On the Role of Human Capital in Investment Management

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Abstract

Asset management companies in the United States employ several hundred thousand people in advisory, portfolio management, and research roles, yet academic research suggests their investments, on average, underperform passive benchmarks net of fees. Using a new dataset on over 10,000 registered investment advisors (RIAs), we analyze which clienteles, asset classes, and strategies require more human capital, as well as the value that human capital adds to investment management. We find that while more human capital is not associated with better performance (controlling for assets under management), having more advisory personnel helps attract more assets, justifying their salaries from the point of view of the firm. Furthermore, larger teams actually behave more like closet-indexers, holding more diversified portfolios with lower tracking error. Our findings suggest that some active management companies realize their ability, or lack thereof, to generate alpha, and use their employees in order to keep and attract clients.

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1. Introduction

The global asset management industry, administering over $70 trillion in assets at the end of 2015[1], has been shifting away from more expensive human-directed active portfolio management and advisory services toward cheaper passive investing and automated "robo"-advisors. Still, the industry is heavily reliant on human capital, employing several hundred thousand people in the United States. However, little research has been done on how this human capital fits into the asset management production function: what are the different roles of advisory employees, which asset classes and strategies are more labor intensive, and is a larger team of advisory personnel associated with better returns and/or ability to attract investors?

In this paper, we try to answer these important questions, through the use of new data on advisory employees at over ten thousand U.S.-registered investment advisors (RIAs). We document that the number of advisory employees at an RIA is related to the clienteles that are serviced. Individual clients require more human capital than institutional clients and pooled investment vehicles such as hedge fund and mutual funds. Outside of individual clients, private equity and venture capital firms are more labor-intensive than firms that manage hedge funds, which, in turn, are more labor-intensive than firms that manage mutual funds. We also examine different asset classes, showing that more-traditional domestic equity management firms employ fewer advisory personnel than firms managing fixed income, international equity, and alternative asset classes such as currencies, derivatives, and real estate. We also find that within domestic-equity, investment advisory firms that hold more small-cap stocks and growth stocks employ more advisory employees than those with large-cap stocks and value stocks. In summary, these

[1] Boston Consulting Group: https://www.bcgperspectives.com/content/articles/financial-institutions-global-asset-management-2016-doubling-down-on-data/?chapter=2

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results suggest that investments in less-transparent or over-the-counter markets with more information asymmetry require more human capital.

Even after controlling for assets under management as well as these other determinants, there remains significant heterogeneity in the number of financial professionals employed by investment advisory firms. We next examine whether firms with larger teams are able to create more value for investors in terms of outperforming performance benchmarks. While our sample period is admittedly small at only four years[2], we do not find evidence that, hiring more people to perform advisory-related functions of portfolio management and research is associated with better performance. While prior research has found that larger organizations are able to realize returns to scale associated with better performance (e.g., Chen, Hong, Huang, and Kubik, 2004, for mutual funds), a result that we document as well, this does not seem to be driven by the ability to hire more employees. This finding is seen in holdings-based returns from quarterly 13(f) filings, as well as mutual funds, where we control for differences in style.

If having more advisory employees does not lead to better investment performance, an obvious question is why some firms decide to incur the costs of employing more advisory personnel than other firms? One possible answer that we investigate is that the having more advisory employees improves the ability of the firm to attract investors, which is value-maximizing, since most investment management firms charge percentage fees based on assets under management. Indeed, we find that firms with more advisory employees grow their assets under management faster, and attract more asset flows.

At the advisory firm level, doubling the number of employees (controlling for assets under management and other firm characteristics) is associated with a 2.5 percentage point increase in annual change in assets under management, while at the mutual fund level, where we

[2] As explained in the Data section, the SEC only mandated disclosure of this information in 2011.

can control for past performance, fund size, and style, adding another five employees to administer a fund (which would approximately double the staff for the median fund) is associated with a 0.6 percentage point increase in annual flows. In dollar terms, an advisory firm with $10 billion in assets under management would gain an extra $250 million in assets, which (at a typical 1% fee) would lead to a $2.5 million increase in fees each year (assuming the assets remain with the firm).

The primary channel for this result is unclear. It is possible that hiring a large research team is like building a "Potemkin" village, used to show current and potential clients that the firm has the resources to acquire information in order to beat passive and cheaper alternatives. This story is consistent with large teams of advisory personnel being widely cited in promotional literature by the firms that employ them. Another possible explanation is that the advisory employees are actually closet salesmen, ostensibly there to do portfolio management or fundamental/technical research, but also paid to market the product to potential individuals, brokers, institutions, etc. Contrary to this view, however, the size of a firm's non-advisory staff, many of whom are in sales (although some are in compliance, legal, accounting, IT, and trading) is not associated with greater flows.

We perform several additional tests to get a better understanding of why larger teams are associated with more inflows. We decompose flows into inflows (purchase of new shares) and outflows (sales by existing shareholders), and find that most of the difference is coming from advisory firms with large teams attracting more inflows. This finding suggests that the main effect is through attracting the interest of new investors rather than keeping existing investors. We also separately run flow regressions for large and small advisors and find similar results, suggesting that the main finding is not coming from the tiny advisory firms that make up most of

our sample. We also separately examine fund flows for different mutual fund classes, based on their primary distribution channel. We find no effect on flows to broker-sold fund classes, some effect on flows to fund classes that are sold directly to investors, and the largest effect on flows to fund classes that are sold to institutional investors. This set of findings is consistent with the hypothesis that a large team of advisory employees is needed to attract prospective clients into the firm, and that broker-sold funds are not responsive to this effect because the brokers themselves are selling the funds.

Finally, we examine whether mutual funds with larger advisory teams are more likely to exhibit to the hallmarks of active management. Previous research has shown that many investment managers are closet-indexers, and that this behavior is associated with inferior performance (e.g., Cremers and Petajisto, 2009; Petajisto, 2013). In a striking example of the "too many cooks in the kitchen" problem, we find that larger teams are associated with a larger number of holdings and a lower tracking error relative to the fund's style[3]. One could argue that this result is due to more people generating more good ideas, but this does not seem to be supported by the performance results discussed above.

This paper is broadly related to the recent literature on human capital in the investment management industry, including Berk, Binsbergen, and Liu (2014) and Agarwal and Ma (2012), who show that asset management firms create value by learning about the skill level of their employees and then optimally allocating them to manage funds. Other papers have looked at the role that asset management teams, their size and diversity, play in generating performance. Recently, Patel and Sarkissian (2015) found that team-managed mutual funds outperform single-managed funds, while earlier papers have found more ambigous effects on performance (e.g.,

[3] We also find a negative point estimate on the Cremers and Petajisto (2009) Active Share coefficient, although it is not statistically significant. This measure is only available for diversified domestic equity funds, so the sample is much smaller.

Baer, Kempf, and Ruenzi (2011), Bliss, Potter, and Schwarz (2008), Prather and Middleton (2002)). However, each of these papers focused on the number of named (in fund filings) managers, and there have been no studies, to our knowledge, of the unobserved advisory employees who are also involved in managing and marketing the funds. Our work is also related to Massa, Reuter, and Zitzewitz (2010) who explain the secular trend toward larger teams and anonymous managers by the firms' incentives to reduce the bargaining power of their managers who have increased outside options in the age of hedge funds.

Another related strain of literature focuses on how mutual fund firms (families) compete for assets through differentiation and how this affects their incentives and performance. Massa (2003) and Del Guercio, Reuter, and Tkac (2010) argue that, due to investor heterogeneity, firms can compete along dimensions other than performance, leading to differing investments in client advisory services versus research and portfolio management. Our results complement those findings by showing that firm investments in human capital are more important in attracting investors, especially clients such as "do-it-yourself" investors and institutions that care less about advisory services, than actually improving portfolio performance.

Our paper's contribution lies in explaining why investment management firms hire and pay buy-side analysts and portfolio managers who (on average) are unable to beat passive benchmarks enough to justify their costs. Seemingly, these firms could earn more money by firing these advisory personnel, indexing the assets, and splitting the surplus with their investors. However, if investors can observe the size of their advisory staff, such a strategy would reveal the firm to be closet-indexers, and the investors would switch to other active managers or low-cost passive strategies. Therefore, investment firms need to continue to employ a lot of advisory

employees who are not justifying their salaries by generating alpha but are justifying them by allowing the firm to attract clients.

The rest of the paper is organized in the following way. Section 2 describes the data sources and methodology. Section 3 presents the main results. Section 4 concludes.

2. Data and methodology

The main data source for this paper is the Historical Archive of Investment Adviser Reports[4], which provides monthly updated information from each investment advisor's most recent Form ADV filing, starting in June 2006 through today. Investment advisory firms file Form ADV when they register with the Securities and Exchange Commission (SEC), and must file annual updating amendments within 90 days after the end of their fiscal year[5]. The form includes information about the advisory firm's assets, clienteles, fee structure, and disciplinary actions due to improper behavior. In response to the passage of H.R. 4173, the Dodd–Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank), in 2010, the SEC amended Form ADV and made changes to the size of institutions that needed to file it.

For the purposes of this paper, the most important change was the one made to Items 5.A. and 5.B.(1) of Part 1A of Form ADV. Item 5.A. asks: "Approximately how many employees do you have? Include full- and part-time employees but do not include any clerical workers." Prior to 2011, filers chose one out of seven possible answers (1-5, 6-10, 11-50, 51-250, 501-1000, More than 1000; If more than 1000, how many, round to the nearest thousand), while after the amendment to the form, advisory firms had to provide a single number in answering this question. The same change was made to Item 5.B.(1), which asks "Approximately how many of

[4] This information is publicly available at: https://www.sec.gov/foia/iareports/inva-archive.htm
[5] After the passage of Dodd-Frank, only investment advisors with more than $100 million in regulatory assets must be registered with the SEC and file Form ADV.

the employees reported in 5.A. perform investment advisory functions (including research)?" Our need for these more precise data on number of employees thus limits our sample period to five years, from 2011 through 2015.

The main variables drawn from annual updates of Form ADV include the total number of employees, advisory employees, non-advisory employees (defined as total minus advisory), regulatory assets under management, and the percentage of regulatory assets attributed to different types of clients (still reported in ranges for each clientele). These clienteles include: Individuals (other than high net worth individuals), High net worth individuals, Investment companies (mostly mutual funds), Pooled investment vehicles (other than investment companies), and multiple other categories such as banks, charities, pension funds, governments, insurance companies, corporations, etc., which we aggregate into an "Institutional investors" category. We also use the address of the advisory company and the SEC filing number (which starts with "801-") for matching the Form ADV data to other databases.

2.1. Advisory firm characteristics

We use name and address to match the Investment Adviser Reports dataset to S&P Capital IQ, which provides information on parent company, type of investment firm ("Hedge Fund Manager", "PE/VC", "Family Office/Family Trust", "Traditional Investment Manager"), as well as a short blurb describing the nature of the advisory firm and various asset classes that it is managing. We are able to match 49.8% of observations to S&P Capital IQ, which has much better coverage of large investment firms than small ones. For instance, we are able to match 86.4% of firms with more than $10 billion in assets under management, and only 39.7% of firms with less than $1 billion in assets.

We create a dummy variable, *Public Parent Company*, which identifies whether the advisory firm or its ultimate parent company are publicly traded. In addition, we use text searches of the blurb to define dummy variables for the types of asset classes that are managed: *US Public Equity*, *International Public Equity*, *Private Equity*, *Fixed Income*, and *Alternative Assets*. Because the S&P Capital IQ blurbs have different degrees of specificity on other variables such as strategies (e.g., value vs. growth, smallcap vs. largecap), we instead use the institutional holdings data to define these measures.

2.2. Institutional quarterly holdings

Asset managers exercising discretion over at least $100 million in Section 13(f) assets (mostly U.S. public equity) must file Form 13F each quarter outlining their holdings of these assets. We download these holding reports directly from the SEC EDGAR website and match them to our dataset using firm name and address. We obtain matches for 20.5% of our Investment Adviser dataset observations and for more than 70% of the institutional investors that file form 13F (the unmatched 13F filers are banks, trusts, insurance companies, and pension funds). We define the variable *% of Advisor Assets on 13F* as the ratio of assets reported on Form 13F to the total advisory assets reported on Form ADV. The latter also include fixed income assets, international equity, private equity, and alternative assets such as real estate, so this ratio is generally less than one. We use 13F holdings to generate quarterly holdings returns (as well as characteristic-adjusted holdings returns as in Daniel, Grinblatt, Titman, and Wermers, 1997), which are the returns of a portfolio of the 13F assets in the quarter following the report date. We also the holdings data to define the firm's size tilt (*Average SIZEq of 13F Holdings*), value tilt (*Average BOOKq of 13F Holdings*), and momentum tilt (*Average MOMq of 13F Holdings*)

2.3. Mutual fund data

The main data sources for mutual funds are the CRSP Survivor-Bias-Free US Mutual Fund Database (CRSP MF) and annual Morningstar Principia CDs. We also download Form N-SAR (semiannual report for registered investment companies) and merge funds to our sample of advisors using the SEC filing number. Data on managers comes from Morningstar. Morningstar also provides biographical information on each manager, which we use to connect managers to the advisory firm that employs them. Approximately 10% funds are run by portfolio managers from multiple unaffiliated advisory firms (usually as subadvisors), and we drop these funds from our sample since we are not able to attribute their flows or performance to one particular firm. We also use the Morningstar to calculate *Number of Managers at Fund*, which is defined as the number of named portfolio managers at a particular mutual fund. The data on returns, flows, and other fund characteristics such as fund size, age, expense ratio, and Lipper class (fund style) are from CRSP MF.

Monthly fund flows are defined as assets at the end of month minus the product of last month's assets and one plus the fund's monthly returns (Sirri and Tufano, 1998). We define *Gross Alpha* (versus Vanguard benchmarks) by regressing gross fund returns (net returns with monthly expense ratio added back) on the returns from eleven Vanguard index funds and using the coefficients to calculate the residual in each month (Berk and Binsbergen, 2015). We also collect securities holdings from CRSP MF. *Active Share* is defined as the total deviation in holdings weights from the closest of nineteen Russell, S&P, and Wilshire indexes. (Cremers and Petajisto, 2009). *Tracking error* is defined as the standard deviation (across a calendar year) of the daily return of the fund relative to the average return of the Lipper class to which the fund belongs.

2.4. Other variables

Data on mutual fund classes comes from Strategic Insight, which classifies them into direct-sold, broker-sold, and institutional classes. Direct-sold classes are available to do-it-yourself investors, broker-sold investors can only be purchased through a broker and usually have loads in order to compensate the broker, and institutional classes are only available to institutional investors or high net worth clients. For each mutual fund, we sum up across fund classes in each of three categories and then calculate fund flows to each category using the same formula as total flows to the fund. Many funds do not offer all three categories of fund classes and any missing categories' flows are not included in the corresponding regressions. The N-SAR filings decompose dollar flows into dollar inflows (purchases of new shares) and dollar outflows (sales of shares by existing investors). We divide these by fund assets under management to get *Inflows (%)* and *Outflows (%)*.

We collect additional data on the number and titles of advisory employees directly from their websites. Many tiny advisory firms don't have websites or don't list their employees on their websites, while very large advisory firms have too many employees and only provide information on top executives or division heads. We were able to obtain names and official titles from 59 websites of firms that predominantly run mutual funds. We used this information to classify advisory employees into three categories: executives (CEO, Chief Investment Officer, Managing Director, Head of Division/Head of Research), portfolio managers, and analyst/associate. We classify advisory firms into metropolitan statistical areas (MSAs) by zip code and phone number area codes. Firms are assigned to "Tiny MSA" if they are in a rural area

or an MSA with fewer than 0.5% of all advisors. They are assigned "non-US" if their office address is outside the United States.

2.5. Descriptive statistics

Table 1 presents descriptive statistics on the sample of registered investment advisors. Panel A shows that the number of advisors stayed fairly constant over the sample period at approximately 12,000. Their total assets under management rose from $47.2 trillion in 2011 to $67 trillion in 2015. There is some double-counting (and even occasional triple-counting) of assets because an investment advisory firm, whose individual client invests $100 in a Fidelity fund, and Fidelity Investments, which manages the portfolio of that Fidelity fund, would each record the $100 in their regulatory assets under management. Investment advisory firms have employed, in total, approximately three-quarters of a million people (not counting clerical), with approximately half of those providing advisory and research functions, and the other half providing other functions such as executive, sales, accounting, legal, trading, compliance, and technology.

Panel B shows the breakdown of investment advisory firms by metropolitan area. New York is by far the most popular location for the asset management industry, with 23.4% of advisors and 28.4% of assets. San Francisco is the second-largest location in terms of the number of firms, while Boston with its concentration of large firms, has the second-most assets at 11.5%. The Philadelphia metropolitan area is home to Vanguard and several Blackrock subsidiaries, huge asset management firms that make its percentage of assets exceed its percentage of firms. Interestingly, almost 30% of advisors are located in small metro areas or rural areas although they manage only around 12% of assets. International asset management firms with a large

amount of assets belonging to U.S. clients also have to file Form ADV, and they make up 6% of firms and approximately 12% of assets under management.

Panel C shows the percentage of firms, assets, and employees associated with each of the five clientele categories. We use two methods to allocate assets and employees, a simple majority method, by which all assets and employees are considered to be servicing a particular clientele if that clientele's assets make up more than 50% of the advisory firm's assets, and a percentage-based method, by which assets and employees are considered to be distributed based on the percentage of assets. For instance, suppose a firm has 50 employees and $5 billion under management and 60% of its assets belong to investment companies (mutual funds), 20% to high net worth individuals, and 20% to institutions. Under the majority method, we would allocate all 50 employees and $5 billion to investment companies, and under the percentage method, we would allocate 30 employees and $3 billion to investment companies, 10 employees and $1 billion to high net worth individuals, and 10 employees and $1 billion to institutions.

Most firms have either pooled investment vehicles (hedge funds, private equity, or real estate funds) or high net worth individuals providing the majority of assets. Approximately 17% have no clientele making up a majority of assets, and only 5.6% of firms have mutual funds making up the most assets. However, when we decompose by assets, investment companies actually make up the most assets (about 34%), and in terms of employees, firms that service individuals (non-high-net-worth) employ by far the most employees (almost 40%). Thus, individuals, seem to be the most labor-intensive clientele. We will further explore the labor-intensity of different clienteles in the context of a regression in the next section of the paper.

In Table 2, we report summary statistics on the sample of registered investment advisors. The average firm has $5 billion in assets and 31 advisory employees (64 total employees), but

the median only has $300 million in assets and 5 employees. These variables are both highly positively skewed and we will use the natural logarithms of both variables in regressions so that outliers do not drive the results. Only 13% of firms have a publicly traded parent company, consistent with most advisory firms being fairly small with revenues in the seven figures. The main clientele summary statistics are the same as those in Panel C of Table 1, and we see that the average firm has 2.3 different clienteles with 3 being the median value. In the breakdown of asset class managed, 76% of advisory firms manage U.S. public stock, about half invest in international equities, and about the same percentage manage investments in fixed income. Only 16% hold alternative assets and 16% also invest in private equity. Of the firms that file Form 13F, on average, 53% of their regulatory assets under management are reported as holdings on that form.

In Panel B of Table 2, we also report the same summary statistics just for those firms that have nonzero percentage of mutual fund clients. We report these statistics separately because some of our tests rely on this sample of advisory firms, for which we have much more granular data at the mutual fund level. These firms are generally larger than those in the entire sample, averaging almost $24 billion in assets under management. They are more likely to invest in equities and fixed income, and almost none of them invest in private equity. We also report some summary statistics on the funds that they manage. The average company manages 7 funds (average number of fund styles is 4.5) while the median value is only 2 funds (1.2 style). The average number of portfolio managers (identified by Morningstar) is 6.6. The average team size of named portfolio managers is 2.4, while the ratio of advisory employees to styles is about 10 (median value is 5). These summary statistics strong suggest that there are a lot of employees

who are not identified as portfolio managers on the prospectus who are managing the funds behind the scenes.

3. Main Results

3.1. Determinants of number of advisory employees

Next, we examine the factors that determine how many advisory personnel will be employed by different investment advisory firms. We regress the number of advisory employees on advisor assets under management, other characteristics, majority clientele, and managed asset classes, and report the results in Panel A of Table 3. Because the dependent variable, *Advisory Employees*, is highly skewed, we use its natural logarithm, *Log Advisory Employees*, for Columns (1) through (3) and perform a median regression (using the original dependent variable) as a robustness check in Column (4). Unsurprisingly, *Log Assets* is the most important predictor of human capital usage, with a positive and statistically significant coefficient. In terms of clienteles, advisory firms that advise (non-high net worth) individuals employ more people because of the "hand-holding" required with these types of clients. Firms that run private equity and venture capital funds also employ more people because they not only need to choose companies for investment but also oversee and provide management advice to these companies in order to maximize their value prior to the IPO. On the other hand, firms that manage assets of institutional clients, high net worth individuals, hedge funds, and mutual funds require fewer employees.

In Column (2) of Panel A, we also include dummy variables for the type of asset classes that are managed by the investment advisor. Managing additional asset classes is generally associated with a need for more advisory employees. However, the small percentage of firms

(24%) that don't manage domestic U.S. public equity actually have more employees than those that do suggesting that firms that specialize in less efficient or transparent markets also employ more human capital. Finally, firms with public parent companies also have more employees, consistent with public companies operating under fewer financial constraints, and firms that service more clienteles employ more advisory staff, consistent with different clienteles being serviced by different employees. In Column (3), we restrict the sample to very large advisory firms, those with more than $10 billion in assets under management, to check whether the results are entirely driven by small firms that make up the majority of the sample. The results for this restricted sample are similar to those for the entire sample in Columns (1) and (2). Finally, we run a median regression with *Advisory Employees* in Column (4) in order to minimize the effect of outliers, and again results in the same vein as those in the first two columns.

Next, we examine the determinants of the *Advisory Employees Ratio*, the ratio of *Advisory Employees* to *Total Employees*, and report the results in Panel B of Table 3. The goal is to see which firm characteristics cause advisory companies to invest in employees performing advisory functions versus investing in employees performing sales and support functions. There are several interesting takeaways from this Panel. Firms managing mutual funds and hedge funds use fewer advisory employees and more support staff than firms with other clienteles. This could be due to the need for more sales and/or more support staff due to the regulations of pooled investment vehicles. In addition, larger institutions (with more assets under management) also have less advisory staff versus support staff, as do those that service more clienteles, highlighting that firms initially focus on advisory roles and when they get bigger and have more resources, invest in support and sales staff.

Finally, we use data from Form 13F holdings of domestic equity to examine what styles within domestic equity are associated with more advisory employees. We define three variables: *Average SIZEq of 13F Holdings*, *Average BTMq of 13F Holdings*, and *Average MOMq of 13F Holdings*, which measure the value-weighted average size, book-to-market, and momentum quintiles of all 13F Holdings. We regress *Log Employees* on these measures of holdings tilt, as well as controls, and report the results in Panel C of Table 3. We find negative and significant coefficients on the size and book-to-market tilts, but no effect from the momentum tilt. In other words, holding more small-cap stocks and more growth stocks, is associated with employing more human capital in the cross-section. One explanation for this result is that these styles are more difficult to collect information on and understand and thus require more human expertise. Another possibility is that small-cap and growth styles are less popular than large-cap and value so firms that hold more growth and small-cap stocks simply manage more styles and thus require more advisory employees. However, in Column (4), when we restrict the sample to mutual fund advisory firms and control for the number of styles that they manage, the effect does not change, suggesting that holding small-cap and growth stocks is not a simple proxy for managing more styles.

3.2. Hand-collected website data on advisory employees

In order to dig deeper into the composition and responsibilities of advisory employees, we hand-collect data on 59 investment advisory firms whose main clientele is mutual funds and merge this data with the information from Form ADV. We report means and median statistics for these hand-collected data in Table 4. In the top three rows, we report summary statistics for number of advisory employees from both the website and Form ADV as well as the ratio of the

two measures. It is comforting to find that the counts from the website are very similar to those reported on Form ADV, and the average ratio of the two is 88%, with a median value of 97%. We use the official title of each advisory employee to classify them into three groups: analysts, portfolio managers, and executives. We classify each individual based on their highest title, so if someone is both a portfolio manager and Chief Investment Offier, we classify them as an executive, while an individual who is an analyst and portfolio manager is classified as a portfolio manager. We compare the count of portfolio managers and executives to the count of different named portfolio managers (PMs) in the Morningstar database. We find that the two measures are again similar and the ratio of Morningstar PMs to the named portfolio managers and executives from the website is 82% for the average firm and 86% for the median firm. Finally, we show summary statistics for the three classifications of advisory employees identified on the websites. On average, 33% are analysts, 37% are portfolio managers, and 31% are executives (rounding explains why it adds up to 101%). We also show summary statistics for assets under management of our hand-collected firms and a side-by-side comparison to the summary statistics for this measure for all mutual fund firms in Panel B of Table 2 shows that both means and medians sizes are very similar, although slightly larger for the hand-collected sample of 59 firms.

3.3. Research team size and asset returns

In this section, we examine the relation between size of the advisory team and returns. In this and the following section, we repeat the tests at the advisory firm level and at the mutual fund level. Table 5 reports summary statistics for the sample of mutual funds that we use for the fund-level tests. During our sample period from January 2012 through December 2015, the average gross return was 0.98% and gross alpha was also positive at 0.05%. The average

research team size was 7.1 Advisory Employees per style managed and the average fund was advised by an investment company managing 26.4 different styles (this includes equity and fixed style Lipper classes). Other characteristics such as expense ratio and fund age are similar to previous studies.

We run regressions of measures of performance on number of advisory employees and report the results in Table 6. In Panel A, the measure of performance is based on holdings data from Form 13F, quarterly filings of U.S. stock holdings by institutional investors with at least $100 million in 13F assets. In Columns (1) and (2) of Panel A, the dependent variable is just the returns from buying and holding for one quarter the securities from the most recent quarter filings. In Columns (3) through (5) of Panel A, we adjust for differences in style by using characteristic-adjusted quarterly holdings returns (Daniel, Grinblatt, Titman, and Wermers, 1997). After controlling for differences in characteristics, we do not find evidence that advisory firms with more employees are able to outperform those firms with fewer employees. The lack of a statistically significant effect does not imply a zero effect, but we do not have statistical power, in our short horizon of four years, to say whether more investment in human capital leads to better performance. Consistent with earlier research, we do find a positive effect on advisory firm size, which confirms that it is not the ability to hire more employees that is part of the returns to scale which allows larger firms to generate better performance.

In Panel B of Table 6, we examine the effect of advisor team size on performance at the mutual fund level. We regress mutual fund gross monthly returns and gross alpha relative to Vanguard benchmarks (Berk and Binsbergen, 2015) on *Advisory Research Team Size* as well as past gross returns, and other fund and advisor characteristics. The results for fund returns are consistent with those at the advisory level from Panel A. Across all specification, the point

estimates on the average research team size are negative but all are also statistically non-significant. Note that specifications (1), (3), and (4) include style by time fixed effects so we are comparing returns for the same style at the same time, which means any results are not due to differences in style.

Overall, the results in Table 6 are consistent with no cross-sectional effect on performance from more investment in human capital. However, given the short sample period, we are not able to definitely conclude that they do not add value in this regard. In the next section, we examine whether they add value to the firm in a different way, by helping it attract more assets and therefore earn more in fees.

3.4. Research team size and asset flows

Next, we examine the effect of having more employees on the ability to attract assets, which would allow the advisory to collect more fees (which are usually charged as a percentage of assets under management). In Table 7, the dependent variable is the annual percentage change in assets. We are not able to calculate asset flows because we don't have performance at the advisory firm level. However, in Columns (4) and (5), for advisory firms that file 13F reports, we control for the contemporaneous holdings-based returns. Other specifications include advisor characteristics, client dummy variables (Column (2)), prior three years of flows (Column (3)), and also prior three years of characteristic-adjusted holdings returns (Column (5)). Across all specifications, there is a positive association between more advisory employees and the percentage change in assets. Interestingly, the coefficient on non-advisory employees is smaller than the one on advisory employees and becomes statistically insignificant for the Form 13F

filers, even though many of the non-advisory employees are in sales and their job is to try to increase assets under management.

An examination of other variables shows that advisory firms catering to individuals were able to attract significantly more assets during this period, while those firms with mostly institutional clients underperformed their peers, in terms of attracting clients, during the sample period. In addition, advisory firms with more assets under management grew slower (in percentage terms) than those with fewer assets. We do not have information on the age of the advisory firm (years since startup) but smaller firms are probably also younger and therefore still have not fully accessed all the capital that they potentially could attract .

We repeat the same tests in Table 8 at the mutual fund level, using fund flows as the dependent variable of interest. Column (1) is a univariate test, while Columns (2) through (6) include style-by-time fixed effects to examine the effect for the same time and same style. In other specifications, we control for the past five years of gross alphas, include non-advisory employees (Column (4)) and portfolio management team size (Column (5)), and control for prior five years of net returns instead of gross alphas (Column (6)). For all the specifications, the coefficients on the variable of interest, *Advisory Research Team Size*, are positive and statistically significant. In contrast, the effect from non-advisory employees is statistically indistinguishable from zero, and the effect form portfolio management team size is actually negative.

In terms of economic magnitude, the (monthly) coefficients on *Advisory Research Team Size* are approximately 0.01%, which is annualized to 0.12%. For the average fund, with assets of $1.7 billion, hiring an additional person as an analyst would increase flows in that year by approximately $2 million, and applying the typical 1% fee, would increase fees to the advisory

firm by $20,000. However, because some of the $2 million are likely to continue in following years, the advisory firm is likely to also add to its fees in following year, and the positive effect is likely to decline. The sum of these extra fees is of the same order of magnitude as the annual salary of a financial professional, which suggests that companies are behaving rationally and setting marginal benefits (extra fees) to marginal costs (extra salary) when making employment decisions.

In Table 9, we perform additional tests of the relationship between mutual fund flows and average research team size to develop a better understanding of what channels are driving the overall results. In Columns (1) and (2), we decompose fund flows into inflows, which are purchases of new shares, and outflows, which are redemptions by existing investors. While the effects are no longer statistically significant because these data are much noisier, we do find that 0.006% (or 75%) of the overall effect on flows is due to higher inflows and 0.002% (or 25%) of the overall effect is driven by outflows. In other words, larger research teams are able to attract more clients but have a limited effect in their ability to prevent existing clients from leaving the fund. In Columns (3) and (4), we run the results separately for large advisors (more than $50 billion in assets) and small advisors (less than $50 billion in assets). The coefficients are the same for each group, suggesting that the results are not just coming from either of the groups but are similar for different sized advisory companies.

In Columns (5), (6), and (7), we separately examine flows to different fund classes based on the primary distribution channel for that fund classes. Using data from Strategic Insight, we classify mutual fund classes into Institutional, Broker-Sold, and Direct-Sold. The strongest effect on flows is for the Institutional classes, where the coefficient is 0.013% and is statistically significant. For flows to Direct-sold classes, the coefficient is only 0.009% and not statistically

significant. For broker-sold classes, the point estimate is very close to zero. Broker-sold classes are sold by the brokers and don't require marketing by the advisory firm, but the firm does need to market its products to institutional and "do-it-yourself" direct investors and these results show that having a larger team helps in this marketing.

3.5. Research team size and active management

One way to understand why investment management firms employ large teams of employees is to look at how actively they are managing the funds. Prior research has shown more activity is associated with better performance (Cremers and Petajisto, 2009; Pastor, Stambaugh, and Taylor, 2014), and if the job of the employees is to market the fund, they should be spending less time making active bets, and instead allocate their time toward marketing. In Table 10, we use three measures of active versus passive investment, diversification level (number of holdings), tracking error, and active share, and regress these on the size of the advisory firm's research team. Again, we control for fund characteristics and include style-by-time fixed effects. Consistent with the marketing story, larger advisory teams are associated with more diversified portfolio, with lower tracking error. The active share for larger advisory teams is also lower but the difference is not statistically significant. Overall, these findings suggest that firms that are not able to generate positive alpha are closet indexing and using their advisory teams to pretend that they are active managers who should be paid the corresponding fees.

4. Conclusion

One view of the asset management industry is that it is all about marketing products and attracting assets away from your competitors, since the total sum of excess returns is fixed, and

there is little value, especially after fees, from active management. Another view, supported by Berk and Binsbergen (2015) is that investment management actually do create value and that this value creation is persistent. In this paper, we examine how asset management firm investment in human capital generates value. We don't find evidence of a connection between human capital and value added through superior performance, but we do find value added in helping compete against other asset managers for assets under management.

With hundreds of thousands of people working in the United States investment management/advisory roles, it is interesting to speculate whether part (or the entirety) of their role is to be window-dressing for potential clients looking to invest in the company, or to help in sales. Since financial markets are highly efficient, it makes sense that the valuable time of employees at asset management firms is used to attract assets rather than try to uncover information that would allow the firm to improve its performance by a few basis points. Given the high noise-to-signal ratio in investment returns, these few basis points would probably not be recognized by investors anyway and would not have a significant beneficial effect on the investment management firm revenues and profits.

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Table 1: Distribution of registered investment advisory firms, by year, location, and clientele

This table presents statistics on the number of registered investment advisory firms that file Form ADV, their distribution across metropolitan areas, and their primary clientele. For each year in the sample period, Panel A displays the total number of advisory firms in Column (1), the total assets (in trillions of dollars) of all advisors in Column (2), the total number of employees (excluding clerical) of all advisors in Column (3), the total number of employees who perform investment advisory functions (including research) in Column (4), and the total number of employees who perform non-advisory functions (excluding clerical) in Column (5). Panel B displays the percentage of advisory firms (in Column (1)) and percentage of assets under management (in Column (2)) at the top 10 metropolitan areas (based on number of advisors), as well as the percentage at tiny MSAs (defined as having less than 0.5% of all advisors) and percentage at advisors located outside the United States. Panel C shows data based on clienteles. Column (1) of Panel C shows the percentage of advisory firms with each clientele type, Columns (2) and (3) show the percentage of assets associated with each clientele type, Columns (4) and (5) show the percentage of advisory employees servicing each clientele type, and Columns (6) and (7) show the percentage of non-advisory employees servicing each clientele type. We use two methods to allocate assets and employees, a majority method (Columns (2), (4), and (6)), where assets and employees at each firm are allocated entirely to the clientele with a majority of the assets, and a percentage method (Columns (3), (5), and (7)), where assets and employees at each firm are allocated based on the percentage of assets of each clientele, and then aggregated across all advisors.

Panel A: Advisory company - summary statistics by year

	No. of Adv.	Assets ($TRI)	Total Employees	Advisory Employees	Non-Adv Employees
Year	(1)	(2)	(3)	(4)	(5)
2011	11,493	47.2	753,188	342,879	410,309
2012	11,112	54.7	711,839	344,719	367,120
2013	11,696	62.0	727,540	364,596	362,944
2014	12,180	66.6	759,339	381,338	378,001
2015	11,986	67.0	777,753	386,469	391,284

Panel B: Advisory company - summary statistics by metropolitan area

	% of Advisors	% of Assets Under Mgmt
Top Metropolitan Areas	(1)	(2)
New York City	23.0%	28.4%
San Francisco	5.1%	6.0%
Chicago	4.4%	4.9%
Boston	4.1%	11.5%
Los Angeles	3.5%	4.7%
Philadelphia	3.1%	6.8%
Dallas	2.6%	1.4%
Washington DC	2.2%	1.0%
London, UK	1.8%	5.2%
Atlanta	1.7%	1.3%
Tiny MSA	28.9%	12.3%
Non-US	6.1%	12.5%

Panel C: Advisory Company - summary statistics by clientele type

	% of Advisors	% of Assets Under Mgmt		Advisory Employees		Non-Advisory Employees	
		Majority	% Method	Majority	% Method	Majority	% Method
Clientele	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Investment Companies (MFs)	5.6%	34.2%	34.9%	4.4%	5.8%	12.7%	13.3%
Individuals (non-HNW)	12.1%	3.9%	6.6%	39.7%	39.0%	22.4%	24.6%
Pooled Investment Vehicles	24.8%	17.7%	23.7%	13.9%	16.7%	14.6%	17.9%
High Net Worth Individuals	24.9%	4.5%	8.0%	16.8%	20.7%	13.6%	16.6%
Institutional Investors	15.7%	24.7%	26.8%	12.4%	17.8%	17.0%	27.5%
Multiple Clienteles (none >50%)	16.8%	14.9%		12.9%		19.7%	

Table 2: Summary statistics on registered investment advisory firms

Table 2 presents summary statistics, including measures of size, clientele base, and holdings, for the sample of registered investment advisory firms that file Form ADV. For each variable, it shows the average number of observations each year for which we have data on that variable, along with the time-series averages of the mean, standard deviation, 10^{th} percentile, median, and 90^{th} percentile. Panel A provides summary statistics for all advisors, while Panel B shows summary statistics for the subgroup of advisors that have at least some mutual fund clients. *Advisory Employees* is the number of employees performing investment advisory functions (including research), *Non-Advisory Employees* is the number of employees performing non-advisory functions (excluding clerical), and *Total Employees* is the sum of *Advisory Employees* and *Non-Advisory Employees*. *Assets Under Management ($BIL)* is the total assets under management in billions of dollars, and *Log Assets* is the natural logarithm of total assets under management. *Public Parent Company* is a dummy variable indicating if the parent company of the advisor is publicly-traded. *Individuals (non-HNW)* is a dummy variable indicating that more than 50% of managed assets belong to individuals not classified as high net worth. *High Net Worth Individuals* is a dummy variable indicating that more than 50% of managed assets belong to individuals classified as high net worth individuals (more than $1 million in managed assets or believed to have more than $2 million in net worth). *Investment Companies* is a dummy variable indicating that more than 50% of managed assets belong to investment companies: mutual funds, closed-end funds, and unit investment trusts. *Pooled Investment Vehicles* is a dummy variable indicating that more than 50% of managed assets belong to pooled investment vehicles other than investment companies: mostly hedge funds (*PIV: Hedge Funds* equals 1), private equity/venture capital funds (*PIV: PE/VC* set to 1), and real estate funds. If it is not clear that the pooled investment vehicles are hedge funds or private equity/venture capital, then *PIV: Unknown equals 1*. *Institutional Investors* is a dummy variable indicating that more than 50% of managed assets belong to banks, business development companies, charities, pension funds, state or municipal governments, corporations, and/or insurance companies. *Multiple Clienteles (none >50%)* is set to one if no clientele (out (of the five categories listed above) makes up more than 50% of managed assets. *Number of Different Clienteles* is the total number of different clienteles (out of the five categories listed above). *US Public Equity* is a dummy variable that indicates the advisory firm manages some assets invested in United States publicly-traded equity, while *International Public Equity* indicates the firm manages some assets invested in international publicly-traded equity. *Private Equity* indicates the firm manages some assets invested in private equity. *Fixed Income* indicates the firm manages some assets invested in fixed income. *Alternative Assets* indicates the firm manages some assets invested in alternatives such as derivatives, currencies, real estate, etc. *% of Advisor Assets on 13F* is the ratio of the advisory firm's 13F assets (mostly U.S. publicly-traded equity) divided by its total assets under management. In Panel B, *Number of Funds* is the number of mutual funds managed (entirely) by the advisory firm. *Number of Lipper Classes* is the number of different styles as categorized by Lipper that are managed by the advisor. *Total # of Portfolio Managers* is the number of named portfolio managers that are at all mutual funds managed (entirely) by the advisory firm. *Average Team Size* is the average number of portfolio managers for each fund averaged across all mutual funds managed (entirely) by the advisory firm. *Advisory Employees/Lipper Classes* is the ratio of *Advisory Employees* to *Number of Lipper Classes*. *Advisory Employees/Funds* is the ratio of *Advisory Employees* to *Number of Funds*.

Panel A: Summary statistics for all investment advisers

	Obs.	Mean	SD	p10	p50	p90
	(1)	(2)	(3)	(4)	(5)	(6)
Size Variables						
Advisory Employees	11692	31.1	397	1	4.8	28.2
Non-Advisory Employees	11692	32.7	376	0	2.8	28.0
Total Employees	11692	63.8	699	2	7.8	58.4
Assets Under Management ($BIL)	11693	5.1	42.1	0.03	0.3	5.2
Log Assets	10961	19.9	2.0	18.1	19.6	22.5
Public Parent Company (dummy)	5818	0.13	0.34	0	0	1
Main Clientele (dummy)						
Individuals (non-HNW)	11693	0.12	0.33	0	0	1
High Net Worth Individuals	11693	0.25	0.43	0	0	1
Investment Companies (MFs)	11693	0.06	0.23	0	0	0
Pooled Investment Vehicles	11693	0.25	0.43	0	0	1
PIV: Hedge Funds	11693	0.08	0.27	0	0	0
PIV: PE/VC	11693	0.05	0.21	0	0	0
PIV: Unknown	11693	0.12	0.33	0	0	1
Institutional Investors	11693	0.16	0.36	0	0	1
Multiple Clienteles (none >50%)	11693	0.17	0.37	0	0	1
Number of Different Clienteles	11693	2.3	1.2	1	3	4
Holdings Statistics						
US Public Equity (dummy)	3995	0.76	0.43	0	1	1
International Public Equity (dummy)	3995	0.52	0.50	0	1	1
Private Equity (dummy)	3995	0.16	0.37	0	0	1
Fixed Income (dummy)	3995	0.52	0.50	0	1	1
Alternative Assets (dummy)	3995	0.16	0.37	0	0	1
% of Advisor Assets on 13F	2767	0.53	0.29	0.09	0.55	0.94

Panel B: Summary statistics for investment advisers advising (at least some) mutual funds						
	Obs.	**Mean**	**SD**	**p10**	**p50**	**p90**
	(1)	(2)	(3)	(4)	(5)	(6)
Size Variables						
Advisory Employees	1687	40.0	391	2.0	8.6	64.7
Non-Advisory Employees	1687	77.0	579	0.0	8.4	106
Total Employees	1687	117	875	3.2	18.4	181
Assets Under Management ($BIL)	1689	23.8	106	0.0	1.5	45.9
Log Assets	1652	21.2	2.7	17.7	21.2	24.6
Public Parent Company (dummy)	1548	0.26	0.44	0	0	1
Number of Different Clienteles	1688	3.1	1.3	1	3	5
Holdings Statistics						
US Public Equity (dummy)	1198	0.89	0.31	0	1	1
International Public Equity (dummy)	1198	0.61	0.49	0	1	1
Private Equity (dummy)	1198	0.02	0.12	0	0	0
Fixed Income (dummy)	1198	0.62	0.48	0	1	1
Alternative Assets (dummy)	1198	0.15	0.35	0	0	1
% of Advisor Assets on 13F	744	0.57	0.32	0.07	0.61	0.97
Other Characteristics						
Number of Funds	904	7.0	19.1	1	2	12.2
Number of Lipper Classes	904	4.5	9.7	1	1.2	9.0
Total # of Portfolio Managers	920	6.6	13.3	1	3	12.6
Average Team Size (Managers)	920	2.4	1.4	1	2	4
Advisory Employees/Lipper Classes	822	9.9	22.4	1.3	4.8	18.3
Advisory Employees/Funds	904	8.5	18.8	1.0	4.0	16.3

Table 3: Determinants of number and ratio of advisory employees

Table 3 presents estimated coefficients from regressions of advisory employees measures on other characteristics of the investment advisory firm. In Table 1, the dependent variable is *Log Advisory Employees*, the natural logarithm of *Advisory Employees*, in Columns (1) through (3) and Ad*visory Employees* in Column (4). In Panel B, the dependent variable is *Adv Employees Ratio*, which is the ratio of *Advisory Employees* to *Total Employees*. In Panel C, the dependent variable is again *Log Advisory Employees*. In Column (1) of Panels A and B, the main explanatory variables are size variables and clientele dummy variables. Column (2) adds dummy variables for the asset classes that are managed by the advisory firm. Column (3) restricts the sample to large firms (more than $10 billion in assets) to examine whether the results are driven entirely by small firms which make up a big majority of the sample. Column (4) uses median regression instead of pooled OLS regressions to examine whether outliers are driving the results. In Panel C, each specification includes *Average SIZEq of 13F Holdings*, *Average BTMq of 13F Holdings*, and *Average MOMq of 13F Holdings*, which measure the value-weighted average size, book-to-market, and momentum quintiles of all 13F Holdings. Column (1) of Panel C also includes clientele dummies, Column (2) adds dummy variables for the asset classes that are managed by the advisory firm, Column (3) restricts the sample to large firms (more than $10 billion in assets), and Column (4) restricts the sample to advisory firms that manage at least some mutual funds. All explanatory variables are defined in Table 2. All specifications include year fixed effects. T-statistics are provided in brackets with standard errors clustered by advisory firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

Panel A: Determinants of Number of Advisory Employees				
Dependent Variable:	**Log Advisory Employees**	**Log Advisory Employees**	**Log Advisory Employees**	**Advisory Employees**
	OLS	OLS	OLS	MEDIAN
Predictive Variables	(1)	(2)	(3)	(4)
Individuals (dummy)	0.415***	0.271***	1.715***	0.516
	[11.68]	[3.02]	[2.84]	[1.49]
High Net Worth (dummy)	-0.235***	-0.110***	0.883**	-0.902***
	[11.60]	[3.35]	[2.36]	[3.75]
Investment Companies (dummy)	-0.107***	-0.225***	-0.637***	-0.420
	[2.96]	[5.03]	[5.68]	[0.82]
Pooled Investment Vehicles (dummy)	0.084***			
	[3.04]			
Hedge Funds (dummy)		-0.048	0.197	-0.406
		[1.15]	[1.29]	[1.10]
PE/VC (dummy)		0.349***	0.975***	3.445***
		[6.00]	[5.03]	[5.86]
Institutional Investors (dummy)	-0.202***	-0.147***	-0.162*	-1.429***
	[7.73]	[4.15]	[1.68]	[4.42]
Log Assets	0.361***	0.375***	0.588***	3.790***
	[53.60]	[40.77]	[13.44]	[27.96]
Number of Clienteles	0.039***	0.029**	0.067*	0.321***
	[4.69]	[2.35]	[1.72]	[2.70]
Public Parent Company (dummy)		0.194***	-0.083	4.502***
		[4.05]	[0.99]	[5.97]
US Public Equity (dummy)		-0.169***	-0.134	-1.681***
		[4.18]	[0.99]	[3.91]
International Public Equity (dummy)		0.093***	0.189*	0.908***
		[4.03]	[1.67]	[4.86]
Fixed Income (dummy)		0.116***	0.297***	0.758***
		[4.79]	[3.29]	[3.50]
Alternative Assets (dummy)		0.159***	0.284***	1.633***
		[5.34]	[3.69]	[4.82]
Observations	54801	18727	2550	18727
Adjusted R2	0.43	0.58	0.39	
Sample	All Advisors	All Advisors	Assets>=$10B	All Advisors

Panel B: Determinants of Ratio of Advisory Employees to All Employees

Dependent Variable:	**Adv Employees Ratio**	**Adv Employees Ratio**	**Adv Employees Ratio**	**Adv Employees Ratio**
	OLS	OLS	OLS	MEDIAN
Predictive Variables	(1)	(2)	(3)	(4)
Individuals (dummy)	0.009	-0.001	0.026	0.001
	[1.17]	[0.05]	[0.28]	[0.05]
High Net Worth (dummy)	0.002	0.013	-0.051	0.003
	[0.37]	[1.18]	[1.25]	[0.22]
Investment Companies (dummy)	-0.098***	-0.047***	-0.048*	-0.040***
	[9.51]	[3.62]	[1.90]	[2.64]
Pooled Investment Vehicles (dummy)	-0.047***			
	[6.28]			
Hedge Funds (dummy)		-0.045***	-0.134***	-0.031**
		[3.52]	[3.85]	[2.33]
PE/VC (dummy)		0.107***	-0.000	0.136***
		[6.45]	[0.01]	[7.67]
Institutional Investors (dummy)	-0.017**	-0.005	-0.028	-0.005
	[2.39]	[0.48]	[1.22]	[0.50]
Log Assets	-0.033***	-0.037***	-0.033***	-0.044***
	[28.22]	[18.30]	[3.49]	[17.77]
Number of Clienteles	-0.019***	-0.018***	-0.042***	-0.013***
	[7.98]	[4.80]	[4.79]	[3.08]
Public Parent Company (dummy)		-0.020*	-0.014	-0.026**
		[1.69]	[0.76]	[2.08]
US Public Equity (dummy)		0.022**	0.064**	0.008
		[1.96]	[2.39]	[0.71]
International Public Equity (dummy)		-0.015**	-0.049**	-0.012
		[2.02]	[1.97]	[1.51]
Fixed Income (dummy)		0.010	0.027	0.012
		[1.38]	[1.42]	[1.54]
Alternative Assets (dummy)		-0.009	-0.009	-0.009
		[1.01]	[0.49]	[0.96]
Observations	54431	18658	2538	18658
Adjusted R2	0.09	0.17	0.09	
Sample	All Advisors	All Advisors	Assets>=$10B	All Advisors

Panel C: 13F Holdings Determinants of Advisory Employees

Dependent Variable:	**Log Advisory Employees**	**Log Advisory Employees**	**Log Advisory Employees**	**Log Advisory Employees**
	OLS	OLS	OLS	OLS
Predictive Variables	(1)	(2)	(3)	(4)
Average SIZEq of 13F Holdings	-0.062***	-0.065***	-0.093*	-0.060**
	[5.08]	[5.19]	[1.77]	[2.31]
Average BTMq of 13F Holdings	-0.071***	-0.058***	-0.122**	-0.116***
	[4.70]	[3.82]	[2.41]	[3.21]
Average MOMq of 13F Holdings	0.017	0.017	-0.047	-0.008
	[1.20]	[1.17]	[0.94]	[0.17]
% of Advisor Assets on 13F	-0.585***	-0.339***	-0.295	-0.659***
	[12.63]	[6.69]	[1.57]	[7.09]
Log Assets	0.470***	0.440***	0.580***	0.360***
	[39.00]	[34.94]	[9.25]	[19.22]
Number of Clienteles	0.024*	0.034**	0.004	0.108***
	[1.85]	[2.50]	[0.09]	[4.57]
Number of Lipper Classes				0.016***
				[2.95]
Observations	11336	9238	1265	2375
Adjusted R2	0.61	0.66	0.48	0.66
Main Clientele Dummies	Y	Y	Y	N
Investment Sector Dummies	N	Y	Y	N
Sample	All Advisors	All Advisors	Assets>=$10B	MFs > 0

Table 4: Summary statistics on data hand-collected from 59 advisory firm websites

Table 4 presents means and medians on type of advisory employees and comparable number from the Form ADV for the same firms. Advisory Employees (website) is the number of employees performing advisory functions (portfolio managers, analysts, and executives) based on the official titles and bios on firm websites, while Advisory Employees (FormADV) is equal to the *Advisory Employees* variable. AdvEmp Website/AdvEmp FormADV is the ratio of the two variables. Portfolio Managers (MFs) is equal to the *Total # of Portfolio Managers*, the number of different portfolio managers managing mutual funds. *Execs+Portfolio Managers (website)* is the total number of employees on the advisory firm website with the title of portfolio manager or an executive performing advisory functions (President, CEO, CIO, Managing Director, Division Head). PMs (MF)/Execs+PMs (website) is the ratio of the two variables. Analyst % (website) is the proportion of advisory employees who are analysts or associates and are not analysts or executives, PM % (website) is the proportion of advisory employees who are portfolio managers but not executives, and Exec % (website) is the proportion of advisory employees who are executives.

	Mean	**Median**
	(1)	(2)
Advisory Employees (website)	24.2	12
Advisory Employees (FormADV)	29.1	15
AdvEmp Website/AdvEmp FormADV	0.88	0.97
Portfolio Managers (MFs)	11	6
Execs+Portfolio Managers (website)	14	9
PMs (MF)/Execs+PMs (website)	0.82	0.86
Analyst % (website)	0.33	0.35
PM % (website)	0.37	0.40
Exec % (website)	0.31	0.22
Assets Under Management ($BIL)	26.9	3.6

Table 5: Summary statistics for fund-level variables

Table 5 presents summary statistics for fund-level performance measures, characteristics, and measures of active investing. For each variable, it shows the average number of observations each year for which we have data on that variable, along with the time-series averages of the mean, standard deviation, 10th percentile, median, and 90th percentile. *Gross Returns (monthly)* is the monthly fund returns, before expenses, while *Gross Alpha (monthly)* is the monthly gross alpha relative to Vanguard benchmarks, as calculated in Berk and Binsbergen (2015). *Flows (%)* is the monthly flows into the fund as percentage of fund assets, *Inflows (%)* are purchases of fund shares, and *Outflows (%)* are sales of fund shares. *Institutional Fund Flows (%)* are fund flows to institutional classes, *Broker Flows (%)* are fund flows to broker-sold classes, and *Direct Flows (%)* are fund flows to classes sold directly to investors. *Expense Ratio (%)* is the expense ratio, *Fund Assets* are the fund's assets under management, in billions of dollars, while *Log Fund Assets* is the natural logarithm of *Fund Assets*. *MF Family TNA/Advisory TNA* is the ratio of the advisor's mutual fund assets under management to the advisors total assets under management. *Number of Styles (advised)* is the number of different Lipper Classes among the funds managed by the advisor. *Num of Managers at Fund* is the number of portfolio managers that manage the fund. *Log Number of Holdings* is the natural logarithm of the number of securities held by the fund. *Tracking Error (daily)* is the standard deviation across a year of daily excess returns relative to the fund's style average return. *Active Share* is the Cremers and Petajisto (2009) measure of how a fund's holdings deviate from its closest benchmark. This measure is only calculated for diversified U.S. equity funds. All the flow variables are winsorized at the 1% and 99% level.

	Obs.	**Mean**	**SD**	**p10**	**p50**	**p90**
	(1)	(2)	(3)	(4)	(5)	(6)
Performance/Flow Measures						
Gross Returns (monthly)	2734	0.98%	2.1%	-1.4%	1.1%	3.2%
Gross Alpha (monthly)	2689	0.05%	2.2%	-2.2%	0.1%	2.3%
Flows (%)	2761	0.11%	4.4%	-3.0%	-0.3%	3.7%
Inflows (%)	2647	2.8%	4.3%	0.3%	1.5%	6.2%
Outflows (%)	2647	-2.5%	2.9%	-4.7%	-1.8%	-0.6%
Institutional Flows (%)	1758	0.48%	6.4%	-3.8%	0.0%	5.2%
Broker Flows (%)	1375	-0.07%	4.6%	-2.9%	-0.6%	3.3%
Direct Flows (%)	782	-0.13%	4.5%	-3.1%	-0.5%	3.1%
Fund/Family Characteristics						
Advisory Employees/Styles	2360	7.1	12.8	1.7	4.3	13.7
Non-Adv Employees/Styles	2360	14.5	34.4	0.7	9.1	27.3
Expense Ratio (%)	2734	1.17%	0.36%	0.77%	1.15%	1.61%
Fund Assets ($MIL)	2761	1677	6021	34	328	3398
Log Fund Assets	2761	5.8	1.7	3.5	5.8	8.1
Fund Age (years)	2761	15.5	12.6	3.0	14.0	28.0
Log Advisory Firm Assets	2407	24.3	2.4	20.9	24.5	27.3
MF Family TNA/Advisory TNA	2382	0.46	0.32	0.07	0.38	0.99
Number of Styles (advised)	2382	26.4	28.1	1.5	11.4	68.3
Num of Managers at Fund	2751	2.9	2.7	1.0	2.0	5.2
Activity Measures						
Log Number of Holdings	4221	4.8	1.0	3.7	4.6	6.2
Tracking Error (daily)	4258	0.20%	0.15%	0.05%	0.18%	0.38%
Active Share	1244	0.79	0.14	0.61	0.81	0.95

Table 6: Advisory employees and returns

Table 6 presents estimated coefficients from pooled OLS regression of future performance on research team size and other fund/advisory firm characteristics. In Panel A, the advisory firm returns are generated from 13F Holdings. The dependent variable is quarterly holdings-based returns in Columns (1) and (2), and characteristics-adjusted quarterly holdings-based returns (as in Daniel, Grinblatt, Titman, and Wermers, 1997) in Columns (3) through (5). All specifications also include year-quarter fixed effects. In Panel B, the returns are at the fund level, with gross returns as the dependent variables in Column (1) and gross alpha in Columns (2) through (4). Columns (1), (3), and (4) include style-by-time fixed effects while Column (2) includes only time fixed effects. T-statistics are provided in brackets with standard errors clustered by time. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. .

Panel A: Research team size and returns from 13F holdings

Dependent Variable:	**13F Holdings Q.Returns**	**13F Holdings Q.Returns**	**13F Holdings CA_Q.Returns**	**13F Holdings CA_Q.Returns**	**13F Holdings CA_Q.Returns**
	POOLED OLS	POOLED OLS	POOLED OLS	POOLED OLS	POOLED OLS
Predictive Variables	(1)	(2)	(3)	(4)	(5)
Log Advisory Employees	-0.025%	0.142%**	-0.028%	0.020%	0.050%
	[0.57]	[2.15]	[0.74]	[0.50]	[1.34]
Log Non-Advisory Employees		-0.142%***		-0.058%**	-0.041%
		[2.79]		[2.56]	[1.40]
Log Assets	0.040%	0.135%***	0.043%	0.082%**	0.052%
	[1.08]	[3.25]	[1.32]	[2.41]	[1.23]
Number of Clienteles		-0.090%***		-0.069%**	-0.095%***
		[3.60]		[2.42]	[3.64]
% of Advisor Assets on 13F		1.195%***		0.288%*	0.176%
		[3.31]		[1.86]	[1.28]
Individuals (dummy)		0.090%		0.045%	-0.059%
		[0.42]		[0.42]	[0.65]
High Net Worth (dummy)		0.159%		0.023%	0.038%
		[0.91]		[0.31]	[0.49]
Investment Companies (dummy)		-0.208%		-0.167%**	-0.096%
		[1.48]		[2.02]	[0.92]
Pooled Investment Vehicles (dummy)		0.106%		0.197%	0.072%
		[0.20]		[0.92]	[0.26]
Institutional Investors (dummy)		-0.087%		-0.059%	-0.025%
		[0.86]		[0.88]	[0.31]
CA_Q.Returns, prior12					0.115**
					[2.52]
CA_Q.Returns, prior13to24					0.039
					[1.54]
Observations	36414	35054	35229	33995	26630
Time Dummies	Year+Quarter	Year+Quarter	Year+Quarter	Year+Quarter	Year+Quarter

Panel B: Research team size and returns from mutual funds

Dependent Variable:	**Mutual Fund Gross Returns**	**Mutual Fund Gross Alpha**	**Mutual Fund Gross Alpha**	**Mutual Fund Gross Alpha**
	POOLED OLS	POOLED OLS	POOLED OLS	POOLED OLS
Predictive Variables	(1)	(2)	(3)	(4)
Average Research Team Size	-0.0001%	-0.001%	-0.0004%	-0.0004%
[Advisory Employees/Styles]	[0.19]	[1.33]	[0.52]	[0.64]
Non-Advisory Emp./Styles	-0.0002%	-0.0004%	-0.0001%	-0.0002%
	[0.50]	[0.75]	[0.24]	[0.56]
Gross Alpha, t,t-12				-0.477%
				[0.04]
Gross Alpha, t-13,t-24				-6.428%
				[0.60]
Expense Ratio (%)	-0.012	0.053	0.047	0.058*
	[0.39]	[1.51]	[1.36]	[1.92]
Log Fund Assets	0.003%	0.001%	0.012%	0.016%
	[0.71]	[0.15]	[1.16]	[1.34]
Fund Age	-0.0003%	-0.001%	-0.001%	-0.001%
	[0.66]	[1.09]	[0.99]	[1.57]
Log Advisory Firm Assets	0.013%**	0.018%**	0.008%	0.005%
	[2.47]	[2.26]	[1.65]	[1.00]
MF Family TNA/Advisory TNA	-0.017%	0.069%*	0.044%*	0.035%
	[0.57]	[1.80]	[1.79]	[1.28]
Number of Styles (advised)	0.001%*	-0.001%	0.000%	-0.0001%
	[1.93]	[0.77]	[0.18]	[0.24]
Observations	111776	110787	110615	97866
Fixed Effects	Style x Time	Time	Style x Time	Style x Time

Table 7: Advisory employees and changes in assets under management

Table 7 presents estimated coefficients from pooled OLS regression of future (annual) changes in assets under management on research team size and other fund/advisory firm characteristics. The sample period is from 2011 through 2015. The dependent variable in all specifications is *% Change Assets*, which is the percentage change in assets under management from the current year to the following year, as reported in Form ADV. Column (2) includes controls for clientele type, and Column (3) includes three lags of percentage change in assets. In Columns (4) and (5), we restrict the sample to advisory firms with 13f filings, and include contemporaneous holdings-based returns and prior three years of characteristics-adjusted quarterly holdings-based returns (as in Daniel, Grinblatt, Titman, and Wermers, 1997) All other explanatory variables are defined in Table 2. The dependent variable, *% Change Assets*, is winsorized at the 1% and 99% levels. All specifications include year fixed effects. T-statistics are provided in brackets with standard errors clustered by advisory firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. .

Dependent Variable:	**% CHANGE ASSETS**	**% CHANGE ASSETS**	**% CHANGE ASSETS**	**% CHANGE ASSETS**	**% CHANGE ASSETS**
	POOLED OLS	POOLED OLS	POOLED OLS	POOLED OLS	POOLED OLS
Predictive Variables	(1)	(2)	(3)	(4)	(5)
Log Advisory Employees	0.100***	0.086***	0.037***	0.023***	0.024***
	[19.33]	[16.94]	[8.98]	[3.44]	[3.45]
Log Non-Advisory Employees		0.039***	0.014***	0.005	0.001
		[9.90]	[4.05]	[1.05]	[0.21]
Log Assets	-0.092***	-0.112***	-0.039***	-0.025***	-0.011**
	[23.21]	[23.69]	[9.33]	[4.61]	[2.18]
Number of Clienteles		-0.029***	-0.001	-0.007	0.006
		[6.89]	[0.20]	[1.37]	[1.14]
% of Advisor Assets on 13F				0.040**	0.043**
				[2.32]	[2.38]
Individuals (dummy)		-0.068***	-0.019*	0.011	0.031*
		[5.94]	[1.93]	[0.68]	[1.75]
High Net Worth (dummy)		-0.029***	0.002	-0.006	0.015
		[3.30]	[0.27]	[0.51]	[1.22]
Investment Companies (dummy)		0.192***	0.049***	0.034	-0.016
		[8.45]	[2.80]	[1.61]	[0.82]
Pooled Investment Vehicles (dummy)		0.038***	-0.012	0.025	0.012
		[2.75]	[0.93]	[1.32]	[0.61]
Institutional Investors (dummy)		0.061***	0.008	-0.025*	-0.033***
		[4.99]	[0.70]	[1.66]	[2.22]
% Change in Assets, prior12			0.108***		
			[7.78]		
% Change in Assets, prior13to24			0.044***		
			[5.39]		
% Change in Assets, prior25to36			0.046***		
			[6.30]		
Contemporaneous Returns				2.421***	2.521***
				[11.33]	[10.24]
CA_Q.Returns, prior12					0.983***
					[4.30]
CA_Q.Returns, prior13to24					0.632***
					[3.14]
CA_Q.Returns, prior25to36					0.401**
					[2.24]
Observations	40574	40564	21700	8831	6264
Adjusted R2	0.07	0.09	0.06	0.11	0.14
Time Dummies	Year	Year	Year	Year	Year

Table 8: Advisory employees and mutual fund flows

Table 8 presents estimated coefficients from pooled OLS regression of monthly mutual fund flows on research team size and other fund/advisory firm characteristics. The sample consists of all equity mutual funds, including sector funds and funds that invest outside the United States, and the sample period is from January 2012 through December 2015. Columns (1) and (2) are univariate regressions with the second specification including style-by-time fixed effects. Column (3) controls for the past five years of performance measured by gross alpha, as well as other firm characteristics. Column (4) additionally controls for the number of non-advisory employees (per managed style) and Column (5) also controls for the number of portfolio managers managing the fund. Finally, Column (6) replaces gross alpha with net returns in measuring past performance. The dependent variable, *Flows (%)*, is winsorized at the 1% and 99% levels. All specifications except Column (1) include style-by-year fixed effects. T-statistics are provided in brackets with standard errors clustered by advisory firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. .

Dependent Variable:	**Flows (%)**	**Flows (%)**	**Flows (%)**	**Flows (%)**	**Flows (%)**	**Flows (%)**
	POOLED OLS	POOLED OLS	POOLED OLS	POOLED OLS	POOLED OLS	POOLED OLS
Predictive Variables	(1)	(2)	(3)	(4)	(5)	(6)
Average Research Team Size	0.012%***	0.010%***	0.009%**	0.010%**	0.010%**	0.009%**
[Advisory Employees/Styles]	[3.93]	[3.07]	[2.25]	[2.16]	[2.29]	[2.46]
Non-Advisory Emp./Styles				-0.001%	-0.001%	
				[0.96]	[1.22]	
Num of Managers at Fund					-0.040%*	
					[1.77]	
Prior Performance, t,t-12			2.163***	2.163***	2.160***	2.732***
			[22.70]	[22.71]	[22.64]	[26.45]
Prior Performance, t-13,t-24			0.952***	0.951***	0.951***	1.129***
			[7.71]	[7.71]	[7.66]	[9.11]
Prior Performance, t-25,t-36			0.623***	0.623***	0.620***	0.804***
			[6.90]	[6.91]	[6.85]	[10.33]
Prior Performance, t-37,t-48			0.234***	0.233***	0.233***	0.388***
			[3.87]	[3.87]	[3.84]	[6.29]
Prior Performance, t-49,t-60			0.224***	0.223***	0.221***	0.366***
			[4.18]	[4.17]	[4.14]	[7.69]
Expense Ratio (%)			-0.492***	-0.492***	-0.491***	0.042
			[3.21]	[3.21]	[3.19]	[0.35]
Log Fund Assets			-0.073%***	-0.072%***	-0.062%**	-0.070%***
			[2.61]	[2.59]	[2.21]	[2.99]
Fund Age			-0.005%*	-0.005%*	-0.006%*	-0.009%***
			[1.79]	[1.80]	[1.83]	[3.09]
Log Advisory Firm Assets			0.024%	0.024%	0.028%	-0.041%
			[0.62]	[0.64]	[0.73]	[1.25]
MF Family TNA/Advisory TNA			-0.067%	-0.065%	-0.091%	0.075%
			[0.32]	[0.31]	[0.43]	[0.41]
Number of Styles (advised)			0.004%	0.004%	0.004%	0.002%
			[1.12]	[1.12]	[0.95]	[0.61]
Observations	113273	112749	78287	78287	78106	91725
Adjusted R2	0.02	0.05	0.12	0.12	0.12	0.15
Fixed Effects	Time	Style X Time	Style X Time	Style X Time	Style X Time	Style X Time
Prior Performance Measure	X	X	Gross Alpha	Gross Alpha	Gross Alpha	Net Returns

Table 9: Advisory employees and mutual fund flows, additional tests

Table 9 presents estimated coefficients from pooled OLS regressions of various flow measures on research team size and other fund/advisory firm characteristics. The sample consists of all equity mutual funds, including sector funds and funds that invest outside the United States, and the sample period is from January 2012 through December 2015. In Column (1), the dependent variable is *Inflows (%)*, while in Column (2), the dependent variable is *Outflows (%)*. Column (3) restricts the sample to large advisors, those with more than $50 billion in assets under management, and Column (4) only includes small advisors, those managing less than $50 billion. In Columns (5), (6), and (7), we report the results separately for flows into Institutional classes, Broker-Sold classes, and Direct-to-investor classes. The dependent variables are all winsorized at the 1% and 99% levels. All specifications include style-by-year fixed effects. T-statistics are provided in brackets with standard errors clustered by advisory firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. .

Dependent Variable:	**Inflows (%)**	**Outflows (%)**	**Flows (%) Large Advrs**	**Flows (%) Small Advrs**	**Flows (%) Institutional**	**Flows (%) Broker-Sold**	**Flows (%) Direct-Sold**
Predictive Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Average Research Team Size	0.006%	0.002%	0.008%**	0.008%	0.013%**	-0.0001%	0.009%
[Advisory Employees/Styles]	[1.26]	[1.12]	[2.00]	[1.60]	[2.48]	[0.03]	[1.39]
Gross Alpha, t,t-12	1.517***	0.558***	1.967***	2.306***	2.761***	2.240***	2.082***
	[17.59]	[7.15]	[14.25]	[17.72]	[19.09]	[15.28]	[11.37]
Gross Alpha, t-13,t-24	0.743***	0.239***	0.887***	0.985***	1.513***	1.193***	0.528***
	[7.19]	[3.42]	[4.34]	[7.15]	[9.43]	[10.39]	[2.73]
Gross Alpha, t-25,t-36	0.558***	0.087	0.590***	0.658***	1.238***	0.776***	0.345***
	[5.30]	[1.47]	[4.14]	[6.34]	[10.11]	[7.12]	[3.29]
Gross Alpha, t-37,t-48	0.286***	-0.040	0.263***	0.191**	0.444***	0.244***	0.217***
	[3.63]	[0.77]	[3.23]	[2.10]	[3.86]	[3.02]	[2.64]
Gross Alpha, t-49,t-60	0.305***	-0.050	0.268***	0.182**	0.360***	0.180**	0.226**
	[5.64]	[1.23]	[3.94]	[2.28]	[3.76]	[2.35]	[2.42]
Expense Ratio (%)	-0.167	-0.417***	-0.458*	-0.575***	-0.011	-1.279***	-0.953***
	[1.08]	[2.70]	[1.90]	[2.96]	[0.04]	[5.81]	[3.04]
Log Fund Assets	-0.063%	-0.005%	-0.097%**	-0.072%*	-0.001%	-0.191%***	-0.137%***
	[1.56]	[0.16]	[2.50]	[1.83]	[0.03]	[5.35]	[2.80]
Fund Age	-0.021%***	0.013%***	-0.004%	-0.007%	0.002%	-0.005%	-0.008%*
	[5.82]	[4.59]	[0.95]	[1.44]	[0.27]	[1.46]	[1.91]
Log Advisory Firm Assets	0.061%	-0.049%	0.115%	0.011%	0.026%	0.003%	0.031%
	[1.45]	[1.49]	[1.19]	[0.18]	[0.38]	[0.04]	[0.47]
MF Family TNA/Advisory TNA	-0.167%	-0.011%	0.034%	-0.013%	0.294%	0.128%	0.259%
	[0.68]	[0.07]	[0.09]	[0.05]	[0.84]	[0.39]	[0.98]
Number of Styles (advised)	0.000%	0.004%	0.002%	-0.005%	0.006%	0.005%	0.002%
	[0.07]	[1.35]	[0.34]	[0.35]	[1.05]	[1.00]	[0.34]
Observations	66286	66286	42429	35858	50410	45276	24513
Adjusted R2	0.10	0.05	0.12	0.13	0.08	0.13	0.12
Fixed Effects	Style X Time	Style X Time	Style X Time	Style X Time	Style X Time	Style X Time	Style X Time
Advisor Assets	All Advisors	All Advisors	Assets>$50B	Assets<=$50B	All Advisors	All Advisors	All Advisors

Table 10: Advisory employees and active management

Table 10 presents estimated coefficients from measures of active management on research team size and other fund/advisor characteristics. In Column (1), the dependent variable is the natural logarithm of the number of securities held by each fund. In Column (2), the dependent variable is *Tracking Error (daily)*, the standard deviation across a year of daily excess returns relative to the fund's style average return. In Column (3), the dependent variable is *Active Share*, the Cremers and Petajisto (2009) measure of how a fund's holdings deviate from its closest benchmark. All independent variables are defined in Tables 2 and 3. All specifications include style-by-year fixed effects. In Column (3), the sample consists of actively-managed diversified domestic equity funds, while the other two columns include all actively-managed funds. T-statistics are provided in brackets with standard errors clustered by advisory firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. .

Dependent Variable:	**Log Number of Holdings**	**Tracking Error**	**Active Share**
Predictive Variables	(1)	(2)	(3)
Average Research Team Size	0.002*	-0.0003%**	-0.0002
[Advisory Employees/Styles]	[1.90]	[2.34]	[0.50]
Non-Advisory Emp./Styles	0.000	0.0002%	0.0004
	[0.75]	[1.36]	[1.22]
Num of Managers at Fund	0.039**	-0.0023%*	0.0015
	[3.11]	[1.69]	[0.78]
Expense Ratio (%)	-5.577	4.9156%***	6.7731***
	[0.92]	[5.75]	[3.88]
Log Fund Assets	0.143***	0.0001%	0.0038**
	[9.02]	[0.05]	[1.98]
Fund Age	-0.001	-0.0005%***	-0.0004*
	[0.86]	[3.30]	[1.88]
Log Advisory Firm Assets	0.057***	-0.0079%***	-0.0069**
	[3.71]	[4.10]	[2.07]
MF Family TNA/Advisory TNA	0.047	0.0183%**	0.0032
	[0.61]	[2.20]	[0.22]
Number of Styles (advised)	0.005***	-0.0002%	-0.0011***
	[3.12]	[1.50]	[3.93]
Observations	19987	15855	6115
Adjusted R2	0.49	0.50	0.44
Fixed Effects	Style X Time	Style X Time	Style X Time