Portfolio Manager Compensation in the U.S. Mutual Fund Industry

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ABSTRACT

We study compensation contracts of individual portfolio managers using hand-collected data of over 4,500 U.S. mutual funds. Variations in the compensation structures are broadly consistent with an optimal contracting equilibrium. The likelihood of explicit performance-based incentives is positively correlated with the intensity of agency conflicts, proxied by the advisor's clientele dispersion, its affiliations in the financial industry, and its ownership structure. Investor sophistication and the threat of dismissal in outsourced funds work as substitutes for explicit performance-based incentives. Finally, we find little evidence of differences in future performance associated to any particular compensation arrangement.

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Mutual funds are professionally managed investment vehicles that pool money from many investors to purchase securities such as stocks, bonds, and money market instruments. According to the Investment Company Institute, about half of all households in the United States invest in mutual funds, and the assets managed by them totaled more than $16 trillion at year-end 2016. Given the importance of mutual funds in the economy, understanding fund managers' incentives is a key issue for academics, regulators, practitioners, and individual investors. Due to lack of data on individual fund manager incentives, the literature has focused primarily on the design of the advisory contracts between fund investors and investment advisors (i.e., asset management companies).[1] Little is known about the compensation contracts of the actual decision makers – individual portfolio managers hired by advisors to manage the fund portfolio on a daily basis.

In March 2005, the U.S. Securities and Exchange Commission (SEC) adopted a new rule requiring mutual funds to disclose the compensation structure of their portfolio managers in the Statement of Additional Information (SAI).[2] For instance, mutual funds need to disclose whether portfolio manager compensation is fixed or variable, and whether compensation is based on the fund's investment performance and/or assets under management (AUM). For performance-based compensation, funds are required to identify any benchmark used to measure performance and to state the length of the period over which performance is measured. We analyze this mandatorily disclosed information to enhance our understanding of managerial incentives in the U.S. mutual fund industry and to test the predictions from models on portfolio delegation and contract design.

We hand-collect the information on portfolio manager compensation structures from the SAIs for a sample of over 4,500 U.S. open-end mutual funds over the period 2006–2011. We uncover the following stylized facts. First, almost all of our sample funds report that their portfolio managers receive variable bonus-type compensation as opposed to fixed salary. Second, the bonus component of compensation is explicitly tied to the fund's investment performance for 79.0% of sample funds. The performance evaluation window ranges from one quarter to ten years, and the average evaluation window is three years. Third, we find that for about half the sample, the manager's bonus is directly linked to the overall profitability of the advisor. Fourth, only 19.6% of sample funds explicitly mention that the advisor considers the fund's AUM when deciding

[1] See, e.g., Starks (1987), Grinblatt and Titman (1989), Golec (1992), Tufano and Sevick (1997), Coles, Suay, and Woodbury (2000), Deli (2002), Das and Sundaram (2002), Elton, Gruber, and Blake (2003), Golec and Starks (2004), Dass, Massa, and Patgiri (2008), Massa and Patgiri (2009), and Warner and Wu (2011).

[2] See SEC Rule S7-12-04, Disclosure Regarding Portfolio Managers of Registered Management Investment Companies, http://www.sec.gov/rules/final/33-8458.htm.

manager bonuses. Finally, we find that deferred compensation is present in almost 30% of the sample funds.

Incentives based on fund performance, AUM, and the advisor's profits are not necessarily mutually exclusive. Out of the observations that include variable compensation, 36.1% offer managers a bonus only based on investment performance; 14.5% offer a bonus only based on the advisor's profits, and only 0.9% offer a bonus based exclusively on AUM. For the remaining funds of the sample, managers receive some combination of the three types of bonus. For instance, in 11.3% of cases managers receive all three types of bonus simultaneously. These stylized facts contrast with the evidence on advisory contracts in the U.S., where AUM-based advisory fees are the predominant structure, and performance-based compensation is rarely observed (e.g., Elton, Gruber, and Blake (2003)).

Even though the SEC does not require funds to disclose the relative weights of potential bonuses (i.e., maximum bonus opportunity) and base salary, half of our sample funds voluntarily release such information. While some funds report a quantitative ratio of bonus over base salary, others describe it in qualitative terms. Among the funds that disclose quantitative information, about 35% of them report a bonus/salary ratio higher than 200%; about 70% report a ratio higher than or equal to 100%. For those funds that disclose qualitative information, about half of the cases claim that the bonus incentive is greater than base salary, while the other half mention that the bonus can be a significant part of total compensation. These findings suggest that variable bonus incentives play a significant role in portfolio manager compensation in the U.S. mutual fund industry.

Having documented the patterns at the descriptive level, we next study the determinants of compensation structures of portfolio managers. There exists an extensive theoretical and empirical literature since Holmstrom (1979) that studies managerial compensation contracts, especially performance-based incentives. Our unique data allow us to analyze for the first time the heterogeneity in the design of portfolio manager compensation in the U.S. mutual fund industry using a rich set of variables at the advisor, manager, and fund level proposed in the literature. In particular, our empirical analyses test three broad hypotheses.

Our first hypothesis states that performance-based contracts are costly to implement and will emerge as optimal only when agency conflicts are severe enough (e.g., Starks (1987), Grinblatt and Titman (1989), Li and Tiwari (2009), and Cuoco and Kaniel (2011)). We find strong and robust support for this prediction. In particular, performance-based pay is more likely when (i) the advisor has a more disperse clientele and is arguably more likely to engage in cross-clientele-subsidization

(e.g., Gaspar, Massa, and Matos (2006)); (ii) the advisor is affiliated to a bank or a broker-dealer, hence, more prone to take decisions that enhance the value of the bank or the broker rather than fund performance (e.g., Ferreira, Matos, and Pires (2017)); or (iii) the portfolio manager is not the founder or a significant stakeholder of the advisor, that is, in the absence of the incentive alignment induced by ownership (e.g., Jensen and Meckling (1976)). We also find similar evidence regarding deferred compensation. That is, compensation is more likely to be deferred when the intensity of agency conflicts is higher. This is consistent with the interpretation of deferred compensation as an instrument that alleviates the myopic behavior of portfolio managers and aligns their long-term objectives with those of fund investors.

Second, we find partial evidence in support of our second hypothesis, which claims that alternative mechanisms make explicit contract incentives redundant. We consider the following four mechanisms: (i) sophisticated investors could presumably be associated with better monitoring skills (e.g., Evans and Fahlenbrach (2012)); (ii) fund ownership by portfolio managers could serve as an incentive alignment mechanism (e.g., Khorana, Servaes, and Wedge (2007)); (iii) flow-performance relation may work as a disciplining mechanism (e.g., Chen, Goldstein, and Jiang (2008)); and (iv) external subadvisors of outsourced funds are subject to a higher threat of dismissal for underperformance (e.g., Chen, Hong, Jiang, and Kubik (2013)). We find mixed evidence in support of this hypothesis. On the one hand, the results support that investor sophistication, market discipline via flow-performance relation, and the threat of dismissal in outsourced funds work as substitutes for explicit performance-based incentives. On the other hand, we do not find evidence on the substitution effect for managerial fund ownership.

Third, we test whether portfolio manager characteristics are related to the design of compensation contracts. In particular, we test the following predictions: (i) performance-based incentives are more prevalent for managers with longer industry experience as they are less affected by career concerns (e.g., Chevalier and Ellison (1999)); (ii) performance-based contracts are less frequently observed for portfolio managers who manage multiple funds since they are likely to create conflicts of interest across funds; (iii) performance-based pay is more likely to be used in teams as it can restore efficiency in managers' effort decision (Holmstrom (1982)); (iv) advisor-profit-based pay is likely to be used in cities with more competition for managerial talent for retention purposes (e.g., Oyer (2004)). We find limited support for this hypothesis. In particular, we do not find evidence on managerial industry experience, the number of fund managed, or team management having a significant impact on the likelihood of adopting performance-based pay.

However, as predicted, advisors in cities with higher competition proxied by total city AUM tend to use advisor-profit-based incentives more often.

Our determinant analysis suggests that portfolio manager compensation contracts are designed to mitigate agency conflicts in the absence of alternative monitoring mechanisms, which is broadly consistent with an optimal contracting equilibrium. We conduct two additional tests to assess the robustness of our findings. First, we use simulations to show that our results are not spurious. In the simulations, we repeat the determinants analysis with randomly assigned compensation structures and find that all of the significant relations between the determinant variables and the actual compensation structures turn insignificant. This suggests that our data do capture meaningful information about portfolio manager compensation. Second, we carry out the determinant analysis over a subsample of funds with changes in the advisory firm (either the advisor or the subadvisor). We find similar evidence as our baseline results.

Next, we examine the determinants of the length of the evaluation period for the subset of contracts with performance-based pay. We find that portfolio managers' performance evaluation period is positively related to fund investors' investment horizon and that portfolio managers in team-managed funds are evaluated over shorter periods. In contrast, the evaluation period is unrelated to funds' portfolio turnover, tracking error volatility or managerial industry experience. We also find that larger families and families with higher asset growth tend to use longer evaluation periods.

Our last set of tests analyze whether portfolio manager compensation contracts are related to future fund performance or mutual fund fees. First, we find little evidence of future performance difference (gross or net of fees) associated to any particular compensation arrangement (including performance-based pay) after controlling for a comprehensive list of advisor, fund, and portfolio manager variables used in the determinant analysis. This result is again consistent with an optimal contracting equilibrium. Second, we find that performance-based contracts are associated with higher fund advisory fees (either in percentage or dollar value). For funds that operate in an environment with high potential for agency conflicts, advisors optimally choose to compensate portfolio managers with explicit performance-based contacts, which are costly and require charging higher advisory fees. These funds make up for the advisory fee disadvantage by charging lower marketing and distribution fees. The two effects offset each other, resulting in no difference in total fund fees for investors across compensation contracts with and without performance-based pay.

Our paper contributes to the vast literature on managerial incentives in the asset management industry. To the best of our knowledge, this paper is the first to systematically analyze the compensation of individual portfolio managers in the U.S. mutual fund industry.[3] The literature has thus far focused on advisory contracts between fund shareholders and investment advisors (see footnote 1). Our paper shifts the focus to within the investment advisors and studies the compensation structures of individual portfolio managers, an area overlooked but critical to understand managerial incentives in the mutual fund industry.

It is well documented in the prior literature that explicit performance-based incentives rarely exist in advisory contracts (e.g., Elton, Gruber, and Blake (2003) and Golec and Starks (2004)), likely due to the fact that advisory contracts are prohibited from having asymmetric incentive fees. In the meanwhile, there is an extensive literature that studies the implicit incentives embedded in the convex relationship between fund flows and performance.[4] These two pieces of evidence seem to indicate that the U.S. mutual fund industry relies mainly on implicit flow incentives to induce managerial effort. In contrast to this view, our study shows that, as predicted by agency theory (e.g., Li and Tiwari (2009)), explicit, asymmetric performance-based incentive contracts exist in the U.S. mutual fund industry. In particular, our results show that, in a less regulated setting, explicit performance-based incentives are the dominant form of compensation for portfolio managers and that they are used as an instrument to address agency conflicts in the absence of alternative mechanisms. Even though incentives based on the fund's AUM or the advisor's profit can be indirectly related to fund performance, our study shows that the economic factors underlying the design of those incentives are different from the drivers of explicit performance-based incentives in the compensation contract. Our findings can provide guidance for theoretical models on portfolio delegation in the asset management industry (e.g., Basak and Pavlova (2013), Buffa, Vayanos, and Woolley (2014), and Koijen (2014)).

Our study provides new insights into the heterogeneity of portfolio manager compensation contracts. Our findings suggest that the variation in the compensation structure of portfolio managers is broadly consistent with an optimal contracting equilibrium. Our evidence is largely in line with Almazan, Brown, Carlson, and Chapman (2004) and Chen, Goldstein, and Jiang (2008),

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[3] Farnsworth and Taylor (2006) use survey data from 396 portfolio managers to analyze the determinants of portfolio manager compensation structures. Given the nature of the data, their study is subject to self-reporting bias and sample selection bias. Recent work by Ibert et al. (2017) studies compensation of mutual fund managers in Sweden. Different from us, they do not observe the heterogeneity in compensation contracts across portfolio managers. In addition, the U.S. mutual fund industry we analyze is much bigger, more representative, and subject to different regulations.

[4] See, e.g., Brown, Harlow, and Starks (1996), Chevalier and Ellison (1997), Sirri and Tufano (1998), Basak, Pavlova, and Shapiro (2007, 2008), Huang, Wei, and Yan (2007), and Sialm, Starks, and Zhang (2015).

who apply the optimal contracting view to understand the determinants of mutual fund investment constraints and directors' ownership in mutual funds, respectively. Like these papers, we find that compensation contract features fail to predict future performance. Our paper is also related to many empirical studies on performance-based contracts in the executive compensation literature (see Edmans, Gabaix, and Jenter (2017) for a recent survey). For instance, using data based on a new SEC disclosure rule in 2006, De Angelis and Grinstein (2015) find evidence consistent with optimal contracting theory in the use of performance-based incentives in CEO compensation contracts in S&P 500 firms. Our paper also makes a unique contribution by providing evidence on the performance evaluation period of mutual fund managers. While it is not uncommon for prior literature to assume that mutual fund managers are evaluated based on their annual performance, we document that the most prevalent performance evaluation window is three-year.

The remainder of this paper proceeds as follows. Section I discusses the institutional background. Section II presents the data, compensation variable construction, and sample description. Section III examines the determinants of compensation structures and Section IV examines the determinants of performance evaluation period. Section V studies whether compensation structures are related to future fund performance and fund fees. Section VI sets forth our conclusions.

I. Institutional Background

Mandated by the Investment Company Act of 1940, mutual funds have a distinctive organizational structure. A typical mutual fund consists of fund shareholders and a board of directors. Shareholders, who are the owners of the funds, have specific voting rights to elect a board of directors that represents their interests. The board of directors is legally empowered to govern the fund. Its primary responsibility is to monitor the investment advisor (i.e., the asset management company), including reviewing and approving the advisory contract for the fund's management. Portfolio managers, who are employees of the investment advisor, make the day-to-day investment decisions for the fund. Selection, compensation, and removal of portfolio managers occur mostly at the advisor's discretion.

Investment advisors are compensated through advisory fees for providing portfolio management services to fund shareholders. In most cases, the advisory fee is specified as a percentage of the fund's total net assets (e.g., Deli (2002), Elton, Gruber, and Blake (2003), Golec and Starks (2004)). Only a small proportion (less than 5% in our sample) of mutual funds compensates their investment advisors using incentive fees based on fund investment performance

relative to a pre-specified benchmark. The advisory contract between fund shareholders and the investment advisor is constrained by regulation, which prohibits asymmetric incentive fees. According to section 205 (a) (1) of the Investment Advisers Act of 1940, the incentive fees received by an investment advisor must be symmetric relative to a benchmark, with any increase in fees for above-benchmark performance matched by a symmetric decrease in fees for below-benchmark performance. In contrast, the compensation contract between the investment advisor and portfolio managers, which we examine in this study, is not subject to this regulatory restriction.[5]

While the advisory contract between fund shareholders and the investment advisor has been disclosed to the investors for decades (e.g., via the SEC N-SAR Form), little is known about the compensation contract between investment advisors and portfolio managers. Since March 2005, the SEC has required mutual funds to disclose in their SAIs the structure of their portfolio managers' compensation and the method used to determine it. This new disclosure requirement is part of a series of regulations the SEC introduced in 2004 to improve the transparency of the mutual fund industry and to help investors better understand portfolio managers' incentives.

Per the disclosure requirement, portfolio manager compensation includes, without limitation, salary, bonus, deferred compensation, and whether the compensation is cash or non-cash. For each type of compensation, a fund is required to specifically describe the criteria on which such compensation is based: for example, whether the compensation is fixed, whether (and how) compensation is based on the fund's pre- or after-tax performance over a certain period, and whether (and how) compensation is based on the value of assets held in the fund's portfolio. In the case of a performance-based bonus, a fund is required to identify any benchmark used to measure performance and to state the length of the period over which performance is measured. It is important to note that mutual funds are required to disclose only the criteria upon which compensation is based, but not the dollar value of compensation received by portfolio managers.

II. Data, Variables, and Sample Overview

A. Data Sources

We construct our sample from several data sources. Our first data source is the survivor-bias-free Morningstar Direct Mutual Fund database, which covers U.S. open-end mutual funds and

[5] The SEC memorandum enclosed with Congressional Correspondence on Mutual Funds and Derivative Instruments dated September 26, 1994, footnote 35 states that "the Investment Advisors of 1940 prohibits most types of performance fees for registered investment advisers, but this prohibition does not apply to the compensation arrangements that investment advisers have with their employees, including mutual fund portfolio managers."

includes information about fund names, fund net-of-fee returns, AUM, inception dates, expense ratios, turnover ratios, investment objectives, fund tickers, benchmark portfolios, portfolio manager names, advisor names, fund family names, and other fund characteristics.

Our sample covers diversified domestic equity funds, bond funds, asset allocation funds, global funds, sector funds, and funds in miscellaneous categories such as alternative strategy funds. We exclude money market funds and closed-end funds from our sample. We identify and exclude index funds using their names as well as Morningstar and CRSP index fund identifiers.[6] We also exclude funds with multiple investment advisors. Following Elton, Gruber, and Blake (2001), Chen, Hong, Huang, and Kubik (2004), and Pastor, Stambaugh, and Taylor (2015), we exclude funds with less than $15 million in TNA (total net assets). For funds with multiple share classes, we compute fund-level variables by aggregating across the different share classes. Specifically, we calculate total AUM as the sum of assets across all share classes and compute the value-weighted average of other fund characteristics across share classes.

Another data source is the SEC EDGAR (Electronic Data Gathering, Analysis, and Retrieval) database. We retrieve from EDGAR the SAI for each fund in our sample for each year from 2006 to 2011. We then manually collect the information on the structure of and the method used to determine the compensation of portfolio managers. Moreover, we collect the ownership stake that portfolio managers have in the funds they manage, which is disclosed in seven ranges in the fund's SAI.[7] In addition, we obtain performance-based advisory fee information contained in the N-SAR filings available via EDGAR. The N-SAR data set is then matched by fund ticker and fund name to the Morningstar database.

Finally, we obtain data on investment advisor characteristics in Form ADV from the SEC. Form ADV is the form used by investment advisors to register with the SEC. This form specifies the advisor's business practices, AUM, clientele, number of employees, financial industry affiliations, ownership structure, and other advisor-level characteristics. To match the investment advisors of our sample funds to the sample of advisors that filed Form ADV, we use fund ticker to

[6] Similar to Pastor, Stambaugh, and Taylor (2015), we remove funds with Morningstar index fund indicator equal "Yes". We also exclude from our sample funds whose names contain any of the following text strings: Index, Ind, Idx, Indx, Mkt, Market, Composite, S&P, SP, Russell, Nasdaq, DJ, Dow, Jones, Wilshire, NYSE, iShares, SPDR, HOLDRs, ETF, Exchange-Traded Fund, PowerShares, StreetTRACKS, 100, 400, 500, 600, 1000, 1500, 2000, 3000, 5000 (e.g., Busse and Tong (2012), Ferson and Lin (2014), Busse, Jiang, and Tang (2017)).

[7] The SEC requires mutual funds to disclose portfolio managers' ownership stakes in the fund using the following seven ranges: $0, $1–$10,000, $10,001–50,000, $50,001–$100,000, $100,001–$500,000, $500,001–$1,000,000, and above $1,000,000.

obtain the SEC File Number, which is a unique identifier that the SEC assigns in Form ADV to each investment advisor.

B. Construction of Compensation Variables

As discussed above, mutual funds are not required to disclose the actual dollar amount of compensation received by their portfolio managers. Instead, they must disclose only the structure of and the method used to determine portfolio manager compensation. To capture the different aspects of compensation structures of portfolio managers, we construct the following variables.

Fixed salary: Portfolio manager compensation can be a fixed salary or a fixed salary plus a variable component, commonly referred to as a bonus. To differentiate between these two types of compensation structure, we use an indicator variable, *Fixed Salary*, which equals one if the portfolio manager's compensation is fixed, and zero if the compensation has both a fixed and a variable component.

Performance pay: For those portfolio managers who have both a fixed salary and a variable bonus, the SEC requires the fund to disclose whether the bonus is based on the fund's investment performance. The indicator variable *Performance Pay* equals one if the bonus is explicitly linked to fund investment performance, zero otherwise.

Evaluation period: If compensation is based on the manager's investment performance, a fund is required to state the length of the period over which performance is measured. In many cases, funds report multiple evaluation periods such as "one-, three-, and five-year window". We construct the following variables: *Evaluation period Min (Max),* which takes the value, in years, of the shortest (longest) evaluation window. *Evaluation period Mean* is calculated as the mean of the shortest and longest evaluation periods.

AUM pay: For those portfolio managers who have both a fixed salary and a variable bonus, the SEC requires the fund to disclose whether the bonus is based on the value of assets held in the fund's portfolio. We construct an indicator variable, *AUM pay*, which equals one if the portfolio manager's compensation is explicitly tied to fund AUM, zero otherwise.

Advisor-profit pay: Similar to *Performance pay* and *AUM pay*, we construct an indicator variable, *Advisor-profit pay*, which takes the value of one if portfolio manager compensation is explicitly tied to overall profits of the investment advisor, zero otherwise.

Deferred compensation: Investment advisors can also impose a vesting period before a bonus is actually paid to portfolio managers. Sometimes investment advisors add a hurdle condition that must be met in the future before the payment becomes effective. In most cases, the

description of deferred compensation in funds' SAI is not detailed enough to quantify the actual amount of deferred compensation. Thus, we create a dummy variable, *Deferred compensation*, that takes the value of one if the compensation description includes a deferred compensation plan and zero otherwise.

Note that, except for *Fixed salary*, the variables that describe compensation structures are not necessarily mutually exclusive. Part A of the Internet Appendix provides examples to illustrate how we construct the compensation structure variables based on the SAI information.

C. Sample overview: Compensation structures

Our final sample consists of 4,597 unique mutual funds from 479 fund families managed by a total of 744 investment advisors, covering 20,347 fund-year observations. These observations are evenly distributed across the sample period of 2006–2011. The sample distributions across investment objectives are as follows: diversified domestic equity funds (39.2%), bond funds (29.3%), global funds (14.6%), allocation funds (8.0%), and others including sector funds (8.9%).

We report summary statistics of portfolio manager compensation structures at the fund-year level for our sample funds in Table I.[8] Panel A shows that fixed salary is rarely observed in the sample. Only 1.32% of funds in the full sample claim that their managers' compensation is fixed and does not vary with any factor. In the vast majority of cases, portfolio manager compensation consists of both a fixed base salary and a variable component, namely, a bonus. We find that for 79.04% of our sample funds, portfolio manager compensation is directly linked to fund investment performance. As for the length of the period over which investment performance is measured, the vast majority of funds report multiple evaluation periods (e.g., one-, three-, and five-year windows). The average evaluation window (reported in Panel B) is about three years on a rolling-window basis. The variation in evaluation periods is significant, with the longest evaluation window being ten years and the shortest being one quarter.

[Insert Table I here]

Performance-based incentives are asymmetric: advisors reward managers for outperformance relative to a pre-assigned benchmark, but do not equally penalize them for underperformance. For example, in describing Victory Value Fund's portfolio manager compensation in 2011, the SAI states that "performance in an upper decile may result in an incentive bonus that is 150% of the target while below-average performance may result in an

[8] See Table IA.I of the Internet Appendix for summary statistics of the diversified domestic equity fund subsample.

incentive bonus as low as zero." Contrary to the pattern in advisory contracts, in the majority of cases, portfolio manager compensation is not explicitly tied to the fund's AUM. Only 19.61% of funds in our sample explicitly mention that the investment advisor considers the fund's AUM when deciding the bonus in portfolio manager compensation. Moreover, we find that for 50.89% of our sample funds, portfolio manager compensation is explicitly stated to be linked to the profitability of the investment advisor. Arguably, the compensation of these portfolio managers is indirectly tied to the fund's AUM and performance, since the advisor's profitability depends on the advisory fee rates and the advisor's total AUM, which also vary with fund performance. Finally, about 30% of the observations in the full sample include some form of deferred compensation.

As mentioned above, incentives based on performance, advisor profits, and AUM are not mutually exclusive. We further break down the distribution of these three types of bonus in Panel C of Table I. We find that, out of 20,079 fund-year observations that include variable compensation, 36.1% offer managers a bonus only based on investment performance; 14.5% offer a bonus only based on the advisor's profit, and only 0.9% offer a bonus based exclusively on AUM. For the remaining funds of the sample, managers receive some combination of the three types of bonus. The combination of *Performance pay* and *Advisor-profit pay* is the most frequent, with 25.4% of fund-year observations. The second most frequent combination, with 11.3% of observations, includes all three types of bonus simultaneously. In the third place, we find the combination of *Performance pay* and *AUM pay*, with 7.3% of observations. The combination of *AUM pay* and *Advisor-profit pay* is really marginal, with only 0.3% of observations. Finally, there is 4.1% of cases where the manager's compensation is entirely subjective and does not depend on any specific stated factor. These statistics speak to the empirical relevance of performance-based bonuses and to the low prevalence of incentives explicitly based on the fund's AUM, both in isolation and in combination with other incentives.

We also collect data on the magnitude of the potential bonus incentive (i.e., maximum annual bonus opportunity) relative to the base salary (here forth the bonus/salary ratio). Even though the SEC does not require funds to disclose such information, about half of our sample funds (i.e., 11,903 fund-year observations) voluntarily release some information about the relative weights of potential bonuses vs. base salary. We report the summary statistics in Panel D of Table I. First, we observe 1,256 fund-year observations with quantitative information on the bonus/salary ratio. Among those, 68.3% of cases report that the potential bonus is greater than or equal to the base salary. In a further breakdown, we find 35.0% of cases with a ratio greater than 200%. Second, we obtain qualitative information on the bonus/salary ratio for a sample of 10,647 fund-year

observations. In approximately half of the cases, the bonus incentive is greater than the base salary. In particular, in 35.6% of cases, the SAI states that the bonus may exceed the base salary, and in 12.5% of cases it states that the bonus could be multiple times the base salary. In another 47.7% of cases, fund companies disclose that the bonus can be a "significant"/"primary"/ "material"/"substantial" portion of the total compensation. In summary, the information we collect about the relative size of bonus vs. base salary suggests that bonus incentives play a significant role in portfolio manager compensation in the U.S. mutual fund industry.

If portfolio manager compensation is linked to fund investment performance, the SEC requires the funds to identify any benchmark used to measure performance. We find that out of 16,082 observations with performance-based compensation, 77.9% disclose the benchmark(s) used to evaluate performance. For example, a common benchmark for large-cap value equity funds is the Russell 1000 Value Index. For the remaining observations, we find no benchmark information or the information is rather vague: for instance, "appropriate benchmark" or "applicable peer groups."

We conclude the description of managerial compensation data with the correlation matrix of compensation structures reported in Panel E. Performance-based compensation is negatively correlated with compensation based on the advisor's profit but positively correlated with compensation based on the fund's AUM. The evaluation period tends to be shorter when the manager's compensation depends on the fund's AUM or the advisor's profit, besides the fund's performance. It is also shorter when at least part of the compensation is deferred.

We observe that portfolio manager compensation structures do not change much over time during our sample period (see Table IA.II of the Internet Appendix). Moreover, we find that cross-sectional variation in portfolio manager compensation structures arises mainly at the fund family or advisor level (a given family may have more than one advisor if one or more funds are outsourced to an unaffiliated subadvisor). In particular, we find that only 15% of family-year observations show some within-family variation in *Performance pay*, *Advisor-profit pay*, or *Deferred compensation,* and this percentage decreases to 13% for *AUM pay*. 30% of the family-year observations exhibit some within-family dispersion in *Evaluation period Mean*. In the case of team-managed funds, we do not observe much variation in the structure of compensation for different managers working for the same fund. The only exception is when one manager in a team is the controlling owner of the advisory firm. In such cases, we consider only the owner manager's compensation structure in our analysis. Given the nature of variation in our data, we conduct our

analysis at the fund-year level and cluster the standard errors at the family level in all our regression specifications to account for the within-family residual cross-correlation (Petersen (2009)).

III. Determinants of Portfolio Manager Compensation Structures

A. Hypothesis Development

There exists an extensive literature that studies managerial compensation contracts. In the mutual fund industry, the portfolio manager compensation contract is the outcome of an unobserved negotiation between the individual manager and the investment advisor for the provision of asset management services to fund investors. Our unique data allows us to analyze for the first time the determinants of portfolio manager compensation structures using a set of variables at the advisor, manager, and fund level proposed in the literature. We structure our empirical tests based on three broad hypotheses, which we discuss in detail below.

Hypothesis 1. *Performance-based pay and deferred compensation are more prevalent when the intensity of agency conflicts is higher.*

Our first empirical hypothesis comes from theoretical predictions of optimal contracting theory. The relative performance bonus feature, in particular, is consistent with the informativeness principle in contract theory (Holmstrom (1979) and Grossman and Hart (1983)).[9] In the setting of portfolio management delegation, the manager not only chooses the portfolio's risk, but also decides the amount of effort to manage the fund. A number of theoretical models predict that optimal contracts must include an asymmetric, performance-based component where the performance is measured relative to an optimal benchmark (e.g., Starks (1987), Li and Tiwari (2009), and Cuoco and Kaniel (2011)). This begs the question of why we do not observe relative performance-based contracts among all portfolio managers. The reason is that these contracts are potentially costly for advisors and, ultimately, fund investors. First, these complex contracts entail direct information-processing and monitoring cost.[10] More importantly, there are also indirect costs associated to these contracts. For instance, to induce the required level of effort, risk-averse managers are exposed to more risk than they would like to take and must be compensated for bearing the extra risk. Furthermore, Grinblatt and Titman (1989) show that managers compensated with asymmetric performance contracts may have perverse incentives to "game" the contract and

[9] The informativeness principle of Holmstrom (1979) implies that any signal that, at the margin, reveals information about an agent's effort should be included in the contract.

[10] For instance, the contract must specify the benchmark(s), the evaluation period, the sensitivity of bonus pay to relative performance, whether the bonus is based on before- or after-tax performance, etc.

take excessive risk at the expense of fund investors. Finally, Garvey and Milbourn (2003) suggest that relative performance pay may induce unwanted managerial turnover if managers' outside opportunities fluctuate with the market. Essentially, the cost-benefit tradeoff predicts that, only if agency conflicts are severe enough, performance-based contracts will emerge as optimal.

We identify potential conflicts of interest at two layers: (i) between the investment advisor and the fund investors; and (ii) between the investment advisor and the portfolio manager. First, regarding the relation between the advisor and the investors, we use two proxies: (i) heterogeneity of the advisor's clientele (*Client HHI*), which is defined in the Appendix, and (ii) the advisor's affiliations in the financial industry. Arguably, a more heterogeneous clientele could exacerbate the conflicts of interest between the advisor and the mutual fund investors as it increases the likelihood of more managerial talent or effort being allocated to other clients other than the mutual fund. Likewise, we argue, managers working for advisors with a more diverse clientele are more likely to engage in cross-client subsidization (e.g., Gaspar, Massa, and Matos (2006), and Chaudhuri, Ivković, and Trzcinka (2017)). Based on the predictions from optimal contracting theory, we expect that advisors with more dispersed investor clientele are more likely to use performance-based incentives (*Performance pay*) as the former scheme signals to fund investors that the portfolio manager's incentives are aligned with the investors' objective, that is, fund performance. At the same time, when the advisor's clientele is more disperse, the advisor will likely have more diverse investment strategies and hire managers with different skill sets. Hence, the advisor's profit becomes a less precise signal of a given individual manager's effort due to the disparity of capital sources, strategies, and models behind the advisor's profit. According to Holmtrom's informativeness principle, managers' compensation should be less likely associated with the advisor's profit when the advisor has a more disperse clientele.

Next, we investigate the affiliations of the investment advisor. Form ADV from the SEC states that such information "identifies areas in which conflicts of interest may occur." In particular, we study whether the advisor is affiliated to a broker (*Broker*), hence likely to be more interested in increasing fund trading volume and turnover than performance. Another source of agency conflicts may come from affiliation to a bank (*Bank*). Bank-affiliated mutual funds may engage in activities to support the controlling banks at the expense of mutual fund investors (e.g., Golez and Marín (2015), Ferreira, Matos, and Pires (2017), and Gil-Bazo, Hoffman, and Mayordomo (2017)). Whether affiliated to a broker or a bank, we expect that the likelihood of explicit performance-based compensation is higher as it serves as a mechanism to curb these agency conflicts.

Further, regarding the conflicts between the advisor and the portfolio manager, we use two variables: (i) a dummy variable (*Owner*) that identifies whether the manager is a founder or a significant stakeholder of the advisor, and (ii) the manager's ownership in the advisor (*Adv. ownership*). Higher ownership aligns the objectives of the advisor and the manager (e.g., Jensen and Meckling (1976)) and reduces the information asymmetry and the intensity of moral hazard concerns. Hence, we would expect lower prevalence of performance-based pay when managers have higher ownership in the advisor or when they are the founder or a significant stakeholder of the advisory firm. Additionally, we expect managers who are simultaneously a significant investor or a founder of the advisor to participate in the advisor's profit.

We also note that our data allows us to analyze deferred compensation of portfolio managers, which has never been studied before.[11] Based on the description of managerial compensation from funds' SAI, we conjecture that deferred compensation is designed to alleviate myopic behavior of portfolio managers and better aligning their long-term objectives.[12] We thus expect that the need of deferred compensation increases when the intensity of agency conflicts is higher.

Hypothesis 2. *Alternative mechanisms make explicit performance-based incentives redundant.*

The substitution of explicit contract incentives with alternative monitoring mechanisms has been formalized in the theoretical literature (e.g., Arnott and Stiglitz (1991) and Gibbons and Murphy (1992)). We consider several monitoring mechanisms related to (i) fund investors, (ii) portfolio managers, (iii) the mutual fund market, and (iv) advisory firms. In particular, at the investor level, we construct proxies for the investor sophistication. At the manager level, we study the portfolio manager's investment in the fund ("skin in the game"). As for "market discipline," we study the fund's flow-performance sensitivity. Finally, we investigate the role of advisors' monitoring in the case of outsourced funds. We discuss each mechanism in detail below.

First, more sophisticated investors could be associated with better monitoring skills (e.g., Evans and Fahlenbrach (2012)), hence lowering the intensity of moral hazard and the need for explicit performance-related compensation schemes. Following Evans and Fahlenbrach (2012),

[11] In a different setting from our analysis, Khorana, Tufano, and Wedge (2007), and Chen, Goldstein, and Jiang (2008) study the effect of deferred compensation plans in the compensation of fund board directors.

[12] The following example is from RREEF America L.L.C., a subsidiary of Deutsche Asset & Wealth Management.: "There is a deferred component of the incentive compensation…that takes the form of Deutsche Bank AG corporate stock that vests over time, currently four years. Deutsche Bank stock broadly aligns the team with broader bank goals, and the deferral creates effective to discourage departures, especially to competitors."

we measure investor sophistication using a dummy variable of pure institutional mutual funds (*Institutional fund)* that takes value of one if all share classes of the fund are institutional share class. As a robustness test, we also use the fund's *Average account size* as a proxy for higher monitoring incentives (Massa and Patgiri (2009)). As expected, we indeed find that institutional funds have a significantly larger average account size. This argument would predict a lower need of performance-based incentives for institutional funds or funds with higher average account size. However, the opposite could be true if investors with higher sophistication are able to negotiate (or self-select into) performance-based contracts that are more in line with their interests. Whether our proxies are associated with a decrease or an increase in the likelihood of performance-based compensation is, therefore, an empirical question.

Second, portfolio managers may own shares of the mutual funds they manage. Such fund ownership by portfolio managers could also serve as an incentive alignment mechanism. Studies show that managerial fund ownership is associated to superior fund performance and less agency-induced risk taking (e.g., Khorana, Servaes, and Wedge (2007), Ma and Tang (2017), Lee, Trzcinka, and Venkatesan (2018)). We therefore collect data on managerial fund ownership (*Fund ownership*) and test whether fund ownership works as a substitute to performance-based compensation.

Third, we consider the redemption mechanism in the mutual fund market as a monitoring devise. Chen, Goldstein, and Jiang (2008) argue that when investment flows are more sensitive to performance, the market provides incentives for the managers to work harder. Thus, we test whether market discipline via the flow mechanism (*Flow-perf. sensitivity*) and explicit performance-based compensation are substitutes.

Finally, we study the interaction between the threat of dismissal outside firm boundaries and compensation contract design. Chen, Hong, Jiang, and Kubik (2013) find that due to the difficulty to coordinate incentives outside firm boundaries, managers of outsourced funds are subject to higher threat of dismissal (i.e., terminating the subadvisory contract) for poor performance than in-house managed funds. We test whether the advisor's threat of dismissal is related to the subadvisor's design of portfolio manager compensation. If these mechanisms work as substitutes for effort inducement, we should observe lower incidence of performance-based pay among subadvised funds (*Subadvised*) compared to in-house funds, all else being equal.

Hypothesis 3. *Compensation contract design is related to portfolio managers' characteristics.*

We investigate whether various characteristics of portfolio managers are related to the design of the compensation contract, including (i) managerial experience, (ii) the number of funds

managed by the portfolio manager, (iii) solo- vs. team-management, and (iv) the manager's outside labor opportunities.

First, the tournament model of Heinkel and Stoughton (1994) predicts that more experienced managers are more likely to receive performance-based incentives as their negotiation power increases with experience. Moreover, career concerns are less powerful as a disciplining mechanism for more experienced managers as they are likely to be more entrenched (e.g., Gibbons and Murphy (1992) and Chevalier and Ellison (1999)). Thus, performance-based pay may work as an alternative mechanism to discipline more experienced managers. Both arguments predict a positive relation between the portfolio manager's experience (*Experience*) and performance-based compensation.

Second, as the number of funds managed by the same portfolio manager increases, performance-based contracts could create agency conflicts between different funds (i.e., due to cross-fund subsidizations), especially if only a subset of these funds employ them.[13] As it could be costly for the advisor to monitor these agency conflicts, we would expect to observe less performance-based pay as the number of funds managed by the same manager (*#Funds managed*) increases. On the other side, we could argue that "busier" portfolio managers (those with more accounts under management) need more explicit incentives for effort expenditure. If this effect dominates, we would expect a positive relation between *Performance pay* and the number of funds managed.

Third, free-rider problems may emerge among portfolio management teams, which distorts effort provision incentives. Holmstrom (1982) predicts that performance-based contracts can restore efficiency in managers' effort decision in teams. At the same time, ascribing performance to individual manager's effort will be noisier in team-managed vs. solo-managed funds, which would predict lower incidence of performance-based pay in team-managed funds based on Holmstrom's informativeness principle. Ultimately, whether team management (*Team*) is associated with higher or lower likelihood of performance-based pay is an empirical question.

Finally, we explore how the manager's outside options may be related to contract design. In particular, linking manager's pay to the advisor's profit may work as a retention mechanism when expensive contract renegotiations are more likely. The model of Oyer (2004) assumes that

[13] As an example, the following statement is included the SAI of the Small and Mid-value Calvert funds managed by Channing Capital Management, LLC: "Whenever a portfolio manager manages other accounts, including accounts that pay higher fees or accounts that pay performance-based fees, potential conflicts of interest exist, including potential conflicts between the investment strategy of the Fund and the investment strategy of the other accounts and potential conflicts in the allocation of investment opportunities between the Fund and such other accounts."

renegotiating compensation is costly. Hence, it may be optimal for the advisor to tie the manager's compensation to her outside opportunities, proxied in his model by the advisor's profit, even if this mechanism does not directly improve fund performance.[14] Thus, we conjecture that renegotiation is more likely and costly (due to competition for talent) when the advisor is located in cities with higher density of advisors, measured by the total assets under management by other advisory firms in the same city (Ln(*City AUM*)). By the same argument, we would expect this variable to be positively related to *Deferred compensation* if this structure is used as a retention mechanism.

B. Empirical Methodology

We employ the following logistic model to analyze the determinants of the compensation structures of portfolio managers.

$$y_{i,t}^{*j} = \alpha + \beta Determinants_{i,t-1} + \gamma Controls_{i,t-1} + \lambda y_{i,t}^{-j} + \delta_{org,t} + \tau_t + \varepsilon_{i,t},$$

$$y_{i,t}^{j} = 1\,[y_{i,t}^{*j} > 0], \tag{1}$$

where *i* indexes mutual funds and *j* indexes compensation structure; $y_{i,t}^{j}$ is a dummy variable equal to one if the compensation of portfolio managers that manage fund *i* includes, respectively, the structure *j = {Performance Pay, Advisor-profit pay, AUM pay,* or *Deferred pay}* in year *t,* zero otherwise; $Determinants_{i,t-1}$ is a vector of lagged determinant variables discussed in Section III.A; $Controls_{i,t-1}$ is a vector of lagged control variables at the family level (family size and asset growth) and at the fund level (objective, size, age, and expense ratio); $\delta_{org,t}$ is a vector of dummy variables for the advisor's legal organization form (corporation, LLC, partnership, other); τ_t refers to year dummies. Since compensation structures are not mutually exclusive, we control in each specification the three alternative compensation structures ($y_{i,t}^{-j}$) to isolate the relation between the determinant variables and each pay structure. To alleviate reverse causality concerns, we lag all determinant and control variables by one year. Since the compensation structures of funds from the same family can be correlated, we adjust standard errors accounting for heteroscedasticity and clustering at the family level (Peterson (2009)).

[14] Oyer (2004) cites as an example a study by Drago and Heywood (1995) on Australian firms where "profit sharing is relatively common at firms whose workers are highly skilled and who have invested in firm-specific human capital", and "(managerial) turnover is negatively associated with profit sharing, which is consistent with profit sharing having a stabilizing effect."

As specified in Equation (1), we control for various advisor, fund, and family characteristics that may affect compensation contract design. First, we control for the advisor's legal organization form. The separation between ownership and control is likely to be lower in sole proprietorships and partnerships than in corporations, which indicates lower intensity of agency conflicts. Thus, we expect a lower incidence of *Performance pay* and a higher incidence of *Advisor-profit pay* among the former type of advisors. Larger family size may also be an indicator of more complex structures with higher cost of direct monitoring, hence increasing the need for performance-based pay. On the other side, the larger the family size, the lower the marginal contribution of a particular portfolio manager to the advisor's profit, which suggests less *Advisor-profit pay* among larger families. Moreover, we include family asset growth as a control variable. As the fund family's AUM grow, both bonuses and the manager's base salary are likely to be positively affected. If the base salary increases enough, it may work as a substitute for other explicit incentives in the contract. We also control for the fund's *Tracking error volatility*. Holmstrom's informativeness principle suggests that more volatile (relative) fund performance should be associated with lower prevalence of *Performance pay.* Finally, we control for the fund's investment objective, size, age, and expense ratio in the regressions to account for the possibility that certain fund characteristics may be associated to a particular type of contract.[15]

Before we analyze the regression results, we present in Table II the summary statistics of all the variables at the advisor, fund, and portfolio manager level that we use to explain the heterogeneity in compensation contracts. Variable definitions and data sources are shown in detail in the Appendix. For advisor characteristics, the mean value of advisor clientele dispersion (*Client HHI*), measured by the Herfindahl-Hirschman Index across ten different client types disclosed in Form ADV, is 0.35. In 83% of the observations, the advisor is affiliated to a broker-dealer and the percentage is 65% for affiliation to a bank; in 18% of observations, the portfolio manager is the founder, controlling owner, principal partner, or block holder of the advisor (*Owner*). Portfolio managers own, on average, 8.0% of the shares of the advisor firm they work for (*Advisor ownership*), with a median ownership of zero. Similar to prior studies (e.g., Chen, Hong, Jiang, and Kubik (2013)), about 21% of our sample funds are managed by an external subadvisor.[16]

[15] Including fund size and expense ratio could control for the fund manager's perceived skill, according to Berk and Green (2004).

[16] We follow Chen, Hong, Jiang, and Kubik (2013) and classify a fund as externally subadvised (outsourced) if the advisor or subadvisor managing the portfolio is not affiliated with the mutual fund family. The SEC defines "affiliated" as either ownership of or some controlling interests in the other party. We first check the family name and the advisor name, both obtained from N-SAR filings. When the two names do not match, we use the information in the fund's SAI to check whether there exists any affiliation between the two.

Finally, the mean value of the total AUM of other advisors headquartered in the city (*City AUM*) is $2,606 billion, with the median being $571.6 billion as the distribution is right-skewed.[17]

[Insert Table II here]

Regarding fund and portfolio manager characteristics, we first observe that about 6% of the observations are classified as pure institutional funds. For an average fund, the average account size is close to $6,000 and the flow-performance sensitivity is 0.04. On average, the portfolio manager owns about $370,000 in her fund, has almost ten years of industry experience, and manages about six funds. 66% of the funds are managed by a team. Table IA.III in the Internet Appendix includes the correlation matrix of all determinant variables.

Finally, looking at the control variables, an average fund in our sample has about $1.5 billion in AUM, around 15-year history, and an expense ratio of 1.17%. Such fund is part of a family of funds with a total of $86.5 billion AUM, with asset growth at 13% a year (including both net flows and return on AUM). The average tracking error volatility is about 5% and the average portfolio turnover is 92%. Less than 5% of funds include a performance adjustment in the advisory fee contract. We also consider the advisor's organization form. The distribution across the five different forms for all fund-year observations is as follows: corporation (55.9%), limited liability company (LLC) (28.4%), partnership (4.1%), sole proprietorship (0.03%), and others (11.6%).

C. Empirical Results on the Determinants of Compensation Structures

In this section, we analyze the results from the logistic regressions on the determinants of compensation structures of portfolio managers in the U.S. mutual fund industry.[18] We present the results in Table III and group the key explanatory variables by hypothesis: first the proxies for the intensity of agency conflicts (*Hypothesis 1*), then the variables regarding alternative monitoring mechanisms (*Hypothesis 2*), and, finally, managerial characteristics (*Hypothesis 3*). We discuss the results for each hypothesis in detail below.

[Insert Table III here]

C.1 Hypothesis 1: Intensity of agency conflicts

[17] The advisors in our sample are headquartered in 282 different cities. However, more than 51% of all observations are concentrated in six cities: New York City, Boston, Chicago, Baltimore, San Francisco, and Minneapolis. In terms of total assets under management, New York City is at the top of the list every year, with Boston being the second.

[18] Results using a probit model and a linear probability model are qualitatively similar. They are reported in Tables IA.IV and IA.V of the Internet Appendix, respectively.

In this section, we analyze the results from testing our first hypothesis: the relation between compensation structures and the intensity of agency conflicts. We start with the determinants of performance-based pay. First, we find that performance-based pay is significantly more prevalent when the advisor's clientele is more disperse. In terms of economic significance, based on results in column (1) of Table III, a one-standard deviation decrease in *Client HHI* is associated with an increase in the probability of performance-based incentives by 3.4% (=12.46%*0.27). Second, as shown in column (1), performance-based pay is 6.1% more likely to be present if the advisor is affiliated to a broker-dealer and 10.0% more likely if the advisor is affiliated with a bank.[19] Third, performance-based pay is used significantly less frequently when the portfolio manager is a founder/owner/principal partner of the advisor. In such a case, the portfolio manager is presumably receiving compensation that is partly dependent on the advisor's profits. For instance, based on results in column (1), the probability of performance-based pay decreases by 12.1% if the portfolio manager is the founder/owner/principal partner of the advisor based on information disclosed in the fund's SAI. We also find that an increase of one-standard deviation in the portfolio manager's *Adv. ownership* is associated with a decrease of 2.3% in the likelihood of receiving *Performance pay*. All the variables pertaining to hypothesis 1 are statistically significant at the 5% level or lower, except the *Broker* affiliation that is significant at the 10% level. Together, these results suggest that, as predicted by contracting theory, *Performance pay* is more likely when the agency conflicts between investors and the advisor or between the advisor and portfolio managers are more severe.

We next analyze the relation between the variables from hypothesis 1 and *Advisor-profit pay* and *AUM pay.* First, as predicted, *Advisor-profit pay* is more likely to be present when the concentration of the advisor's clientele is higher. For instance, the coefficient on *Client HHI* is positive and significant at the 5% confidence level in column (2). Economically, a one-standard deviation increase in *Client HHI* is associated with an increase in the probability of *Advisor-profit pay* by 7.3%. In other words, contrary to *Performance pay*, more dispersed clientele makes *Advisor-profit pay* less likely since the advisor's profit is a less precise predictor of the portfolio manager's individual effort. Second, as expected, *Advisor-profit pay* is strongly and positively associated with the variable *Owner*. Portfolio managers who are founder/owner/principal partner of the investment advisory firm show a clear preference for this type of compensation: they are 55.4% more likely to receive *Advisor-profit pay* according to column (2). In the analysis of

[19] If we include in the regressions a variable that counts the total number of affiliations, this variable also predicts higher likelihood of performance-based incentives. However, it becomes insignificant after including broker and bank affiliation dummies.

determinants of *AUM pay*, we find that the explanatory power of the proxies for the intensity of agency conflicts very limited: none of the coefficients turns out to be statistically significant in column (3).

Finally, we analyze the results for deferred compensation in column (4). First, we find that deferred compensation is significantly more likely to be present when the advisor is associated to a *Broker*. The probability of deferred compensation increases by 26.1% when the advisor is affiliated with a broker-dealer. Second, deferred compensation is 29.0% less likely when the manager is identified as the *Owner* of the advisor based on information disclosed in funds' SAI. Additionally, a one-standard deviation increase in the portfolio manager's *Adv. ownership* is associated with a decrease of 7.4% in the likelihood of receiving deferred compensation. Together, this evidence is consistent with the role of pay deferral as a mechanism to align the objectives of advisors and portfolio managers when the costs of potential agency conflicts are expected to be large.

Overall, based on the results discussed above, we conclude that there exists strong and robust evidence in support of our first hypothesis. That is, consistent with optimal contracting theory, performance-based incentives and deferred compensation are more prevalent when the intensity of potential agency conflicts is higher.

C.2 Hypothesis 2: Alternative monitoring mechanisms

Our second hypothesis is that alternative monitoring mechanisms reduce the need for explicit performance-based incentives. We first analyze results from our proxy for investor sophistication: the dummy variable *Institutional fund*. We find that the probability of receiving performance-based pay is 8.2% lower for institutional funds (significant at the 10% level) as shown in column (1) of Table III. This evidence suggests that funds owned by institutional investors benefit from better monitoring and are less likely to use performance-based compensation. Results are qualitatively similar when we replace the *Institutional fund* dummy with an alternative proxy based average investor account size (*Average account size*) in Table IA.VI of the Internet Appendix.

Second, we do not find robust evidence that the likelihood of performance-based pay is affected by portfolio managers' ownership in the fund. In addition, we do not find that *Deferred compensation* is significantly related to *Fund ownership*. Overall, we do not find much support for the substitution between performance-based pay and managerial fund ownership.

Regarding the fund flow discipline mechanism, we find that *Flow-performance sensitivity* is negatively related to performance-based pay, with the coefficient being significant at the 10%.

Flow-performance sensitivity is unrelated to advisor-profit-based pay and deferred compensation. As well documented in the prior literature (e.g., Chevalier and Ellison (1997) and Sirri and Tufano (1998)), fund flows exhibit a convex relation with respect to fund performance. The substitution hypothesis predicts that explicit performance-based incentives could be replaced by implicit incentives due to fund flow-performance sensitivity. We find some evidence in favor of the substitution hypothesis.

Finally, we find that being outsourced to an unaffiliated subadvisor has a significant impact on portfolio manager compensation design. When the fund is subadvised, the likelihood of *Performance pay* decreases by 8.5% (significant at the 5% level), while the likelihood of *Advisor-profit pay* increases by 13.9% (significant at the 10% level). Portfolio managers of outsourced funds are subject to higher threat of dismissal for poor performance compared to in-house managed funds (Chen et al. (2013) and Kostovetsky and Warner (2015)). Our evidence suggests that when the contract is signed beyond the boundaries of the fund family, there are other disciplining mechanisms (i.e., threat of termination of the subadvisory contract) that make *Performance pay* redundant.

Overall, we find mixed evidence regarding our second hypothesis on alternative monitoring mechanisms. On the one hand, we find evidence that threat of dismissal for subadvisors, monitoring of institutional investors, and market discipline via flow-performance relation work as substitutes for performance-based contracts. One the other hand, we do not find robust evidence on the substitution effect for managerial fund ownership.

C.3 Hypothesis 3: Portfolio manager characteristics

In this section, we test our hypothesis 3 on whether the compensation structures are affected by portfolio manager characteristics, including (i) industry experience, (ii) the number of funds managed, (iii) part of a team or solo-manager, and (iv) managers' outside labor options in the same city.

First, we do not find evidence of a positive relation between performance-based incentives and portfolio managers' industry experience as shown in column (1) of Table III. Industry experience is not significantly related to any of the four compensation structures we analyze. Hence, we do not find support for the theoretical prediction by Heinkel and Stoughton (1994) or a substitution between performance-based pay and career concerns.

Second, we find that *# Funds managed* is significantly negatively related to *Advisor-profit pay*. Based on the results in column (2), a one-standard deviation increase in *# Funds managed* is

associated with a decrease of 5.2% in the likelihood of *Advisor-profit pay*. Therefore, "busier" portfolio managers receive significantly less compensation based on the advisor's profit. The evidence in favor of muting *Performance pay* for managers with more funds is not statistically significant.

Third, we find that team-managed funds are more likely to use deferred compensation than solo-managed funds. The difference in the likelihood is 9.0% (significant at the 10% level) based on results in column (4). No other contract feature is significantly affected by the variable of team management. This is not entirely surprising since there are confronting predictions about the direction of the effect of team, in particular with regard to the relation with *Performance pay*.

Finally, *City AUM* is significantly and positively related to *Advisor-profit pay*. Based on results in column (2), a one-standard deviation increase in Ln(*City AUM*) is associated with an increase of 9.2% in the likelihood of *Advisor-profit pay*. We interpret this as evidence in favor of *Advisor-profit pay* as a retention mechanism in environments where competition for managerial talent is fiercer (i.e., cities with larger amount AUM) and contract renegotiation is more costly for the advisor. We, however, find no significant relation between Ln(*City AUM*) and *Deferred compensation*.

Overall, we find limited support for our third hypothesis regarding portfolio manager characteristics.[20] On the one hand, we do not find evidence on managerial experience or team management having a significant impact on contract designs. On the other hand, we find that "busier" portfolio managers receive significantly less advisor-profit-based incentives. Also, advisors in cities with higher total AUM tend to use advisor-profit-based incentives more often.

C.4 Additional discussion

We discuss now the results pertaining to the control variables. We find that *Family size* is significantly and positively associated to *Performance pay* in column (1) of Table III. This is consistent with more complex hierarchies in larger families and the need for performance-based pay to align incentives. In contrast, the coefficient on family size is negative and significant for *Advisor-profit pay* as shown in column (2). This is consistent with the informativeness principle since, for larger families, the advisor's profit becomes a nosier signal of the portfolio manager's

[20] A word of caution on the interpretation of the results on the third hypothesis is in order since the observed contract is the equilibrium output of a negotiation between the advisory firm and the portfolio manager. It is therefore challenging to identify whether the ultimate driver of the contract features are advisors' or portfolio managers' characteristics even after including various control variables. Our analysis in Section III.D.2 based on advisory firm changes could help alleviate these concerns.

effort. In addition, we find that the coefficient on *Family growth* is insignificant in all four specifications. That is, we do not find support for the conjecture that faster growing families use different compensation structures. In the case of *AUM pay*, it is interesting to note that it is not fund size but rather family size that affects the likelihood of AUM-based pay. The coefficient of *Family size* is negative and significant at the 1% confidence level in column (3), while the coefficients of *Fund size* and *Age* are both insignificant. We find that funds with higher expense ratio (*Expense*) are significantly more likely to receive AUM-based pay. The use of *Performance pay* is not significantly related to the fund's *Tracking error volatility.*

We next analyze the results on advisors' legal organization form. The default legal form is *Corporation*. We remove *Sole proprietorship* since there are six observations with this legal form that use exclusively *Advisor-profit pay*. We find that *Performance pay* is 17.3% less likely to be used by a *Partnership* compared to a *Corporation*. Symmetrically, advisors with the legal form of *Limited Liability Company* are 17.2% more likely to use *Advisor-profit pay* compared to advisors in the form of *Corporation*. We do not find any evidence supporting that partnerships are different from corporations in their use of *Advisor-profit pay*. Overall, these results suggest that different legal forms tend to be associated to different compensation structures. The lower prevalence of performance-based pay among partnerships is consistent with our first hypothesis, as there is a lower degree of separation between ownership and control (with the corresponding attenuation of agency conflicts). There is no specific compensation pattern across different fund objectives after including all the other determinants in the regression, except that "other funds" are less likely to use performance-based incentives.

Regarding the interaction among different compensation structures, we observe a complementarity between *Performance pay* and *AUM pay*. For instance, based on the results in column (1), contracts with *AUM pay* are 19.9% more likely to include *Performance pay*, after controlling for the rest of determinants in the regression. Likewise, the results in column (3) reveal that contracts with *Performance pay* are 28.1% more likely to include *AUM pay* with all other determinants controlled in the regression. Both results are statistically significant at the 1% level.

D. Robustness Tests

In this section, we perform two sets of robustness tests to assess the sensitivity of our baseline findings in Table III.

D.1 Simulation of randomly assigned contracts

The evidence in Section III.C suggests that compensation contracts of portfolio managers are designed to mitigate agency conflicts in the absence of alternative monitoring mechanisms. To address the concern that our data measure portfolio manager compensation only coarsely, in this section, we use simulations to show that our results are not spurious. In the simulations, we regress randomly assigned compensation structures on the determinant variables of our sample funds used in Table III. If all of the significant relations between the determinant variables and actual compensation structures in Table III turn insignificant when we use randomly assigned compensation structures, it would suggest that our data do capture meaningful information about portfolio manager compensation. If the significant coefficients in that table remain significant with randomly assigned compensation structures, it would suggest that our results are spurious.

For each year in our sample, we randomly reshuffle the compensation structures across all sample funds, while maintaining the actual values for all other variables the same. We do so by randomizing all four structures (i.e., *Performance pay*, *Advisor-profit pay*, *AUM pay*, and *Deferred compensation*) simultaneously. This ensures that the distribution of compensation structures of the simulated fund sample matches exactly the distribution of the actual fund sample as shown in Panels A and C of Table I. We simulate the entire actual fund universe 1,000 times. After each simulation, we repeat the logistic regressions in Table III by relating randomly assigned compensation structures to the same set of determinants and control variables.

Table IV reports the summary statistics of the distribution of the t-statistic for each determinant variable across the 1,000 bootstrapping simulations. These statistics can be compared to the corresponding t-statistics from the analysis of the actual funds in Table III. The results in Table IV show little evidence on the relation between performance-based pay and all determinant variables in the simulated fund samples except among less than 10% of the simulations, consistent with what one would expect by chance. For instance, the mean and median t-statistics for each of 13 determinant variables are all close to zero, in sharp contrast to the evidence in Table III. We also find similar evidence for all of the other three structures, that is, *Advisor-profit pay*, *AUM pay*, and *Deferred compensation*. Therefore, our simulation analysis confirms that the previous findings of determinants of compensation structures are unlikely to be spurious.

[Insert Table IV here]

D.2 Change of the advisory firm

As a second robustness test, we focus on cases in which the advisory firm (either the advisor or the subadvisor) changes to analyze whether the determinant variables can predict

changes in the portfolio manager compensation structures in the direction suggested by our hypotheses. There are, in total, 423 changes of the advisory firm in our sample. We identify 79 fund-year observations in which advisors either merged or split and 344 fund-year observations in which the subadvisor was replaced. Table IA.VII in the Internet Appendix lists all the funds, the former, and the new advisor after the change, together with the year of the change. Although we cannot claim that these changes are exogenous to the contract design (hence precluding any inference on causality), this analysis presents further evidence on our hypotheses when the contract determinants change due to a change of the advisory firm.

We test separately what drives the decision to adopt a given structure and the decision to drop it. Thus, for every compensation structure, we create two indicator variables: (i) *Adopt* equals to one if that structure changes from non-present to present, zero otherwise; (ii) *Drop* equals to one if that structure changes from present to non-present, zero otherwise. The change in the determinants is estimated as the difference between the current value of the variable and the value of the same variable the year before the change. None of the funds without *Performance pay* was a pure institutional fund (neither before nor after the change in advisor). Hence, we replace the dummy *Institutional fund* with the variable *Average account size* as a proxy for investor's sophistication. We then analyze whether contract changes are related to changes in the determinant variables using pooled OLS regressions. We use OLS regressions rather than logistic regressions since the latter could not be estimated in samples with a very small number of observations.

We present the regression results in Table V. Supporting hypothesis 1, we find that advisors tend to adopt or keep *Performance pay* and/or *Deferred compensation* in their contracts when the severity of agency conflicts increases. For instance, when the clientele heterogeneity increases (lower *Client HHI*), both the probability of adopting *Performance pay* and *Deferred compensation* increase significantly. *Bank* affiliation is also associated with a probability 10.4% lower of switching off *Performance pay*, although the effect is significant only at the 10% level. The probability of dropping (adopting) *Deferred compensation* is 55.1% (18.7%) lower (higher) when the new advisor is affiliated to a *Broker (Bank).* Finally, when the manager is the *Owner* of the new advisory firm, the probability of adopting *Deferred compensation* decreases by 17.8%; at the same time the probability of switching on *Advisor-profit pay* increases by 40.5% while the probability switching off *AUM pay* increases by 50.4%. Overall, these results lend further support to hypothesis 1.

[Insert Table V here]

Supporting hypothesis 2, there is strong evidence that *Performance pay* is more likely to be adopted when the *Average account size* or the portfolio manager's *Fund ownership* decrease. If the fund's management is outsourced to an external advisory firm, the new contract is 21.2% more likely to drop *Performance pay*. Finally, like the evidence in Table III, the support for hypothesis 3 in Table 5 is much weaker. In particular, none of the variables analyzed has predictive power on the adoption or removal of *Performance pay* after a change in advisor. *Deferred compensation* is more likely to be adopted for portfolio managers with more *Experience* and, contrary to our prediction, less likely to be adopted by new advisory firms that locate in cities where other advisors have more AUM. As the number of funds managed by the same manager increases, the new contract is more (less) likely to include (drop) *AUM pay*.

IV. Determinants of Performance Evaluation Period

In this section, we analyze the determinants of the length of the evaluation period for contracts with performance-based pay. The study of evaluation period in the portfolio delegation literature is rather limited. Thus, we borrow our hypotheses from the literature on corporate executive compensation.

First, Gopalan, Milbourn, Song, and Thakor (2014) show that firms with longer-duration projects prefer longer-duration executive compensation. We therefore test whether funds with more short-term oriented investors evaluate portfolio managers' performance over shorter evaluation periods. Following Jin (2005), we use the fund's lagged 12-month performance-flow sensitivity (*Flow-performance sensitivity*) as a proxy for the investors' horizon, with higher short-term sensitivity implying a shorter investment horizon. As an alternative proxy for long-term investment horizon, we use fund turnover ratio (*Turnover*). Arguably, if a fund's strategy relies on identifying mispricing that takes longer time to correct (i.e., lower turnover), managers would be expected to be evaluated over a longer horizon.

Second, evaluating performance over a longer duration is likely to impose greater risk on the portfolio managers as it is harder to deliver consistently above-the-benchmark performance over a long horizon. According to Holmstrom's informativeness principle, investment strategies that entail higher benchmark-adjusted volatility should be associated with less (relative) performance-sensitive contracts. Based on this intuition, we expect that funds with higher (lagged) *Tracking error volatility* should have shorter evaluation periods.[21] By the same principle, if fund

[21] Results are the same if we replace *Tracking error volatility* with Cremers and Petajisto's (2009) active share measure.

performance is a noisier signal of managerial effort for team-managed relative to solo-managed funds, we should observe shorter evaluation periods for *Team* compared to solo-managed funds.

Finally, there are two opposing arguments regarding the relation between managerial *Experience* and the length of the evaluation period. On the one side, if career concerns are less powerful as a disciplining mechanism for more experienced managers (e.g., Chevalier and Ellison (1999)), we would expect advisors to choose longer performance evaluation periods for more experienced managers. On the other side, based on the rent-extraction contracting framework of Bebchuk and Fried (2003), one could argue that managers with more experience are more likely to be entrenched and thus more inclined to award themselves short-term incentives to avoid the higher risk of long-term performance evaluation.

We test the above-discussed hypotheses using OLS regressions with the same set of control variables as in Table III. We also include fund investment objective and compensation structures (except *Performance pay*) as additional controls. Regarding the control variables, we can invoke the same arguments used to predict *Performance pay*. Larger families are more complex and their managers more difficult to monitor than smaller families. Thus, they may benefit more from the disciplining effect of long-term incentives. Families growing more aggressively will arguably find it optimal to use longer-term incentives. Finally, if deferred compensation is used to prevent managerial myopia and better align the long-term objectives of managers, we might expect it to work as a substitute for longer evaluation periods.

We report the regression results in Table VI. First, we find support for the alignment of investors' investment horizon and portfolio managers' performance evaluation period. That is, higher short-term sensitivity on the side of the investor is associated to shorter evaluation periods for portfolio managers. The coefficient on *Flow-performance sensitivity* is negative and significant at the 5% level in column (6). The economic magnitude is relatively small. Based on the results in column (6), a one-standard deviation increase in *Flow-performance sensitivity* is associated with a decrease of 0.03 year in average evaluation period. In addition, funds managed by a *Team* are associated with significantly shorter evaluation periods compared to solo-managed funds, with the difference being 0.38 year based on the results in column (6). Finally, we find that the coefficients on *Turnover*, *Tracking error volatility,* and *Experience* are insignificant.

[Insert Table VI here]

As for the control variables, there is strong and robust evidence that larger families and families with higher asset growth are associated with longer evaluation periods. In terms of economic significance, based on the results in column (6), one-standard deviation increases in

Ln(Family size) and *Family growth* are associated with an increase in average evaluation period by 0.54 and 1.38 years, respectively. This evidence suggests that the evaluation period is determined at the family or advisor level rather than at the fund or manager level, similar to the evidence on compensation structures in Table III. We find no significant relation between evaluation period and *Deferred compensation*. There is, on the other side, strong and robust evidence that *Advisor-profit pay* works as a substitute for longer evaluation periods, conditional on contracts having *Performance pay* incentives. This evidence suggests a strategic choice of the performance evaluation period within the global design of compensation contract. The advisor's legal form is unrelated to the evaluation period. Finally, *Bond* and (especially) *Allocation* funds use shorter evaluation periods than *Domestic equity* funds.[22]

V. Fund Performance, Fees, and Portfolio Manager Compensation

In this section, we study whether compensation contracts of portfolio managers are related to future fund performance or mutual fund fees. In Section V.A, we analyze the relation between compensation structures and future fund performance (gross and net of fees). In Section V.B, we study the relation between compensation structures and mutual fund fees.

A. Fund Performance and Portfolio Manager Compensation

The evidence in Sections III and IV suggests that portfolio manager compensation contracts are, by and large, optimally designed to mitigate potential agency conflicts in the absence of alternative monitoring mechanisms. In such an optimal contracting equilibrium, we would expect no performance difference (gross or net of fees) associated to any particular compensation arrangement (including performance-based pay), once we carefully control for a comprehensive list of determinant variables related to the advisor, the fund, and portfolio managers. Alternatively, one could argue that some performance predictability could remain if there is a residual component in compensation structures for reasons unrelated to ex ante incentive-alignment needs.

For diversified domestic equity funds, we estimate alpha using monthly fund returns and the Carhart (1997) four-factor model, which adjusts for market, size, book-to-market, and momentum factors. For bond funds, we estimate alpha using a bond four-factor model based on

[22] When we run the tests only for the subset of diversified domestic equity funds, we include dummies for each of the nine Morningstar styles double sorted by size (small, mid, and large capitalization) and value (value, blend, and growth). None of these dummies is statistically significant (results untabulated).

Elton, Gruber, and Blake (1995) and Cici and Gibson (2012).[23] For the remaining funds, we estimate alpha using a one-factor model, with the average return of peer funds in the same Morningstar category as the factor. For each of the alpha measures, we first estimate the factor loadings using the preceding 24 monthly fund returns (gross or net) and then calculate monthly alpha as the difference between a fund's return (gross or net) in a given month and the sum of the product of the estimated factor loadings and the factor returns during that month. We average the monthly alphas within a year and multiply it by 12 to obtain an annualized alpha measure. Gross alphas are computed using fund monthly gross returns calculated by adding back 1/12th of the annual expense ratio to monthly net returns. Table IA.VIII in the Internet Appendix reports the summary statistics of these performance measures.[24]

We employ the following OLS specification to analyze the relation between compensation structures and future fund performance:

$$Y_{i,t} = \alpha + \beta * Comp.\ structure_{i,t-1} + \gamma * Controls_{i,t-1} + \lambda_{style} + \lambda_k + \mu_{i,t}, \qquad (2)$$

where the dependent variable $Y_{i,t}$ is the gross or net-of-fees alpha of fund *i* in year *t.* We use fund gross and net-of-fee alpha to estimate, respectively, the gross and net performance of portfolio managers. *Compensation structure* is the set of compensation structure variables (i.e., *Performance pay*, *Advisor-profit pay*, *AUM pay*, and *Deferred compensation*) as of in year *t-1*. We use a comprehensive set of control variables in the regressions, including all the determinant and control variables used in Table III. We also include other variables typically associated with fund performance, including the fund's *Turnover* ratio and a *Performance advisory-fee* dummy that takes value of one if the advisory fee is linked fund performance, zero otherwise. We measure all the independent variables as of the previous year-end to address potential reverse causality concerns. To alleviate the concern that some fund families use certain types of contracts (e.g., *Performance pay*) and, at the same time, exert a positive impact on fund performance, we include high dimensional *Fund family* × *Year* fixed effects (λ_k). We also control for Morningstar category fixed effects (λ_{style}) in the regression. Standard errors are clustered at the family level.[25]

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[23] The bond four-factor model includes the CRSP value-weighted stock index, the U.S. aggregate bond index, the return spread between the high-yield bond index and the intermediate government bond index, and the return spread between the GNMA mortgage-backed security index and the intermediate government bond index.

[24] Consistent with prior literature (e.g., Jensen (1968), Elton, Gruber, and Blake (1996), Carhart (1997), Wermers, (2000), and Fama and French (2010)), funds in our sample on average have negative factor model alphas on a net-of-fee basis.

[25] The sample for the performance analysis is slightly smaller than the one used in Table III due to the additional filters we impose. First, to ensure data accuracy, we only retain in our sample the funds in the Morningstar and CRSP merged

We present the estimation results in Panel A of Table VII. After controlling for all the variables specified above, we fail to find robust evidence of a relation between portfolio manager compensation and subsequent fund performance, either gross or net of fees.[26] This is consistent with our findings in Section III on the determinants of managerial compensation in the context of optimal contracting and agency costs. Consistent with the literature, fund size and turnover ratio are negatively related to fund performance in most specifications.

We also run the OLS regression (2) replacing $Y_{i,t}$ with the mean evaluation period for funds that use *Performance pay* to compensate their portfolio managers. The results are reported in Panel B of Table VII. Similarly to Panel A, we find no robust relation between the average length of evaluation period and subsequent fund performance.[27]

[Insert Table VII here]

Taken together, our results suggest that the contractual arrangements do not predict future fund performance, consistent with an optimal contracting equilibrium. That is, since advisors optimally choose the contract features that best tackle the underlying agency conflicts with portfolio managers and fund investors, in equilibrium, we observe no difference in performance across compensation structures.

We note that the lack of performance predictability could also be consistent with other theories such as Berk and Green (2004). Under the assumption of a perfectly competitive mutual fund market and no asymmetric information, Berk and Green (2004) show that no observable variable (including portfolio manager compensation structure) should predict future net-of-fee returns as fund flows or fees would adjust until net alphas become zero. Based on their prediction, we would expect no difference in net performance across the observable compensation structures. However, Berk and Green (2004) bear no prediction on the optimal contract design of managers'

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database of Pastor, Stambaugh, and Taylor (2015) as their study shows that there are certain discrepancies in mutual fund data between Morningstar and CRSP mutual fund databases. Second, we follow Evans (2010) and use fund ticker creation date to identify and exclude fund return data that are subject to incubation bias. Third, we require a fund to have a minimum of 12 monthly return observations in the estimation of the alpha measures.

[26] In Table IA.IX in the Internet Appendix, we repeat the analysis using a one-factor model for all funds, with peer fund performance as the factor. The results are qualitatively similar to those reported in Table VII. We also divide the diversified domestic equity funds into subsamples of growth, blend, and value funds in Table IA.X of the Internet Appendix. We do not find any significant relation between any compensation structure and fund performance among value funds and blend funds, while we find evidence of outperformance associated with performance-based incentives among growth funds. Finally, as a robustness test, we remove the *Fund family* × *Year* fixed effects in Table IA.XI in the Internet Appendix and include only year fixed effects. The relation between *Performance pay* and fund performance becomes slightly stronger compared to the results in Table VII. The difference is likely due to the fact that the tests in Table VII explore only the within-family variation in compensation.

[27] We also examine whether the evaluation period is related to fund performance in the subsequent two- or three-year period in Table IA.XII of the Internet Appendix. The results are qualitatively similar.

compensation. Hence, while our evidence on net fund performance by itself is consistent with Berk and Green (2004), one needs contract theory to explain both our evidence on the determinants of portfolio manager compensation and our evidence on mutual fund performance.

B. Fund Fee Structure and Portfolio Manager Compensation

In this section, we investigate whether compensation structures of portfolio managers are related to mutual fund fees. Analyzing the relation with fund fees could shed more light on how portfolio manager compensation contract design relates to the fee contracts between the fund and investors. In particular, we first analyze the relation between compensation structures and total fund fees. To gain further insight, we break down the total fund fees into two components: (i) advisory fees (i.e., the fee paid to the advisor for asset management service) and (ii) other fees (i.e., fees related to marketing, distribution, 12b-1, and bookkeeping). We measure fund fees and expenses in two ways: (i) as a percentage of fund AUM and (ii) the corresponding dollar value (=AUM × percentage fee). We estimate the relation between compensation structures and subsequent fund fees using equation (2) except that we use the fee variables as the dependent variable.[28]

We report the estimation results in Table VIII. First, we do not find any relation between fund total fees (either percentage or dollar value) and *Performance pay*. Interestingly, we find a positive and significant relation between fund advisory fees (both in percentage and dollar value) and performance-based incentives. In terms of economic significance, based on the results in columns (2) and (5), a change from zero to one for *Performance pay* is associated with an increase of 4.6 basis points in the advisory fee rate or 0.16 standard deviations in the logarithm of dollar advisory fees. This evidence is consistent with the idea that performance-based contracts are more costly to the advisor, hence requiring higher advisory fees. In contrast, we find a negative and significant relation between performance-based pay and fees related to marketing and distribution (both in percentage and dollar value). In terms of economic significance, a change from zero to one for performance-based pay is associated with a decrease of 6.4 basis points in other fee ratio or 0.22 standard deviation in the logarithm of other fees in dollar value. We also find that *Advisor-profit pay* is associated with lower fund advisory fees, both in percentage and dollars. Finally, we find evidence that *AUM pay* is associated with higher total fees by charging higher advisory fees.

[28] To control for the well-known impact of fund size on fund fees, we control for the logarithm of previous year-end fund size in our regressions. In addition, as a robustness test, we remove the *Fund family* × *Year* fixed effects in Table IA.XIII in the Internet Appendix. Results are qualitatively similar.

[Insert Table VIII here]

Overall, our evidence provides insights into an intriguing equilibrium in the mutual fund industry. For funds that operate in an environment with high potential for agency conflicts, advisors optimally choose to compensate portfolio managers with performance-based contacts, which are costly and require charging higher advisory fees. These funds make up for the advisory fee disadvantage by charging lower marketing and distribution fees. The two effects offset each other, resulting in no difference in total fund fees for investors across compensation contracts with and without performance-based pay.

VI. Concluding Remarks

We use a hand-collected data set of over 4,500 funds to study the compensation structures of individual portfolio managers in the U.S. mutual fund industry. Given that the decisions of individual portfolio managers affect the performance of trillions of dollars of assets invested in the mutual fund industry, it is of first order importance to understand portfolio manager compensation and what drives the variations in compensation contracts.

Unlike the advisory contract, which is mostly based on the fund's AUM, the majority of compensation contracts for individual portfolio managers include a bonus explicitly linked to investment performance. Much of the literature assumes that the compensation structure of investment advisors and individual portfolio managers coincides. Our evidence clearly suggests otherwise. In contrast to the tight regulation of advisory contracts, the SEC places no specific restriction on the compensation contracts of individual portfolio managers. Our evidence suggests that, in a less regulated setting, asymmetric, option-like performance-based incentives exist and constitute the dominant form of compensation for individual portfolio managers.

We study the economic determinants of adopting different contract features in portfolio manager compensation. Our results suggest that compensation contracts of portfolio managers are designed to mitigate agency conflicts in the absence of alternative monitoring mechanisms, which is consistent with an optimal contracting equilibrium. Explicit performance-based incentives and deferred compensation are more prevalent when the intensity of potential agency conflicts is higher, for instance, (i) when the advisor has more disperse clientele, (ii) when the advisor is affiliated with a broker-dealer or a bank, and (iii) when the portfolio manager is not the founder or a significant stakeholder of the advisor. We also find that investor sophistication and the threat of dismissal in outsourced funds work as substitutes for explicit performance-based incentives. We note that there is limited evidence that fund families use different portfolio manager compensation

structures across funds within the family (with the exception of outsourced funds). We can only speculate the reason for this pattern: either tailoring contract to specific funds is too costly or the potential benefits are just too small.

We complete the study by analyzing whether different compensation structures are related to fund performance and mutual fund fees. We find little evidence of differences in future fund performance associated to any particular compensation arrangement, also consistent with an optimal contracting equilibrium. In addition, we find that funds with performance-based contracts are associated with higher fund advisory fees and lower marketing and distribution fees. The two effects offset each other, resulting in no difference in total fees across funds with and without performance-based incentives.

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Appendix
Variable Definitions

Variable name	Data source	Units	Definition
Advisor variables			
Client HHI	Form ADV-Schedule A, item 5D	#	In Form ADV, investment advisors need to specify their proportional clientele distribution among the following 10 categories: (i) individuals, (ii) high net worth individuals, (iii) banks, (iv) investment companies (including mutual funds), (v) pension plans, (vi) other pooled investment vehicles (e.g., hedge funds), (vii) charitable organizations, (viii) corporations, (ix) government entities, and (x) others. To capture the heterogeneity in the advisor's clientele composition, we construct a Herfindahl–Hirschman index measure as the sum of squares of the percentage of clients in each particular clientele type.
Broker	Form ADV-Schedule A, item 7A	Dummy variable	=1 if the advisor is affiliated to a broker or dealer, 0 otherwise.
Bank	Form ADV-Schedule A, item 7A	Dummy variable	=1 if the advisor is affiliated to a bank or thrift institution, 0 otherwise.
Owner	Fund's Statement of Additional Information (SAI)	Dummy variable	=1 if the portfolio manager is the founder, controlling owner, partner, or blockholder of the advisor, 0 otherwise.
Advisor ownership	Form ADV-Schedules B and C	%	Portfolio manager's ownership in the investment advisor.
Subadvised	Morningstar Direct and fund's SAI (prospectus)	Dummy variable	=1 if the advisor is not affiliated to the mutual fund family, 0 otherwise.
City AUM	Form ADV-Schedule A, item 5F	$Billion	Total assets under management by financial advisors in the same city, excluding the AUM of the advisor itself.
Fund and portfolio manager variables			
Intuitional fund	Morningstar Direct	Dummy	=1 if all of the fund's share classes are institutional share class, and 0 if a fund has other share classes (e.g., retail share class). We construct this variable following Evans and Fahlenbrach (2012), and share class is designated by Morningstar.

Avg. account size	Form NSAR	$ Thousand	Fund's average account size which equals to fund total net assets over number of shareholder accounts.
Flow-perf. sensitivity	Morningstar Direct		We regress fund net flows over the past 12 months on fund market-adjusted alpha (CAPM), and take the loadings on market-adjusted alpha as the flow-performance sensitivity.
Fund ownership	Fund's SAI	$	Dollar amount of portfolio manager ownership in the fund, constructed following Khorana, Servaes, and Wedge (2007).
Experience	Morningstar Direct	Months	Difference between the sample year and the year when a manager first appears in the Morningstar database.
#Funds managed	Morningstar Direct	#	Number of funds managed by the portfolio manager(s) of the fund
Team	Morningstar Direct	Dummy variable	=1 if a fund is managed by multiple managers, and 0 otherwise
Control variables			
Family size	Morningstar Direct	$ Million	Sum of assets under management across all funds in the family, excluding the fund itself.
Family growth	Morningstar Direct	%	Annual gross growth of family assets (before netting out fund return)
Fund age	Morningstar Direct	Months	Age of the oldest share class in the fund
Expense	Morningstar Direct	%	Ratio of the fund's annual operating expenses by the average dollar value of its assets under management.
Fund size	Morningstar Direct	$ Million	Sum of assets under management across all share classes of the fund.
Adv. legal form	Form ADV-Schedule A, item 3A	Dummy variables	=1 if the advisor's legal form is, respectively: Corporation; LLC; Partnership; and Others.
Turnover	Morningstar Direct	%	This is computed by taking the lesser of purchases or sales and dividing by average monthly net assets.
Tracking error volatility	Morningstar Direct	%	The volatility of fund excess returns relative to the benchmark of Morningstar Category Index
Performance-adv. fee	Form NSAR	Dummy variable	=1 if the fund employs a performance incentive fee (fulcrum fee) in the advisory contract, 0 otherwise.

Table I
Summary Statistics of Portfolio Manager Compensation Structures

This table reports the distribution of compensation structures (Panel A), summary statistics of evaluation periods (Panel B), further breakdown of non-fixed salary (Panel C), statistics on the relative weight of bonus vs. base salary, (Panel D), and the correlation matrix of portfolio manager compensation structures (Panel E). Information about the compensation structures of portfolio managers is hand-collected from funds' Statement of Additional Information (SAI), available from the SEC EDGAR database. The sample consists of diversified domestic equity funds, bond funds, allocation funds, global funds, and other funds with 20,347 fund-year observations over the period 2006-2011. The variable *Fixed salary* is an indicator variable that equals one if the portfolio manager receives a fixed amount of compensation from the advisor, zero otherwise. *Performance pay* is a dummy variable that is set to one if the bonus is tied to the investment performance of the fund, zero otherwise; *Advisor-profits pay* is a dummy variable that is set to one if the portfolio manager's compensation depends on the advisor's profits, zero otherwise; *AUM pay* is an indicator variable that equals one if portfolio manager compensation is tied to the fund's assets under management, zero otherwise; *Deferred compensation* is set to one if the compensation description includes a deferred compensation plan, zero otherwise. Most funds report multiple evaluation windows: *Evaluation period Min* is the shortest evaluation window, and *Evaluation period Max* is the longest evaluation window. For funds that have multiple reported evaluation windows, we calculate *Evaluation period Mean* as the mean of *Evaluation period Min* and *Evaluation period Max*. *P-values* are in brackets in Panel E.

Panel A: Summary statistics of compensation structures

	Observations	***% of sample***
Total	20,347	100%
Fixed salary	268	1.32%
Non-fixed salary	20,079	98.68%
Performance pay	16,082	79.04%
Advisor-profit pay	10,354	50.89%
AUM pay	3,990	19.61%
Deferred comp.	5,985	29.41%

Panel B: Summary statistics of evaluation periods

Variables (years)	***Obs.***	***Mean***	***Median***	***Std. dev.***	***Min***	***Max***
Evaluation period Mean	13,759	3.02	3.00	1.16	0.25	7.50
Evaluation period Max	13,759	4.40	5.00	1.87	0.25	10.00
Evaluation period Min	13,759	1.64	1.00	1.29	0.25	5.00

Panel C: Further breakdown of non-fixed salary

Performance pay	***Advisor-profit pay***	***AUM pay***	***Observations***	***% of Non-fixed salary obs.***
1	0	0	7,244	36.10%
1	1	0	5,104	25.42%
1	0	1	1,465	7.30%
1	1	1	2,269	11.30%
0	1	0	2,914	14.50%
0	0	1	189	0.94%
0	1	1	67	0.33%
0	0	0	827	4.12%
Total Non-fixed Salary			20,079	100.0%

Panel D: Statistics on the relative weight of bonus vs. base salary

Cases with Bonus/Salary ratio reported	***Observations***	***%***
Bonus/Salary < 100%	398	31.7%
100% ≤ Bonus/Salary ≤ 200%	419	33.3%
Bonus/Salary > 200%	439	35.0%
Total	1,256	100.0%

Cases with implied information on Bonus/Salary ratio	***Observations***	***%***
Bonus may exceed the base salary	3,788	35.6%
Multiple times the base salary	1,332	12.5%
Significant/material/substantial portion of total comp.	5,083	47.7%
Strong bonus potential/generous bonus	444	4.2%
Total	10,647	100.0%

Panel E: Correlation matrix

	Performance pay	***Advisor-profit pay***	***AUM pay***	***Deferred comp.***	***Evaluation period Mean***
Performance pay	1				
Advisor-profit pay	-0.23	1			
	[0.00]				
AUM pay	0.17	0.07	1		
	[0.00]	[0.00]			
Deferred comp.	0.20	-0.01	0.06	1	
	[0.00]	[0.04]	[0.00]		
Evaluation period Mean	0.04	-0.31	-0.15	-0.15	1
	[0.00]	[0.00]	[0.00]	[0.00]	

Table II
Summary Statistics of Advisor, Fund, and Portfolio Manager Characteristics

This table reports the summary statistics of the advisor, fund, and portfolio manager characteristics as well as the control variables for our sample funds. All variables are defined in the Appendix of the paper, with additional information on units and data sources. P1 and P99 stand for the 1st and 99th percentiles, respectively.

Variable	*Mean*	*St. dev.*	*P1*	*Median*	*P99*	*Obs.*
			Advisor variables			
Client HHI	0.346	0.273	0.122	0.195	1.000	20,073
Broker (dummy)	0.826	0.379	0.000	1.000	1.000	20,110
Bank (dummy)	0.653	0.476	0.000	1.000	1.000	20,110
Owner (dummy)	0.183	0.387	0.000	0.000	1.000	20,347
Advisor ownership (%)	8.017	22.007	0.000	0.000	90.000	20,347
Subadvised (dummy)	0.205	0.404	0.000	0.000	1.000	20,347
City AUM ($ Billion)	2,606.8	3,122.6	0.7	571.6	9,629.2	20,063
Ln(City AUM)	27.03	2.41	20.43	27.07	29.90	20,063
			Fund and portfolio manager variables			
Institutional fund (dummy)	0.057	0.231	0.000	0.000	1.000	20,347
Avg. account size ($ Thousand)	5,887	85,749	4.580	51.070	101,239	19,748
Ln(Avg. account size)	4.44	2.20	1.52	3.93	11.53	19,748
Flow-perf. sensitivity	0.038	1.699	-8.560	0.000	9.338	20,217
Fund ownership ($)	371,306	721,154	0.00	30,000	3,300,000	18,491
Ln(Fund ownership)	7.00	6.33	0.00	10.31	15.01	18,491
Experience (months)	116.9	63.4	10.0	108.5	295.0	20,307
Ln(Experience)	4.58	0.69	2.30	4.69	5.69	20,301
#Funds managed	6.42	8.16	1.00	4.00	42.50	20,307
Team (dummy)	0.657	0.475	0.000	1.000	1.000	20,347
			Control variables			
Family size ($ Million)	86,459	178,728	0.000	15,718	796,659	20,347
Ln(Family size)	10.03	2.28	3.74	10.55	13.83	20,308
Family growth (%)	12.76	154.19	-52.92	10.24	125.63	20,293
Fund age (months)	178.2	137.8	14.0	156.0	784.0	20,347
Ln(Fund age)	4.91	0.80	2.64	5.05	6.66	20,347
Expense (%)	1.171	0.453	0.100	1.170	2.283	20,347
Fund size ($ Million)	1,490	6,110	17.050	295.00	20,000	20,347
Ln(Fund size)	19.60	1.62	16.65	19.50	23.72	20,347
Turnover (%)	92.53	161.87	2.00	56.00	667.00	19,750
Tracking error volatility (%)	4.909	4.588	0.263	3.876	22.168	20,285
Performance-adv. fee (dummy)	0.043	0.203	0.000	0.000	1.000	20,345

Table III
Determinants of Portfolio Manager Compensation Structures

This table reports the results from the logistic regressions of compensation structures of portfolio managers on a set of determinant and control variables. We present both the coefficients (Coeff.) and marginal effects at the means (ME). Dependent variables are defined in Table I and independent variables are defined in the Appendix. All determinant and control variables are lagged by one year. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Performance pay		***Advisor-profits pay***		***AUM pay***		***Deferred compensation***	
	(1a)	***(1b)***	***(2a)***	***(2b)***	***(3a)***	***(3b)***	***(4a)***	***(4b)***
Determinant	***Coeff.***	***ME***	***Coeff.***	***ME***	***Coeff.***	***ME***	***Coeff.***	***ME***
Hypothesis 1: Intensity of agency conflicts								
Client HHI	-1.287**	-12.46%	1.070**	26.56%	-0.057	-0.76%	-1.037	-18.28%
	(-2.11)		(2.01)		(-0.10)		(-1.60)	
Broker	0.634*	6.13%	0.347	8.61%	-0.297	-3.97%	1.480***	26.07%
	(1.82)		(1.05)		(-0.80)		(2.86)	
Bank	1.036***	10.02%	-0.016	-0.39%	0.005	0.07%	-0.291	-5.13%
	(2.98)		(-0.05)		(0.02)		(-0.57)	
Owner	-1.253***	-12.12%	2.231***	55.36%	0.671	8.97%	-1.647**	-29.03%
	(-3.46)		(6.05)		(1.60)		(-2.38)	
Advisor ownership	-1.069**	-10.35%	0.018	0.45%	-0.642	-8.58%	-1.910*	-33.65%
	(-2.45)		(0.04)		(-1.08)		(-1.93)	
Hypothesis 2: Alternative monitoring mechanisms								
Institutional fund	-0.844*	-8.17%	0.144	3.57%	-0.345	-4.62%	-0.173	-3.05%
	(-1.81)		(0.45)		(-0.93)		(-0.48)	
Ln(*Fund ownership*)	-0.003	-0.03%	-0.038***	-0.93%	0.010	0.13%	0.005	0.08%
	(-0.23)		(-2.97)		(0.76)		(0.35)	
Flow-perf. sensitivity	-3.903*	-37.77%	-0.795	-19.72%	-1.589	-21.24%	2.222	39.15%
	(-1.70)		(-0.47)		(-0.79)		(1.33)	
Subadvised	-0.876**	-8.47%	0.559*	13.88%	0.177	2.37%	0.095	1.68%
	(-2.50)		(1.93)		(0.61)		(0.32)	
Hypothesis 3: Managerial characteristics								
Ln(*Experience*)	0.139	1.34%	0.026	0.65%	-0.059	-0.78%	0.107	1.88%

	(1.27)		(0.28)		(-0.66)		(0.89)	
# Funds managed	-0.018	-0.18%	-0.026**	-0.64%	-0.016	-0.22%	-0.003	-0.05%
	(-1.08)		(-2.16)		(-1.27)		(-0.19)	
Team	0.125	1.21%	-0.044	-1.09%	0.174	2.32%	0.509*	8.97%
	(0.49)		(-0.21)		(0.75)		(1.76)	
Ln(*City AUM*)	-0.062	-0.60%	0.153**	3.81%	0.166*	2.21%	0.021	0.37%
	(-0.69)		(2.40)		(1.94)		(0.24)	
Control variables								
Ln(*Family size)*	0.439***	4.24%	-0.218***	-5.40%	-0.226***	-3.02%	0.011	0.19%
	(6.91)		(-2.73)		(-2.63)		(0.10)	
Family growth	0.009	0.09%	-0.006	-0.14%	-0.484	-6.47%	-0.692	-12.20%
	(0.87)		(-0.22)		(-1.20)		(-1.04)	
Ln(*Age*)	-0.127	-1.23%	-0.005	0.12%	-0.003	0.04%	-0.066	-1.16%
	(-1.52)		(-0.06)		(-0.03)		(-0.73)	
Expense	0.329	3.18%	-0.195	-4.84%	0.544**	7.27%	0.408	7.18%
	(0.92)		(-0.73)		(2.24)		(1.30)	
Ln(*Fund size*)	-0.090*	-0.87%	0.032	0.79%	0.012	0.16%	0.053	0.93%
	(-1.71)		(0.59)		(0.26)		(1.28)	
Track error volatility	0.001	0.01%	-0.020	-0.49%	-0.018	-0.25%	0.018	0.32%
	(0.04)		(-1.34)		(-0.89)		(1.07)	
Advisor's legal form								
Ltd. Liability Comp.	-0.300	-2.90%	0.694**	17.23%	-0.684*	-9.14%	0.124	2.18%
	(-1.07)		(2.03)		(-1.85)		(0.35)	
Partnership	-1.788*	-17.30%	0.645	15.99%	0.126	1.68%	0.643	11.30%
	(-1.94)		(1.09)		(0.23)		(0.94)	
Other	-0.692	-6.70%	2.215***	54.97%	-0.499	-6.67%	-0.419	-7.38%
	(-1.59)		(3.26)		(-0.75)		(-0.53)	
Fund objective								
Allocation	-0.334	-3.23%	0.379*	9.40%	-0.140	-1.87%	0.026	0.46%
	(-1.31)		(1.75)		(-0.60)		(0.12)	
Bond	0.055	0.53%	-0.107	-2.66%	-0.001	-0.01%	-0.09	-1.63%
	(0.19)		(-0.57)		(-0.00)		(-0.45)	
Global	-0.305	-2.96%	-0.222	-5.50%	-0.283	-3.78%	-0.220	-3.88%
	(-1.32)		(-1.31)		(-1.61)		(-1.42)	
Other funds	-1.088***	-10.50%	0.325	8.07%	0.339	4.54%	-0.269	-4.74%
	(-2.60)		(0.86)		(0.89)		(-0.79)	

Alternative comp. structures								
Performance pay			-0.061	-1.51%	2.102***	28.10%	0.690	12.17%
			(-0.13)		(5.35)		(1.07)	
Advisor-profit pay	0.044	0.42%			0.148	1.98%	0.348	6.13%
	(0.09)				(0.36)		(0.82)	
AUM pay	2.053***	19.87%	0.187	4.64%			0.141	2.49%
	(3.76)		(0.45)				(0.34)	
Deferred comp.	0.292	2.83%	0.336	8.33%	0.119	1.59%		
	(0.44)		(0.83)		(0.29)			
Constant	0.590		-3.450*		-5.682**		-4.866**	
	(0.23)		(-1.65)		(-2.35)		(-2.08)	
Year dummies	Yes		Yes		Yes		Yes	
Observations	17,375		17,375		17,375		17,375	
Pseudo-R-squared	0.393		0.177		0.118		0.144	

Table IV
Bootstrapping Simulations

The table reports the distribution of the *t*-statistic for each of the determinant variables across 1,000 bootstrapping simulations. In the bootstrapping, we first randomize 1,000 times across the four compensation structures (i.e., *Performance pay*, *Profit-based pay*, *AUM pay*, and *Deferred compensation*) simultaneously to match exactly the distribution of the actual fund sample as shown in Panels A and C of Table I while maintaining the actual values for all other variables. After each simulation, we repeat the logistic regressions by relating randomly assigned compensation structures to the set of determinants and control variables reported in Table III. Finally, we calculate the percentiles of the *t*-statistic for each of the determinant variables across the 1,000 simulations. P5, P25, P50, P75, ad P95 stand for percentile 5, 25, 50, 75, and 95, respectively.

Statistic	*Client HHI*	*Broker*	*Bank*	*Owner*	*Adv. owner.*	*Inst. fund*	*Fund owner.*	*Flow-perf. sensitivity*	*Sub.*	*Ln(Exp.)*	*#Funds manag.*	*Team*	*Ln(City AUM)*
						Performance pay							
Mean	0.02	-0.01	0.01	0.01	0.01	0.03	-0.01	0.00	0.01	-0.02	-0.04	0.03	-0.01
P5	-1.70	-1.81	-1.68	-1.72	-1.58	-1.75	-1.68	-1.72	-1.65	-1.69	-1.74	-1.55	-1.68
P25	-0.74	-0.66	-0.72	-0.74	-0.73	-0.68	-0.65	-0.62	-0.61	-0.73	-0.71	-0.61	-0.70
P50	0.02	0.03	-0.02	-0.03	0.01	0.01	-0.02	0.00	-0.01	-0.03	-0.01	0.04	0.00
P75	0.76	0.70	0.75	0.75	0.68	0.75	0.67	0.65	0.67	0.71	0.62	0.67	0.65
P95	1.87	1.62	1.71	1.73	1.66	1.78	1.57	1.72	1.68	1.72	1.58	1.74	1.69
						Advisor-profit pay							
Mean	0.02	0.03	-0.09	0.01	-0.08	-0.01	-0.01	-0.04	-0.01	-0.02	0.00	-0.03	0.01
P5	-1.80	-1.64	-1.74	-1.72	-1.80	-1.61	-1.63	-1.72	-1.69	-1.71	-1.67	-1.77	-1.74
P25	-0.71	-0.67	-0.78	-0.59	-0.80	-0.72	-0.71	-0.80	-0.64	-0.70	-0.69	-0.71	-0.72
P50	0.02	0.03	-0.08	0.03	-0.13	-0.02	-0.03	-0.02	-0.01	-0.02	-0.03	-0.01	0.02
P75	0.75	0.70	0.61	0.70	0.65	0.70	0.65	0.66	0.68	0.67	0.69	0.63	0.72
P95	1.87	1.79	1.58	1.63	1.70	1.68	1.76	1.76	1.58	1.69	1.76	1.74	1.73
						AUM pay							
Mean	0.01	-0.03	-0.01	-0.03	0.04	-0.03	0.04	0.01	0.00	0.02	-0.01	0.03	0.04
P5	-1.68	-1.64	-1.65	-1.72	-1.57	-1.73	-1.59	-1.62	-1.85	-1.67	-1.65	-1.60	-1.66
P25	-0.70	-0.72	-0.72	-0.76	-0.72	-0.66	-0.71	-0.60	-0.65	-0.65	-0.69	-0.63	-0.69
P50	-0.01	-0.06	-0.02	-0.03	0.03	-0.02	0.04	0.00	-0.04	0.04	-0.08	0.05	0.04
P75	0.73	0.66	0.68	0.64	0.79	0.63	0.69	0.66	0.68	0.71	0.62	0.64	0.77
P95	1.75	1.62	1.66	1.74	1.78	1.55	1.83	1.68	1.82	1.70	1.61	1.66	1.80
						Deferred compensation							
Mean	0.01	0.04	-0.05	0.02	-0.02	-0.03	0.01	0.00	0.00	-0.03	-0.01	0.03	0.01

P5	-1.73	-1.67	-1.88	-1.67	-1.82	-1.79	-1.65	-1.64	-1.66	-1.74	-1.78	-1.59	-1.73
P25	-0.75	-0.68	-0.76	-0.69	-0.68	-0.72	-0.70	-0.73	-0.73	-0.78	-0.74	-0.66	-0.66
P50	0.01	0.02	0.00	0.02	-0.03	-0.04	-0.01	-0.03	-0.01	-0.03	-0.05	0.06	0.01
P75	0.74	0.79	0.68	0.73	0.73	0.65	0.69	0.69	0.69	0.68	0.73	0.67	0.73
P95	1.74	1.80	1.62	1.88	1.70	1.68	1.83	1.74	1.78	1.75	1.65	1.71	1.77

Table V
Changes in Portfolio Manager Compensation Structures

The table presents the coefficients from the OLS regression of changes in compensation structures on changes in the determinant and control variables. We identify a total of 423 changes in the advisor firm (either the advisor or the subadvisor). For every compensation structure, the dummy variable *Adopt* takes value of one if the new advisory firm starts to use the compensation structure, zero otherwise. Likewise, the dummy variable *Drop* takes value of one if the new advisory firm ceases to use the compensation structure, zero if it continues to use it. For every determinant and control variable in Table III, we define the corresponding *Change in determinant* and *Change in control variables* as the difference between the current value of the variable and the value of the same variable the year before the change. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Performance pay		***Advisor-profit pay***		***AUM pay***		***Deferred compensation***	
	(1)	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***	***(7)***	***(8)***
Change in determinant	***Adopt***	***Drop***	***Adopt***	***Drop***	***Adopt***	***Drop***	***Adopt***	***Drop***
Hypothesis 1: Intensity of agency conflicts								
Client HHI	-0.620***	-0.017	-0.009	-0.063	-0.336***	-0.144	-0.253**	-0.029
	(-3.31)	(-0.11)	(-0.05)	(-0.46)	(-2.73)	(-0.53)	(-2.34)	(-0.14)
Broker	0.011	0.112	-0.037	-0.075	-0.109	0.217	0.067	-0.551**
	(0.10)	(1.10)	(-0.35)	(-0.78)	(-1.35)	(1.09)	(0.84)	(-2.48)
Bank	0.144	-0.104*	-0.086	-0.032	-0.114**	-0.352*	0.187**	0.035
	(1.04)	(-1.84)	(-1.00)	(-0.42)	(-2.14)	(-1.78)	(2.31)	(0.18)
Owner	0.124	0.184	0.405***	-0.087	-0.145*	0.504**	-0.178**	0.276
	(1.31)	(1.57)	(3.38)	(-0.78)	(-1.75)	(2.80)	(-2.51)	(1.49)
Advisor ownership	-0.405	-0.026	0.219	-0.021	-0.145	-0.091	0.149	0.140
	(-1.52)	(-0.13)	(1.13)	(-0.10)	(-0.98)	(-0.24)	(1.11)	(0.48)
Hypothesis 2: Alternative monitoring mechanisms								
Ln(*Avg. acc. size*)	-0.223***	0.073*	0.089	0.060	-0.071	-0.024	-0.082*	-0.049
	(-3.57)	(1.86)	(1.60)	(1.01)	(-1.58)	(-0.35)	(-1.74)	(-0.27)
Fund ownership	-0.037**	-0.004	-0.017	-0.012	-0.017	0.015	-0.000	0.019*
	(-2.64)	(-0.48)	(-1.07)	(-1.16)	(-1.09)	(1.49)	(-0.00)	(1.92)
Flow-perf. sensitivity	1.853	-2.383	-0.349	-0.889	0.619	0.608	0.310	-5.795***
	(0.96)	(-1.06)	(-0.09)	(-0.95)	(0.81)	(0.10)	(0.25)	(-2.87)
Subadvised	-0.103	0.212***	-0.159	0.079	-0.102*	0.037	-0.116*	-0.122
	(-0.79)	(3.13)	(-1.66)	(1.03)	(-1.87)	(0.19)	(-1.94)	(-1.23)
Hypothesis 3: Managerial characteristics								

Ln(*Experience*)	0.049	-0.002	-0.030	0.025	-0.082*	0.055	0.069**	0.074
	(0.79)	(-0.05)	(-0.53)	(0.42)	(-1.91)	(0.57)	(2.14)	(0.58)
# Funds managed	0.008	-0.006	0.018	-0.000	0.024**	-0.014**	0.010	-0.006
	(0.69)	(-0.51)	(1.03)	(-0.02)	(2.46)	(-2.16)	(1.31)	(-0.31)
Team	-0.016	0.100	0.024	0.043	-0.114	0.117	0.047	-0.129
	(-0.12)	(1.28)	(0.28)	(0.41)	(-1.34)	(1.07)	(0.68)	(-0.79)
Ln(*City AUM*)	-0.011	-0.004	0.014	-0.002	-0.003	0.045	-0.054***	0.027
	(-0.40)	(-0.21)	(0.61)	(-0.14)	(-0.23)	(1.35)	(-4.98)	(0.95)
Change in control variable								
Ln(*Family size)*	-0.342	0.187	-0.498	-0.224	0.379*	0.080	-0.502**	0.472
	(-1.33)	(0.78)	(-1.47)	(-0.74)	(1.91)	(0.12)	(-2.14)	(0.87)
Family growth	-0.004	-0.144	-1.068***	-0.233	0.117	-0.065	0.213	0.528
	(-0.02)	(-0.65)	(-3.87)	(-0.90)	(0.71)	(-0.16)	(1.36)	(1.20)
Ln(*Age*)	0.589**	-0.122	0.797	0.178	0.207	-0.371	-0.387*	-0.303
	(2.70)	(-0.59)	(1.58)	(0.72)	(0.83)	(-0.90)	(-1.79)	(-1.12)
Expense	-0.398*	0.038	-0.006	0.015	-0.453***	0.766	-0.221	0.468
	(-1.90)	(0.11)	(-0.02)	(0.06)	(-3.32)	(0.71)	(-1.16)	(0.73)
Ln(*Fund size*)	0.026	-0.059	-0.050	-0.126	-0.066	-0.144	0.109	0.117
	(0.31)	(-0.82)	(-0.59)	(-1.65)	(-0.85)	(-0.84)	(1.28)	(0.99)
Track error volatility	-0.052***	-0.005	-0.054**	0.028	-0.017*	-0.023	0.028**	-0.032
	(-3.06)	(-0.47)	(-2.46)	(1.67)	(-1.88)	(-0.90)	(2.07)	(-1.42)
Advisor's legal form								
Ltd. Liability Comp.	0.008	0.088	0.357***	-0.209	0.021	-0.151	-0.028	0.451***
	(0.06)	(0.88)	(3.02)	(-1.67)	(0.20)	(-0.59)	(-0.31)	(2.92)
Partnership	-0.188	0.321	0.636***	0.174	0.079	-0.234	-0.409***	-0.062
	(-0.94)	(1.18)	(3.37)	(0.66)	(0.55)	(-0.31)	(-3.37)	(-0.18)
Other	-0.864***	-0.045	0.174	-0.174	-0.575***	0.430	0.208	0.440
	(-3.41)	(-0.19)	(0.59)	(-0.80)	(-3.93)	(1.30)	(1.08)	(1.47)
Constant	0.121	0.499***	0.059	0.458**	0.197	1.016**	0.119	0.130
	(0.46)	(2.73)	(0.37)	(2.54)	(1.63)	(2.16)	(0.92)	(0.71)
Fund obj. and Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	77	224	117	184	218	83	203	98
Adj. R-squared	0.43	0.20	0.46	0.21	0.25	0.28	0.37	0.39

Table VI
Determinants of Performance Evaluation Period

The table reports the coefficients of OLS regressions of portfolio managers' average evaluation period (*EP Mean*) on a set of determinant and control variables. The sample used in this analysis includes only funds that use performance-based pay to compensate their managers. *Tracking error volatility* is the 12-month lagged volatility of the fund returns net of the return on the fund's associated Morningstar benchmark. The rest of independent variables are defined in the Appendix of the paper. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Determinants	***Average Evaluation Period (EP Mean)***					
Flow-perf. sensitivity	-1.540*					-1.713**
	(-1.71)					(-2.00)
Turnover/100		-0.044				-0.044
		(-1.20)				(-1.27)
Track error volatility			0.012			0.011
			(0.87)			(0.90)
Team				-0.396**		-0.383**
				(-2.53)		(-2.39)
Experience					-0.014	-0.023
					(-0.22)	(-0.40)
Control variables						
Ln(Family size)	0.254***	0.254***	0.256***	0.238***	0.253***	0.238***
	(3.28)	(3.22)	(3.34)	(3.55)	(3.30)	(3.61)
Family growth	0.970**	0.951**	0.946**	0.920**	0.967**	0.896**
	(2.60)	(2.60)	(2.53)	(2.54)	(2.59)	(2.51)
Ln(Age)	-0.009	-0.012	-0.010	-0.024	-0.008	-0.031
	(-0.26)	(-0.36)	(-0.31)	(-0.81)	(-0.26)	(-1.01)
Expense	-0.003	0.010	-0.021	0.007	0.000	-0.008
	(-0.02)	(0.07)	(-0.15)	(0.05)	(0.00)	(-0.06)
Ln(Fund size)	0.039	0.038	0.039	0.050**	0.040	0.051**
	(1.45)	(1.39)	(1.48)	(1.98)	(1.55)	(2.21)
Fund objective						
Allocation	-0.372***	-0.374***	-0.384***	-0.301***	-0.368***	-0.321***
	(-3.39)	(-3.38)	(-3.44)	(-3.15)	(-3.39)	(-3.25)
Bond	-0.214*	-0.199	-0.173	-0.216**	-0.209*	-0.170
	(-1.87)	(-1.64)	(-1.60)	(-2.02)	(-1.84)	(-1.59)
Global	0.149	0.143	0.148	0.164	0.146	0.157
	(0.91)	(0.89)	(0.92)	(1.02)	(0.90)	(1.00)
Other funds	-0.323*	-0.284	-0.331*	-0.262	-0.316	-0.246
	(-1.69)	(-1.62)	(-1.69)	(-1.42)	(-1.65)	(-1.42)
Alternative comp. structures						
Advisor-profit pay	-0.409**	-0.407**	-0.400**	-0.406**	-0.407**	-0.398**
	(-2.40)	(-2.39)	(-2.34)	(-2.39)	(-2.38)	(-2.34)
AUM pay	-0.146	-0.138	-0.143	-0.096	-0.146	-0.092
	(-0.77)	(-0.73)	(-0.78)	(-0.53)	(-0.77)	(-0.51)
Deferred comp.	-0.261	-0.261	-0.262	-0.222	-0.262	-0.220

	(-1.50)	(-1.49)	(-1.51)	(-1.36)	(-1.51)	(-1.35)
Constant	-0.206	-0.126	-0.243	0.062	-0.149	0.153
	(-0.29)	(-0.18)	(-0.35)	(0.09)	(-0.20)	(0.21)
Advisor's legal form and Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,041	12,920	13,012	13,041	13,036	12,887
Adj. R-squared	0.31	0.31	0.32	0.34	0.31	0.34

Table VII
Portfolio Manager Compensation and Fund Performance

This table reports the results from OLS regression of fund performance on various compensation structures. We analyze performance-based pay, AUM-based pay, advisor-profit-based pay, and deferred compensation in Panel A and average evaluation period in Panel B. In each panel, we use diversified domestic equity funds in columns (1) to (2), bond funds in columns (3) and (4), and the remaining funds in columns (5) and (6). For diversified domestic equity funds, we estimate alpha using monthly fund returns and the Carhart (1997) four-factor model. For bond funds, we estimate performance using a bond four-factor model based on Cici and Gibson (2012). For the remaining funds, we estimate alpha using a one-factor model, with the average return of the fund's Morningstar category as the factor. Gross alphas are computed using fund monthly gross returns calculated by adding back 1/12th of the annual expense ratio to monthly net returns. We have a comprehensive set of control variables in the regressions, including all the determinant and control variables used in Table III and other variables such as fund turnover ratio and a performance advisory-fee dummy. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Compensation Structures

	Domestic Equity funds		*Bond funds*		*Other funds*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Comp. structure	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*
Performance pay	0.681	0.737	-0.524	-0.548	-0.616	-0.503
	(1.42)	(1.54)	(-0.99)	(-1.04)	(-0.97)	(-0.81)
AUM pay	-0.681	-0.727	-0.123	-0.155	0.846	0.755
	(-1.35)	(-1.44)	(-0.49)	(-0.62)	(1.09)	(1.00)
Advisor-profit pay	0.002	0.005	-0.398	-0.374	-0.209	-0.162
	(0.00)	(0.01)	(-1.29)	(-1.22)	(-0.38)	(-0.30)
Deferred compensation	-0.337	-0.319	0.365	0.318	0.008	-0.032
	(-0.89)	(-0.85)	(1.01)	(0.88)	(0.01)	(-0.05)
Control variables						
Ln*(Fund size)*	-0.085	-0.067	-0.171***	-0.149**	-0.305***	-0.289***
	(-1.04)	(-0.82)	(-2.88)	(-2.50)	(-2.75)	(-2.67)
Ln*(Age)*	0.359***	0.353***	0.089	0.086	0.288*	0.283*
	(2.89)	(2.86)	(0.56)	(0.54)	(1.80)	(1.81)
Expense	0.546	-0.197	-0.234	-0.867***	0.274	-0.542
	(1.34)	(-0.48)	(-0.74)	(-2.73)	(0.80)	(-1.58)
Ln*(Turnover)*	-0.378***	-0.363***	0.046	0.047	-0.115	-0.133
	(-2.94)	(-2.82)	(0.62)	(0.62)	(-0.85)	(-1.02)
Performance-adv. fee	0.135	0.097	0.613	0.602	0.284	0.311
	(0.42)	(0.31)	(1.31)	(1.29)	(0.32)	(0.34)
Constant	-4.961*	-5.440*	-3.805	-4.293	-2.158	-1.245
	(-1.76)	(-1.93)	(-1.36)	(-1.54)	(-0.72)	(-0.41)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,893	5,893	4,118	4,118	3,812	3,812
Adj. R-squared	0.03	0.03	0.13	0.13	0.04	0.04

Panel B. Evaluation Period

	Dom. Equity funds		*Bond funds*		*Other funds*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Evaluation period	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*
EP Mean	-0.035	-0.019	-0.007	0.012	0.252	0.284
	(-0.17)	(-0.09)	(-0.03)	(0.05)	(0.49)	(0.57)
Control variables						
Ln*(Fund size)*	-0.088	-0.070	-0.130**	-0.109*	-0.276**	-0.261**
	(-1.18)	(-0.93)	(-2.12)	(-1.78)	(-2.28)	(-2.18)
Ln*(Age)*	0.358**	0.354**	0.052	0.042	0.167	0.186
	(2.50)	(2.48)	(0.30)	(0.24)	(1.29)	(1.43)
Expense	0.473	-0.265	-0.413	-1.064***	0.692**	-0.145
	(1.14)	(-0.63)	(-1.18)	(-3.07)	(2.11)	(-0.44)
Ln*(Turnover)*	-0.330*	-0.312*	0.075	0.075	-0.286*	-0.291*
	(-1.96)	(-1.84)	(0.81)	(0.80)	(-1.79)	(-1.89)
Performance-adv. fee	0.082	0.040	0.907*	0.903*	-0.344	-0.372
	(0.20)	(0.10)	(1.83)	(1.83)	(-0.46)	(-0.48)
Constant	-1.306	-1.765	3.006	2.244	-3.445	-2.494
	(-0.29)	(-0.40)	(0.80)	(0.58)	(-1.04)	(-0.75)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,718	3,718	3,008	3,008	2,509	2,509
Adj. R-squared	0.04	0.04	0.14	0.14	0.05	0.05

Table VIII
Portfolio Manager Compensation and Mutual Fund Fees

This table reports the results from OLS regression of mutual fund fees on various compensation structures including performance-based pay, AUM-based pay, advisor-profit-based pay, and deferred compensation. We measure fund fees in two ways: (i) percentage of fund AUM, and (ii) the logarithm of dollar fees (=AUM * percentage fee). We analyze total fund fees and expenses in columns (1) and (4). We also examine separately the two components of fund fees: (i) advisory fees (i.e., the fee paid to the advisor) in columns (2) and (5), and (ii) other fees (i.e., fees related to marketing, distribution, 12b-1, and bookkeeping) in columns (3) and (6). We have a comprehensive set of control variables in the regressions, including all the determinant and control variables used in Table III and other variables such as fund turnover ratio and a performance advisory-fee dummy. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Percentage fees			***Dollar fees***		
	(1)	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***
Comp. structure	***Total***	***Advisory***	***Other***	***Total***	***Advisory***	***Other***
Performance pay	-0.018	0.046**	-0.064***	0.017	0.132***	-0.171**
	(-1.03)	(2.43)	(-3.09)	(0.65)	(2.95)	(-2.49)
Advisor-profit pay	-0.011	-0.020*	0.009	-0.030	-0.074**	0.001
	(-1.13)	(-1.82)	(0.58)	(-1.24)	(-2.30)	(0.01)
AUM pay	0.042***	0.034**	0.008	0.060**	0.064	0.009
	(3.56)	(2.09)	(0.39)	(2.47)	(1.46)	(0.14)
Deferred compensation	0.002	-0.017	0.019	-0.003	-0.014	0.118
	(0.18)	(-1.17)	(0.97)	(-0.08)	(-0.33)	(1.46)
Control variables						
Ln*(Fund size)*	-0.016***	0.010***	-0.026***	0.983***	1.011***	0.933***
	(-5.78)	(3.17)	(-6.89)	(158.86)	(94.69)	(57.51)
Ln*(Age)*	0.001	-0.021***	0.022***	-0.049***	-0.067***	0.049
	(0.24)	(-2.97)	(2.70)	(-4.35)	(-2.85)	(1.31)
Expense	0.759***	0.356***	0.403***	0.758***	0.636***	1.227***
	(35.29)	(11.16)	(14.56)	(13.11)	(8.98)	(9.59)
Ln*(Turnover)*	-0.003	0.014***	-0.017***	-0.010	0.040***	-0.059***
	(-1.22)	(3.86)	(-4.93)	(-1.15)	(2.92)	(-3.92)
Performance-adv. fee	0.042*	0.014	0.028	0.082***	0.101**	0.106*
	(1.87)	(0.73)	(1.13)	(3.45)	(2.30)	(1.95)
Constant	0.373***	0.038	0.336***	1.961***	0.622*	0.810
	(5.32)	(0.33)	(2.65)	(10.17)	(1.87)	(1.47)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,779	13,779	13,779	13,501	13,501	13,208
Adj. R-squared	0.82	0.64	0.43	0.94	0.89	0.79

Internet Appendix

"Portfolio Manager Compensation in the U.S. Mutual Fund Industry"

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Part A: Illustrations of Portfolio Manager Compensation Structures

Part B: Additional Tables for Robustness Tests

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Part A: Illustrations of Portfolio Manager Compensation Structures

In this appendix, we use several examples to illustrate how we construct the variables used in our study on the compensation structures of individual portfolio managers in the U.S. mutual fund industry. Even though the SEC provides explicit guidance on *what* to report about portfolio manager's compensation, no standard reporting format is required. As a result, *how* compensation structure is described varies from fund to fund. We read each fund's Statement of Additional Information (SAI) in a given year and manually categorize the types of compensation contracts of portfolio managers accordingly.

We show below five examples of compensation descriptions and explain how we construct the compensation structure variables based on the SAI information.

Example #1: Victory Value Fund, year 2011

"The portfolio managers for each of the Funds receives a base salary plus an annual incentive bonus for managing the Fund...A manager's base salary is dependent on the manager's level of experience and expertise... A portfolio manager's annual incentive bonus is based on the manager's individual and investment performance results. The Adviser establishes a target incentive for each portfolio manager based on the manager's level of experience and expertise in the manager's investment style. This target is set at a percentage of base salary, generally ranging from 40% to 150%. Individual performance is based on balanced scorecard objectives established annually during the first quarter of the fiscal year, and is assigned a 50% weighting. Individual performance metrics include portfolio structure and positioning as determined by a consultant, research, asset growth, client retention, presentation skills, marketing to prospective clients…leadership and teamwork. Investment performance is based on investment performance of each portfolio manager's portfolio or Fund relative to a selected peer group(s), and is assigned a 50% weighting. The overall performance results of each Fund are compared to the performance information of a peer group of similarly-managed competitors, as supplied by third party analytical agencies. The manager's performance versus the peer group then determines the final incentive amount, which generally ranges from zero to 150% of the target depending on results. For example, performance in an upper decile may result in an incentive bonus that is 150% of the target while below-average performance may result in an incentive bonus as low as zero. Performance results for a manager are based on the composite performance of all accounts managed by that manager on a combination of one, three and five year rolling performance…"

Based on the above excerpt, we construct the variables on compensation structures for portfolio manager Arvind K. Sachdeva and Jason E. Putman as follows. Their compensation includes both a fixed and a variable component, so the indicator variable *Fixed salary* is equal to zero. A substantial portion of the bonus is explicitly linked to the fund investment performance, so dummy variable *Performance pay* is set to one. Three evaluation windows are reported. We set the *Evaluation period Max* as five and *Evaluation period Min* as one. The average evaluation period, namely *Evaluation period Mean*, equals three. It is reported that "asset growth" and "client retention" matter when determining the bonus, so the *AUM pay* takes the value of one. No bonuses are reported to be based on the advisor's profit, *Advisor-profit pay* is therefore set to be zero. By the same token, since no deferred compensation is reported in the description, we let *Deferred compensation* take the value zero. Finally, the fund voluntarily reports the size of potential bonus relative to base salary. We set the relative weights of potential bonus (i.e., maximum bonus opportunity) and base salary to 150%.

Example #2: Vanguard Managed Payout Funds, year 2010

"As of December 31, 2010, a Vanguard portfolio manager's compensation generally consists of base salary, bonus… A portfolio manager's base salary is generally a fixed amount that may change as a result of an annual review… A portfolio manager's bonus is determined by a number of factors. One factor is gross, pre-tax performance of the fund relative to expectations for how the fund should have performed, given the fund's investment objective, policies, strategies, and limitations, and the market environment during the measurement period. This performance factor is not based on the value of assets held in the fund's portfolio. For the Managed Payout Funds, the performance factor depends on how closely the portfolio manager outperforms these expectations and maintains the risk parameters of the fund over a three-year period…The target bonus is expressed as a percentage of base salary. The actual bonus paid may be more or less than the target bonus, based on how well the manager satisfies the previously stated objectives…"

In this example, portfolio manager Michael Buek's compensation consists of a fixed and a variable component, so the indicator variable *Fixed salary* is equal to zero. The bonus is primary based on fund investment performance, and the dummy variable *Performance pay* is therefore one. The fund reports only one evaluation window, so *Evaluation period Mean*, *Max*, and *Min* are all set equal to three. The bonus does not depend on the value of assets held in the fund's portfolio, so *AUM pay* takes the value of zero. No bonuses are reported to be based on advisor profits, the *Advisor-profit pay* is therefore zero. In this example, we do not observe any deferred compensation, so *Deferred compensation* is zero.

Example #3: Ivy Bond Fund, year 2009

"As of the end of the fund' s most recent fiscal year, each portfolio manager of a Fund is compensated for managing the Fund in the manner set forth below. ..Base Salary- the portfolio manager's total compensation package is reviewed and adjusted annually using competitive compensation surveys. Base salary is designed to provide a measure of stability and is targeted to be competitive with peers. Short-term Bonus - the portfolio manager is eligible for an annual bonus that is based on the portfolio manager's ability to meet predetermined goals. Of the total goal, approximately 95% is based on the gross pre-tax investment performance versus an appropriate benchmark and peer group. In the case of a Fund, the appropriate benchmark is the Fund's benchmark index described in the Fund's prospectus. Appropriate peer groups are determined using applicable Lipper investment categories. Performance comparisons to the respective benchmark and peer group are performed using both one-year and three-year performance. The remaining goals (approximately 5%) are based on subjective fulfillment of position duties Deferred Compensation- the portfolio manager has the option to defer all or part of his or her short-term and long-term bonuses into a non-qualified deferred compensation plan…"

Based on the above excerpt, we construct the variables on compensation structures for portfolio manager as follows. Their compensation includes both a fixed and a variable component, so the indicator variable *Fixed salary* is equal to zero. The primary factor in determining the bonus is the fund's investment performance, so dummy variable *Performance pay* is set to one. Two evaluation windows are reported. We set *Evaluation period Max* as three and *Evaluation period Min* as one, The *Evaluation period Mean*, takes the average value of the two, and therefore equals two. No bonuses are reported to be based on assets under management or company profits, so *AUM Pay* and *Advisor- Profit Pay* are both set to be zero. The portfolio manager has the option to defer its bonuses, so *Deferred compensation* is one.

Example #4: Needham Growth Fund, year 2009

"Mr. Barr and Mr. Retzler are compensated by the Adviser with an annual salary and bonus, both of which vary from year-to-year, based on a variety of factors, including overall profitability of the firm, the profitability of the asset management activities of the firm, and assessments by the senior management of the firm of the contributions of said individuals to the success of the firm. The portfolio manager's compensation is not based on the Fund's™ pre- or after-tax performance or on the value of assets held in each Fund's portfolio."

Based on the above description of compensation structures of the portfolio managers, we set *Fixed salary* equal to zero since the salary and bonus "vary from year-to-year". The portfolio manager's compensation is not based on the fund's investment performance or the value of assets held in the portfolio, thus the *Performance pay* and *AUM pay* are both set to be zero. The bonus does depend

on the overall profitability of the firm and the profitability of the asset management activities, so we set *Advisor-profit pay* to be one. Similar to the first two examples, *Deferred compensation* is zero in this example.

Example #5: RBB Free Market US Equity Fund, year 2009

There is also a small fraction of sample funds where portfolio managers' variable compensation is "subjective". Our last example, from the SAI of RBB Free Market US Equity Fund in year 2009, illustrates such a case.

"Compensation of a portfolio manager is determined at the discretion of the Portfolio manager's supervisor and is based on a portfolio manager's experience, responsibilities, the perception of the quality of his or her work efforts and other subjective factors. The compensation of portfolio managers is not directly based upon the performance of the Portfolios or other accounts that they manage. The Portfolio manager's supervisor reviews the compensation of each portfolio manager annually and may make modifications in compensation as it deems necessary to reflect changes in the market."

For those cases that manager's compensation is completely "subjective" or "discretionary", we believe their salary is non-fixed, so *Fixed salary* is equal to zero. Since the bonus is not tied explicitly to any specific factor, *Performance pay, AUM pay,* and *Advisor-profit pay* are all set to be zero. *Deferred compensation* is also zero.

Part B: Additional Tables for Robustness Tests

Table IA.I
Compensation Structures of Diversified Domestic Equity Funds

This table reports the distribution of compensation structures (Panel A), summary statistics of evaluation periods (Panel B), further breakdown of non-fixed salary (Panel C), and the correlation coefficient matrix of portfolio manager compensation structures (Panel D). The sample consists of diversified domestic equity funds with 9,452 fund-year observations over the period 2006-2011. The variable *Fixed Salary* is an indicator variable that equals one if the portfolio manager receives a fixed amount of compensation from the advisor, zero otherwise. *Performance pay* is a dummy variable that is set to one if the bonus is tied to the investment performance of the fund, zero otherwise; *Advisor-profit pay* is a dummy variable that is set to one if the portfolio manager's compensation depends on the advisor's profits, zero otherwise; *AUM pay* is an indicator variable that equals one if portfolio manager compensation is tied to the fund's assets under management, zero otherwise; *Deferred compensation* is set to one if the compensation description includes a deferred compensation plan, zero otherwise. Most funds report multiple evaluation windows: *Evaluation period Min* is the shortest evaluation window, and *Evaluation period Max* is the longest evaluation window. For funds that have multiple reported evaluation windows, we calculate *Evaluation period Mean* as the mean of *Evaluation period Min* and *Evaluation period Max*. *P-values* are in brackets in Panel E.

Panel A: Summary statistics of compensation structures

	# of Obs.	***% of Sample***
Total	9,452	100%
Fixed salary	122	1.29%
Non-fixed salary	9,330	98.71%
Performance pay	7,278	77.00%
Advisor-profit pay	4,949	52.36%
AUM pay	2,031	21.49%
Deferred compensation	2,683	28.39%

Panel B: Summary statistics of evaluation periods

Variables (years)	***Obs.***	***Mean***	***Median***	***Std. dev.***	***Min***	***Max***
Evaluation period Mean	6,131	3.09	3.00	1.22	0.25	7.50
Evaluation period Min	6,131	4.43	5.00	1.90	0.25	10.00
Evaluation period Max	6,131	1.75	1.00	1.40	0.25	5.00

Panel C: Further breakdown of non-fixed salary

Performance pay	***Advisor-profit pay***	***AUM pay***	***# of Obs.***	***% of Non-fixed salary sample***
1	0	0	3,110	33.33%
1	1	0	2,293	24.58%
1	0	1	813	8.71%
1	1	1	1,062	11.38%
0	1	0	1,545	16.56%
0	0	1	107	1.15%
0	1	1	49	0.53%
0	0	0	351	3.76%
Total Non-fixed salary			9,330	100%

Panel D: Statistics on the relative weight of bonus vs. base salary

Cases with Bonus/Salary ratio reported	***Observations***	***%***
Bonus/Salary < 100%	165	30.4%
100% ≤ Bonus/Salary ≤ 200%	218	40.1%
Bonus/Salary > 200%	160	29.5%
Total	543	100.0%

Cases with implied information on Bonus/Salary ratio	***Observations***	***%***
Bonus may exceed the base salary	1,394	36.8%
Multiple times the base salary	465	12.3%
Significant/material/substantial portion of total comp.	1,709	45.0%
Strong bonus potential/generous bonus	224	5.9%
Total	3,792	100.0%

Panel E: Correlation matrix

	Performance pay	***Advisor-profit pay***	***AUM pay***	***Deferred comp.***	***Evaluation period Mean***
Performance pay	1				
Advisor-profit pay	-0.26	1			
	[0.00]				
AUM pay	0.18	0.02	1		
	[0.00]	[0.09]			
Deferred comp.	0.24	-0.01	0.002	1	
	[0.00]	[0.30]	[0.82]		
Evaluation period Mean	0.03	-0.37	-0.14	-0.16	1
	[0.01]	[0.00]	[0.00]	[0.00]	

Table IA.II
Summary Statistics of Compensation Structures by Year

This table reports the distribution of compensation structures (Panel A) and summary statistics of evaluation periods (Panel B) by year. The sample period is 2006 to 2011. All variables are defined in Table IA.I.

Panel A: Yearly statistics of compensation structures

Year	*Fixed salary*	*Performance pay*	*Advisor-profit pay*	*AUM pay*	*Deferred compensation*	*# Obs.*
2006	1.35%	80.68%	49.60%	20.60%	29.05%	3,339
2007	1.50%	79.47%	51.00%	20.85%	29.66%	3,463
2008	1.02%	80.60%	50.37%	20.57%	30.97%	3,335
2009	1.25%	79.39%	51.77%	20.72%	31.45%	3,450
2010	1.23%	77.42%	51.92%	17.98%	27.82%	3,415
2011	1.55%	76.68%	50.61%	16.89%	27.50%	3,345
All	1.32%	79.04%	50.89%	19.61%	29.41%	20,347

Panel B: Yearly statistics of evaluation period

Year	*Evaluation period Mean*	*Evaluation period Min*	*Evaluation period Max*	*# Obs.*
2006	2.97	1.63	4.30	2,321
2007	2.98	1.66	4.30	2,386
2008	3.01	1.61	4.41	2,314
2009	3.01	1.60	4.42	2,375
2010	3.07	1.67	4.47	2,216
2011	3.09	1.67	4.50	2,147
All	3.02	1.64	4.40	13,759

Table IA.III
Correlation Matrix of Determinant Variables

This table reports the correlation matrix of the determinant variables in Table III. These variables are defined as in the Appendix. P-values are in brackets.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
Client HHI(1)	1												
Broker(2)	0.09	1											
	[0.00]												
Bank(3)	0.02	0.45	1										
	[0.00]	[0.00]											
Owner(4)	-0.09	-0.56	-0.39	1									
	[0.00]	[0.00]	[0.00]										
Adv. own.(5)	0.00	-0.40	-0.41	0.49	1								
	[0.84]	[0.00]	[0.00]	[0.00]									
Inst. Ownership(6)	-0.05	-0.12	-0.08	0.07	0.01	1							
	[0.00]	[0.00]	[0.00]	[0.00]	[0.35]								
Ln(Fund own)(7)	-0.02	-0.16	-0.15	0.22	0.21	-0.06	1						
	[0.02]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]							
Flow-perf. Sen.(8)	0.00	0.01	0.01	-0.01	-0.01	0.01	0.00	1					
	[0.80]	[0.13]	[0.19]	[0.04]	[0.19]	[0.14]	[0.56]						
Subadvised(9)	-0.17	-0.18	-0.05	0.13	0.02	-0.03	-0.16	0.00	1				
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.50]					
Ln(Experience) (10)	-0.02	-0.03	-0.05	0.09	0.10	0.04	0.10	0.01	0.00	1			
	[0.01]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.26]	[0.54]				
# Funds managed (11)	0.02	0.08	-0.05	-0.06	-0.06	0.11	-0.23	0.00	0.00	0.08	1		
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.99]	[0.88]	[0.00]			
Team(12)	-0.14	-0.01	0.02	0.00	0.03	-0.02	0.06	-0.01	0.06	-0.04	0.08	1	
	[0.00]	[0.09]	[0.03]	[0.87]	[0.00]	[0.00]	[0.00]	[0.40]	[0.00]	[0.00]	[0.00]		
Ln(City AUM)(13)	-0.13	0.22	0.34	-0.16	-0.27	0.00	-0.12	0.01	0.02	-0.08	-0.01	-0.02	1
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.99]	[0.00]	[0.41]	[0.00]	[0.00]	[0.17]	[0.01]	

Table IA.IV
Probit Model - Determinants of Portfolio Manager Compensation Structures

This table reports the results from the probit regressions of compensation structures of portfolio managers on a set of determinant and control variables. We present both the coefficients (Coeff.) and marginal effects at the means (ME). Dependent variables are defined in Table I and independent variables are defined in the Appendix. All determinant and control variables are lagged by one year. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Performance pay		***Advisor-profits pay***		***AUM pay***		***Deferred compensation***	
	(1a)	***(1b)***	***(2a)***	***(2b)***	***(3a)***	***(3b)***	***(4a)***	***(4b)***
Determinant	***Coeff.***	***ME***	***Coeff.***	***ME***	***Coeff.***	***ME***	***Coeff.***	***ME***
Hypothesis 1: Intensity of agency conflicts								
Client HHI	-0.711**	-13.99%	0.623**	24.76%	-0.052	-1.31%	-0.634*	-19.80%
	(-2.18)		(1.98)		(-0.17)		(-1.67)	
Broker	0.339*	6.67%	0.202	8.02%	-0.156	-3.88%	0.788***	24.61%
	(1.76)		(1.06)		(-0.77)		(2.94)	
Bank	0.571***	11.22%	-0.003	0.13%	0.026	0.64%	-0.176	-5.51%
	(3.05)		(-0.02)		(0.13)		(-0.59)	
Owner	-0.688***	-13.52%	1.310***	52.05%	0.380	9.47%	-0.923***	-28.83%
	(-3.49)		(6.64)		(1.62)		(-2.72)	
Advisor ownership	-0.629***	-12.37%	0.006	0.23%	-0.386	-9.62%	-0.970**	-30.29%
	(-2.60)		(0.02)		(-1.24)		(-2.03)	
Hypothesis 2: Alternative monitoring mechanisms								
Inst. ownership	-0.473*	-9.31%	0.088	3.51%	-0.165	-4.11%	-0.115	-3.61%
	(-1.89)		(0.46)		(-0.81)		(-0.55)	
Ln(*Fund ownership*)	-0.001	-0.01%	-0.023***	-0.90%	0.005	0.13%	0.003	0.08%
	(-0.06)		(-2.99)		(0.68)		(0.32)	
Flow-perf. sensitivity	-1.838	-36.14%	-0.515	-20.47%	-0.850	-21.20%	1.193	37.28%
	(-1.43)		(-0.51)		(-0.76)		(1.17)	
Subadvised	-0.488***	-9.59%	0.333**	13.24%	0.109	2.72%	0.040	1.25%
	(-2.68)		(1.97)		(0.67)		(0.23)	
Hypothesis 3: Managerial characteristics								

Ln(*Experience*)	0.070	1.38%	0.018	0.70%	-0.026	-0.64%	0.066	2.06%
	(1.13)		(0.31)		(-0.51)		(0.92)	
# Funds managed	-0.011	-0.22%	-0.016**	-0.62%	-0.010	-0.25%	-0.002	-0.05%
	(-1.14)		(-2.21)		(-1.44)		(-0.19)	
Team	0.079	1.55%	-0.019	-0.77%	0.091	2.26%	0.293*	9.15%
	(0.57)		(-0.15)		(0.72)		(1.73)	
Ln(*City AUM*)	-0.032	-0.63%	0.091**	3.61%	0.089**	2.22%	0.013	0.39%
	(-0.78)		(2.43)		(1.98)		(0.24)	
Control variables								
Ln(*Family size)*	0.250***	4.92%	-0.126***	-5.01%	-0.135***	-3.36%	0.006	0.20%
	(7.21)		(-2.70)		(-2.87)		(0.10)	
Family growth	0.006	0.11%	-0.003	-0.11%	-0.259	-6.46%	-0.369	-11.50%
	(0.82)		(-0.22)		(-1.28)		(-1.05)	
Ln(*Age*)	-0.066	-1.30%	-0.004	-0.17%	-0.014	-0.34%	-0.042	-1.30%
	(-1.42)		(-0.08)		(-0.24)		(-0.79)	
Expense	0.168	3.30%	-0.119	-4.73%	0.322**	8.02%	0.261	8.14%
	(0.97)		(-0.76)		(2.34)		(1.45)	
Ln(*Fund size*)	-0.050*	-0.99%	0.021	0.85%	0.010	0.25%	0.031	0.96%
	(-1.73)		(0.68)		(0.39)		(1.26)	
Track error volatility	-0.001	-0.01%	-0.012	-0.46%	-0.009	-0.23%	0.011	0.34%
	(-0.06)		(-1.34)		(-0.90)		(1.09)	
Advisor's legal form								
Ltd. Liability Comp.	-0.173	-3.39%	0.417**	16.57%	-0.363*	-9.04%	0.065	2.04%
	(-1.14)		(2.10)		(-1.83)		(0.31)	
Partnership	-1.019**	-20.02%	0.409	16.26%	0.063	1.56%	0.359	11.20%
	(-2.24)		(1.11)		(0.19)		(0.86)	
Other	-0.319	-6.28%	1.298***	51.59%	-0.277	-6.91%	-0.265	-8.28%
	(-1.42)		(3.57)		(-0.75)		(-0.58)	
Fund objective								
Allocation	-0.179	-3.51%	0.232*	9.21%	-0.060	-1.50%	0.021	0.65%
	(-1.27)		(1.79)		(-0.48)		(0.17)	
Bond	0.0260	0.51%	-0.0680	-2.70%	0.006	-0.15%	-0.053	-1.65%
	(0.18)		(-0.60)		(0.06)		(-0.44)	
Global	-0.154	-3.02 %	-0.142	-5.63%	-0.179*	-4.47%	-0.133	-4.16%
	(-1.23)		(-1.42)		(-1.84)		(-1.45)	
Other funds	-0.597***	-11.74%	0.177	7.05%	0.218	5.43%	-0.159	-4.98%

	(-2.66)		(0.81)		(0.96)		(-0.81)	
Alternative comp. structures								
Performance pay			-0.050	-2.00%	1.105***	27.55%	0.446	13.90%
			(-0.19)		(5.55)		(1.23)	
Advisor-profit pay	0.0192	0. 37%			0.073	1.83%	0.226	7.05%
	(0.08)				(0.33)		(0.90)	
AUM pay	1.072***	21.08%	0.106	4.22%			0.060	1.86%
	(4.34)		(0.44)				(0.24)	
Deferred comp.	0.182	3.58%	0.201	8.00%	0.086	2.13%		
	(0.61)		(0.82)		(0.37)			
Constant	0.259		-2.119*		-3.063**		-2.838**	
	(0.21)		(-1.74)		(-2.41)		(-2.13)	
Year dummies	Yes		Yes		Yes		Yes	
Observations	17,375		17,375		17,375		17,375	
Pseudo-R-squared	0.394		0.176		0.116		0.143	

Table IA.V
Liner Probability Model - Determinants of Portfolio Manager Compensation Structures

This table reports the results from the OLS regressions of compensation structures of portfolio managers on a set of determinant and control variables. Dependent variables are defined in Table I and independent variables are defined in the Appendix. All determinant and control variables are lagged by one year. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Determinant	***Perform. pay***	***Adv.-profits pay***	***AUM pay***	***Def. compensation***
Hypothesis 1: Intensity of agency conflicts				
Client HHI	-0.162**	0.216**	-0.014	-0.163
	(-2.28)	(2.04)	(-0.18)	(-1.48)
Broker	0.120*	0.057	-0.045	0.162***
	(1.95)	(1.00)	(-0.85)	(3.21)
Bank	0.120***	-0.007	-0.002	-0.042
	(2.62)	(-0.09)	(-0.04)	(-0.42)
Owner	-0.164***	0.406***	0.112*	-0.220***
	(-2.66)	(7.01)	(1.75)	(-3.39)
Advisor ownership	-0.250***	-0.018	-0.116	-0.130*
	(-3.10)	(-0.23)	(-1.62)	(-1.77)
Hypothesis 2: Alternative monitoring mechanisms				
Inst. ownership	-0.149**	0.029	-0.012	-0.022
	(-2.04)	(0.48)	(-0.29)	(-0.42)
Ln(*Fund ownership*)	0.000	-0.007***	0.001	0.000
	(0.14)	(-2.80)	(0.59)	(0.01)
Flow-perf. sensitivity	-0.377	-0.092	-0.314	0.367
	(-1.58)	(-0.30)	(-1.00)	(1.18)
Subadvised	-0.067	0.111*	0.035	0.005
	(-1.61)	(1.94)	(0.81)	(0.09)
Hypothesis 3: Managerial characteristics				
Ln(*Experience*)	0.020	0.007	-0.010	0.016
	(1.46)	(0.35)	(-0.74)	(0.71)
# Funds managed	-0.003	-0.005**	-0.001	-0.001
	(-0.95)	(-2.56)	(-0.56)	(-0.23)
Team	0.019	-0.006	0.022	0.086
	(0.70)	(-0.16)	(0.67)	(1.63)
Ln(*City AUM*)	-0.008	0.029**	0.022*	0.005
	(-0.86)	(2.34)	(1.93)	(0.34)
Control variables				
Ln(*Family size)*	0.046***	-0.043***	-0.030***	0.004
	(5.39)	(-3.06)	(-2.80)	(0.24)
Family growth	0.000	-0.001	-0.005*	-0.002

	(0.06)	(-0.75)	(-1.81)	(-0.84)
Ln(*Age*)	-0.008	-0.000	0.001	-0.006
	(-0.82)	(-0.03)	(0.07)	(-0.36)
Expense	0.020	-0.042	0.074**	0.070
	(0.56)	(-0.80)	(2.10)	(1.20)
Ln(*Fund size*)	-0.011**	0.006	0.003	0.008
	(-2.00)	(0.59)	(0.42)	(1.04)
Track error volatility	0.000	-0.003	-0.003	0.003
	(0.00)	(-1.32)	(-1.09)	(1.12)
Advisor's legal form				
Ltd. Liability Comp.	-0.023	0.145**	-0.098*	0.030
	(-0.72)	(2.13)	(-1.91)	(0.46)
Partnership	-0.157	0.139	0.035	0.084
	(-1.14)	(1.12)	(0.39)	(0.60)
Other	-0.042	0.405***	-0.075	-0.071
	(-0.87)	(4.10)	(-0.73)	(-0.54)
Fund objective				
Allocation	-0.035	0.078*	-0.021	0.005
	(-1.22)	(1.81)	(-0.72)	(0.12)
Bond	-0.005	-0.017	-0.013	-0.014
	(-0.19)	(-0.44)	(-0.46)	(-0.36)
Global	-0.028	-0.044	-0.040	-0.034
	(-1.13)	(-1.33)	(-1.61)	(-1.21)
Other funds	-0.139***	0.061	0.044	-0.042
	(-2.63)	(0.91)	(0.78)	(-0.79)
Alternative comp. structures				
Performance pay		-0.013	0.242***	0.076
		(-0.14)	(4.93)	(0.80)
Advisor-profit pay	-0.007		0.031	0.067
	(-0.14)		(0.51)	(0.82)
AUM pay	0.174***	0.043		0.023
	(3.95)	(0.50)		(0.29)
Deferred comp.	0.043	0.072	0.018	
	(0.86)	(0.82)	(0.29)	
Constant	0.654**	-0.154	-0.344	-0.315
	(2.38)	(-0.38)	(-1.09)	(-0.83)
Year dummies	Yes	Yes	Yes	Yes
Observations	17,375	17,375	17,375	17,375
R-squared	0.384	0.215	0.104	0.131

Table IA.VI
Alternative Proxy for Fund Investor Sophistication – Average Investor Account Size

This table reports the results from the logistic regressions of compensation structures of portfolio managers on a set of determinant and control variables. We present both the coefficients (Coeff.) and marginal effects at the means (ME). Dependent variables are defined in Table I and independent variables are defined in the Appendix. All determinant and control variables are lagged by one year. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Performance pay		***Advisor-profits pay***		***AUM pay***		***Deferred compensation***	
	(1a)	***(1b)***	***(2a)***	***(2b)***	***(3a)***	***(3b)***	***(4a)***	***(4b)***
Determinant	***Coeff.***	***ME***	***Coeff.***	***ME***	***Coeff.***	***ME***	***Coeff.***	***ME***
Hypothesis 1: Intensity of agency conflicts								
Client HHI	-1.261**	-12.20%	1.106**	27.50%	-0.017	-0.22%	-1.058	-18.50%
	(-2.12)		(2.06)		(-0.03)		(-1.60)	
Broker	0.680*	6.56%	0.331	8.23%	-0.266	-3.51%	1.511***	26.30%
	(1.91)		(1.00)		(-0.71)		(2.89)	
Bank	0.995***	9.60%	-0.011	-0.28%	0.000	0.01%	-0.330	-5.75%
	(2.82)		(-0.03)		(0.00)		(-0.64)	
Owner	-1.220***	-11.80%	2.226***	55.30%	0.666	8.80%	-1.635**	-28.50%
	(-3.28)		(6.00)		(1.59)		(-2.29)	
Advisor ownership	-1.079**	-10.40%	0.0144	0.36%	-0.614	-8.12%	-2.004**	-34.90%
	(-2.45)		(0.03)		(-1.01)		(-2.02)	
Hypothesis 2: Alternative monitoring mechanisms								
Ave. Account Size	-0.111*	1.07%	0.0412	1.02%	0.080**	-1.06%	-0.077*	-1.35%
	(-1.77)		(0.93)		(2.05)		(-1.82)	
Ln(*Fund ownership*)	-0.008	-0.08%	-0.036***	-0.89%	0.014	0.19%	0.000	0.01%
	(-0.66)		(-2.85)		(1.06)		(0.03)	
Flow-perf. sensitivity	-3.897*	-37.60%	-1.018	-25.30%	-1.704	-22.50%	2.315	40.40%
	(-1.68)		(-0.59)		(-0.82)		(1.35)	
Subadvised	-0.787**	-7.60%	0.554*	13.80%	0.189	2.49%	0.138	2.41%
	(-2.21)		(1.93)		(0.64)		(0.45)	
Hypothesis 3: Managerial characteristics								
Ln(*Experience*)	0.125	1.21%	0.0170	0.42%	-0.072	-0.95%	0.110	1.92%

	(1.09)		(0.18)		(-0.81)		(0.91)	
# Funds managed	-0.021	-0.20%	-0.027**	-0.66%	-0.018	-0.24%	-0.003	-0.06%
	(-1.20)		(-2.19)		(-1.38)		(-0.21)	
Team	0.177	1.71%	-0.055	-1.37%	0.158	2.08%	0.544*	9.48%
	(0.68)		(-0.26)		(0.67)		(1.84)	
Ln(*City AUM*)	-0.065	-0.63%	0.155**	3.84%	0.163*	2.16%	0.012	0.22%
	(-0.71)		(2.43)		(1.91)		(0.14)	
Control variables								
Ln(*Family size)*	0.430***	4.15%	-0.215***	-5.35%	-0.204**	-2.70%	-0.001	0.02%
	(6.63)		(-2.71)		(-2.37)		(-0.01)	
Family growth	0.009	0.09%	-0.006	-0.16%	-0.501	-6.62%	-0.630	-11.00%
	(0.83)		(-0.28)		(-1.21)		(-0.96)	
Ln(*Age*)	-0.168*	-1.62%	0.016	0.41%	0.029	0.39%	-0.101	-1.76%
	(-1.88)		(0.17)		(0.28)		(-1.08)	
Expense	0.202	1.95%	-0.134	-3.33%	0.749***	9.91%	0.253	4.40%
	(0.60)		(-0.53)		(2.78)		(0.85)	
Ln(*Fund size*)	-0.065	-0.63%	0.028	0.69%	0.008	0.10%	0.064	1.11%
	(-1.16)		(0.50)		(0.17)		(1.51)	
Track error volatility	-0.001	-0.01%	-0.019	-0.48%	-0.019	-0.25%	0.018	0.31%
	(-0.05)		(-1.31)		(-0.90)		(1.05)	
Advisor's legal form								
Ltd. Liability Comp.	-0.359	-2.90%	0.730**	18.10%	-0.654*	-8.65%	0.109	1.89%
	(-1.25)		(2.12)		(-1.75)		(0.30)	
Partnership	-1.817**	-17.30%	0.668	16.60%	0.133	1.75%	0.675	11.80%
	(-1.99)		(1.13)		(0.24)		(0.99)	
Other	-0.707	-6.70%	2.230***	55.40%	-0.492	-6.51%	-0.352	-6.13%
	(-1.61)		(3.28)		(-0.73)		(-0.44)	
Fund objective								
Allocation	-0.276	-3.23%	0.394*	9.78%	-0.081	-1.07%	-0.013	-0.23%
	(-1.03)		(1.76)		(-0.34)		(-0.06)	
Bond	0.083	0.53%	-0.124	-3.07%	-0.003	-0.04%	-0.092	-1.60%
	(0.30)		(-0.66)		(-0.02)		(-0.45)	
Global	-0.276	-2.96%	-0.238	-5.92%	-0.344**	-4.55%	-0.187	-3.27%
	(-1.15)		(-1.45)		(-2.02)		(-1.21)	
Other funds	-1.033**	-10.50%	0.334	8.30%	0.262	3.46%	-0.224	-3.91%
	(-2.37)		(0.86)		(0.66)		(-0.65)	

Alternative comp. structures								
Performance pay			-0.032	-0.79%	2.101***	27.80%	0.662	11.50%
			(-0.07)		(5.33)		(1.02)	
Advisor-profit pay	0.036	0.42%			0.083	1.10%	0.353	6.16%
	(0.07)				(0.20)		(0.83)	
AUM pay	2.095***	20.20%	0.125	3.09%			0.148	2.58%
	(3.69)		(0.30)				(0.35)	
Deferred comp.	0.254	2.46%	0.340	8.45%	0.108	1.43%		
	(0.38)		(0.84)		(0.26)			
Constant	1.106		-3.740*		-6.454***		-4.089*	
	(0.44)		(-1.84)		(-2.58)		(-1.72)	
Year dummies	Yes		Yes		Yes		Yes	
Observations	17,004		17,004		17,004		17,004	
Pseudo-R-squared	0.390		0.180		0.118		0.146	

Table IA.VII
List of Changes in the Advisory Firm

This table reports the list of funds that experienced a change of the advisory firm. *Year* is the year in which the *previous advisor* was replaced by the *current advisor*. Panel A reports 79 cases corresponding to changes in advisor due to a merger, acquisition, or split of the previous investment advisor. Panel B reports 344 fund-year observations with replacements of subadvisor. We use the following abbreviations in the table: *Inv.* for Investments, *Mgnt.* for Management, *Adv*. for Advisors, *Serv.* for Services, *Asso.* for Associates.

Panel A: Merger, acquisition, or split of investment advisors

		Advisor				Advisor	
Year	**Fund**	**Current year**	**Previous year**	**Year**	**Fund**	**Current year**	**Previous year**
2007	Federated Intercontinental Fund	Federated Global Inv.	Rochdale Inv.	**2010**	Van Kampen Equity & Income Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2007	Nationwide Worldwide Leaders Fund	Gartmore Global Partners	Gartmore Global Asset Mgnt.	**2010**	Van Kampen Small Cap Growth Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2007	Nationwide Emerging Markets Fund	Gartmore Global Partners	Gartmore Global Asset Mgnt.	**2010**	Van Kampen American Franchise Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2007	Nationwide International Growth Fund	Gartmore Global Partners	Gartmore Global Asset Mgnt.	**2010**	Van Kampen Leaders Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2007	Nationwide Global Utilities Fund	Gartmore Global Partners	Gartmore Global Asset Mgnt.	**2010**	DWS Strategic Income Fund	QS Investors LLC	Deutsche Inv.
2007	Nationwide Global Financial Serv. Fund	Nationwide Fund Adv.	Gartmore Global Asset Mgnt.	**2010**	DWS Balanced Fund	QS Investors LLC	Deutsche Inv.
2008	Nationwide Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Strategic Government Securities Fund	QS Investors LLC	Deutsche Inv.
2008	Nationwide Growth Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Blue Chip Fund	QS Investors LLC	Deutsche Inv.
2008	Nationwide Small Cap Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Core Plus Income Fund	QS Investors LLC	Deutsche Inv.
2008	Nationwide Global Technology And Communications Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Growth & Income Fund	QS Investors LLC	Deutsche Inv.
2008	Nationwide U.S. Growth Leaders Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Short Duration Plus Fund	QS Investors LLC	Deutsche Inv.
2008	Nationwide Global Health Sciences Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Small Cap Core Fund	QS Investors LLC	Deutsche Inv.
2008	Nationwide Global Financial Serv. Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS S&P 500 Plus Fund	QS Investors LLC	Deutsche Inv.
2008	Gartmore U.S. Growth Leaders Long-Short Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Lifecompass Retirement Fund	QS Investors LLC	Deutsche Inv.
2008	Gartmore Optimal Allocations Fund: Moderately Aggressive	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Global Inflation Plus Fund	QS Investors LLC	Deutsche Inv.
2008	Nationwide Optimal Allocations Fund: Moderate	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2010**	DWS Select Alternative Allocation Fund	QS Investors LLC	Deutsche Inv.
2008	Gartmore Optimal Allocations Fund: Specialty	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2011**	Van Kampen Comstock Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2008	Nationwide Global Natural Resources Fund	Aberdeen Asset Mgnt.	Nationwide Fund Adv.	**2011**	Van Kampen Mid Cap Growth Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2008	Columbia Mid Cap Core Fund	Columbia Mgnt.	U.S. Trust New York	**2011**	Van Kampen Small Cap Value Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2008	Columbia Select Opportunities Fund	Columbia Mgnt.	U.S. Trust New York	**2011**	Nuveen Small Cap Value Fund	Nuveen Fund Adv.	FAF Adv. Inc.

2008	Accessor Aggressive Growth Allocation Fund	Forward Mgnt.	Accessor Capital Mgnt.	**2011**	Nuveen Minnesota Intermediate Municipal Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2008	Virtus Emerging Markets Opportunities Fund	Vontobel Asset Mgnt.	Phoenix Inv. Co.	**2011**	Nuveen Core Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	Vanguard Growth And Income Fund	Mellon Capital Mgnt.	Franklin Portfolio Asso.	**2011**	Nuveen Short Term Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Pennsylvania Intermediate Municipal Bond Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Strategy Balanced Allocation Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Large Cap Value Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Minnesota Municipal Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Ohio Intermediate Tax Exempt Bond Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Intermediate Term Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Bond Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Mid Cap Growth Opportunities Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Michigan Intermediate Municipal Bond Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Large Cap Growth Opportunities Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Government Mortgage Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Mid Cap Select Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Limited Maturity Bond Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Strategy Aggressive Growth Allocation Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Large Cap Growth Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Strategy Conservative Allocation Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Intermediate Bond Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen High Income Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Total Return Advantage Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Total Return Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Large Cap Core Equity Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Oregon Intermediate Municipal Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	PNC Intermediate Tax Exempt Bond Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Strategy Growth Allocation Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	Allegiant Balanced Allocation Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Nebraska Municipal Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	Allegiant Small Cap Core Fund	PNC Capital Adv.	Allegiant Asset Mgnt.	**2011**	Nuveen Intermediate Government Bond Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2009	Scout Trendstar Small Cap Fund	Scout Inv. Adv.	Trendstar Adv.	**2011**	Nuveen Inflation Protected Securities Fund	Nuveen Fund Adv.	FAF Adv. Inc.
2010	Van Kampen Growth & Income Fund	Invesco Adv.	Van Kampen Asset Mgnt.	**2011**	DWS Diversified International Equity Fund	QS Investors LLC	Deutsche Asset Mgnt.
				2011	DWS Core Plus Income Fund	Qs Investors LLC	Deutsche Inv.

Panel B: Replacement of subadvisors

		Advisor				Advisor	
Year	**Fund**	**Current year**	**Previous year**	**Year**	**Fund**	**Current year**	**Previous year**
2007	Accessor Value Fund	Acadian Asset Mgnt.	Wellington Mgnt.	**2009**	Nationwide U.S. Small Cap Value Fund	Dimensional Fund Adv.	Nationwide Fund Adv.
2007	Narragansett Insured Tax-Free Income Fund	Aquila Inv. Mgnt.	Citizens Bank Of Rho	**2009**	Eaton Vance High Yield Municipals Fund	Eaton Vance Mgnt.	Boston Mgnt.t An
2007	Vanguard U.S. Value Fund	Axa Rosenburg Inv.	Grantham Mayo Van Otterloo	**2009**	Mainstay U.S. Small Cap Fund	Epoch Inv. Partners	New York Life Invest
2007	Barrett Opportunity Fund Inc.	Barrett Asso.	Clearbridge Asset Mgnt.	**2009**	Mainstay Epoch U.S. All Cap Fund	Epoch Inv. Partners	Mackay Shields LLC
2007	American Beacon Short-Term Bond Fund	Barrow Hanley Mewhin	American Beacon Adv.	**2009**	FBR Focus Fund	FBR Fund Adv.	Akre Capital Mgnt.
2007	Calvert New Vision Small Cap Fund	Bridgeway Capital Mgnt.	Renaissance Inv.	**2009**	Federated Clover Value Fund	Federated Global Inv.	Clover Capital Mgnt.
2007	Growth Stock Fund	Chicago Equity Partners	The Asset Mgnt.	**2009**	Federated Clover Small Value Fund	Federated Global Inv.	Clover Capital Mgnt.
2007	Growth And Income Fund	Chicago Equity Partners	The Asset Mgnt.	**2009**	Evergreen International Bond Fund	First International	Evergreen Inv.
2007	Value Fund	Chicago Equity Partners	The Asset Mgnt.	**2009**	Touchstone Ultra Short Duration Fixed Income Fund	Fort Washington Inv.	Chartwell Inv.
2007	Income Portfolio	Clearbridge Adv.	Smith Barney Fund Mgnt.	**2009**	Forward Strategic Realty Fund	Forward Mgnt.	Kensington Inv.
2007	Harbor Large Cap Value Fund	Cohen & Steers Capital	Armstrong Shaw Asso.	**2009**	Forward International Equity Fund	Forward Mgnt.	Pictet Asset Mgnt.
2007	Evergreen Utility And Telecommunications Fund	Crow Point Partners	Evergreen Inv.	**2009**	Forward International Real Estate Fund	Forward Mgnt.	Kensington Inv.
2007	DWS Core Plus Income Fund	Deutsche Inv.	Aberdeen Asset Mgnt.	**2009**	Forward Global Infrastructure Fund	Forward Mgnt.	Kensington Inv.
2007	Phoenix Real Estate Securities Fund	Duff & Phelps Inv.	Phoenix Inv. Co.	**2009**	Managers Small Cap Fund	Frontier Capital Mgnt.	Timessquare Capital
2007	Phoenix All-Cap Growth Fund	Engemann Asset Mgnt.	Phoenix Inv. Co.	**2009**	Virtus Wealth Guardian Fund	F-Squared Inv.	Goodwin Capital Adv.
2007	Phoenix Small-Cap Growth Fund	Engemann Asset Mgnt.	Phoenix Inv. Co.	**2009**	Virtus Wealth Builder Fund	F-Squared Inv.	Goodwin Capital Adv.
2007	Fiduciary Small Capitalization Equity Fund	Franklin Templeton	Fiduciary International	**2009**	Fidelity Tax-Free Bond Fund	Geode Capital Mgnt.	Fidelity Mgnt.
2007	Phoenix Ca Tax-Exempt Bond Fund	Goodwin Capital Adv.	Phoenix Inv. Co.	**2009**	Jordan Opportunity Fund	Hellman Jordan Mgnt.	Windowpane Adv.
2007	Virtus Multi-Sector Short Term Bond Fund	Goodwin Capital Adv.	Phoenix Inv. Co.	**2009**	HSBC Investor Opportunity Fund	HSBC Global Asset Mgnt.	Westfield Capital Mgnt.
2007	Phoenix Income & Growth Fund	Goodwin Capital Adv.	Engemann Asset Mgnt.	**2009**	Old Mutual Asset Allocation Balanced Portfolio	Ibbotson Asso.	Provident Inv.
2007	Phoenix Multi-Sector Fixed Income Fund	Goodwin Capital Adv.	Phoenix Inv. Co.	**2009**	ING Clarion Real Estate Portfolio	ING Clarion Real Estate	Morgan Stanley Inv.
2007	Phoenix Balanced Fund	Goodwin Capital Adv.	Engemann Asset Mgnt.	**2009**	Ing Growth Opportunities Fund	ING Inv. LLC	Wellington Mgnt.
2007	Phoenix Core Bond Fund	Goodwin Capital Adv.	Phoenix Inv. Co.	**2009**	Janus Adviser Intech Risk-Managed Growth Fund	Intech Inv. Mgnt.	Janus Capital Mgnt.
2007	Phoenix Institutional Bond Fund	Goodwin Capital Adv.	Phoenix Inv. Co.	**2009**	Ivy International Balanced Fund	Ivy Inv. Mgnt.	Templeton Inv.
2007	Phoenix Wealth Guardian Pholio	Goodwin Capital Adv.	Phoenix Inv. Co.	**2009**	Ivy European Opportunities Fund	Ivy Inv. Mgnt.	Henderson Global Inv.
2007	Phoenix Wealth Builder Pholio	Goodwin Capital Adv.	Phoenix Inv. Co.	**2009**	Virtus Quality Large-Cap Value Fund	Kayne Anderson Rudnick	Acadian Asset Mgnt.
2007	Phoenix Diversifier Pholio	Goodwin Capital Adv.	Phoenix Inv. Co.	**2009**	Accessor Small To Mid Cap Fund	LA Capital Mgnt.	SSGA Funds Mgnt.

2007	Virtus Value Equity Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Accessor International Equity Fund	Lazard Asset Mgnt.	Pictet Asset Mgnt.
2007	Phoenix Insight Small-Cap Value Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Touchstone Short Duration Fixed Income Fund	Longfellow Inv.	Chartwell Inv.
2007	Phoenix Insight Small-Cap Opportunity Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Managers Fremont Micro-Cap Fund	Lordabbett & Co.LLC	Kern Capital Mgnt.
2007	Phoenix Insight Balanced Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Managers Fremont Institutional Micro-Cap Fund	Lordabbett & Co.LLC	Kern Capital Mgnt.
2007	Phoenix Insight Tax-Exempt Bond Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Mainstay Tax Free Bond Fund	Mackay Shields LLC	Standish Mellon Asset Mgnt.
2007	Phoenix Insight Intermediate Tax-Exempt Bond Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Large Cap Growth Fund	Madison Asset Mgnt.	Members Capital Adv.
2007	Phoenix Insight Intermediate Government Bond Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Diversified Income Fund	Madison Asset Mgnt.	Members Capital Adv.
2007	Phoenix Insight Core Equity Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Bond Fund	Madison Asset Mgnt.	Members Capital Adv.
2007	Phoenix Insight Core Equity Fund	Harris Inv. Mgnt.	Principal Mgnt.t	**2009**	Large Cap Value Fund	Madison Asset Mgnt.	Members Capital Adv.
2007	Phoenix Insight Small-Cap Growth Fund	Harris Inv. Mgnt.	Phoenix Inv. Co.	**2009**	Touchstone Intermediate Fixed Income Fund	Milne LLC	Clover Capital Manan
2007	Hartford U.S. Government Securities Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Van Kampen Corporate Bond Fund	Morgan Stanley Inves	Van Kampen Asset Mgnt.
2007	Hartford Tax-Free National Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Nationwide Short Duration Bond Fund	Morley Capital Mgnt.	Morley Capital Mgnt.
2007	Hartford Tax-Free Minnesota Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Nationwide Enhanced Income Fund	Morley Capital Mgnt.	Morley Capital Mgnt.
2007	Hartford High Yield Fund	Hartford Inv.	Wellington Mgnt.	**2009**	First Investors Fund For Income	Muzinich & Co. Inc	First Investors Mgnt.
2007	Hartford Total Return Bond Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Nationwide Fund	Nationwide Fund Adv.	Aberdeen Asset Mgnt.
2007	Hartford Inflation Plus Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Nationwide Growth Fund	Nationwide Fund Adv.	Aberdeen Asset Mgnt.
2007	Hartford Short Duration Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Nationwide International Value Fund	Nationwide Fund Adv.	Alliance Bernstein L.
2007	Hartford Equity Growth Allocation Fund	Hartford Inv.	Wellington Mgnt.	**2009**	The Japan Fund Inc.	Nomura Asset Mgnt.	Fidelity Mgnt.
2007	Hartford Growth Allocation Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Regions M. K. Select Mid Cap Growth Fund	Oak Ridge Inv.	Morgan Asset Mgnt.
2007	Hartford Balanced Allocation Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Monetta Intermediate Bond Fund	Orion Capital Mgnt.	Belle Haven Inv.
2007	Hartford Conservative Allocation Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Accessor Inv. Grade Fixed-Income Fund	PIMCO	Cypress Asset Mgnt.
2007	Hartford Income Allocation Fund	Hartford Inv.	Wellington Mgnt.	**2009**	International Growth Fund	Principal Mgnt.	Harris Inv. Mgnt.
2007	Hartford Select Midcap Growth Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Hy Bear Fund	Rafferty Asset Mgnt.	Transamerica Inv.
2007	Hartford Floating Rate Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Massmutual Select Large Cap Growth Fund	Rainier Inv. Mgnt.	Alliance Bernstein L.
2007	Hartford Select Midcap Value Fund	Hartford Inv.	Wellington Mgnt.	**2009**	Seligman Frontier Fund Inc	Riversource Inv.	J & W Seligman & Co.
2007	Henderson European Focus Fund	Henderson Global Inv	Gardner Lewis Asset Mgnt.	**2009**	California Quality Series	Riversource Inv.	J & W Seligman & Co.
2007	Henderson Global Technology Fund	Henderson Global Inv	Gardner Lewis Asset Mgnt.	**2009**	Seligman Minnesota Fund	Riversource Inv.	J & W Seligman & Co.
2007	Henderson Us Focus Fund	Henderson Global Inv	Gardner Lewis Asset Mgnt.	**2009**	Seligman National Fund	Riversource Inv.	J & W Seligman & Co.
2007	Large Cap Growth Fund	Highmark Capital Mgnt.	Waddell & Reed Inv.	**2009**	Seligman New York Fund	Riversource Inv.	J & W Seligman & Co.
2007	Hartford High Yield Hls Fund	Hl Inv. Adv.	Wellington Mgnt.	**2009**	Columbia Seligman Global Technology Fund	Riversource Inv.	Wellington Mgnt.

2007	Hartford Total Return Bond Hls Fund	Hl Inv. Adv.	Wellington Mgnt.	**2009**	California High-Yield Series	Riversource Inv.	J & W Seligman & Co.
2007	Hartford Midcap Growth Hls Fund	Hl Inv. Adv.	Wellington Mgnt.	**2009**	John Hancock Growth Opportunities Fund	Robeco Inv. Mgnt.	Grantham Mayo Van Otterloo
2007	Hartford U.S. Government Securities Hls Fund	Hl Inv. Adv.	Wellington Mgnt.	**2009**	Virtus Tactical Allocation Fund	SCM Adv.sors LLC	Goodwin Capital Adv.
2007	Seligman Common Stock Fund Inc	J & W Seligman & Co.	Wells Capital Mgnt.	**2009**	Virtus Balanced Fund	SCM Adv.sors LLC	Goodwin Capital Adv.
2007	Partners Smallcap Value Fund I	J.P. Morgan Inv.	Mellon Equity Asso.	**2009**	Small Cap Growth	Security Investors	RS Inv. Mgnt.
2007	Bond Fund	John Hancock Adv.	MFC Global Inv.	**2009**	Hennessy Select Sparx Japan Smaller Companies Fund	Sparx Asset Mgnt.	PMA Capital Mgnt.
2007	BB&T International Equity Fund	Julius Baer Inv.	UBS Global Asset Mgnt.	**2009**	UTC North American Fund	UTC Fund Serv.	Earnest Partners LLC
2007	Hartford Smallcap Value Hls Fund	Kayne Anderson Rudnick	Wellington Mgnt.	**2009**	Virtus Alternatives Diversifier Fund	Virtus Inv. Adv.	Goodwin Capital Adv.
2007	Legg Mason Inv. Grade Income Portfolio	Legg Mason Fund Adv.	Western Asset Mgnt.	**2009**	Wasatch-1st Source Income Equity Fund	Wasatch Adv. Inc	1st Source Corp. Inv.
2007	Legg Mason Limited Duration Bond Portfolio	Legg Mason Fund Adv.	Western Asset Mgnt.	**2009**	Wasatch-1st Source Long/Short Fund	Wasatch Adv. Inc	2nd Source Corp. Inv.
2007	Smith Barney Social Awareness Fund	Legg Mason Partners	Smith Barney Fund Mgnt.	**2009**	Small Company Value Fund	Wellington Mgnt.	T. Rowe Price Asso.
2007	Energy & Basic Materials Portfolio	Loomis Sayles & Company	Integrity Money Mgnt.	**2009**	Small Company Growth Fund	Wellington Mgnt.	Aim Capital Mgnt.
2007	Marshall Small-Cap Growth Fund	M&I Inv. Mgnt.	Massachusetts Financial Serv.	**2009**	High Yield Bond Fund	Wellington Mgnt.	AIG Global Inv.
2007	Global Real Estate Fund	MFC Global Inv.	John Hancock Adv.	**2010**	American Beacon Short-Term Bond Fund	American Beacon Adv.	Barrow Hanley Mewhin
2007	Northpointe Small Cap Value Fund	Northpointe Capital	Northpointe Capital	**2010**	Vanguard Growth Equity Fund	Baillie Gifford	Turner Inv.
2007	Nationwide Mid Cap Growth Fund	Northpointe Capital	Gartmore Mutual Fund	**2010**	Keeley Small Cap Value Fund	Broadmark Asset Mgnt.	Keeley Asset Mgnt.
2007	Nationwide Micro Cap Equity Fund	Northpointe Capital	Gartmore Mutual Fund	**2010**	Keeley Mid Cap Value Fund	Broadmark Asset Mgnt.	Keeley Asset Mgnt.
2007	Nationwide Small Cap Leaders Fund	Northpointe Capital	Gartmore Mutual Fund	**2010**	Keeley All Cap Value Fund	Broadmark Asset Mgnt.	Keeley Asset Mgnt.
2007	Massmutual Premier Main Street Fund	OFI Institutional Asset Mgnt.	Oppenheimer Funds Inc	**2010**	Keeley Small-Mid Cap Value Fund	Broadmark Asset Mgnt.	Keeley Asset Mgnt.
2007	Massmutual Premier Strategic Income Fund	OFI Institutional Asset Mgnt.	Oppenheimer Funds Inc	**2010**	Active-Passive Large Cap Value Fund	C.S. Mckee L.P.	ionFundquest Incorporation
2007	Income And Equity Fund	Pacific Global Inv.	Bache Capital Mgnt.	**2010**	Managers Cadence Mid-Cap Fund	Cadence Capital Magn	New York Life Inv.
2007	Balanced Fund	Pacific Global Inv.	Bache Capital Mgnt.	**2010**	Calvert Small Cap Fund	Calvert Asset Mgnt.	Channing Capital Mgnt.
2007	Phoenix Growth & Income Fund	Phoenix Inv. Co.	Engemann Asset Mgnt.	**2010**	Columbia Select Small Cap Fund	Columbia Mgnt.	U.S. Trust New York
2007	Dryden Active Allocation Fund	Quantitative Mgnt.	Jennison Asso.	**2010**	U.S. Global Leaders Growth Fund	Columbia Mgnt.	Sustainable Growth
2007	Victory RS Large Cap Alpha Fund	RS Inv. Mgnt.	Guardian Investor Serv.	**2010**	Bishop Street Dividend Value Fund	Columbia Mgnt.	Lotsoff Capital Mgnt.
2007	Victory RS Small Cap Equity Fund	RS Inv. Mgnt.	Guardian Investor Serv.	**2010**	International Equity Portfolio	DePrince Race & Zol	Oppenheimer Capital
2007	Aston/Tamro Small Cap Fund	Tamro Capital Partn.	Aston Asset Mgnt.	**2010**	MTB Strategic Allocation Fund	DePrince Race & Zol	MTB Inv. Adv.s
2007	Aston/Tamro Diversified Equity Fund	Tamro Capital Partn.	Aston Asset Mgnt.	**2010**	Wilmington Short/Intermediate-Term Bond Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.
2007	Global Megatrends Fund	U.S. Global Investor	Leeb Capital Mgnt.	**2010**	Wilmington Municipal Bond Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.
2007	Van Kampen Equity Growth Fund	Van Kampen Asset Mgnt.	Grantham Mayo Van Ot	**2010**	Wilmington Multi-Manager International Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.

2007	International Growth Fund	Wellington Mgnt.	Batterymarch Financial Mgnt.	**2010**	Wilmington Broad Market Bond Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.
2007	Small Company Growth Fund	Wells Fargo Funds Mgnt.	Credit Suisse Asset Mgnt.	**2010**	Wilmington Multi-Manager Large-Cap Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.
2008	Pl International Value Fund	Alliance Bernstein L	Lazard Asset Mgnt.	**2010**	Wilmington Multi-Manager Small-Cap Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.
2008	Quant Long/Short Fund	Analytic Investors L	SSGA Funds Mgnt.	**2010**	Wilmington Multi-Manager Real Asset Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.
2008	Dunham International Stock Fund	Arrowstreet Capital	Neuberger Berman Mgnt.	**2010**	Wilmington Aggressive Asset Allocation Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.
2008	Columbia Global Value Fund	Brandes Inv. P	Columbia Mgnt.	**2010**	Wilmington Conservative Asset Allocation Fund	Dimensional Fund Adv.	Armstrong Shaw Asso.
2008	Ridgeworth International Equity Fund	Certium Asset Mgnt.	Trusco Capital Mgnt.	**2010**	DWS Dreman International Value Fund	Dreman Value Mgnt.	Deutsche Inv.
2008	Ridgeworth Large Cap Quantitative Equity Fund	Certium Asset Mgnt.	Trusco Capital Mgnt.	**2010**	Active Passive Small/Mid Cap Fund	Eagle Asset Mgnt.e	Ashfield Capital Par
2008	Columbia Pacific/Asia Fund	Columbia Mgnt.	U.S. Trust New York	**2010**	Wall Street Fund Inc	Evercore Wealth Mgnt.	Wall Street Mgnt.
2008	Columbia Short-Intermediate Bond Fund	Columbia Mgnt.	U.S. Trust New York	**2010**	Fidelity Tax-Free Bond Fund	Fidelity Mgnt.	Geode Capital Mgnt.
2008	Columbia Value And Restructuring Fund	Columbia Mgnt.	U.S. Trust New York	**2010**	Balanced Fund	First National Fund	Tributary Capital Mgnt.
2008	Columbia Bond Fund	Columbia Mgnt.	U.S. Trust New York	**2010**	Forward High Yield Bond Fund	First Western Capital	First Western Inv.
2008	Columbia Blended Equity Fund	Columbia Mgnt.	U.S. Trust New York	**2010**	Forward Large Cap Equity Fund	Forward Mgnt.	Piedmont Inv.
2008	Columbia International Growth Fund	Columbia Mgnt.	U.S. Trust New York	**2010**	DWS Global Thematic Fund	Global Thematic Partners	Rreef America LLC
2008	Columbia Emerging Markets Fund	Columbia Mgnt.	U.S. Trust New York	**2010**	International Stock Fund	Hansberger Global	Credit Suisse Asset Mgnt.
2008	Columbia Select Large Cap Growth Fund	Columbia Mgnt.	U.S. Trust New York	**2010**	Large Cap Value Fund	Highmark Capital Mgnt.	Aronson + Johnson + Ortiz
2008	DWS Communications Fund	Deutsche Inv.	Alex. Brown Inv.	**2010**	PFW Water Fund	Hillcrest Wells Adv.	SBG Capital Mgnt.
2008	Fifth Third International Equity Fund	Fifth Third Asset Mgnt.	Morgan Stanley Inv.	**2010**	Montecito Fund	Hillcrest Wells Adv.	SBG Capital Mgnt.
2008	Accessor High Yield Bond Fund	First Western Inv.	Financial Mgnt.	**2010**	Monteagle Fixed Income Fund	Howe And Rusling Inc	PNC Capital Adv.
2008	Aston/Fortis Real Estate Fund	Fortis Inv. Mgnt.	ABN Amro Asset Mgnt.	**2010**	HSCB Investor Opportunity Fund	HSCB Global Asset Mgnt.	Westfield Capital Mgnt.
2008	Pl Small-Cap Growth Fund	Fred Alger Mgnt.	Neuberger Berman Mgnt.	**2010**	HSCB Investor Overseas Equity Fund	HSCB Global Asset Mgnt.	Alliance Bernstein L.
2008	ING Emerging Countries Fund	ING Inv. LLC	Brandes Inv.	**2010**	HSCB Investor Value Fund	HSCB Global Asset Mgnt.	HSBC Global Asset Mgnt.
2008	Ivy Small Cap Value Fund	Ivy Inv. Mgnt.	Blackrock Capital Mgnt.	**2010**	HSCB Investor Growth Fund	HSCB Global Asset Mgnt.	Westfield Capital Mgnt.
2008	Midcap Value Fund Ii	Jacobs Levy Equity Mgnt.	Neuberger Berman Mgnt.	**2010**	Old Mutual Asset Allocation Conservative Portfolio	Ibbotson Asso.	Rogge Global Partner
2008	Small Cap Growth Fund	JP Morgan Inv.	Franklin Adv.	**2010**	ING Global Opportunities Fund	ING Inv. LLC	Artio Global Inv.
2008	Quaker Mid Cap Value	Kennedy Capital Mgnt.	Global Capital Mgnt.	**2010**	ING Van Kampen Growth And Income Portfolio	Invesco Adv.	Morgan Stanley Inves
2008	Buffalo Jayhawk China Fund	Kornitzer Capital Mgnt.	Jayhawk Capital Mgnt.	**2010**	Tax-Exempt Bond Fund I	Invesco Adv.	Van Kampen Asset Mgnt.
2008	Large Cap Value Portfolio	M.D. Sass Investors	Oppenheimer Capital	**2010**	California Municipal Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2008	Touchstone Sands Capital Institutional Growth Fund	Mazama Capital Mgnt.	Sands Capital Mgnt.	**2010**	ING Van Kampen Comstock Portfolio	Invesco Adv.	Morgan Stanley Inv.
2008	MTB Intermediate-Term Bond Fund	MTB Inv. Adv.s	Munder Capital Mgnt.	**2010**	ING Van Kampen Equity And Income Portfolio	Invesco Adv.	Morgan Stanley Inv.

2008	Neuberger Berman Mid Cap Growth Fund	Neuberger Berman Mgnt.	Nationwide Separate	**2010**	Mid Cap Growth Fund	Invesco Adv.	Invesco Aim Capital
2008	Nuveen Moderate Allocation Fund	Nuveen Asset Mgnt.	Institutional Capital Mgnt.	**2010**	Touchstone Intermediate Fixed Income Fund	JK Milne Asset Mgnt.	Milne LLC
2008	Nuveen Conservative Allocation Fund	Nuveen Asset Mgnt.	Institutional Capital Mgnt.	**2010**	Touchstone Mid Cap Fund	Lee Munder Capital	Turner Inv. Partners
2008	Dynamic Hy Bond Fund	Rafferty Asset Mgnt.	Transamerica Inv.	**2010**	Mid Cap Fund	Madison Asset Mgnt.	Wellington Mgnt.
2008	Seligman Capital Fund Inc	Riversource Inv.	J & W Seligman & Co.	**2010**	Dunham Emerging Markets Fund	Marvin & Palmer Asso.	Van Eck Asso.
2008	Seligman Communications & Information Fund Inc	Riversource Inv.	J & W Seligman & Co.	**2010**	Merk Asian Currency Fund	Merk Inv. LLC	Madison Square Inv.
2008	Seligman Growth Fund Inc.	Riversource Inv.	J & W Seligman & Co.	**2010**	Generation Wave Growth Fund	Mutuals Adv. Inc.	GNI Capital Inc.
2008	Seligman Smaller-Cap Value Fund Inc	Riversource Inv.	J & W Seligman & Co.	**2010**	Vice Fund	Mutuals Adv. Inc.	GNI Capital Inc.
2008	Seligman Large-Cap Value Fund Inc	Riversource Inv.	J & W Seligman & Co.	**2010**	Bogle Small Cap Growth	Perimeter Capital Mgnt.	Bogle Inv. Mgnt.
2008	Seligman Common Stock Fund Inc	Riversource Inv.	J & W Seligman & Co.	**2010**	Perkins Global Value Fund	Perkins Inv. Mgnt.	Janus Capital Mgnt.
2008	Virtus High Yield Income Fund	SCM Adv.sors LLC	Phoenix Inv. Co.	**2010**	Lifestyle Aggressive Fund	QS Investors LLC	MFC Global Inv.
2008	SM&R Growth Fund	Securities Mgnt.	Fred Alger Mgnt.	**2010**	Lifestyle Balanced Fund	QS Investors LLC	MFC Global Inv.
2008	SM&R Equity Income Fund	Securities Mgnt.	Fred Alger Mgnt.	**2010**	Lifestyle Conservative Fund	QS Investors LLC	MFC Global Inv.
2008	SM&R Balanced Fund	Securities Mgnt.	Fred Alger Mgnt.	**2010**	Lifestyle Growth Fund	QS Investors LLC	MFC Global Inv.
2008	Accessor Growth Fund	Smith Asset Mgnt.	Enhanced Inv.	**2010**	Lifestyle Moderate Fund	QS Investors LLC	MFC Global Inv.
2008	First Investors Select Growth Fund	Smith Asset Mgnt.	First Investors Mana	**2010**	Cip Sands Capital Institutional Growth Portfolio	Sands Capital Mgnt.	Mazama Capital Mgnt.
2008	Ridgeworth Georgia Tax-Exempt Bond Fund	Stableriver Capital	Trusco Capital Mgnt.	**2010**	Nationwide Growth Fund	Turner Inv. Partners	Aberdeen Asset Mgnt.
2008	Ridgeworth Virginia Intermediate Municipal Bond Fund	Stableriver Capital	Trusco Capital Mgnt.	**2010**	Highland Total Return Fund	Urdang Securities Mgnt.	GE Asset Mgnt.t
2008	Ridgeworth Short-Term Bond Fund	Stableriver Capital	Trusco Capital Mgnt.	**2010**	Virtus Ca Tax-Exempt Bond Fund	Virtus Inv. Adv.	Goodwin Capital Adv.
2008	Ridgeworth Short-Term U.S. Treasury Securities Fund	Stableriver Capital	Trusco Capital Mgnt.	**2010**	Vanguard International Explorer Fund	Wellington Mgnt.	Schroder Inv.
2008	Ridgeworth Maryland Municipal Bond Fund	Stableriver Capital	Trusco Capital Mgnt.	**2011**	Astor Long/Short Etf Fund	Astor Asset Mgnt.	Ameritor Financial
2008	Ridgeworth Ultra-Short Bond Fund	Stableriver Capital	Trusco Capital Mgnt.	**2011**	Eaton Vance High Yield Municipal Income Fund	Boston Mgnt.	Eaton Vance Mgnt.
2008	Ridgeworth U.S. Government Securities Ultra-Short Bond Fund	Stableriver Capital	Trusco Capital Mgnt.	**2011**	Mid Cap Growth Fund	Columbia Mgnt.	Invesco Adv.
2008	Ridgeworth North Carolina Tax-Exempt Bond Fund	Stableriver Capital	Trusco Capital Mgnt.	**2011**	Pear Tree Quality Fund	Columbia Partners L.	Analytic Investors L
2008	Mainstay Tax Free Bond Fund	Standish Mellon Asset Mgnt.	Mackay Shields LLC	**2011**	Virtus Growth & Income Fund	Euclid Adv.sors LLC	Virtus Inv. Adv.
2008	Growth Fund	T Rowe Price Asso.	RE Adv. Corporation	**2011**	Virtus Alternatives Diversifier Fund	Euclid Adv.sors LLC	Virtus Inv. Adv.
2008	Dreyfus/Standish International Fixed Income Fund	The Dreyfus Corporation	Standish Mellon Asset Mgnt.	**2011**	American Beacon Short-Term Bond Fund	Evercore Asset Mgnt.	American Beacon Adv.
2008	Vanguard U.S. Value Fund	The Vanguard Group	Axa Rosenburg Inv.	**2011**	Aston/Fairpointe Mid Cap Fund	Fairpointe Capital L	Optimum Inv.
2008	Threadneedle Global Equity Fund	Threadneedle International	Citizens Adv.	**2011**	John Hancock Small Company Fund	Fiduciary Mgnt.	Grantham Mayo Van Otterloo
2008	Eastern European Fund	U.S. Global Investor	Charlemagne Capital	**2011**	Income Fund	First National Asset Mgnt.	Tributary Capital Mgnt.

2008	Global Emerging Markets Fund	U.S. Global Investor	Charlemagne Capital	**2011**	DWS Core Fixed Income Fund	Fisher Francis Trees	Deutsche Asset Mgnt.
2008	Hsbc Investor Growth Fund	Winslow Capital Mgnt.	Waddell & Reed Inv.	**2011**	Highland Total Return Fund	GE Asset Mgnt.	Urdang Securities Mgnt.
2009	Real Estate Fund	American Century Inv.	J.P. Morgan Inv.	**2011**	Fidelity Strategic Real Return Fund	Geode Capital Mgnt.	Fidelity Mgnt.
2009	Wilmington Short/Intermediate-Term Bond Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	The Hartford Global Enhanced Dividend Fund	Hartford Inv.	Wellington Mgnt.
2009	Wilmington Municipal Bond Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	Virtus High Yield Income Fund	Him Monegy Inc.	SCM Adv. LLC
2009	Wilmington Multi-Manager International Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	ING Global Bond Portfolio	ING Inv. Mgnt.	Oppenheimer Funds
2009	Wilmington Broad Market Bond Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	Munder Micro-Cap Equity Fund	Integrity Asset Mgnt.	Munder Capital Mgnt.
2009	Wilmington Multi-Manager Large-Cap Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	Pl Comstock Fund	Invesco Adv.	Van Kampen Asset Mgnt.
2009	Wilmington Multi-Manager Small-Cap Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	Ivy Global Bond Fund	Ivy Inv. Mgnt.	ING Inv. LLC
2009	Wilmington Multi-Manager Real Asset Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	Pl International Value Fund	J.P. Morgan Inv.	Alliance Bernstein L
2009	Wilmington Aggressive Asset Allocation Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	Virtus Strategic Growth Fund	Kayne Anderson Rudnick	Scm Adv.sors LLC
2009	Wilmington Conservative Asset Allocation Fund	Armstrong Shaw Asso.	Wilmington Trust Inv.	**2011**	Bond Fund	MFC Global Inv.	John Hancock Adv.
2009	Old Mutual Large Cap Growth Fund	Ashfield Capital	Turner Inv.	**2011**	Virtus Ca Tax-Exempt Bond Fund	Newfleet Asset Mgnt.	Virtus Inv. Adv.
2009	Nationwide Mid Cap Market Index Fund	Blackrock Inv.	Blackrock Inv.	**2011**	Virtus Multi-Sector Short Term Bond Fund	Newfleet Asset Mgnt.	Goodwin Capital Adv.
2009	Inflation Protection Fund	Blackrock Inv.	Principal Mgnt.	**2011**	Virtus Multi-Sector Fixed Income Fund	Newfleet Asset Mgnt.	Goodwin Capital Adv.
2009	Brown Advisory Flexible Value Fund	Brown Inv. Adv.	Alex. Brown Inv.	**2011**	Virtus Senior Floating Rate Fund	Newfleet Asset Mgnt.	Goodwin Capital Adv.
2009	Narragansett Insured Tax-Free Income Fund	Citizens Inv.	Aquila Inv. Mgnt.	**2011**	Technology & Communications Portfolio	Oak Asso. Ltd	Columbus Circle Inv.
2009	Old Mutual China Fund	Clough Capital Partners	Clay Finlay LLC	**2011**	Eaton Vance Low Duration Fund	Parametric Portfolio	Eaton Vance Mgnt.
2009	Columbia Select Small Cap Fund	Columbia Mgnt.	U.S. Trust New York	**2011**	Strategic Advisers International Ii Fund	Pyramis Global Adv.	Strategic Adv.
2009	Value & Restructuring Fund	Columbia Mgnt.	Excelsior	**2011**	Commodity Real Return Strategy Fund	Research Affiliates	T. Rowe Price Associ
2009	Northern Multi-Manager Small Cap Fund	Copper Rock Capital	Goldman Sachs Asset Mgnt.	**2011**	STI Classic Large Cap Core Equity Fund	Silvant Capital Mgnt.	Ironoak Adv. LLC
2009	DWS Strategic Value Fund	Deutsche Inv.	Dreman Value Mgnt.	**2011**	U.S. Global Leaders Growth Fund	Sustainable Growth Asset Mgnt.	Columbia Mgnt.
2009	DWS Emerging Markets Fixed Income Fund	Deutsche Inv.	Aberdeen Asset Mgnt.	**2011**	Large Cap Growth Fund	Tributary Capital Mgnt.	Riverbridge Partners
2009	DWS Global Bond Fund	Deutsche Inv.	Aberdeen Asset Mgnt.	**2011**	Pl Large-Cap Growth Fund	UBS Global Asset Mgnt.	Loomis Sayles & Company
2009	DWS S&P 500 Plus Fund	Deutsche Inv.	Northern Trust Inves	**2011**	Virtus Global Opportunities Fund	Vontobel Asset Mgnt.	Virtus Inv. Adv.

Table IA.VIII
Summary Statistics of Fund Performance and Fees

This table reports the summary statistics of fund performance measures and fund fees used in Tables VII and VIII of the paper. For diversified domestic equity funds, we estimate alpha using monthly fund returns and the Carhart (1997) four-factor model. For bond funds, we estimate p/performance using a bond four-factor model based on Cici and Gibson (2012), which includes the CRSP value-weighted stock index, the U.S. aggregate bond index, the return spread between the high-yield bond index and the intermediate government bond index, and the return spread between the GNMA mortgage-backed security index and the intermediate government bond index. For the remaining funds, we estimate alpha using a one-factor model, with the average return of the fund's Morningstar category as the factor. For each of the alpha measures, we first estimate the factor loadings using the preceding 24 monthly fund returns (gross or net) and then calculate monthly alpha as the difference between a fund's return (gross or net) in a given month and the sum of the product of the estimated factor loadings and the factor returns during that month. We average the monthly alphas within a year and multiply it by 12 to obtain an annualized alpha measure. Gross alphas are computed using fund monthly gross returns calculated by adding back 1/12th of the annual expense ratio to monthly net returns. We measure fund fees in two ways: (i) percentage of fund AUM, and (ii) dollar fees (=AUM * percentage fee). We also further break down the total fund fees into two components: (i) advisory fees (i.e., the fee paid to the advisor) and (ii) other fees (i.e., fees related to marketing, distribution, 12b-1, and bookkeeping).

Variable	*Mean*	*St. dev.*	*1st*	*Median*	*99th*	*Obs.*
Fund performance measures						
Gross alpha - Equity funds (%)	0.272	6.415	-17.688	0.212	17.982	5,893
Net alpha - Equity funds (%)	-0.853	6.410	-19.091	-0.860	16.649	5,893
Gross alpha - Bond funds (%)	0.250	4.809	-17.163	0.359	13.107	4,118
Net alpha - Bond funds (%)	-0.542	4.809	-17.814	-0.381	11.960	4,118
Gross alpha - Other funds (%)	0.009	5.052	-15.045	0.009	14.227	3,812
Net alpha - Other funds (%)	0.009	5.015	-14.891	0.016	14.091	3,812
Mutual fund fees						
Total expense ratio (%)	1.055	0.421	0.130	1.018	2.223	13,779
Advisory fee ratio (%)	0.649	0.290	0.035	0.645	1.463	13,779
Other fee ratio (%)	0.407	0.290	-0.029	0.368	1.265	13,779
Total dollar fees (in $ Thousand)	13,470	47,185	126	3,077	191,249	13,501
Advisory dollar fees (in $ Thousand)	8,004	24,973	62	1,892	116,106	13,501
Other dollar fees (in $ Thousand)	5,466	25,512	-49	987	77,496	13,501
Ln(Total dollar fees)	8.093	1.598	4.840	8.032	12.161	13,501
Ln(Advisory dollar fees)	7.573	1.644	4.127	7.546	11.662	13,501
Ln(Other dollar fees)	6.969	1.776	2.077	6.934	11.290	13,208

Table IA.IX
Fund Performance Evaluated Against Peer Funds

This table repeats the analysis of Table VII except using three different performance measures as the dependent variable. The three variables are measured for the entire sample of funds: (i) peer-fund-adjusted alpha (columns (1) and (2)); (ii) an indicator variable for funds ranked in the top 50% among peer funds (columns (3) and (4)); (iii) an indicator variable for funds ranked in the top quartile (columns (5) and (6)). We analyze performance-based pay, AUM-based pay, advisor-profit-based pay, and deferred compensation in Panel A and average evaluation period in Panel B. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Compensation structures

	Peer adjusted		***Top half***		***Top quartile***	
	(1)	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***
Comp. variables	***Gross alpha***	***Net alpha***	***Gross Return***	***Net Return***	***Gross Return***	***Net Return***
Performance pay	0.172	0.100	0.049	0.033	-0.004	-0.007
	(0.54)	(0.31)	(1.40)	(0.88)	(-0.17)	(-0.29)
AUM pay	0.161	0.211	0.012	0.008	0.044**	0.034*
	(0.62)	(0.79)	(0.59)	(0.40)	(2.17)	(1.69)
Advisor-profit pay	-0.123	-0.159	0.016	0.016	-0.018	-0.029*
	(-0.52)	(-0.66)	(0.68)	(0.70)	(-1.04)	(-1.68)
Deferred compensation	0.127	0.141	-0.026	-0.020	0.007	0.012
	(0.52)	(0.57)	(-1.02)	(-0.77)	(0.38)	(0.73)
Control variables						
Ln*(Fund size)*	-0.131***	-0.153***	-0.005	-0.003	-0.004	-0.002
	(-3.22)	(-3.63)	(-1.08)	(-0.67)	(-1.07)	(-0.57)
Ln*(Age)*	0.165**	0.178**	-0.002	-0.004	-0.000	-0.001
	(2.17)	(2.27)	(-0.23)	(-0.44)	(-0.03)	(-0.13)
Expense	-0.412**	0.306	0.032*	-0.054***	0.076***	-0.007
	(-2.04)	(1.49)	(1.78)	(-3.09)	(4.50)	(-0.38)
Ln*(Turnover)*	-0.171***	-0.164***	-0.004	-0.003	0.002	0.001
	(-2.79)	(-2.60)	(-0.64)	(-0.48)	(0.34)	(0.18)
Performance-adv. fee	-0.114	-0.110	0.074**	0.045	0.087***	0.092**
	(-0.30)	(-0.29)	(2.18)	(1.25)	(2.69)	(2.50)
Constant	-2.151*	-2.547*	0.315**	0.325**	-0.085	0.065
	(-1.66)	(-1.94)	(2.25)	(2.28)	(-0.78)	(0.64)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,146	13,146	13,146	13,146	13,146	13,146
Adj. R-squared	0.01	0.01	0.01	0.01	0.02	0.02

Panel B. Evaluation period

	Peer adjusted		*Top half*		*Top quartile*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Evaluation period	*Gross alpha*	*Net alpha*	*Gross Return*	*Net Return*	*Gross Return*	*Net Return*
EP Mean	0.120	0.134	0.010	0.007	0.022**	0.016
	(0.81)	(0.92)	(0.89)	(0.62)	(2.08)	(1.41)
Control variables						
Ln*(Fund size)*	-0.114**	-0.097**	-0.012**	-0.010*	-0.008*	-0.007
	(-2.51)	(-2.21)	(-2.14)	(-1.69)	(-1.87)	(-1.51)
Ln*(Age)*	0.157*	0.152*	-0.001	-0.005	-0.000	0.000
	(1.93)	(1.95)	(-0.14)	(-0.50)	(-0.05)	(0.02)
Expense	0.349	-0.390*	0.038*	-0.052***	0.086***	-0.002
	(1.52)	(-1.69)	(1.89)	(-2.66)	(4.23)	(-0.10)
Ln*(Turnover)*	-0.201***	-0.194***	-0.001	-0.001	0.005	0.003
	(-3.00)	(-2.97)	(-0.09)	(-0.15)	(0.67)	(0.46)
Performance-adv. fee	-0.150	-0.176	0.061	0.031	0.078***	0.081***
	(-0.51)	(-0.58)	(1.61)	(0.77)	(3.08)	(2.72)
Constant	-1.951	-1.557	0.539***	0.479**	-0.157	0.089
	(-1.11)	(-0.92)	(2.91)	(2.43)	(-1.18)	(0.75)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,803	8,803	8,803	8,803	8,803	8,803
Adj. R-squared	0.02	0.02	0.01	0.02	0.03	0.02

Table IA.X
Diversified Domestic Equity Funds: Value vs. Growth

This table repeats the analysis of Table VII except that we break the diversified equity fund sample into value, blend, growth funds based on the Morningstar classifications. For all diversified domestic equity funds, we estimate alpha using monthly fund returns and the Carhart (1997) four-factor model. We analyze performance-based pay, AUM-based pay, advisor-profit-based pay, and deferred compensation in Panel A and average evaluation period in Panel B. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Compensation structures

	Growth funds		*Blend funds*		*Value funds*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Comp. variables	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*
Performance pay	1.830**	1.830**	0.008	0.068	-1.863	-1.678
	(2.43)	(2.43)	(0.01)	(0.06)	(-1.61)	(-1.42)
AUM pay	-1.338*	-1.338*	-0.390	-0.510	-0.468	-0.587
	(-1.90)	(-1.90)	(-0.40)	(-0.51)	(-0.62)	(-0.75)
Advisor-profit pay	-0.697	-0.697	0.454	0.469	-0.032	-0.020
	(-1.01)	(-1.01)	(0.66)	(0.67)	(-0.06)	(-0.04)
Deferred compensation	0.347	0.347	-0.045	-0.030	-0.440	-0.401
	(0.52)	(0.52)	(-0.07)	(-0.05)	(-0.58)	(-0.52)
Control variables						
Ln*(Fund size)*	-0.061	-0.061	-0.084	-0.078	-0.016	0.025
	(-0.58)	(-0.58)	(-0.42)	(-0.39)	(-0.09)	(0.15)
Ln*(Age)*	0.383*	0.383*	0.105	0.110	0.303	0.275
	(1.88)	(1.88)	(0.36)	(0.38)	(1.20)	(1.08)
Expense	0.485	0.485	0.216	-0.506	0.762	0.076
	(0.80)	(0.80)	(0.38)	(-0.85)	(0.98)	(0.10)
Ln*(Turnover)*	-0.631**	-0.631**	-0.373*	-0.374*	-0.268	-0.230
	(-2.46)	(-2.46)	(-1.88)	(-1.87)	(-0.95)	(-0.82)
Performance-adv. fee	-0.447	-0.447	0.069	0.047	-0.303	-0.326
	(-0.74)	(-0.74)	(0.10)	(0.07)	(-0.51)	(-0.57)
Constant	-3.383	-3.383	-7.796	-8.385	6.943	6.542
	(-0.75)	(-0.75)	(-1.43)	(-1.52)	(1.25)	(1.16)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,452	2,452	2,005	2,005	1,436	1,436
Adj. R-squared	0.05	0.04	0.04	0.04	0.11	0.11

Panel B. Evaluation period

	Growth funds		*Blend funds*		*Value funds*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Evaluation period	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*
EP Mean	-0.095	-0.066	0.270	0.282	0.760**	0.754**
	(-0.25)	(-0.18)	(0.50)	(0.51)	(2.33)	(2.30)
Control variables						
Ln*(Fund size)*	0.071	0.092	-0.022	-0.022	0.100	0.135
	(0.67)	(0.87)	(-0.09)	(-0.09)	(0.69)	(0.93)
Ln*(Age)*	0.255	0.243	0.022	0.042	0.247	0.235
	(1.12)	(1.09)	(0.06)	(0.12)	(1.19)	(1.14)
Expense	0.573	-0.181	0.722	0.029	0.685	-0.011
	(1.07)	(-0.35)	(0.83)	(0.03)	(0.72)	(-0.01)
Ln*(Turnover)*	-0.585*	-0.584*	-0.299	-0.300	-0.126	-0.082
	(-1.94)	(-1.96)	(-0.87)	(-0.86)	(-0.43)	(-0.28)
Performance-adv. fee	-0.393	-0.476	0.557	0.529	-0.843**	-0.892***
	(-0.53)	(-0.64)	(0.78)	(0.76)	(-2.37)	(-2.79)
Constant	-0.982	-1.096	-8.880	-8.931	15.411**	15.089**
	(-0.15)	(-0.17)	(-1.00)	(-0.99)	(2.30)	(2.22)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,629	1,629	1,138	1,138	951	951
Adj. R-squared	0.06	0.05	0.06	0.06	0.12	0.11

Table IA.XI
Alternative Specification - Portfolio Manager Compensation and Fund Performance

This table reports the results from OLS regression of fund performance on various compensation structures. We repeat the analysis in Table VII except that we ***do not*** control for Fund family ×Year fixed effects. That is, we only control for investment objective and year fixed effects, separately, in this table. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Compensation Structures

	Dom. Equity funds		*Bond funds*		*Other funds*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Comp. structure	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*
Performance pay	0.564*	0.584*	0.276	0.307	1.012**	1.098***
	(1.75)	(1.82)	(0.83)	(0.92)	(2.49)	(2.76)
Advisor-profit pay	-0.540**	-0.526**	-0.110	-0.118	0.159	0.182
	(-2.25)	(-2.19)	(-0.73)	(-0.78)	(0.68)	(0.80)
AUM pay	-0.342	-0.363	-0.172	-0.191	-0.592**	-0.649***
	(-1.31)	(-1.38)	(-0.89)	(-0.98)	(-2.30)	(-2.60)
Deferred compensation	-0.057	-0.068	-0.173	-0.211	-0.326	-0.347
	(-0.27)	(-0.32)	(-1.29)	(-1.56)	(-1.29)	(-1.43)
Control variables						
Ln*(Fund size)*	-0.084	-0.066	-0.135**	-0.119**	-0.116	-0.108
	(-1.13)	(-0.88)	(-2.48)	(-2.16)	(-1.35)	(-1.29)
Ln*(Age)*	0.232**	0.225*	0.101	0.096	0.114	0.119
	(2.02)	(1.95)	(0.82)	(0.79)	(0.90)	(0.97)
Expense	0.263	-0.492*	0.390	-0.286	0.363	-0.424*
	(0.98)	(-1.79)	(1.53)	(-1.12)	(1.46)	(-1.72)
Ln*(Turnover)*	-0.284**	-0.281**	0.138*	0.138*	-0.233*	-0.244*
	(-2.46)	(-2.42)	(1.91)	(1.89)	(-1.80)	(-1.92)
Performance-adv. fee	-0.442	-0.461	-0.709**	-0.763**	0.021	0.001
	(-0.91)	(-0.97)	(-2.12)	(-2.23)	(0.03)	(0.00)
Constant	0.148	-0.070	-2.368*	-2.746**	-2.050	-1.575
	(0.10)	(-0.05)	(-1.90)	(-2.22)	(-1.22)	(-0.95)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,893	5,893	4,118	4,118	3,812	3,812
Adj. R-squared	0.11	0.11	0.47	0.47	0.04	0.04

Panel B. Evaluation Period

	Dom. Equity funds		*Bond funds*		*Other funds*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Evaluation period	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*
EP Mean	0.086	-0.019	-0.253**	-0.251**	0.259**	0.251**
	(0.78)	(-0.09)	(-2.39)	(-2.37)	(2.37)	(2.30)
Control variables						
Ln*(Fund size)*	-0.046	-0.070	-0.133**	-0.112*	-0.098	-0.090
	(-0.68)	(-0.93)	(-2.00)	(-1.67)	(-0.86)	(-0.81)
Ln*(Age)*	0.238*	0.354**	0.148	0.134	0.130	0.151
	(1.72)	(2.48)	(1.10)	(1.00)	(0.84)	(1.00)
Expense	0.098	-0.265	0.063	-0.611**	0.423	-0.375
	(0.32)	(-0.63)	(0.24)	(-2.28)	(1.47)	(-1.34)
Ln*(Turnover)*	-0.244*	-0.312*	0.116	0.109	-0.274**	-0.270**
	(-1.66)	(-1.84)	(1.35)	(1.25)	(-1.99)	(-2.03)
Performance-adv. fee	-0.085	0.040	0.161	0.077	-0.402	-0.439
	(-0.23)	(0.10)	(0.29)	(0.14)	(-0.61)	(-0.68)
Constant	2.466	-1.765	-1.351	-1.713	-0.824	-0.381
	(1.08)	(-0.40)	(-0.79)	(-0.99)	(-0.37)	(-0.17)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,718	3,718	3,008	3,008	2,509	2,509
Adj. R-squared	0.14	0.14	0.53	0.53	0.05	0.05

Table IA.XII
Evaluation Period and Future Fund Performance

This table repeats the analysis of Panel B of Table VII except that we relate performance evaluation period to future two- or three-year fund performance. Panel A reports the results based on future two-year alphas and Panel B reports results based on future three-year alphas. In each panel, we use diversified domestic equity funds in columns (1) to (2), bond funds in columns (3) and (4), and the remaining funds in columns (5) and (6). For diversified domestic equity funds, we estimate alpha using monthly fund returns and the Carhart (1997) four-factor model. For bond funds, we estimate performance using a bond four-factor model based on Cici and Gibson (2012). For the remaining funds, we estimate alpha using a one-factor model, with the average return of the fund's Morningstar category as the factor. Standard errors are clustered at the family level and *t*-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Subsequent two-year performance

	Dom. Equity funds		*Bond funds*		*Other funds*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Evaluation period	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*
EP Mean	0.188	0.230	0.006	0.022	0.367	0.399
	(1.07)	(1.31)	(0.03)	(0.10)	(0.84)	(0.96)
Control variables						
Ln*(Fund size)*	-0.091	-0.064	-0.148**	-0.127*	-0.200*	-0.186*
	(-1.31)	(-0.97)	(-2.05)	(-1.78)	(-1.80)	(-1.69)
Ln*(Age)*	0.371***	0.350***	0.123	0.116	0.106	0.127
	(2.87)	(2.74)	(0.71)	(0.67)	(0.68)	(0.83)
Expense	0.333	-0.374	-0.486	-1.116***	0.509	-0.309
	(0.92)	(-1.04)	(-1.37)	(-3.14)	(1.63)	(-0.98)
Ln*(Turnover)*	-0.234*	-0.261**	0.031	0.031	-0.281**	-0.289**
	(-1.94)	(-2.03)	(0.44)	(0.42)	(-2.09)	(-2.23)
Performance-adv. fee	0.126	0.078	0.574	0.574	0.209	0.187
	(0.31)	(0.17)	(1.06)	(1.07)	(0.26)	(0.22)
Constant	-2.542	-2.977	4.334	3.617	-2.323	-1.446
	(-0.62)	(-0.74)	(1.16)	(0.95)	(-0.80)	(-0.49)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,718	3,718	3,008	3,008	2,509	2,509
Adj. R-squared	0.07	0.06	0.26	0.27	0.08	0.08

Panel B. Subsequent three-year performance

	Dom. Equity funds		*Bond funds*		*Other funds*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Evaluation period	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*	*Gross alpha*	*Net alpha*
EP Mean	0.278*	0.317**	0.034	0.055	0.312	0.335
	(1.92)	(2.19)	(0.21)	(0.35)	(0.76)	(0.86)
Control variables						
Ln*(Fund size)*	-0.122*	-0.087	-0.102	-0.084	-0.172	-0.157
	(-1.72)	(-1.32)	(-1.51)	(-1.26)	(-1.59)	(-1.48)
Ln*(Age)*	0.394***	0.355***	0.154	0.145	0.005	0.028
	(3.07)	(2.82)	(1.03)	(0.98)	(0.03)	(0.18)
Expense	0.302	-0.368	-0.333	-0.940***	0.649**	-0.154
	(0.89)	(-1.08)	(-1.10)	(-3.08)	(2.19)	(-0.52)
Ln*(Turnover)*	-0.160	-0.202*	0.081	0.080	-0.220*	-0.228*
	(-1.40)	(-1.67)	(1.27)	(1.23)	(-1.75)	(-1.88)
Performance-adv. fee	-0.051	-0.101	0.554	0.552	-0.072	-0.100
	(-0.14)	(-0.26)	(1.15)	(1.15)	(-0.10)	(-0.13)
Constant	-2.662	-3.117	4.467	3.689	-2.937	-2.089
	(-0.73)	(-0.88)	(1.39)	(1.13)	(-1.01)	(-0.71)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,718	3,718	3,008	3,008	2,509	2,509
Adj. R-squared	0.12	0.10	0.38	0.39	0.09	0.09

Table IA.XIII
Alternative Specification - Portfolio Manager Compensation and Mutual Fund Fees

This table reports the results from OLS regression of mutual fund fees on various compensation structures including performance-based pay, AUM-based pay, advisor-profit-based pay, and deferred compensation. We measure fund fees in two ways: (i) percentage of fund AUM, and (ii) the logarithm of dollar fees (=AUM * percentage fee). We analyze total fund fees and expenses in columns (1) and (4). We also examine separately the two components of fund fees: (i) advisory fees (i.e., the fee paid to the advisor) in columns (2) and (5), and (ii) other fees (i.e., fees related to marketing, distribution, 12b-1, and bookkeeping) in columns (3) and (6). We repeat the analysis in Table VIII except that we do not control for family*time fixed effects. That is, we only control for investment objective and year fixed effects, separately, in this table. Standard errors are clustered at the family level and t-statistics are reported in parentheses. The superscripts ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Percentage fees			***Dollar fees***		
	(1)	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***
Comp. structure	***Total***	***Advisory***	***Other***	***Total***	***Advisory***	***Other***
Performance pay	-0.022*	0.048***	-0.070***	-0.013	0.070*	-0.205***
	(-1.68)	(2.66)	(-4.17)	(-0.46)	(1.74)	(-2.93)
Advisor-profit pay	-0.010	-0.027*	0.017	-0.041	-0.093**	0.070
	(-0.99)	(-1.92)	(1.14)	(-1.38)	(-2.47)	(0.93)
AUM pay	0.028**	-0.009	0.037**	0.021	-0.039	0.132**
	(2.41)	(-0.56)	(2.09)	(0.97)	(-0.94)	(2.03)
Deferred compensation	0.019	-0.000	0.019	0.019	-0.000	-0.045
	(1.58)	(-0.01)	(0.88)	(0.82)	(-0.01)	(-0.42)
Control variables						
Ln*(Fund size)*	-0.013***	0.010**	-0.022***	0.992***	1.010***	0.948***
	(-4.10)	(2.56)	(-5.35)	(97.00)	(76.09)	(53.19)
Ln*(Age)*	-0.002	-0.032***	0.030***	-0.053***	-0.083***	0.073*
	(-0.43)	(-3.82)	(3.42)	(-4.65)	(-3.51)	(1.87)
Expense	0.793***	0.312***	0.481***	0.790***	0.564***	1.368***
	(42.28)	(13.62)	(18.65)	(12.56)	(7.94)	(12.72)
Ln*(Turnover)*	-0.000	0.020***	-0.020***	0.000	0.055***	-0.059**
	(-0.14)	(3.65)	(-3.46)	(0.02)	(3.95)	(-2.23)
Performance-adv. fee	0.038*	-0.045	0.083***	-0.052	-0.156	0.220***
	(1.69)	(-1.41)	(3.11)	(-1.08)	(-1.61)	(2.67)
Constant	0.344***	0.370***	-0.026	1.665***	1.034***	-0.513
	(5.22)	(3.99)	(-0.27)	(9.21)	(3.90)	(-1.10)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Fund category FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,779	13,779	13,779	13,501	13,501	13,208
Adj. R-squared	0.86	0.65	0.52	0.90	0.90	0.79