examines whether the differences in performance realized by institutional and retail-oriented advisers are stronger (weaker) when mutual fund investors face higher (lower) search costs. I follow Sirri and Tufano (1998) to identify mutual fund market segments where search costs are higher. Sirri and Tufano identify three proxies for search costs: a fund family's size/visibility, marketing and distribution expenditures, and media coverage. In constructing all three proxies, I aggregate data to the family level since findings in prior work show that there are spillovers in the effects marketing and media coverage on flows of funds operating the same

family.[30] Mutual fund families in the CRSP database are identified using the mgmt._cd variable. Wherever possible, I fill in missing values of this variable for observations where the name of the management company is available.

To proxy for fund family size/visibility, I directly follow Sirri and Tufano (1998) and use the lagged natural log of aggregate fund family net assets. For marketing and distribution expenditures, I isolate fund fees attributable to these activities.[31] Specifically, I focus on 12b-1 fees and load fees. On an annual basis, I calculate the natural log of the dollar value of marketing and distribution expenses incurred by the family's fund shareholders. CRSP provides information on both actual 12b-1 fees and loads for every share class of each fund. Following Sirri and Tufano, loads are assumed to be amortized over a seven-year holding period. At the end of each calendar year, I multiply total net assets by the most recently available amortized load fees and 12b-1 fees at the share class level for each fund and aggregate these quantities to the family level. Share class level data are used since loads and 12b-1 fees can vary substantially across different share classes of the same fund.

Lastly, I identify a measure of media attention for mutual fund families. I follow a recent study by Kaniel and Parham (2017) who identify a relatively exogenous source of mutual fund media attention.[32] They focus on funds featured in the *Wall Street Journal*'s quarterly lists of "Category Kings." These lists are comprised of funds with the ten best trailing 12-month returns

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[30] For example, Kaniel and Parham (2017) find that positive media coverage of a single fund affects flows for the entire family.

[31] In contrast, Sirri and Tufano use total fees (amortized loads and total expense ratios) to proxy for distribution and marketing effort in their tests.

[32] Sirri and Tufano (1998) rely on Lexis/Nexis searches of fund name mentions in major periodicals and newspapers and show a limited effect of media attention on fund flows.

in their Lipper classification groups.[33] I follow the authors' methodology to replicate these lists using returns, assets, and Lipper classification group data contained in CRSP.[34] The replicated lists are used to create an indicator variable equal to one if a fund's family has had a fund featured as a "Category King" in the past 24 months and zero otherwise. I choose a period of 24 months because families with funds that make the lists may enter mutual fund investors' choice set (i.e., search costs are reduced) for a period after being featured in the WSJ.[35]

Table 7 presents the results from regressions that introduce the three measures of search costs. In columns (2), (3), and (4), I examine how each search cost proxy interacts with *%Inst. Clients*. I first note that the magnitudes of the coefficients on *%Inst. Clients* in columns (2), (3) and (4) are economically larger than in the baseline specification in column (1). This suggests differences in performance realized by institutional and retail-oriented advisers are greater when mutual fund investors face higher search costs. For example, in column (4), a 1% increase in institutional clientele is associated with a 1.8 basis point increase in fund alphas in the segment of the mutual fund industry that has not received recent coverage in the WSJ. The magnitude of this coefficient is 63% larger than the coefficient on *%Inst. Clients* in column (1) in the baseline specification.

Coefficients on the interaction terms between *%Inst. Clients* and the search cost proxies in all three columns are negative and statistically significant at the 10% level or better. This suggests that differences in mutual fund performance realized by institutional and retail-oriented advisers

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[33] The identification in their study comes from the discontinuity in flows observed between the 10th ranked fund and the 11th ranked fund which just missed making the list.

[34] I focus on the same 12 Lipper classification as Kaniel and Parham (2017) that appear in each WSJ issue. Kaniel and Parham indicate that their replication methodology yields approximately a 90% success rate (9 out of 10 funds on average) in recreating the lists. To extent that errors occur in my replication of the lists, this would bias against finding results. See Appendix A for further detail on the list construction.

[35] I find that results are economically similar, albeit not statistically significant, if I use a trailing period of 12 months to construct the indicator variable.

are mitigated when search costs are reduced for mutual fund investors, i.e. when fund families are larger, marketing and distribution expenditures are greater, and when a family garners media coverage. In columns (2) and (3), the interaction terms between *%Inst. Clients* and family size and marketing expenditures are negative and statistically significant at the 5% level or better with the strongest effect both economically and statistically coming from family marketing and distribution expenditures. Arguably, the dollar value of marketing and distribution expenditures for a family should have the greatest effect in reducing search costs for mutual fund investors of the three proxies since this directly measures resources allocated to increasing brand awareness. Overall, the results from these tests support the search costs hypothesis that observed differences in performance realized by institutional and retail-oriented advisers can be attributed, in part, to search costs incurred by institutional clients.

4.2. Institutional manager search and the determinants of mutual fund adviser clientele

I next examine whether there is evidence that the institutional clients in the sample engage in heightened manager search activities. Because it is difficult to measure search costs incurred by an adviser's institutional clients directly, I focus on which adviser characteristics determine institutional clients' presence for mutual fund advisers. In particular, if the search costs hypothesis contributes to the outperformance of institutional-oriented advisers, it would be expected that institutional client presence would be correlated with other adviser characteristics sought by consultants and investment professionals in the investment manager due diligence process.

While search costs incurred by institutional plan sponsors can take on many forms, often investment consultants are retained to assist in the manager search and due diligence process. Typically, the first step in the manager search process involves the review of firm and product

information provided to consultants by investment advisers in the form of requests for proposal (RFPs) or due diligence questionnaires (DDQs). I review publicly available RFPs and DDQs as well as DDQs embedded within consultant databases (i.e., eVestment Alliance, Informa/PSN, Wilshire, Callan, Cambridge, etc.) to understand the information that consultants and plan sponsors use in the manager screening process.

Importantly, a substantial portion of due diligence efforts focus on understanding the adviser's conflicts of interest, incentives, and operational risk.[36] For example, a common line of questioning asks if the adviser is independent or has any financial industry affiliates, particularly a related broker-dealer which could affect the execution quality of securities transactions. Questionnaires also typically inquire about the ownership structure of the adviser, particularly if the adviser has employee ownership which could speak to long-term portfolio manager incentives and the adviser's ability to retain talent. Another common line of questioning requests information concerning past legal or regulatory violations of the adviser, and the adviser's ability to prevent future violations. For example, many RFPs ask if the adviser's key officer responsible for detecting and preventing securities law violations, the Chief Compliance Officer (CCO), has other operational duties (e.g., Portfolio Manager, Chief Operating Officer, etc.) that could detract from or compromise their ability to detect securities laws violations. Lastly, consultants typically inquire if the adviser presents their separate account performance in accordance with the Global Investment Performance Standards (GIPS). GIPS are a set of performance presentation standards

[36] I also find that consultants typically request information on product and adviser performance, the portfolio management team and their investment process, assets and accounts under management, and holdings.

governed by the CFA Institute that facilitate the evaluation of manager performance and allow for comparability of performance across products and firms.[37]

Much of the operational information requested by consultants in RFPs/DDQs is disclosed on the investment adviser's Form ADV. For example, Items 6 and 7 include information about the adviser's other lines of business and financial industry affiliates. Schedule A provides information on the ownership structure of the firm and the names and titles of the firm's officers, including the Chief Compliance Officer. Item 11 discloses information on past legal and regulatory violations both for the firm and its advisory affiliates (employees and other firms). A list of advisers claiming compliance with GIPS is obtained from the CFA Institute's website.[38] These data are used to examine whether the adviser's operational characteristics related to institutional search costs are associated with significantly different percentages of institutional clientele for mutual fund investment advisers. For details on the construction of each variable see Appendix A.

Table 8 presents the results of Tobit and OLS regressions of the adviser's percentage of institutional clientele on RFP/DDQ operational characteristics and controls. I focus primarily on the Tobit estimates since *%Inst. Clients* is bounded from below at zero, but also present OLS estimates for robustness. Regressions are at the adviser level and include year fixed effects. Standard errors are clustered on investment adviser. In addition to using the previously mentioned RFP/DDQ operational characteristics as explanatory variables, I also include the adviser controls used in Table 4.[39]

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[37] For example, GIPS prevents firms from cherry picking their best performing accounts and time periods to present performance. GIPS also requires sufficient disclosures to properly evaluate a product's performance such as the number of accounts and assets in the composite and past benchmark changes, etc.

[38] This list is a snapshot as of May 2016. I backfill data on GIPS compliance for prior years in the sample.

[39] These include the natural log of asset under management for the investment adviser (*Log(AUM)*), the natural log of the number of accounts managed by the investment adviser (*Log(Accts)*), whether the adviser charges performance-

Results from Table 8 reveal that all RFP/DDQ operational characteristics considered are associated with significant differences in an adviser's percentage of institutional clients. Coefficient estimates show that independent advisers, larger advisers (AUM), advisers with direct employee ownership, advisers with a CCO dedicated to the legal/compliance function, and advisers claiming compliance with GIPS all have significantly higher percentages of institutional clients. The estimates also show that advisers related to a brokerage firm, advisers reporting prior legal/regulatory violations on Item 11 of Form ADV, and advisers who engage in agency cross trading all have significantly lower percentages of institutional clients. Taken together, the results establish that mutual fund advisers' institutional client presence appears to be related to search costs incurred by plan sponsors via the investment consultant RFP/DDQ process.

4.3. Factor model preferences of institutional clients

Next, I continue testing whether institutional clients better identify manager skill by examining their factor model preferences. While investment consultant RFPs and DDQs suggest that the institutional manager search process extends beyond simply assessing past product performance, prior studies have established that performance plays a significant role in the hiring and termination of investment managers by institutional plan sponsors. If institutional plan sponsors and/or their consultants are more discerning in their selection and termination of investment managers than mutual fund investors, it would be expected that changes in an adviser's institutional client base would be more closely related to the alphas of multi-factor models as

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based fees (Performance Fees), and whether the adviser engages in agency cross-trading of client account (*Agency Cross Trade*). I use separate specifications for the *Independent* variable (Column (1)) and the other financial industry affiliations (i.e., *Related Brokerage*, *Related Bank*, and *Related Insurance*) because there is overlap in the ADV items used in their construction.

opposed to the CAPM model.[40] I use the adviser's mutual fund performance to proxy for the performance of its institutional products. It is likely that institutional separate accounts and mutual funds managed by the same investment adviser would realize highly correlated performance as they tend to share common trading desks, research analysts, and portfolio managers. Consistent with this notion, I find that past mutual fund performance is positively associated with changes in institutional clients for the investment adviser. Subsequently I use horserace tests to establish which factor model(s) institutional clients respond to most closely.[41]

Like the RFP/DDQ analyses, I use annual data since changes in institutional clientele on Form ADV are measured on an annual basis. Panel A regresses the change in *%Inst. Clients* (Δ*%Inst. Clients*) in year *t* on each fund's risk-adjusted performance realized in year *t-1*. Column (1) examines CAPM alpha, column (2) considers 3-factor alpha, column (3) uses 4-factor alpha, and column (4) examines 6-factor alpha. Each regression includes year-by-objective fixed effects, fund and adviser controls from Table 4, and standard errors are clustered on adviser.[42]

Results in Panel A of Table 9 show that coefficient estimates on 3-factor, 4-factor, and 6-factor alpha are all positive and significantly associated with future changes in the institutional clientele of the investment adviser. All three coefficient estimates are significant at the 1% level or better. In contrast, the coefficient estimate on CAPM alpha in column (1) is not statistically significant. The results indicate that institutional investors tend to consider the alpha of models

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[40] Barber, Huang and Odean (2016) and Berk and van Binsbergen (2016) find that mutual fund flows, on average, are more sensitive to CAPM alpha than the alphas from models with additional factors.

[41] Evans and Fahlenbrach (2012) also conduct flow-performance tests for the institutional clients in their sample. They find that, consistent with prior findings made by Del Guercio and Tkac (2002), that institutional clients tend to punish poor-risk adjusted performance. However, these tests do not statistically differentiate between preferences for certain performance measures.

[42] I omit the second cluster on time because there are only 13 years in the sample. I include the level of *%Inst. Clients* as a control variable in these tests because many RFPs and DDQs express interest in understanding the make-up adviser's client base. For example, advisers with no institutional clients may have more difficulty adding institutional clients than a firm with 20% institutional clients. Likewise, advisers with no institutional clients cannot have negative changes in institutional clients.

that include size and value as risk factors. This is consistent with Del Guercio and Tkac (2002) who mention that plan sponsors tend to use equity managers to fill style mandates. Mandates for domestic equity managers are typically partitioned into categories focusing on market capitalization (i.e., small, mid, large) and value/growth styles.

In Panel B of Table 9, formal horserace tests are used to examine if institutional client preferences for multi-factor model alphas are statistically different than those of the CAPM model. Tests are conducted in the spirit of those used in a recent study by Barber, Huang and Odean (2016), who test for differences in mutual fund investor factor model preferences.[43] As in Panel A, I consider CAPM, 3-factor, 4-factor, and 6-factor model alphas. For each pairwise factor model comparison, I estimate the following regression between changes in institutional clientele and a fund's decile ranking based on two competing models:

$$\Delta\%Inst\_Clients_{i,j,t} = a + \sum_k \sum_l b_{kl} D_{kl,i,j,t-1} + cX_{i,j,t-1} + Year \times Objective + \varepsilon_{i,j,t} \quad . \qquad (2)$$

Where the dependent variable is the adviser's change in institutional clientele for over year *t* $D_{kl,i,t-1,t-12}$ is a dummy variable that takes on a value of one if fund *i* is in decile *k* based on the first model and decile *l* based on the second model over the prior year. I include the same fund and adviser control variables as in Table 4. I also include year-by-investment objective fixed effects and standard errors are clustered on investment adviser. The key coefficients of interest are b_{kl}, k = 1, …,10, and l = 1, …, 10, which can be interpreted as the percentage change in the adviser's

[43] Berk and van Binsbergen (2016) produce contemporaneous work which also assesses investors' asset pricing model preferences. The focus is on the Barber, Huang and Odean (2016) test because their tests seek to discern among investors' sophistication. Further, their tests allow for non-linearities in the flow-performance relationship as well as controls. As evidenced in my review of RFP/DDQs and the associated tests, the institutional manager evaluation extends beyond product performance. Thus, the ability to control for other adviser and fund characteristics is critical.

institutional clients for a fund in alpha decile k for the first model and alpha decile l for the second model relative to the fund that ranks in the fifth decile based on the alphas from both models. Each pair of coefficients b_{kl} and b_{lk} can be tested to see whether institutional clients are more sensitive to the alpha estimated from the first model or the second model. For each pairwise comparison of alphas from two models, 45 such comparisons can be made. I test the null hypothesis that the summed difference across all 45 comparisons is equal to zero, and I also calculate a binomial test statistic which tests the null hypothesis that the proportion of positive differences is equal to 50%.

Panel B of Table 9 presents the results of the factor model horserace tests for the institutional clientele of mutual fund investment advisers. The results indicate that institutional clients prefer 3-factor and 4-factor alpha to CAPM alpha. For these comparisons, made in rows 1 and 2, the summed differences in coefficient estimates in Column (1) are significant at 1% level for 4-factor alpha and the 10% level for 3-factor alpha relative to CAPM alpha. In column (2), binomial test statistics indicate that the proportion of positive differences are statistically different from 50% at the 5% level or better in both cases. While the horserace tests confirm institutional clients' preference for the alphas of multi-factor models relative to the CAPM model, the results unfortunately do not produce significant differences in preferences between 3-factor, 4-factor, and 6-factor alphas. Nonetheless, since recent work suggests that mutual fund investors prefer CAPM alpha to the alphas of more sophisticated models, the results speak to heightened sophistication in manager evaluation among institutional plan sponsors relative to mutual fund investors.

In Table 11 of Section 5, I use the Barber, Huang, and Odean (2016) horserace tests to confirm mutual fund investors in my sample prefer CAPM alpha, i.e. are less sophisticated than institutional clients in my sample. Further, I undertake a tercile split of the sample by *%Inst. Clients* and find that mutual fund investors of both institutional and retail-oriented advisers prefer CAPM

alpha to the alpha of models with a greater number of factors. This is consistent with the outperformance of mutual funds managed by institutional-oriented advisers resulting from identification of manager skill by institutional clients as opposed to mutual fund shareholders.

5. Additional tests

5.1. Further discussion of robustness checks of the main regression results

Evans and Fahlenbrach (2012) use institutional mutual funds designated by Morningstar, in addition to separate account composites, to identify institutional clients managed side-by-side with retail mutual funds. Since institutional mutual funds are used in their identification strategy, this leaves an open question as to whether institutional mutual funds benefit from being managed side-by-side with institutional separate account clients and/or private funds. In columns (1) and (2) of Table 10, I partition the sample into retail and institutional mutual funds. Following Evans and Fahlenbrach (2012), I categorize funds that receive any assets from retail share classes as retail, and funds receiving only assets from institutional share classes as institutional. The results in columns (1) and (2) of Table 10 show that both retail mutual funds and institutional mutual funds managed by institutional-oriented advisers outperform peers. Both coefficient estimates are similar in magnitude to the baseline estimates in Table 4 and are statistically significant at the 1% level or better. Since the results are also significant in the sample of institutional funds, this alleviates concerns that the baseline results may be driven by differences in retail channels mutual fund of distribution (i.e., Del Guercio and Reuter 2014).

Next, I examine the nature of the functional form of the relationship between institutional clients and mutual fund performance. Prior studies in the side-by-side literature (e.g. Evans and Fahlenbrach 2012 and Del Guercio, Genc, and Tran 2018) tend to use an indicator variable to

capture the presence of institutional vehicles (i.e., institutional mutual funds, private funds and/or separate accounts), whereas the results in this study suggest that there exists an increasing relationship between the quantity of institutional clients relative to retail clients and performance. In column (4) of Table 10, I examine a piecewise linear specification. The results from initial sorts in Table 3 suggest the possibility that the relationship between an adviser's percentage of institutional clients and mutual fund performance is not linear. The nature of the non-linearity is intuitive. For example, a five percentage point change in institutional clients would likely have different implications for an adviser managing 5% institutional clients relative to an adviser managing 50% institutional clients. If search costs are the channel for outperformance, it could be argued that a five percentage point change in institutional clients for an adviser already managing a client base consisting of 50% institutional clients may not matter for performance since sufficient manager vetting has likely already occurred. The piecewise linear specification allows for different slopes on *%Inst. Clients* for advisers with less than 25% institutional clients (*Low %Inst. Clients*), between 25% and 50% institutional clients (*Med %Inst. Clients*), and greater than 50% institutional clients (*High %Inst. Clients*).[44]

The results in column (4) show that the relationship between institutional clients and mutual fund performance is driven entirely by differences in adviser clientele between 1% and 25%. The coefficient estimate on the *Low %Inst. Clients* variable is significant at the 5% level or better in both columns. Economically, the coefficient estimate in column (4) amounts to a 3.2 basis point increase in annual 4-factor alpha for every percentage point increase in institutional clientele

[44] The formula for the low institutional clients variable is *Low %Inst. Clients* = Min(25, *%Inst. Clients*), the formula for medium institutional clients is *Med %Inst. Clients* = Min(25*, %Inst. Clients – Low %Inst. Clients*), and the formula for high institutional clients is *High %Inst. Clients = %Inst. Clients – Med %Inst. Clients – Low %Inst. Clients*.

between 1% and 25%. In contrast, the medium and high institutional client coefficients are not statistically significant.

This framework also allows for me to control for an adviser's choice to pursue institutional clients with an indicator variable equal to one if *%Inst. Clients* equals zero and zero otherwise (*%Inst. Clients = 0*) in column (3).[45] The results in column (4) of Table 10 show that the baseline results hold with the introduction of the *%Inst. Clients = 0* indicator variable. This suggests that results are not driven by the adviser's choice to pursue institutional clients. Overall, the results from these two tests suggest that the relationship is not driven by the adviser's decision to pursue institutional clients and that once a sufficient level of manager vetting has occurred (i.e., institutional clients make up at least a quarter of the adviser's client base) there are no additional benefits associated with higher percentages of institutional clientele.

Recall from the description of the data in Section 2 that band midpoints are used to infer the presence of each client type from Form ADV data. Columns (5) and (6) reconstruct *%Inst. Clients* using band minimums and maximums (respectively) for each client type to ensure that baseline results are not influenced by this choice. The magnitude and statistical significance of coefficient estimates in columns (5) and (6) are similar to the baseline results in Table 4 suggesting that the use of band midpoints to infer Form ADV client presence does not drive the baseline results.

Prior literature shows that mutual fund manager location influences investment decisions (e.g. Pool, Stoffman, and Yonker, 2015; Coval and Moskowitz, 1999). Further, Hong, Kubik and Stein (2005) document that the mutual fund industry is concentrated in a few metropolitan

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[45] Evans and Fahlenbrach (2012) use a Heckman correction to address this choice. Del Guercio Genc, and Tran (2018) do not address this issue.

statistical areas (MSAs), namely New York and Boston. If institutional-oriented advisers are more concentrated in these markets relative to retail-oriented advisers, they may have better access to skilled labor, i.e., analysts and portfolio managers. To account for this possibility, I introduce a model specification which includes MSA fixed effects in column (7) to compare the performance of funds operating in the same geographical area and find that the results are similar.

Next, I ensure that my results are not driven by the financial crisis years. Related to this possibility, Kacperczyk, Van Nieuwerburgh, and Veldkamp (2013) find that some mutual fund managers can market time recessions in a skillful manner to help generate abnormal returns. Column (8) of Table 10 reruns baseline tests excluding the 2008 and 2009 calendar years to ensure the results are present in all types of market conditions. Coefficient estimate on %Inst. Clients in column (8) remains virtually unchanged when excluding the 2008 and 2009 calendar years. Lastly, I consider alternate regression specifications. In column (9), I compute coefficients using a median regression, and in column (10) I tabulate results using Fama-MacBeth regression. In both cases, the results remain economically and statistically similar to the baseline results.

5.2. Factor model preferences of mutual fund investors in the sample

In Table 11, I check whether factor model horserace tests (following Barber, Huang, and Odean 2016) can confirm that mutual fund investors are less sophisticated than institutional clients in my sample. In the horserace tests, I consider CAPM, 3-factor, 4-factor, and 6-factor model alphas. For each pairwise comparison, I estimate the following regression between mutual fund flows and a fund's decile ranking based on two competing models:

$$Flow_{i,j,t} = a + \sum_k \sum_l b_{kl} D_{kl,i,j,t-1,t-12} + cX_{i,j,t-1} + Month \times Objective + \varepsilon_{i,j,t} \quad . \qquad (3)$$

Where the dependent variable is the fund flows for mutual fund *i* in month *t*. $D_{kl,i,t-1,t-12}$ is a dummy variable that takes on a value of one if fund *i* is in decile *k* based on the first model and decile *l* based on the second model over the previous 12 months. I include the same fund and adviser control variables as in Table 9. I also include month-by-investment objective fixed effects and standard errors are clustered on month and investment adviser. The key coefficients of interest are b_{kl}, $k = 1, \ldots,10$, and $l = 1, \ldots, 10$, these can be interpreted as the percentage of flows received by a fund in alpha decile k for the first model and alpha decile l for the second model relative to a fund that ranks in the fifth decile based on the alphas from both models. I test each pair of coefficients b_{kl} and b_{lk} to examine whether investors are more responsive to the alpha estimated from the first model or the second model. I make 45 such comparisons using this pairwise comparison approach from the two models. Specifically, Table 11 presents results from tests that the null hypothesis that the summed difference across all 45 comparisons is equal to zero for each model pair. Table 11 also presents a binomial test statistic which tests the null hypothesis that the proportion of positive differences is equal to 50%.

Further, I use these horserace tests to help confirm that the results are not driven by differences in mutual fund investor sophistication (i.e., the mutual fund investors of institutional-oriented adviser are more sophisticated) by undertaking a tercile split of the sample of advisers by *%Inst. Clients*. Specifically, I run the horserace tests separately for each tercile to check whether the mutual fund investors of institutional-oriented advisers prefer more sophisticated risk-adjusted measures of performance to CAPM alpha.

Table 11 presents the results of the model horserace tests for funds in the full sample as well as in each tercile based on the investment adviser's percentage of institutional clientele. The results indicate that mutual fund investors in the entire sample as well as each tercile are most

responsive to fund performance based on CAPM alpha compared to the alphas other models. The summed differences are all significantly positive (at the 5% level or better) for all the pairwise comparisons between CAPM alphas and the alphas from the three other models. The results suggest that the mutual fund investors of institutional-oriented advisers are, on average, of similar sophistication as the mutual fund investors of retail-oriented advisers. This is consistent with the outperformance of mutual funds managed by institutional-oriented advisers resulting from identification of manager skill by institutional clients as opposed to mutual fund shareholders.

6. Conclusion

This paper explores how the composition of an investment advisory firm's clientele relates to mutual fund performance. Consistent with the empirical predictions of the Gârleanu and Pedersen (2018) model, institutional-oriented advisers realize economically and statistically superior risk-adjusted mutual fund performance relative to retail-oriented advisers. Mutual funds managed by advisers whose client base is made up of at least 25% institutional clients outperform funds whose adviser has no institutional clients by approximately 80 basis points annually as measured by 4-factor alpha.

Subsequent tests offer evidence that the relationship between client sophistication and fund returns can be accounted for, at least in part, by Gârleanu and Pedersen's mechanism. Namely, more sophisticated clients identify variation in adviser skill by incurring search costs. I find that the relationship is more pronounced in mutual fund market segments where mutual fund investors face higher search costs. These segments include: smaller fund families, families with lower marketing and distribution expenditures, and families garnering less media attention. I next conduct tests to demonstrate that the institutional clients in my sample exhibit more discerning

behavior in their selection investment management firms. First, I show that the presence of institutional clients for mutual fund investment advisers can be predicted by operational characteristics sought by institutional investment consultants in the manager search and screening process. This is consistent with institutional investors hiring investment professionals (i.e., incurring search costs) to conduct manager search. Second, I find that institutional clients in my sample use more sophisticated risk-adjusted measures of performance than the adviser's mutual fund shareholders in making investment decisions (i.e., 3-factor or 4-factor alpha as opposed to CAPM alpha).

Appendix A. Definition and Data Source of Variables

Variable Name	Data Source	Variable Definition and Construction
1. Mutual Fund Variables		
CAPM, 3-factor, 4-factor, and 6-factor alpha	CRSP Mutual Fund Database and Ken French's website	The difference between the fund's realized monthly excess return in month *t* and the fund's model benchmark return estimated for month *t*. Fund returns are TNA weighted share class returns aggregated using the crsp_cl_grp variable. Model benchmark returns are estimated from the CAPM, 3-factor, 4-factor, or 6-factor models with factor loadings estimated over the previous 24 months and month *t* factor realizations. The CAPM model uses only the market (Mkt-RF) factor. The 3-factor model adds the size (SMB), value (HML) factors to the CAPM model. The 4-factor model adds momentum (MOM) to the 3-factor model. The 6-factor model adds the investment (CMA) and profitability (RMW) factors to the 4-factor model. Annual and 12-month alphas are calculated by cumulating monthly alphas over the requisite time period.
Log(TNA)	CRSP Mutual Fund Database	Natural log of the aggregate TNA of each of the fund's share classes. Share classes are aggregated using the crsp_cl_grp variable.
Log(Age)	CRSP Mutual Fund Database	Natural log of the number of years (months/12) between the current month and the month the fund's oldest share class was first offered in CRSP (first_offer_dt).
Net Flows	CRSP Mutual Fund Database	Sum of the net monthly fund flows (as a percent of TNA) over the past 12 months. Monthly flows are calculated as $[TNA_t - (1+r_t)*TNA_{t-1}]/ TNA_{t-1}$.
Std Flows	CRSP Mutual Fund Database	Standard deviation of net monthly fund flows (as a percent of TNA) over the past 12 months. Monthly flows are calculated as $[TNA_t - (1+r_t)*TNA_{t-1}]/ TNA_{t-1}$.
Turnover	CRSP Mutual Fund Database	The fund's lagged annual portfolio turnover. Turnover is TNA weighted across share classes in CRSP using the crsp_cl_grp variable.
Expense	CRSP Mutual Fund Database	The fund's lagged annual expense ratio. Expense ratios are TNA weighted across share classes in CRSP using the crsp_cl_grp variable.
I Share	CRSP Mutual Fund Database	The fraction of fund assets derived from institutional share classes. Institutional share classes for funds are identified via the institutional fund flag in CRSP.
Closed	CRSP Mutual Fund Database	Indicator variable equal to one if all fund share classes are not open to new investors as identified in CRSP and zero otherwise.
Outsourced	CRSP Mutual Fund Database and Form ADV	Indicator variable equal to one if the fund is outsourced and zero otherwise. A fund is designated as outsourced if none of the fund's sub-advisers are affiliated with the fund's investment adviser per the adviser's most recent annual amendment to Form ADV. Affiliation data for

		each adviser are disclosed on Item 7A. of schedule D.
2. *Investment Adviser Variables*		
%Inst. Clients	Form ADV	Percentage of institutional clients managed by the fund's investment adviser. Calculated as the sum of the midpoints of Items 5D.(1)(f), 5D.(h), 5D.(1)(i), and 5D.(1)(j) on Form ADV. These are the percentages of adviser clients consisting of private funds, corporations, public entities, and charitable organizations.
Log(AUM)	Form ADV	Natural log of assets under management of the fund's investment adviser, Item 5F.(2)(c).
Log(Accts)	Form ADV	Natural log of client accounts managed by the fund's investment adviser, Item 5F.(2)(f).
Related Brokerage	Form ADV	Indicator variable equal to one if the fund's investment adviser indicates that it is a broker-dealer or is affiliated with an entity that is a broker-dealer and zero otherwise, Items 6A.(1) and 7A.(1) .
Related Bank	Form ADV	Indicator variable equal to one if the fund's investment adviser indicates that it is a commercial bank or trust company or is affiliated with an entity that is a commercial bank or trust company and zero otherwise, Items 6A.(7), 6A.(8), 7A.(8) and 7A.(9).
Related Insurance	Form ADV	Indicator variable equal to one if the fund's investment adviser indicates that it operates as an insurance company or is affiliated with and entity that operates as an insurance company, Items 6A.(6) and 7A.(12).
Performance Fees	Form ADV	Indicator variable equal to one if the fund's investment adviser indicates that it charges performance based fees on Form ADV and zero otherwise, Item 5E.(6).
Agency Cross Trade	Form ADV	The extent to which the fund's investment adviser engages in cross trading client accounts. An indicator variable equal to one if the adviser checks yes to Item 8B.(2) on Form ADV and zero otherwise.
Independent	Form ADV	Indicator variable equal to one if the adviser does not disclose any financial industry affiliates on Form ADV (i.e., does not check any boxes on Item 7) and zero otherwise.
Employee Ownership	Form ADV	An indicator variable equal to one if the adviser has direct owners who are officers of the firm listed on Schedule A of Form ADV and zero otherwise. Specifically, I require that at least one officer has an ownership code of A, B, C, D, or E.
Legal/Regulatory Issues	Form ADV	And indicator variable equal to one if the adviser discloses that it has past legal or regulatory violations (i.e., checks any boxes on Item 11) and zero otherwise.
Dedicated CCO	Form ADV	An indicator variable equal to one if the adviser's CCO has operational duties (i.e. Portfolio Manager, Chief Operating Officer, etc.) beyond a compliance/legal role

		at the firm and zero otherwise. I use combination of text search and a manual review of job titles to construct this variable.
GIPS Compliant	CFA Institute Website	I download a list of GIPS compliant advisers from the CFA Institute's website. This list consists of advisers that have notified the CFA Institute that they are GIPS compliant. Data are as of May 2016 and backfilled for the entire sample period.
MSA	Form ADV	MSAs are identified using postal zipcodes. Zipcodes for the fund's adviser/sub-adviser are from Item 1F.(1) of the most recent annual amendment to Form ADV.
3. Fund Family Search Cost Proxies		
Log(Family TNA)	CRSP Mutual Fund Database	Natural log of the aggregate total net assets of each fund in the family as calculated monthly. Fund families are identified using the mgmt._cd variable in CRSP. Wherever possible, I fill in missing values of this variable when the management company name is available.
Log(Family Mkting Expense)	CRSP Mutual Fund Database	On an annual basis, I calculate the natural log of the dollar value of marketing and distribution expenses incurred by the family's fund shareholders. CRSP provides information on both actual 12b-1 fees and loads for each fund. Following Sirri and Tufano, loads are assumed to be amortized over a seven-year holding period (i.e., annualized by dividing by seven). At the end of each calendar year, I multiply total net assets for each of the fund's share classes by the most recently available amortized load fees and 12b-1 fees for the share class and aggregate these quantities to the family level. I use data at the individual share class level since loads and 12b-1 fees can vary substantially across different share classes of the same fund.
WSJ Category Kings	CRSP Mutual Fund Database	A dummy variable equal to one if the family has had a fund on one of the WSJ's Category Kings lists in the past 24 months and zero otherwise. To replicate the lists, I focus on the same 12 Lipper classifications as Kaniel and Parham (2017) that appear in the WSJ on a quarterly basis. These classifications include: Multi Cap Growth, Large Cap Growth, Mid Cap Growth, Small Cap Growth, Multi Cap Core, Large Cap Core, Mid Cap Core, Small Cap Core, Multi Cap Value, Large Cap Value, Mid Cap Value, and Small Cap Value. Each calendar quarter, I first keep the share class of each fund with the greatest total net assets. Next, I rank funds in each of these Lipper classification by their 12-month trailing returns. The quarterly Category Kings lists consist of the 120 funds that have the top ten trailing 12-month returns within their Lipper classification groups.

Appendix B. Sample Form ADV Filing, Item 5D.(1)

(1) What types of *clients* do you have? Indicate the approximate percentage that each type of *client* comprises of your total number of *clients*. If a *client* fits into more than one category, check all that apply.

	None	Up to 10%	11-25%	26-50%	51-75%	76-99%	100%
(a) Individuals (other than *high net worth individuals*)	○	○	○	○	◉	○	○
(b) *High net worth individuals*	○	◉	○	○	○	○	○
(c) Banking or thrift institutions	◉	○	○	○	○	○	○
(d) Investment companies	○	◉	○	○	○	○	○
(e) Business development companies	◉	○	○	○	○	○	○
(f) Pooled investment vehicles (other than investment companies)	◉	○	○	○	○	○	○
(g) Pension and profit sharing plans (but not the plan participants)	○	◉	○	○	○	○	○
(h) Charitable organizations	○	◉	○	○	○	○	○
(i) Corporations or other businesses not listed above	○	○	◉	○	○	○	○
(j) State or municipal *government entities*	○	◉	○	○	○	○	○
(k) Other investment advisers	◉	○	○	○	○	○	○
(l) Insurance companies	◉	○	○	○	○	○	○
(m) Other:	◉	○	○	○	○	○	○

Appendix C. Sample List of Investment Advisers with Large Institutional Client Bases

Investment adviser firm
LSV Asset Management, LLC
D.E. Shaw Investment Management, LLC
Grantham Mayo Van Otterloo & Co., LLC
Ridgeworth Capital Management, Inc.
Aberdeen Asset Management, Inc.
AQR Capital Management, LLC
Bogle Investment Management, LP
First Eagle Investment Management, LLC
Cortina Asset Management, LLC
Ariel Investments, LLC
Profit Investment Management, LLC

Figure 1. Mutual Fund Adviser Institutional Clientele 2003-2015

This figure presents annual means of *%Inst. Clients*. *%Inst. Clients* is the sum of the percentages of public, corporate, charity, and private fund clients for fund *i*'s investment adviser as of the end of the previous fiscal year. The adviser sample uses Form ADV data disclosed by each fund's investment adviser. The sub-adviser sample uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised, and excludes funds with more than one sub-adviser.

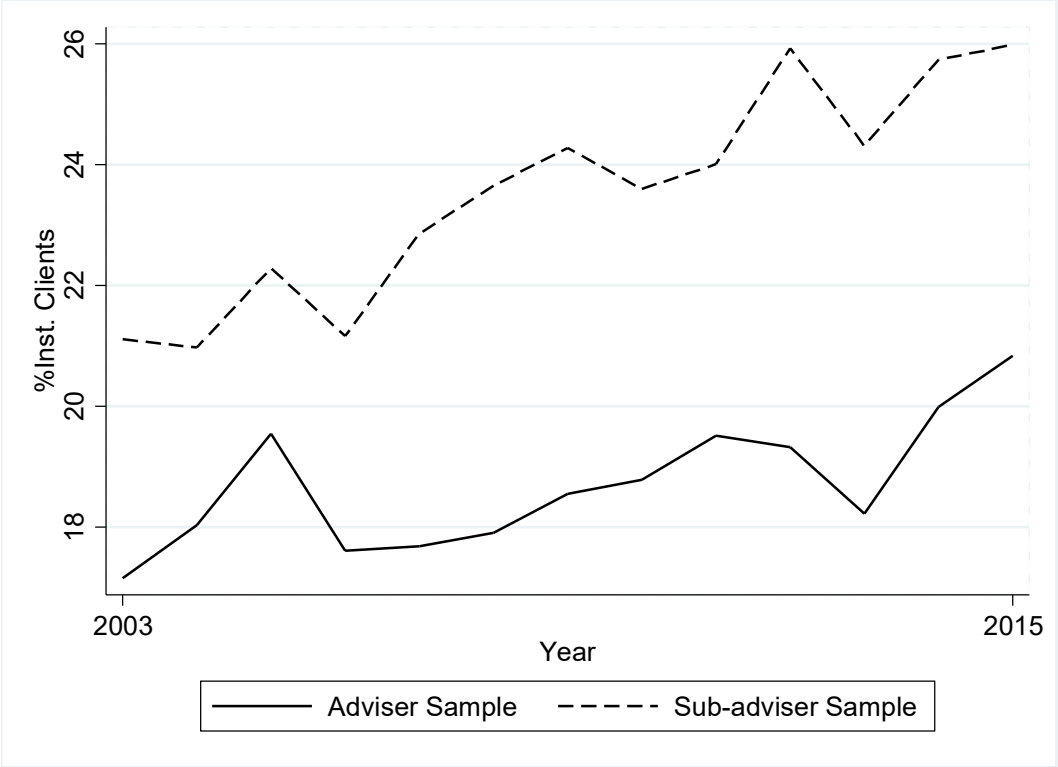
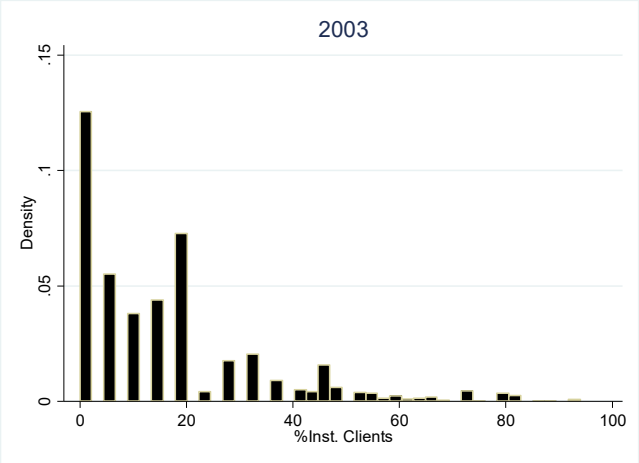
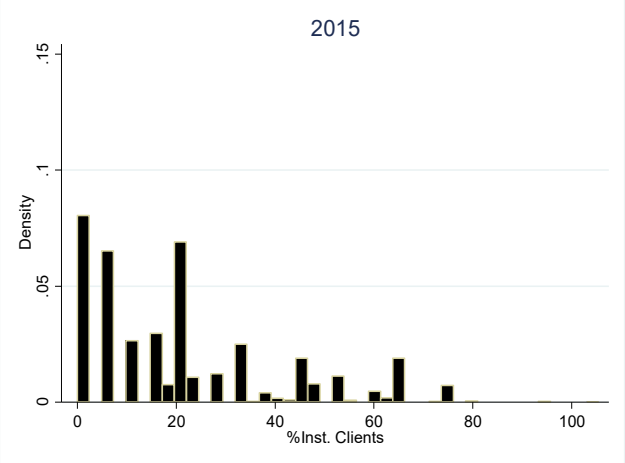


Figure 2. Distribution of Institutional Clientele for Mutual Fund Advisers

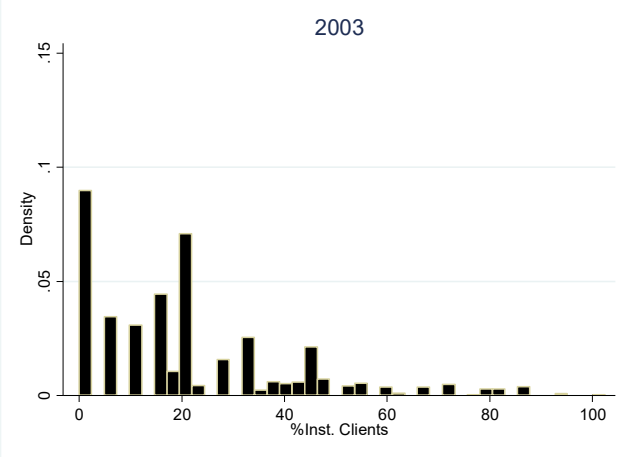
This figure presents the distribution of *%Inst. Clients* for fund-month observations in 2003 and 2015. *%Inst. Clients* is the sum of the percentages of public, corporate, charity, and private fund clients for fund *i*'s investment adviser as of the end of the previous fiscal year. Panel A presents distributions for the adviser sample. The adviser sample uses Form ADV data disclosed by each fund's investment adviser. Panel B presents distributions for the sub-adviser sample. The sub-adviser sample uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised, and excludes funds with more than one sub-adviser.

Panel A: Adviser Sample





Panel B: Sub-adviser Sample



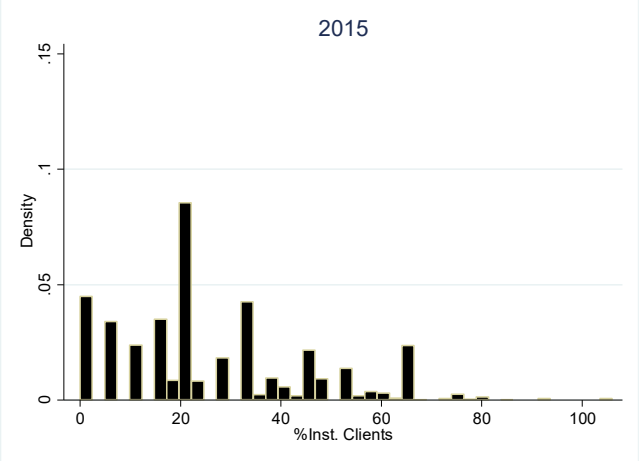


Table 1. Form ADV Summary Statistics

This table presents descriptive statistics of investment adviser clientele and other Form ADV data for the sample of US actively managed equity funds from 2003 to 2015. It gives the number of observations, mean, median, standard deviation and 10th and 90th percentiles of fund-month observations. Statistics are given for all client types provided on Item 5D of Form ADV as well as a measure of an investment adviser's percentage of institutional clientele. See Appendix A for definitions of other ADV variables. *%Inst. Clients* is the sum of the percentages of public, corporate, charity, and private fund clients for fund i's investment adviser as of the previous fiscal year. The categories for investment advisers, insurance companies, and business development companies were added to Form ADV in 2010 which explains the smaller sample sizes for these client types. Panel A presents descriptive statistics for the adviser sample. The adviser sample uses Form ADV data disclosed by each fund's investment adviser. Panel B presents descriptive statistics for the sub-adviser sample. The sub-adviser sample uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised, and excludes funds with more than one sub-adviser.

Panel A: Adviser Sample

VARIABLES	(1) n	(2) mean	(3) median	(4) stdev	(5) p(10)	(6) p(90)
Client Types						
%Inst. Clients	267,132	19.0%	15.0%	19.7%	0%	46.0%
Individuals	267,132	18.5%	0%	31.1%	0%	87.5%
HNW Individuals	267,132	11.5%	5.0%	19.6%	0%	38.0%
Banks	267,132	2.0%	0%	5.2%	0%	5.0%
Investment Companies	267,132	39.8%	18.0%	37.1%	5.0%	87.5%
Business Development Co.	78,648	0.2%	0%	1.0%	0%	0%
Public	267,132	3.5%	0%	6.6%	0%	5.0%
Corporate	267,132	5.9%	5.0%	9.6%	0%	18.0%
Pension Plans	267,132	9.1%	5.0%	14.1%	0%	38.0%
Charitable Organizations	267,132	4.5%	5.0%	7.2%	0%	5.0%
Private Funds	267,132	5.0%	5.0%	8.9%	0%	18.0%
Investment Advisers	78,648	2.3%	0%	5.3%	0%	5.0%
Insurance Companies	78,585	2.5%	0%	4.9%	0%	5.0%
Other	267,132	3.4%	0%	9.7%	0%	5.0%
Other ADV Information						
AUM ($MM)	267,057	86,657	26,700	149,911	766	239,348
Number of Accounts	267,057	3,872	193	11,217	14	9,341
Related Brokerage	267,132	0.83	1	0.37	0	1
Related Bank	267,132	0.57	1	0.50	0	1
Related Insurance	267,132	0.16	0	0.37	0	1
Performance Fees	267,132	0.50	1	0.50	0	1
Agency Cross Trade	267,132	0.26	0	0.44	0	1

Panel B: Sub-adviser Sample

VARIABLES	(1) n	(2) mean	(3) median	(4) stdev	(5) p(10)	(6) p(90)
Client Types						
%Inst. Clients	234,115	23.9%	20.0%	19.7%	0%	53.0%
Individuals	234,115	20.1%	0%	31.5%	0%	87.5%
HNW Individuals	234,115	15.0%	5.0%	21.8%	0%	38.0%
Banks	234,115	2.4%	0%	5.3%	0%	5.2%
Investment Companies	234,115	30.2%	5.0%	33.1%	5.0%	87.5%
Business Development Co.	68,371	0.2%	0%	1.1%	0%	0%
Public	234,115	4.6%	5.0%	7.1%	0%	5.0%
Corporate	234,115	7.4%	5.0%	10.1%	0%	18.0%
Pension Plans	234,115	12.1%	5.0%	15.1%	0%	38.0%
Charitable Organizations	234,115	6.0%	5.0%	7.6%	0%	18.0%
Private Funds	234,115	6.1%	5.0%	9.6%	0%	18.0%
Investment Advisers	68,347	2.1%	0%	4.8%	0%	5.0%
Insurance Companies	68,308	3.4%	0%	5.2%	0%	5.0%
Other	234,115	4.2%	0%	11.2%	0%	5.0%
Other ADV Information						
AUM ($MM)	234,070	95,560	21,674	170,436	740	289,844
Number of Accounts	234,070	4,959	320	13,862	18	12,957
Related Brokerage	234,115	0.78	1	0.42	0	1
Related Bank	234,115	0.50	0	0.50	0	1
Related Insurance	234,115	0.14	0	0.37	0	1
Performance Fees	234,115	0.60	1	0.50	0	1
Agency Cross Trade	234,115	0.21	0	0.41	0	1

Table 2. Mutual Fund Summary Statistics

This table presents descriptive statistics for the sample of US actively managed mutual funds from 2003 to 2015. It gives the number of observations, mean, median, standard deviation and 10th and 90th percentiles of fund-month observations. Variable definitions are provided in Appendix A. Panel A presents descriptive statistics for the adviser sample. Panel B presents descriptive statistics for the sub-adviser sample. The sub-adviser sample uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised, and excludes funds with more than one sub-adviser.

Panel A: Adviser Sample

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	n	mean	median	stdev	p(10)	p(90)
4f Alpha (%)	267,132	-0.06%	-0.07%	1.46%	-1.75%	1.63%
Fund TNA ($MM)	267,132	1,176	238	2,785	22	2,826
Age (years)	265,006	12.6	10.8	8.4	3.8	23.3
Net Flows	265,969	0.03	-0.04	0.35	-0.30	0.46
Std Flows	265,969	0.04	0.02	0.04	0.01	0.08
Turnover	264,943	0.78	0.60	0.66	0.17	1.59
Expense (%)	265,743	1.20%	1.18%	0.40%	0.75%	1.71%
I Share	266,839	0.37	0.15	0.41	0	1
Closed	267,132	0.04	0	0.20	0	0
Outsourced	267,132	0.22	0	0.41	0	1

Panel B: Sub-adviser Sample

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	n	mean	median	stdev	p(10)	p(90)
4f Alpha (%)	234,115	-0.06%	-0.07%	1.47%	-1.78%	1.66%
Fund TNA ($MM)	234,115	1,057	210	2,588	21	2,479
Age (years)	232,269	12.5	10.8	8.3	3.8	22.9
Net Flows	232,848	0.03	-0.04	0.36	-0.30	0.48
Std Flows	232,848	0.04	0.02	0.04	0.01	0.08
Turnover	232,106	0.76	0.58	0.67	0.16	1.58
Expense (%)	232,735	1.21%	1.19%	0.41%	0.75%	1.72%
I Share	233,839	0.37	0.14	0.41	0	1
Closed	234,115	0.05	0	0.20	0	0
Outsourced	234,115	0.12	0	0.32	0	1

Table 3. Mean Fund Characteristics Sorted by Investment Adviser Clientele

This table reports sample means of fund characteristics for monthly fund observations sorted by lagged adviser/sub-adviser clientele. Four-factor alphas are annualized by multiplying the mean monthly values by 12. Variable definitions are provided in Appendix A. Panel A presents means for the adviser sample. The adviser sample uses Form ADV data disclosed by each fund's investment adviser. Panel B presents summary means for the sub-adviser sample. The sub-adviser sample uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised, and excludes funds with more than one sub-adviser. Column (6) presents the differences in means between columns (5) and (1). Column (7) tests if the difference in means between observations in columns (5) and (1) is statistically different from zero. Standard errors are taken from univariate regressions and are clustered on investment adviser. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

Panel A: Adviser Sample Means

	%Inst. Clients Range						
VARIABLES	(1) 0	(2) (0,10]	(3) (10,25]	(4) (25,50]	(5) >50	(6) Diff (5) – (1)	(7) t-statistic
Annual 4f Alpha (%)	-0.96%	-0.79%	-0.73%	-0.40%	-0.50%	0.46%**	(2.08)
Fund TNA ($MM)	940	1,489	997	1,331	1,192	252	(0.89)
Age (years)	11.8	12.6	12.8	13.2	13.0	1.2	(1.45)
Net Flows	0.04	0.03	0.03	0.04	0.04	0.00	(0.02)
Std Flows	0.04	0.03	0.03	0.04	0.04	0.00	(1.12)
Turnover	0.77	0.87	0.73	0.73	0.82	0.05	(0.78)
Expense (%)	1.27%	1.22%	1.18%	1.16%	1.10%	0.17%***	(4.02)
I Share	0.37	0.30	0.37	0.40	0.50	0.13**	(2.13)
Closed	0.02	0.03	0.05	0.06	0.06	0.04***	(3.54)
Outsourced	0.35	0.34	0.10	0.10	0.15	-0.20***	(-3.83)
N	59,233	62,795	71,423	48,369	21,030		

Panel B: Sub-adviser Sample Means

	%Inst. Clients Range						
VARIABLES	(1) 0	(2) (0,10]	(3) (10,25]	(4) (25,50]	(5) >50	(6) Diff (5) – (1)	(7) t-statistic
Annual 4f Alpha (%)	-1.22%	-1.01%	-0.81%	-0.40%	-0.45%	0.77%***	(4.15)
Fund TNA ($MM)	1,171	1,000	944	1,210	1,597	426	(0.77)
Age (years)	12.4	12.0	12.6	12.8	13.0	0.6	(0.85)
Net Flows	0.04	0.03	0.03	0.03	0.02	-0.02	(-1.29)
Std Flows	0.03	0.03	0.04	0.04	0.03	0.00	(1.22)
Turnover	0.75	0.82	0.73	0.75	0.86	0.11*	(1.84)
Expense (%)	1.29%	1.28%	1.19%	1.18%	1.13%	0.16%***	(3.76)
I Share	0.27	0.28	0.37	0.42	0.42	0.15***	(3.07)
Closed	0.02	0.03	0.04	0.06	0.05	0.03***	(4.28)
Outsourced	0.05	0.07	0.12	0.18	0.58	0.53***	(8.75)
N	32,365	35,646	83,561	59,053	56,507		

Table 4. Panel Regressions of Mutual Fund Performance on Investment Adviser Clientele

This table reports coefficients from the following panel regression model of fund *i*'s monthly alpha on fund and adviser characteristics:

$$Alpha_{i,j,t} = \beta_0 + \beta_1 \%Inst.\ Clients_{i,j,t-1} + \beta X_{i,j,t-1} + Month \times Objective + \varepsilon_{i,j,t}$$

The sample is restricted to non-specialty actively managed domestic equity funds operating between January 2003 and December 2015. The performance measure in columns (1), (2), and (3) is 4-factor alpha which is a one-month ahead alpha calculated using an estimation window over the previous 24 months. The performance measure in column (4) is CAPM alpha which is a one-month ahead alpha calculated using an estimation window over the previous 24 months. The performance measure in column (6) is 6-factor alpha which is a one-month ahead alpha calculated using an estimation window over the previous 24 months. Regressions in columns (2), (3), (4) and (5) include fund and/or adviser control variables (see Appendix A for details). The key explanatory variable of interest is *%Inst. Clients*. This is the sum of the percentages of public, corporate, charity, and private fund clients for fund *i*'s investment adviser reported on Form ADV at the end of the previous fiscal year. For ease of interpretation, coefficients on %Inst. Clients are annualized by multiplying monthly estimates by 12. The sub-adviser sample excludes funds with more than one sub-adviser and uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised. All regressions include month-by-investment objective fixed effects. Standard errors are clustered on investment adviser, and t-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

VARIABLES	(1) 4-factor Alpha	(2) 4-factor Alpha	(3) 4-factor Alpha	(4) CAPM Alpha	(5) 6-factor Alpha
%Inst. Clients	0.012***	0.010***	0.011***	0.013***	0.008***
	(4.17)	(3.64)	(3.65)	(4.01)	(2.58)
Fund Controls:					
Log(TNA)		-0.000	-0.003	-0.002	-0.004
		(-0.02)	(-1.09)	(-0.56)	(-1.42)
Log(Age)		0.002***	0.025***	0.020***	0.024***
		(3.99)	(4.08)	(2.82)	(3.49)
Net Flows		0.071***	0.072***	0.055***	0.067**
		(5.86)	(6.04)	(3.91)	(5.08)
Std Flows		-0.111	-0.115	-0.117	-0.077
		(-1.18)	(-1.22)	(-1.08)	(-0.76)
Turnover		-0.006	-0.007	0.005	-0.005
		(-0.69)	(-0.78)	(0.48)	(-0.49)
Expense		-0.054***	-0.051***	-0.076***	-0.056***
		(-4.00)	(-4.00)	(-5.52)	(-3.86)
I Share		0.011	0.009	-0.003	0.004
		(1.02)	(0.83)	(-0.29)	(0.36)
Closed		0.002	0.005	0.002	0.001
		(0.07)	(0.22)	(0.08)	(0.02)
Outsourced		-0.010	-0.007	-0.002	-0.017
		(-0.85)	(-0.58)	(-0.13)	(-1.25)
Adviser Controls:					
Log(AUM)			0.004	0.003	0.004
			(1.51)	(1.04)	(1.22)
Log(Accts)			-0.003	0.000	-0.001
			(-1.50)	(0.00)	(-0.58)
Related Bank			-0.013	-0.023*	-0.014
			(-1.15)	(-1.85)	(-1.09)
Related Brokerage			0.019	0.020	0.023
			(1.39)	(1.25)	(1.45)
Related Insurance			0.015	0.046***	0.018
			(1.13)	(2.81)	(1.17)
Performance Fees			-0.005	-0.016	-0.002
			(-0.42)	(-1.17)	(-0.15)
Agency Cross Trade			0.011	0.012	-0.001
			(0.78)	(0.80)	(-0.05)
Month x Obj FEs	Yes	Yes	Yes	Yes	Yes
Sub-adviser Sample	Yes	Yes	Yes	Yes	Yes
N	234,115	228,217	228,114	228,114	228,114
Adj. R-squared	0.190	0.191	0.191	0.350	0.204

Table 5. Client Type Analyses

This table reports coefficients from panel regressions of fund *i*'s monthly performance on fund and adviser characteristics. The sample is restricted to non-specialty actively managed domestic equity funds operating between January 2003 and December 2015. The performance measure in all columns is 4-factor alpha which is a one-month ahead alpha calculated using an estimation window over the previous 24 months. Column (1) of Panel A examines the percentage of investment adviser clients that are individuals as reported at the end of the prior fiscal year. Column (2) of Panel A examines the percentage of investment adviser clients that are high net worth individuals as reported at the end of the prior fiscal year. Column (3) of Panel A examines the percentage of investment adviser clients that are private funds as reported at the end of the prior fiscal year. Columns (4) of Panel A examines the percentage of investment adviser clients that are institutions (i.e., %*Public* + %*Corporate* + %*Charity*) as reported at the end of the prior fiscal year. Column (1) of Panel B examines the percentage of investment adviser clients that are state or municipal government entities as reported at the end of the prior fiscal year. Column (2) of Panel B examines the percentage of investment adviser clients that are corporations or other businesses as reported at the end of the prior fiscal year. Column (3) of Panel B examines the percentage of investment adviser clients that are charitable organizations as reported at the end of the prior fiscal year. Column (4) of Panel B examines the percentage of investment adviser clients that are pension or profit sharing plans as reported at the end of the prior fiscal year. All regressions include the lagged fund and adviser control variables used in Table 4 (see Appendix A for details) and investment objective-by-month fixed effects. The sub-adviser sample excludes funds with more than one sub-adviser and uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised. Standard errors are clustered on investment adviser, and t-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

Panel A: Individuals, Private Funds, and Institutions

	4-factor Alpha			
VARIABLES	(1)	(2)	(3)	(4)
%Individuals	-0.003			
	(-1.38)			
%HNW Individuals		0.005		
		(1.54)		
%Private Funds			0.012**	
			(2.21)	
%Public + %Corporate + %Charity				0.010***
				(2.76)
Fund & Adviser Controls	Yes	Yes	Yes	Yes
Month x Obj FEs	Yes	Yes	Yes	Yes
Sub-adviser Sample	Yes	Yes	Yes	Yes
N	228,114	228,114	228,114	228,114
Adj. R-squared	0.191	0.191	0.191	0.191

Panel B: Institutions by Type

	4-factor Alpha			
VARIABLES	(1)	(2)	(3)	(4)
%Public	0.015**			
	(2.28)			
%Corporate		0.007		
		(1.16)		
%Charity			0.021**	
			(2.52)	
%Pension Plans				0.010***
				(2.60)
Fund & Adviser Controls	Yes	Yes	Yes	Yes
Month x Obj FEs	Yes	Yes	Yes	Yes
Sub-adviser Sample	Yes	Yes	Yes	Yes
N	228,114	228,114	228,114	228,114
Adj. R-squared	0.191	0.191	0.191	0.191

Table 6. Persistence of Differences in Mutual Fund Performance Realized by Institutional and Retail Advisers

This table reports coefficients from panel regressions of fund *i*'s monthly performance on fund and adviser characteristics. The sample is restricted to non-specialty actively managed domestic equity funds operating between January 2003 and December 2015. The performance measure in all columns is 4-factor alpha which is a one-month ahead alpha calculated using an estimation window over the previous 24 months. The key explanatory variables of interest are various lags of *%Inst. Clients*. This is the sum of the percentages of public, corporate, charity, and private fund clients for fund *i*'s investment adviser reported on Form ADV at the end of the adviser's fiscal year. All regressions include the lagged fund and adviser control variables used in Table 4 (see Appendix A for details) and investment objective-by-month fixed effects. The sub-adviser sample excludes funds with more than one sub-adviser and uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised. Standard errors are clustered on investment adviser, and t-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

	4-factor Alpha				
VARIABLES	(1)	(2)	(3)	(4)	(5)
%Inst. Clients$_{t-1}$	0.012***				
	(3.48)				
%Inst. Clients$_{t-2}$		0.010***			
		(2.76)			
%Inst. Clients$_{t-3}$			0.007*		
			(1.86)		
%Inst. Clients$_{t-4}$				0.008**	
				(2.27)	
%Inst. Clients$_{t-5}$					0.006
					(1.62)
Fund & Adviser Controls	Yes	Yes	Yes	Yes	Yes
Month x Obj FEs	Yes	Yes	Yes	Yes	Yes
Sub-adviser Sample	Yes	Yes	Yes	Yes	Yes
N	152,798	152,798	152,798	152,798	152,798
Adj. R-squared	0.222	0.222	0.222	0.222	0.222

Table 7. Differences in Performance and Search Costs Faced by Mutual Fund Investors

This table reports coefficients from panel regressions of fund *i*'s monthly performance on fund, adviser, and family characteristics. The sample is restricted to non-specialty actively managed domestic equity funds operating between January 2003 and December 2015. The dependent variable in all columns is 4-factor alpha which is a one-month ahead alpha calculated using an estimation window over the previous 24 months. The key explanatory variable of interest is *%Inst. Clients*. This is the sum of the percentages of public, corporate, charity, and private fund clients for fund *i*'s investment adviser reported on Form ADV at the end of the previous fiscal year. Columns (2), (3), and (4) examine how the relationship between mutual fund performance and the presence of institutional clients varies in mutual fund market segments where search costs differ. I use three fund family characteristics from prior literature to proxy for mutual fund investor search costs. Column (2) uses lagged family size, i.e., the natural log of the fund family's total net assets. Column (3) uses natural log of the dollar value of the family's fund marketing and distribution expenses calculated at the end of the prior calendar year. Column (4) uses a measure of media attention. I compute an indicator variable equal to one if the fund's family has had a fund on the WSJ quarterly category kings list in the past 24 months and zero otherwise. See Appendix A for further detail on calculations. All regressions include the lagged fund and adviser control variables used in Table 4 (see Appendix A for details) and investment objective-by-month fixed effects. The sub-adviser sample excludes funds with more than one sub-adviser and uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised. Standard errors are clustered on investment adviser, and t-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

	4-factor Alpha			
VARIABLES	(1)	(2)	(3)	(4)
%Inst. Clients	0.011***	0.026***	0.018***	0.018***
	(3.65)	(3.10)	(3.99)	(3.56)
Log(Family TNA)		0.003		
		(1.08)		
%Inst. Clients * Log(Family TNA)		-0.002**		
		(-1.99)		
Log(Family Mkting Exp)			0.003	
			(0.75)	
%Inst. Clients * Log(Family Mkting Exp)			-0.003**	
			(-2.55)	
WSJ Category Kings				0.034**
				(2.34)
%Inst. Clients * WSJ Category Kings				-0.009*
				(-1.80)
Fund & Adviser Controls	Yes	Yes	Yes	Yes
Month x Obj FEs	Yes	Yes	Yes	Yes
Sub-adviser Sample	Yes	Yes	Yes	Yes
N	228,114	228,114	228,114	228,114
Adj. R-squared	0.191	0.192	0.192	0.192

Table 8. Institutional Client Preferences for Adviser Operational Characteristics

This table reports coefficients from the following panel regression model of investment adviser *j*'s annual percentage of institutional clientele on other adviser characteristics:

$$\%Inst.\ Clients_{j,t} = \beta_0 + \beta X_{j,t} + Year + \varepsilon_{j,t}$$

The sample is restricted to investment advisers managing non-specialty domestic equity mutual funds between 2003 and 2015. The dependent variable in all columns is *%Inst. Clients*. This is the sum of the percentages of public, corporate, charity, and private fund clients for fund *i*'s investment adviser reported on Form ADV. Explanatory variables include a vector of operational characteristics of interest to institutional plan sponsors as evidenced by questions in consultants' requests for proposal (RFPs) and due diligence questionnaires (DDQs). Columns (1) and (2) consider a Tobit model as *%Inst. Clients* is from bounded from below at zero. See Appendix A for all explanatory variable definitions. The table uses the sample of advisers from the sub-adviser sample. The sub-adviser sample excludes funds with more than one sub-adviser and uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised. All regressions include year fixed effects. Standard errors are clustered on investment adviser and t-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

	%Inst. Clients			
VARIABLES	(1) Tobit	(2) Tobit	(3) OLS	(4) OLS
Log(AUM)	2.25***	2.29***	1.89***	1.93***
	(6.00)	(5.96)	(6.59)	(6.59)
Log(Accts)	0.962***	0.964***	-0.257	-0.255
	(3.41)	(3.37)	(-1.28)	(-1.25)
Independent	4.50***		3.34***	
	(3.12)		(2.81)	
Related Bank		1.60		0.953
		(1.21)		(0.91)
Related Brokerage		-3.32**		-2.44**
		(-2.12)		(-1.99)
Related Insurance		-1.85		-1.13
		(-1.03)		(-0.83)
Employee Ownership	4.39***	4.44***	2.63**	2.66**
	(3.03)	(3.03)	(2.32)	(2.32)
Legal/Regulatory Issues	-3.81***	-3.64***	-3.05***	-2.91***
	(-2.72)	(-2.59)	(-2.73)	(-2.58)
Dedicated CCO	3.47***	3.28***	3.03***	2.88***
	(3.05)	(2.86)	(3.34)	(3.15)
GIPS Compliant	4.33***	4.37***	3.44***	3.58***
	(3.34)	(3.36)	(3.11)	(3.20)
Performance Fees	17.61***	17.69***	14.28***	14.34***
	(13.65)	(13.65)	(13.35)	(13.36)
Agency Cross Trade	-5.51***	-5.25***	-4.58***	-4.38***
	(-3.52)	(-3.24)	(-3.51)	(-3.24)
Year FEs	Yes	Yes	Yes	Yes
Sub-adviser Sample	Yes	Yes	Yes	Yes
N	7,021	7,021	7,021	7,021
Pseudo R-squared	0.040	0.040	N/A	N/A
Adj. R-squared	N/A	N/A	0.221	0.221

Table 9. Institutional Clients' Factor Model Preferences

Panel A of this table reports coefficients from the following panel regression model of fund *i*'s investment adviser *j*'s annual change in percentage of institutional clientele on the fund's risk-adjusted performance over the prior calendar year and other fund and adviser characteristics:

$$\Delta\%Inst.\ Clients_{i,j,t} = \beta_0 + \beta_1 Alpha_{i,j,t-1} + \beta X_{i,j,t-1} + Year \times Objective + \varepsilon_{i,j,t}$$

Panel B presents the results of pairwise comparisons of different performance measures (prior year) to predict annual changes in the investment adviser's institutional clientele similar to Barber, Huang and Odean (2016). The sample is restricted to non-specialty actively managed domestic equity funds operating between January 2003 and December 2015. I first estimate the relation between changes in *%Inst. Clients* and a fund's decile ranking based on different trailing annual performance measures by estimating the following regression:

$$\Delta\%Inst.\ Clients_{i,j,t} = a + \sum_k \sum_l b_{kl} D_{kl,i,j,t-1} + cX_{i,j,t-1} + Year \times Objective + \varepsilon_{i,j,t}$$

D_{kl} is an indicator variable that is one if fund *i* is in decile k *(l)* based on the first (second) performance measure over the prior year. For each pairwise comparison of performance measures, I obtain 45 pairs of flow-performance sensitivity estimates. I test the hypothesis that the summed difference across the 45 pairs of estimates equals zero (t-statistics in parentheses), and I also perform a binomial test (z-statistics in parentheses) which examines the null hypothesis that the proportion of positive differences equals 50%. See Appendix A for all explanatory and control variable definitions. All regressions in the table include year-by-investment objective fixed effects and fund and adviser control variables from Table 4. I also include the adviser's percentage of institutional clientele at the beginning of year *t* as a control variable. The sub-adviser sample excludes funds with more than one sub-adviser and uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised. Standard errors are clustered on investment adviser and t-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

Panel A: Baseline OLS Regressions

	Δ%Inst. Clients			
VARIABLES	(1)	(2)	(3)	(4)
CAPM Alpha	2.62			
	(1.46)			
3-factor Alpha		5.46***		
		(2.70)		
4-factor Alpha			6.53***	
			(3.26)	
6-factor Alpha				4.64***
				(2.63)
Fund & Adviser Controls	Yes	Yes	Yes	Yes
Year x Obj FEs	Yes	Yes	Yes	Yes
Sub-adviser Sample	Yes	Yes	Yes	Yes
N	18,206	18,206	18,206	18,206
Adj. R-squared	0.081	0.082	0.082	0.082

Panel B: Horserace Tests of Institutional Clientele Factor Model Preferences

	(1)	(2)
Risk Models	Sum of Diff	Prop of Diff > 0
CAPM vs 3-factor	-33.13*	0.267***
	(-1.74)	(-3.13)
CAPM vs 4-factor	-41.06***	0.311**
	(-2.94)	(-2.53)
CAPM vs 6-factor	-20.52	0.444
	(-1.59)	(-0.75)
3-factor vs 4-factor	14.71	0.422
	(0.77)	(-1.04)
3-factor vs 6-factor	13.59	0.556
	(0.75)	(0.74)
4-factor vs 6-factor	25.63	0.556
	(0.88)	(0.74)

Table 10. Robustness Checks of the Main Result

This table reports coefficients from panel regressions of fund *i*'s monthly performance on fund and adviser characteristics. The sample is restricted to non-specialty actively managed domestic equity funds operating between January 2003 and December 2015. The performance measure in all columns is 4-factor alpha which is a one-month ahead alpha calculated using an estimation window over the previous 24 months. The key independent variable in all columns is *%Inst. Clients*. This is the sum of the percentages of public, corporate, charity, and private fund clients for fund *i*'s investment adviser reported at the end of the prior fiscal year. Column (1) restricts the sample to retail funds. Retail funds consist of the sample of funds deriving assets some portion of their assets from retail share classes, i.e. *I Share* < 1. Column (2) restricts the sample to institutional funds, i.e., *I Share* = 1. Column (3) controls for advisers who choose not to pursue institutional clients (i.e., whose percentage of institutional clients is equal to zero) by adding an indicator variable that is equal to one if *%Inst. Clients* equals zero and zero otherwise. Column (4) examines a piecewise linear specification for *%Inst. Clients* allowing for kinks in the relationship at 25% and 50% institutional clients. The formula for the low institutional clients variable is *Low %Inst. Clients* = Min(25, *%Inst. Clients*), the formula for medium institutional clients is *Med %Inst. Clients* = Min(25, *%Inst. Clients – Low %Inst. Clients*), and the formula for high institutional clients is *High %Inst. Clients = %Inst. Clients – Med %Inst. Clients – Low %Inst. Clients*. Columns (5) and (6) use band minimums and maximums for each Form ADV client type to calculate *%Inst. Clients* as opposed to band midpoints. Column (7) adds MSA fixed effects to the regression specification using the metropolitan statistical area where the fund's sub-adviser/adviser is located. Column (8) omits the financial crisis years of 2008 and 2009 to ensure results are not driven by this particular time period. Column (9) presents estimates from a median regression. Column (10) presents estimates using Fama-MacBeth regression. All regressions include the lagged fund and adviser control variables used in Table 4 (see Appendix A for details). Regressions in Columns (1) – (8) use investment objective-by-month fixed effects. The regression in column (10) uses investment objective fixed effects. Standard errors are clustered on investment adviser in columns (1) – (9). Standard errors in Column (10) use Newey and West (1987) estimates with lags of order 3. The sub-adviser sample is used in all columns and excludes funds with more than one sub-adviser and uses Form ADV data disclosed by the fund's sub-adviser if the fund is sub-advised. T-statistics are reported in parentheses. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

	4-factor Alpha									
VARIABLES	(1) Inst. Funds	(2) Retail Funds	(3) Inst. Clients=0 Dummy	(4) Piecewise Linear	(5) %Inst. Clients Band Min	(6) %Inst. Clients Band Max	(7) MSA Fixed Effects	(8) Ex-Financial Crisis	(9) Median Reg	(10) Fama-MacBeth
%Inst. Clients	0.016***	0.011***	0.008***		0.013***	0.009***	0.009***	0.010***	0.009***	0.011***
	(2.81)	(3.61)	(2.92)		(3.40)	(3.82)	(2.82)	(3.43)	(3.08)	(4.14)
%Inst. Clients = 0			-0.028*							
			(-1.81)							
Low %Inst. Clients				0.032***						
				(3.49)						
Med %Inst Clients				0.002						
				(0.23)						
High %Inst Clients				-0.000						
				(-0.06)						
Fund & Adviser Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month x Obj FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
MSA FEs	No	No	No	No	No	No	Yes	No	No	No
Objective FEs	No	No	No	No	No	No	No	No	No	Yes
N	30,731	197,366	228,114	228,114	228,114	228,114	227,823	210,443	228,114	228,114
Adj. R-squared	0.208	0.190	0.192	0.192	0.192	0.192	0.192	0.123	0.001	0.082

Table 11. Mutual Fund Shareholders' Factor Model Preferences

This table presents the results of pairwise comparisons of different performance measures (trailing 12-month) to predict monthly fund flows as in Barber, Huang and Odean (2016). The sample is restricted to non-specialty actively managed domestic equity funds operating between January 2003 and December 2015. Fund-month observations in columns (3) – (8) are partitioned into terciles based on %Inst. Clients (as in the adviser sample) in month *t-1*. I first estimate the relation between flows and a fund's decile ranking based on different trailing 12-month performance measures by estimating the following regression with *Flow* being the fund flows for fund *i* in month *t.*:

$$Flow_{i,j,t} = a + \sum_k \sum_l b_{kl} D_{kl,i,j,t-1,t-12} + cX_{i,j,t-1} + Month \times Objective + \varepsilon_{i,j,t}$$

D_{kl} is an indicator variable that is one if fund *i* is in decile k *(l)* based on the first (second) performance measure over the trailing 12-months. *X* is a vector of lagged fund and adviser controls as in Table 4. I also include month-by-investment objective fixed effects and standard errors are clustered on month and investment adviser. For each pairwise comparison of performance measures, I obtain 45 pairs of flow-performance sensitivity estimates. I test the hypothesis that the summed difference across the 45 pairs of estimates equals zero (t-statistics in parentheses), and I also perform a binomial test (z-statistics in parentheses) which examines the null hypothesis that the proportion of positive differences equals 50%. ***, ** and * indicate significance at the 1%, 5% or 10% levels.

	Full Sample of Funds		Low %Inst. Clients		Med %Inst. Clients		High %Inst. Clients	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Risk Models	Sum of Diff	Prop of Diff > 0	Sum of Diff	Prop of Diff > 0	Sum of Diff	Prop of Diff > 0	Sum of Diff	Prop of Diff > 0
CAPM vs 3-factor	10.33***	0.844***	13.47***	0.689**	9.65***	0.778***	8.40**	0.622
	(4.07)	(4.62)	(3.09)	(2.53)	(3.21)	(3.73)	(1.98)	(1.64)
CAPM vs 4-factor	14.05***	0.956***	12.35***	0.711***	14.49***	0.956***	14.56***	0.822***
	(5.94)	(6.11)	(3.69)	(2.83)	(5.21)	(6.11)	(4.15)	(4.32)
CAPM vs 6-factor	21.21***	0.978***	21.18***	0.889***	22.10***	0.889***	20.72***	0.867***
	(10.17)	(6.41)	(9.74)	(5.22)	(9.10)	(5.22)	(9.29)	(4.92)
3-factor vs 4-factor	15.55***	0.978***	16.02***	0.667**	15.89***	0.889***	14.87***	0.711***
	(3.60)	(6.41)	(3.37)	(2.24)	(3.33)	(5.22)	(3.36)	(2.83)
3-factor vs 6-factor	26.13***	0.978***	26.41***	0.889***	23.80***	0.956***	30.60***	1.000***
	(7.96)	(6.41)	(7.13)	(5.21)	(6.30)	(6.11)	(6.45)	(6.71)
4-factor vs 6-factor	31.59***	0.978***	35.04***	0.956***	24.35***	0.978***	39.00***	0.911***
	(6.49)	(6.41)	(5.74)	(6.11)	(4.83)	(6.41)	(5.84)	(5.52)

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