

Do 401k Plan Advisors Take Their Own Advice?

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Abstract

Sponsors of defined contribution plans often hire financial advisors to help them to design and monitor these plans. I compare the designs of plans that advisors help create and monitor (client plans) to the designs of plans that the advisors use themselves (advisor plans). I find that advisors have an impact on the investment menus of their clients. Compared to an average pair of plans, a pair of plans that have the same advisor is more likely to hold identical funds and use identical fund families. Client plans also tend to have similar holdings to their advisors' plans. They tend to hold identical funds, identical fund families and identical categories of mutual funds. When examining the funds that clients do not share with their advisors, I find that these funds have higher expense ratios than the funds that are held by both clients and advisors. I find only tentative evidence that clients who compensate their advisors only indirectly through commissions have more expensive funds than clients that also provide direct compensation to their advisors.

Key words: defined contribution plans, agency problem, retirement plan advisors

JEL Codes: J26, G23, G18

1. Introduction

Sponsors of defined contribution plans often hire financial advisors to help them design and monitor their plans. These advisors specialize in pension and employee benefits consulting and frequently take on fiduciary liability along with the plan sponsor. One of the responsibilities of the advisor is to select and monitor the investment choices offered by the plan. Existing literature finds that the investment choices offered by the plan can have dramatic effects on saving outcomes (e.g. Brown, Liang and Weisbenner 2007; Benartzi and Thaler 2001; Choi, Laibson, and Madrian 2004). Given the importance of investment choices for savings outcomes, this paper examines the role of that plan advisors play in determining these investment choices.

My strategy is to compare the design of plans that advisors help create (client plans) to those that plan advisors use themselves (advisor plans). The null hypothesis is that controlling for the characteristics of the sponsor and advisor (e.g. size of the plan) the client plans resemble those of their advisors – if an investment option is good for the advisor it should also be good for the client. The alternative hypothesis is that client plans differ from those of their advisors in a systematic way. The relationship between the plan sponsor and its advisor is that of a principal and an agent. Sponsors want a plan that allows its employees earn investment return and diversify risk. Advisors' goal is to maximize fees. They may steer plan sponsors towards investments that generate indirect compensation for the advisor but may not be in the best interest of the plan sponsor or plan participants, GAO (2009).

The principal-agent literature has a tradition of uncovering conflicts of interest by comparing services that agents perform on themselves to services they perform on their clients. For example, Levitt and Syverson (2008) show that real estate agents sell their own houses for more than they sell houses of their clients. Domenighetti et al. (1993) find higher surgery rates among the general population than among physicians. My paper does the same for retirement plan advisors. Another approach to empirically identify conflicts of interest is to examine the difference between outcomes that involve agents and outcomes without agents. An example of this type of work is Bergstresser, Chalmers, and Tufano (2009) who find that broker-sold funds perform worse than directly-sold funds. A similar approach is taken by Lefgren, McIntyre, and Miller (2010) who show that bankruptcy filings are driven by a lawyer's interest rather than by a client's circumstances.

It is possible that the agency problem between the sponsor and the plan advisor is responsible for the poor designs of many 401k plans. For example, Brown, Liang and Weisbenner (2007) find that two thirds of investment options added to 401k plans between 1998 and 2002 were high-cost actively managed fund resulting in an increase the expense ratio paid by participants. In a different study, Elton, Gruber, and Blake (2006) find that only half of existing 401k plans provide an adequate menu of investment options. In the follow-up work, Elton, Gruber, and Blake (2007) find that the turnover in investment options is largely undesirable: plans tend to delete funds that subsequently do no worse than the funds with which they were substituted. In contrast, Tang et al. (2010) find that most plans offer an efficient menu of investment options.

A number of papers correlate the actions of financial intermediaries with their compensation structure. Christoffersen, Evans and Musto (2010) show that brokers sell fund that give them higher compensation. Similarly, Edelen et al. (2010) find that funds that compensate brokers through opaque payments receive greater fund inflows. Mullainathan, Nöth and Schoar (2010) use an audit study of personal financial advisors. They find that advisors push for actively managed funds and encourage return chasing – advice likely driven by conflicts of interests. Most recently, Pool, Sialm and Stefanescu (2012) find that funds affiliated with the trustee of the 401k plan were much less likely to be deleted from the investment menus than non-affiliated funds. ¹

This paper also complements burgeoning theoretical literature on financial intermediation. Stoughton et al. (2011) examine the reasons for the existence of financial intermediaries and the use of kickbacks as compensation. In a different theoretical model Inderst and Ottaviani (2011) view kickbacks as incentives to learn about appropriate investments for sophisticated clients and as tools of exploitation of unsophisticated clients. Carlin and Manso (2011) examine dynamic model of investor learning and financial product obfuscation. Carlin and Gervais (2009) explore the legal rules that maximize welfare in retail financial markets.

¹ Howell (2008) summarizes the conflicts of interest in financial markets. Finke and Cummings (2010) examine the economics of fiduciary financial advice.

2. Data

2.1 Advisors

I use data from form 5500 that all private pension plans must file with the Department of Labor. The form includes basic information about the plan including the name and address of the plan sponsor, funding arrangements and the number of participants. There are a number of schedules attached to the form that contain more detailed financial information. Plans with over 100 participants are required to file Schedule C which contains detailed information about service providers to the plan. Until 2009 the schedule included information only on providers that received *direct* compensation from the plan. However, beginning with filings for 2009 the schedule has been expanded to include providers who received indirect compensation. It thus enables me to identify providers that received *any* compensation.

Schedule C distinguishes among 50 different types of services provided to a plan. These range from recordkeeping to audit services. I focus on general consulting, pension consulting, and plan investment advisory services (service codes 16, 17 and 27 respectively). Note that I do not include firms that provide *participant* advisory services (service code 16) or firms that provide investment management services (service codes 51 and 52). This is because I am looking for firms that help with the overall design of the plan rather than firms that help individual participants, or firms that manage a specific fund or a separately managed account for the plan. Even then my screen is not perfect. For example, I find that firms such as Daily Access or ADP are providers of general consulting services. However, these firms are mostly in the business of recordkeeping and payroll processing rather than advisory. I look up the website of every advisor and check that their primary business is advisory. For example PricewaterhouseCoopers is a consultant to a number of plans but I exclude it because its consulting is more likely to do with accounting and risk assurance rather than plan design. A number of firms provide more than one type of service. For example, Fulton Financial Corporation is often listed as providing both recordkeeping services as well as advisory services.

There were about 2000 different advisors (identified with service codes 16, 17 and 27) to private pension plans reported in 2009. The market for these advisors is fairly concentrated as the top 50 advisors served nearly half of the plans. Many advisors appear to be small firms. Only 280 were

large enough to file their own “long” form 5500. This means that these firms had a retirement plan for their own employees with more than 100 participants. The remaining firms either did not have a retirement plan for their own employees (unlikely if they are in the retirement consulting business) or their plan had fewer than 100 participants. Of the 280 that filed their own “long” form 5500, about two thirds served only one client. I limit my sample to advisors to which I can match at least three client plans. Furthermore, I require that both client and advisor plans consist mostly of mutual funds.² I end up with a sample of 14 advisors.

The names and characteristics of the 14 advisors appear in Table 1. The list includes some of the largest pension advisors such as Watson Wyatt or Milliman, as well as much smaller players such as Sentinel Benefits Group out of Boston, MA. The number of clients I have for each advisor varies from 37 clients of Milliman to three clients of Buck Consultants.

2.2 Clients

As with advisors, I focus on clients whose plans consist mostly of mutual funds. It is common that large 401(k) plans offer separately managed accounts as investment options instead of mutual funds. The plans who contract with an investment manager to manage these accounts may be able to negotiate lower costs than with a mutual fund (see Kopcke et al, 2010). The problem is that it is impossible to learn how actively managed these accounts are or what the expenses are. Schedule H on Form 5500 differentiates between the value of assets in separately managed accounts and value of assets in registered investment companies (mostly mutual funds). Thus, I screen out any plans that have at more than 20% of assets (ignoring company stock) in separately managed accounts.

I also limit my sample to plans who reported having an advisor (service codes 16, 17 and 27) on their Schedule C.³ In addition, this advisor has to have a plan on its own, i.e. it has to be one of the 14 advisors described in the previous section. I end up with a sample of 122 client plans. I collect information for two years: 2009 and 2010. There were 6 plans have information only for

² For example, a huge pension and benefits consultant Hewitt has a plan that consists of mostly separately managed accounts.

³ Plans are required to report service providers that received indirect compensation or were paid directly using plan assets. In cases where plan sponsors paid a provider using sponsor’ own funds, and the consultant received no indirect compensation, the consultant would not be reported on Schedule C.

2009. In 11 cases the advisor changed from 2009 to 2010. For those plans, when calculating the characteristics of the plan I use only year 2009.

2.3 Plan characteristics

Information on the number of participants and the total value of plan assets is easily extracted from DOL's plain text file where each plan is identified by the sponsor EIN and plan number. Unfortunately, the plain text files do not include the list of assets held by the plan. This list is only available in the PDF appendix to the filing. The appendices can be downloaded through DOL's EFAST filing system. The listing of assets in the form 5500 includes names of mutual funds and the dollar values invested in each mutual fund. The names of funds are not standardized because every plan uses slightly different abbreviations for fund names. Therefore, I manually matched the fund names to fund tickers. In large number of cases the name of the fund did not specify share class. Therefore, following Pool, Sialm and Stefanescu (2012) I conduct all of our analysis at the fund level rather than share class level. I calculate the characteristics of each fund as the asset weighted average of each share class. Doing the analysis at the fund level means that any differences across plans are driven by the differences in funds rather than the differences in the classes of shares.

I construct five characteristics of the mutual funds in each plan. First, I add up the number of mutual funds in the plan. This approximates the number of investment options. It is only an approximation because some of the assets held by the plan may not be currently available to participants. I also ignore company stock, separately managed accounts, insurance contracts, or self-directed brokerage accounts. I count all life-cycle or target-date funds as one investment option. Second, I count the number of mutual fund categories represented by the funds in the plan. I use the Morningstar category classification with municipal bond fund categories consolidated into one. This classification has 69 different categories. Third, I calculate the average expense ratio of the mutual funds in the plan. I use the prospectus and audited expense ratio from Morningstar's Principia database. I also calculate adjusted expense ratios as the difference between the expense ratio and the asset weighted average expense ratio in the fund's Morningstar category. Fourth, to measure how actively managed are the investment options, I calculate average turnover as well as average adjusted turnover which is the turnover minus the

asset weighted average turnover in the fund’s Morningstar category. Finally, I use Morningstar’s stewardship grade to measure how well the funds are governed. The stewardship grade reflects “the degree to which the management company’s and fund board’s interests are aligned with fund shareholders; and the degree to which shareholders can expect their interests to be protected from potentially conflicting interests of the management company.” Morningstar evaluates qualitative factors such as “board quality, manager incentives, fees, and corporate culture;” and assigns each fund a grade ranging from F (failing) to A (excellent). I translate these into a numerical scale of 0 (failing) to 4 (excellent). When averaging across funds down to the plan level, I use unweighted averages as my goal is to describe the characteristics of the menu of investment options rather than participants investment allocations.

In addition to mutual fund characteristics I also measure the intensity of changes in the menu of investment options between 2009 and 2010. I calculate the percent change in the investment menu as the number of added and deleted funds divided by the sum of the number of investment options in 2009 and 2010.

$$\text{percent change in menu}_i = \frac{\text{number of funds deleted} + \text{number of funds added}}{(\text{number of funds in 2009} + \text{number of funds in 2010})}$$

This measure ranges from 0 (no change in the menu) to 1 (a completely different menu).

The final two characteristics of a plan are dummy variables indicating the nature of advisor’s compensation. Schedule C asks a yes-or-no question of whether a provider received indirect compensation in connection with the provider’s service to the plan. This may include commissions and revenue sharing received from mutual funds. Schedule C also asks about the amount of *direct* compensation. It is possible – in fact, it is quite frequent – that a provider would receive both direct and indirect compensation. Therefore, I created two dummy variables: one indicating whether an advisor was compensated through indirect compensation only; and one indicating whether an advisor was compensated through direct compensation only.

2.4 Descriptive Statistics

Table 2 shows the descriptive statistics of my dataset. Panel A shows the statistics for the 122 client plans; Panel B does the same for the 14 advisor plans. We see that client plans have on

average 62 million dollars in assets and almost 2000 participants. Advisor plans have on average about the same number of participants but more than twice the assets. This is to be expected as the professionals employed by advisors probably have higher incomes than the average worker at their client firms. We see that on average client plans have about 18 mutual funds in their plans with advisors slightly higher at 19 mutual funds per plan. Both of these are somewhat higher than the average number of investment options reported of 12 reported by Deloitte (2010). The number of mutual fund categories is also slightly higher for advisor plans than client plans. The expense ratios in client plans are 0.81 roughly similar to the average of 0.79 reported by ICI (2009). Advisor plans have expense ratios approximately 10 basis points lower. The style adjusted expense ratios are about seven basis points for client plans and negative six basis points for advisor plans again suggesting that advisor plan have somewhat lower expense ratios. Turnover is also higher for client plans than for advisor plans. The stewardship grade is about 2.8 and roughly the same for clients and advisors. The average change in the menu of investment option is 12 percent for client plans, and 8 percent for advisor plans. About one third of plans did not add or delete any funds from their menus between 2009 and 2010, but one plan changed its menu completely. It is this fund that changed its advisor between 2009 and 2010. Finally, we see that only 8 percent of client plans compensated their advisors with direct compensation only; 14 percent of plans compensated their advisors with indirect compensation only. Thus, the vast majority of plans (78 percent) were compensated through both direct and indirect means.

3. Analysis

3.1 Is an average advisor plan systematically different from an average client plan?

I first examine whether the differences in average characteristics of client and advisor plans are statistically significant and whether they persist after controlling for other plan characteristics. In Panel A of Table 3 I regress various plan characteristics including the number of funds, style-adjusted expense ratios, turnover, and the change in the investment menu on a dummy indicating that a plan is an advisor plan rather than a client plan. The first column shows that advisor plans are not significantly different in terms of the number of mutual fund options they offer. The second and third columns show that advisor plans have less expensive funds than their clients –

both in terms of the style-adjusted audited net expense ratio and in terms of the style-adjusted prospectus expense ratio. The effect is about ten basis points, and is statistically significant at the five percent level. The difference between style-adjusted turnover in advisor and client plans is statistically insignificant. Similarly, there is no difference between the average stewardship grade of client and advisor plans. Finally, while advisors change their menus less than clients, the difference is not statistically significant.

In Panel B of Table 3 I control for the size of the plan. The statistical significance on the advisor dummy goes away for the audited expense ratio, and becomes statistically significant only at the ten percent level for the prospectus ratio. Thus, controlling for size there is only suggestive evidence that client plans have on average more expensive funds. As expected, size of the plan in terms of assets reduces the average expense ratio as bigger size gives plan access to less expensive funds.⁴

Finally, in Panel C I examine if taking into account participant allocations across funds would make advisor and client plans different. Therefore, when averaging down to the plan level data I weigh each fund characteristic by assets invested in that fund. The results again show that there are no statistically significant differences between client and advisor plans.

Overall, the average characteristics of client and advisor plan are similar. In the next two sections, I examine whether this similarity is driven by the similarity in holdings.

3.2 Do client plans that have the same advisor have similar funds?

To measure similarity in holding between two plans I use three progressively broader measures of commonality in the investment menu. The first is the percentage of funds that are common to both plans. It is calculated as the number of funds that appear in both plans divided by the average number of funds in the two plans.

$$\text{common funds}_{i,j} = \frac{\text{\# of funds common to plans } i \text{ and } j}{(\text{\# of funds in plan } i + \text{\# of funds in plan } j)/2}$$

⁴ It is interesting that size has an effect even when the analysis is done at the fund level rather than share class level. Normally, larger plan size makes plans eligible for lower cost share class. However, it is possible that there are some funds that are accessible only to large plans and these funds have lower expense ratios.

This measure ranges from zero (no common holdings) to one (complete overlap). The second measure uses the fund family as the indentifying characteristic of a fund. It is the number of funds in both plans that are from the same fund family expressed as the percentage of average number of funds in the two plans. It can be written as follows:

$$\sum_{\text{fund families}} \frac{\min(\# \text{ of funds from family } f \text{ in plan } i, \# \text{ of funds from family } f \text{ in plan } j)}{(\# \text{ of funds in plan } i + \# \text{ of funds in plan } j)/2}$$

The third measure is defined analogously except the defining characteristic of a fund is its Morningstar category.

With 136 different plans I have 9,180 different pairs of plans. Table 4 shows the average value of these three commonality measures for all pairs of plans and for different subsets. Among all plans the average percentage of common fund holdings is about eight percent. Naturally, the percentage of common family holding is much higher at 40 percent, and still higher when looking at the percentage of funds that belong to the same mutual fund categories. The second and third rows show similarities among client plans, and among advisor plans. I see that advisor plans are no more similar to each other than client plans are to each other. The commonality of holdings between the 122 pairs of advisors and their own clients is 15 percent – almost double the commonality among all plans. As a check, I calculate the commonality measure between every client and *every* advisor (rather than just its own advisor). The magnitude of this measure is the same as between any other pair of plans. Thus, it is the specific relationship between client and its own advisor that predicts commonality of holdings. The last row in Table 4 shows that there is also a great deal of commonality among plans that share the same advisor – about 14 percent.

To find out if commonality of holding among plans of the same advisor is driven by some other factors, I estimate a set of regressions where the dependent variable is commonality of holdings, and the independent variables are dummies for whether a pair of plans has the same advisor, are located in the same state, and whether the plan sponsors are in the same industry. I also calculate the absolute percent difference in size – both in terms of assets and the number of participants. Since I am interested in the impact of having the same advisor on client plans, I use only pairs of client plans in these regressions. With 122 client plans I have 7381 different pairs.

The results are shown in Table 5. The first specification shows that the effect of having the same advisor on commonality of holdings is highly statistically significant. In the second specification I control for whether plans are in the same state and the same industry, and for differences in size of plans. The results show that being in the same state increases commonality by seven percentage points. Being in the same industry has no effect. The coefficient on the difference in the size in terms of assets is statistically significant showing that plans that are different in size are also different in what funds they hold. For each percentage point difference in size the commonality measure decreases by one hundredth of a percentage point. Overall, even controlling for a variety of factors, it is clear that having the same advisor predicts commonality of holdings.

3.3 Do clients and their own advisors have similar holdings?

To examine the degree of similarity between clients and their own advisors I re-estimate the regressions in Table 5 using pairs of clients and advisors. This includes pairs of every client with every advisor. The independent variable of interest is the “own advisor” dummy that identifies pairs of clients and *their own* advisors. The results are in Table 6. They show that commonality of holdings between clients and their own advisors is much higher than between clients and someone else’s advisors. This is true across all measures of commonality: individual funds, fund families, and fund categories.⁵

Another piece of evidence that advisors have an impact on their clients is from the 11 clients that switched advisors between 2009 and 2010. Of those 11 changed its menu completely, another replaced 75 percent of its funds. On average, funds that had a new advisor changed their menu by 44 percent compared to 10 percent for plans that did not change their advisor.

⁵ The impact of an advisor is also apparent in studying the deletions and additions to plan menus. When the same fund is deleted from multiple plans it tends to be from plans that share an advisor. This is to be expected since plans that share an advisor are more likely to have had that fund in their menu in the first place. Similarly, when a fund is added to more than one plan, it tends to be to plans of the same advisor. A more systematic analysis of additions and deletions is left for future research.

3.4 What funds do clients hold that advisors don't and vice versa?

In previous section I found that clients and advisors on average share only 15 percent of investment options. In this section I examine the portion of plan holdings that advisors and clients *do not* share. Specifically, for each client and advisor pair I calculate the characteristics of three groups of funds: funds held by the client but not by the advisor ('client only' funds); funds held by the advisor but not by the client ('advisor only' funds); and funds held by both clients and advisors ('shared' funds).

Table 7 shows the characteristics of these three groups of funds. It shows that expense ratios of 'client only' funds are about ten basis points higher than the expense ratio of funds that advisor and clients share. The effect is statistically significant with the t-statistic of about 6. 'Client only' funds are even more expensive when compared to advisor only plans. The effect is twelve basis points using prospectus expense ratio and 14 basis points using audited expense ratio.

Interestingly, the difference between funds that advisors share with their clients and funds that only advisors use are small and statistically insignificant. The differences for turnover across all three groups are insignificant. The fourth row shows that 'client only' funds have lower stewardship grades than funds shared with advisors. The effect is 0.3 of a grade point and is highly statistically significant. In summary, it appears that 'client only' funds are more expensive and poorly governed.

3.5 Does indirect compensation of advisors impact the characteristics of their clients' plans?

Why are 'client only' funds significantly more expensive and poorly governed? Moreover, why do advisors shun these funds but allow them in their client plans? One hypothesis is that advisors benefit from having their clients hold expensive funds. Advisors may receive indirect compensation in the form of commissions and revenue sharing – the more expensive the funds in their client plans, the more commissions and revenue sharing.

I test this hypothesis by regressing the characteristics of the 'client only' funds on the two dummies capturing the nature of advisor's compensation. The results in Panel A of Table 8 show that expense ratios are indeed higher at plans that compensate their advisor through only indirect means. When I control for plan size in Panel B, the significance on the audited expense ratio disappears but remains on the prospectus expense ratio. In addition, the coefficient on direct only

dummy is statistically insignificant. Directly compensated advisors should have clients with particularly low expensive funds. Overall, the results provide only tentative evidence that the nature of advisor's compensation plays a role in types of funds clients hold but advisors don't.

4. Conclusion

Kuhns Bros. have been building log houses around the U.S. since 1984. They have nearly 200 employees to whom they offer a 401k plan. The company hired Fulton Financial Corporation to help it administer the plan. The Kuhns Bros.' plan is remarkably similar to the plan that Fulton offers to its own employees. Both plans have the bulk of their assets in Vanguard index funds and T.Rowe Price target date funds. I find that this pattern is systematic: clients have plans similar to their advisors. Thus, to a large extent 401k advisors seem to take their own advice.

I closely examine the funds in clients' plans that are *not* included in the advisors' plan. These funds have significantly higher expense ratios than funds that clients and advisors share. For example, plans of IMA Edwards Pharmaceuticals and its advisor, LPL Financial, share about 10 percent of holding, but IMA also has some high expense funds not found in LPL's own plan. Interestingly, LPL received no direct compensation from IMA. Instead it was compensated indirectly through commissions. The compensation amounted to nearly 20 basis points of assets. I find tentative evidence that this pattern is systematic. Plans that compensate their advisors indirectly have high expense ratio funds that they do not share with their advisor. This pattern is consistent with the classic conflict of interest on the part of financial advisors: they recommend funds that generate indirect compensation rather than funds that are in the best interest of the plan participants.

There are alternative explanations for this pattern. It is certainly possible that advisors do not have complete control over their client's plans. Plan sponsor may prefer certain funds even if these happen to have high expenses. Moreover, it is not clear that indirect compensation arrangements are necessarily suboptimal. The advisor should be compensated and when such compensation is properly disclosed – as it has been since 2009 – the plan sponsor can make an informed decision whether the compensation is worth the services provided. On the other hand, Gil-Bazo and Ruiz-Verdú (2009) find that high cost funds tend to perform worse than even

before fees. Therefore, funding advisors using revenue sharing from high cost funds add additional costs.

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Table 1: List of retirement plan advisors

Advisors are identified on clients' Schedule C of Form 5500 as providers of general consulting, pension consulting, and plan investment advisory services (service codes 16, 17 and 27 respectively). The table shows retirement plan advisors in my sample, the state of the address on their Form 5500, assets and the number of participants in their own 401k plan. The last column is the number of client plans in my sample of client plans associated with each advisor.

Name	State	Plan assets (in mil.)	Number of participants	Number of clients in the sample
Buck Consultants	NY	81	1,499	3
Commonwealth Financial Network	MA	24	501	3
Ennis, Knupp, and Associates	IL	21	164	5
Findley Davies	OH	16	134	3
Fulton Financial Corporation	PA	55	1,150	18
Lockton	MO	194	2,897	6
LPL Financial Corporation	CA	79	3,374	8
Mercer Advisors	CA	12	294	4
Milliman	WA	547	2,761	37
Robert W. Baird	WI	299	2,791	5
The Segal Group	MA	169	1,522	8
Sentinel Benefits Group	MO	9	183	11
Stifel Nicolaus & Co.	NY	234	3,062	8
Watson Wyatt	VA	423	5,100	3

Table 2: Descriptive Statistics

Number of fund categories is the number of Morningstar mutual fund categories represented by the funds in the plan. Prospectus and audited expense ratios are from Morningstar's Principia. Adjusted expense ratios and turnover are differences between actual values and the asset weighted average of funds in the same category. Stewardship grade is also from Morningstar's Principia. Fund characteristics are unweighted averages. Percent change in menu is the number of deleted and added funds between 2009 and 2010 divided by the number of funds in 2009 and 2010. The dummies on direct and indirect compensation of advisors are derived from Schedule C of the Form 5500.

Panel A: Client plans (n=122)					
	mean	median	st. dev	min	max
Assets (in mil.)	62.74	12.37	132.68	1.07	1015.26
Number of participants	1977	433	4141.1	110	26871
Number of funds in the plan	17.73	14.33	18.9	4.6	164
Number of fund categories	12.79	12	5.29	4.6	41.29
Prospectus expense ratio	0.81	0.83	0.17	0.23	1.12
Adjusted prospectus exp. ratio	0.07	0.09	0.15	-0.4	0.37
Audited net expense ratio	0.75	0.78	0.18	0.15	1.06
Adjusted audited net exp. ratio	0.07	0.08	0.14	-0.4	0.35
Turnover	75.42	73.71	25.72	18	179
Adjusted turnover	4.57	3.76	20.91	-37.11	90.6
Stewardship grade	2.85	2.85	0.4	2	3.92
Percent change in menu	0.12	0.07	0.17	0	1
Advisor paid directly only	0.08	0	0.28	0	1
Advisor paid indirectly only	0.14	0	0.35	0	1
Panel B: Advisor plans (n=14)					
	mean	median	st. dev	min	max
Assets (in mil.)	154.54	79.93	169.14	8.98	547.48
Number of participants	1816	1510	1536.18	134	5100
Number of funds in the plan	18.91	17.06	5.91	10	28.26
Number of fund categories	14.17	12.78	4.47	10	23.26
Prospectus expense ratio	0.70	0.73	0.23	0.25	1.12
Adjusted prospectus exp. ratio	-0.06	-0.01	0.19	-0.46	0.21
Audited net expense ratio	0.67	0.67	0.22	0.23	1.07
Adjusted audited net exp. ratio	-0.04	0	0.18	-0.42	0.23
Turnover	68.74	65.58	16.91	36.6	98.47
Adjusted turnover	1.75	3.11	16.01	-26.97	25.8
Stewardship grade	2.81	2.87	0.34	2.11	3.22
Percent change in menu	0.08	0.06	0.09	0	0.27

Table 3: Differences in average characteristics of client and advisor plans

The data includes 136 client and advisor plans. Advisor plan is a dummy variable equal to one if the plan is that of an advisor. Plan assets are in millions. Adjusted expense ratios and turnover are the differences between actual values and the asset weighted average of funds in the same category. Stewardship grade is from Morningstar's Principia. Percent change in menu is the number of deleted and added funds between 2009 and 2010 divided by the number of funds in 2009 and 2010. Robust t-statistics are in parentheses. A *, **, and *** denote significance at the 1, 5, and 10 percent levels respectively.

	Dependent variable:					
	Number of funds in menu	Adj. audited expense	Adj. prospectus expense	Adj. Turnover	Stewardship grade	% change in menu
Panel A: Difference between advisor and client plans						
Advisor plan	1.18 (0.51)	-0.11** (-2.21)	-0.12** (-2.40)	-2.83 (-0.62)	-0.03 (-0.33)	-0.04 (-1.52)
Constant	17.73*** (10.33)	0.07*** (5.21)	0.07*** (5.02)	4.57** (2.41)	2.85*** (78.71)	0.12*** (7.84)
R-squared	0.000	0.051	0.059	0.002	0.001	0.006
Panel B: Difference between advisor and client plans with controls						
Advisor plan	-0.51 (-0.12)	-0.09 (-1.65)	-0.10* (-1.75)	-2.92 (-0.63)	0.02 (0.20)	-0.04 (-1.27)
Plan assets	0.02 (0.67)	-0.00*** (-2.66)	-0.00*** (-3.31)	0.00 (0.11)	-0.00** (-2.00)	-0.00 (-1.09)
Participants	0.00 (0.58)	-0.00 (-1.02)	-0.00 (-1.28)	0.00 (0.45)	0.00 (1.59)	0.00 (0.31)
Constant	14.65*** (9.14)	0.08*** (5.98)	0.09*** (6.15)	3.99* (1.92)	2.85*** (70.09)	0.13*** (6.63)
R-squared	0.099	0.107	0.137	0.005	0.022	0.009
Panel C: Differences between asset-weighted characteristics of advisor and client plans with controls						
Advisor plan	-0.55 (-0.13)	-0.06 (-1.28)	-0.08 (-1.44)	-1.38 (-0.23)	0.07 (0.58)	-0.04 (-1.27)
Plan assets	0.02 (0.68)	-0.00* (-1.75)	-0.00** (-2.43)	0.02 (0.75)	-0.00** (-2.12)	-0.00 (-1.09)
Participants	0.00 (0.58)	0.00 (0.51)	0.00 (0.20)	0.00 (0.15)	0.00** (2.11)	0.00 (0.31)
Constant	14.60*** (9.14)	0.06*** (4.22)	0.07*** (4.33)	4.60 (1.60)	2.86*** (59.09)	0.13*** (6.63)
R-squared	0.100	0.054	0.078	0.007	0.035	0.009
Observations	136	136	136	136	135	130

Table 4: Commonality of plan holdings

Commonality of funds is the percentage of funds common to each pair of plans. Commonality of fund families is the percentage of funds in each pair of plans that belong to the same fund family. Commonality of fund categories is the percentage of funds that belong to the same Morningstar category.

	No. of Pairs	commonality of funds		commonality of fund families		commonality of fund categories	
		Mean	Median	Mean	Median	Mean	Median
All plans	9,180	0.08	0.07	0.35	0.35	0.59	0.61
All client plans	7,381	0.08	0.07	0.35	0.35	0.59	0.60
All advisor plans	91	0.07	0.06	0.37	0.39	0.64	0.65
Clients and their own advisors	122	0.15	0.13	0.50	0.50	0.66	0.68
Clients and every advisor	1,708	0.07	0.06	0.35	0.36	0.61	0.63
Clients with the same advisor	1,011	0.14	0.10	0.44	0.43	0.59	0.61

Table 5: The determinants of commonality of holdings among client plans

The data uses every possible pair among 122 client plans. Same advisor is a dummy indicating that the pair of plans have the same advisor. Same state and same industry are defined analogously. Difference in assets (participants) is the absolute value of the difference in assets (participants) divided by the average assets (participants) of the two plans. Commonality of funds is the percentage of funds common to each pair of plans. Commonality of fund families is the percentage of funds in each pair of plans that belong to the same fund family. Commonality of fund categories is the percentage of funds that belong to the same Morningstar category. Robust t-statistics are in parentheses. A *, **, and *** denote significance at the 1, 5, and 10 percent levels respectively.

	Dependent variable:					
	commonality of funds		commonality of fund families		commonality of fund categories	
Same advisor	0.07*** (16.15)	0.05*** (13.19)	0.10*** (11.90)	0.06*** (7.59)	0.01* (1.67)	0.00 (0.14)
Same state		0.07*** (11.00)		0.17*** (13.30)		0.05*** (6.62)
Same industry		-0.00 (-0.09)		-0.00 (-0.06)		-0.00 (-0.36)
Difference in assets		-0.01*** (-5.77)		0.02*** (3.79)		0.00 (0.05)
Diff. in participants		0.00 (0.11)		-0.01* (-1.68)		0.02*** (5.41)
Constant	0.07*** (77.10)	0.08*** (36.60)	0.34*** (124.23)	0.32*** (54.59)	0.59*** (349.02)	0.57*** (151.90)
Observations	7,381	7,381	7,381	7,381	7,381	7,381
R-squared	0.070	0.106	0.024	0.055	0.000	0.011

Table 6: The determinants of commonality of holding for client and advisor pairs

The data uses pairs of plans every client with every advisor. Own advisor is a dummy indicating that the pair of plans is that of a client and its own advisor. Same state and same industry are defined analogously. Difference in assets (participants) is the absolute value of the difference in assets (participants) divided by the average assets (participants) of the two plans. Commonality of funds is the percentage of funds common to each pair of plans. Commonality of fund families is the percentage of funds in each pair of plans that belong to the same fund family. Commonality of fund categories is the percentage of funds that belong to the same Morningstar category. Robust t-statistics are in parentheses. A *, **, and *** denote significance at the 1, 5, and 10 percent levels respectively.

	Dependent variable:					
	% common funds		% of funds in the same family		% of funds in the same category	
Own advisor	0.08*** (6.17)	0.06*** (5.30)	0.15*** (6.52)	0.13*** (5.57)	0.05*** (4.17)	0.05*** (3.49)
Same state		0.06*** (4.26)		0.08** (2.55)		0.02 (1.15)
Same industry		-0.00 (-0.82)		-0.01 (-0.57)		-0.03*** (-2.88)
Difference in assets		-0.00 (-0.78)		-0.01 (-0.68)		-0.00 (-0.24)
Diff. in participants		0.01*** (3.36)		0.04*** (3.00)		0.02*** (2.72)
Constant	0.07*** (37.68)	0.06*** (13.12)	0.34*** (58.52)	0.31*** (21.80)	0.61*** (188.20)	0.60*** (79.78)
Observations	1,708	1,708	1,708	1,708	1,708	1,708
R-squared	0.064	0.094	0.028	0.039	0.010	0.022

Table 7: Characteristics of ‘client only’ and ‘advisor only’ funds

Client only funds are mutual funds in client’s plan not found in the client’s advisor’s plan. Advisor only funds are defined analogously. Share funds appear in both client and advisor plans. The data is 122 client plans.

	Mean characteristics			Differences (t-stats)		
	Client only funds	Advisor only funds	Shared funds	Client only minus shared	Advisor only minus shared	Client only minus advisor only
Adj. audited expense ratio	0.08	-0.04	-0.01	0.09*** (3.95)	-0.03 (-1.20)	0.12*** (5.99)
Adj. prospectus expense ratio	0.09	-0.05	-0.03	0.11*** (4.65)	-0.02 (-1.01)	0.14*** (6.33)
Adjusted turnover	2.08	0.91	10.04	-7.96 (-1.30)	-9.13 (-1.41)	1.17 (0.42)
Stewardship	2.81	2.76	3.13	-0.32*** (-4.20)	-0.38*** (-5.43)	0.05 (1.14)

Table 8: Impact of indirect and direct compensation on client only fund characteristics

The data is 122 client plans. The dependent variables are characteristics of funds found only in clients' plans. Indirect only is a dummy variable indicating that a plan compensated its advisor only indirectly. Direct only is defined analogously. The base category is plans that compensated their advisors both directly and indirectly. Robust t-statistics are in parentheses. A *, **, and *** denote significance at the 1, 5, and 10 percent levels respectively.

	Dependent variable:			
	Adj. prospectus expense ratio	Adj. audited expense ratio	Adjusted turnover	Stewardship grade
Panel A: Impact of indirect and direct compensation without controls				
Indirect only	0.08** (2.26)	0.10*** (2.77)	-8.56 (-1.48)	0.22* (1.68)
Direct only	0.02 (0.33)	0.05 (0.97)	-0.13 (-0.02)	0.14 (1.04)
Constant	0.07*** (4.23)	0.06*** (3.99)	3.29 (1.30)	2.77*** (60.76)
Observations	122	122	122	122
R-squared	0.031	0.052	0.015	0.032
Panel B: Impact of indirect and direct compensation with controls				
Indirect only	0.06 (1.65)	0.08** (2.23)	-7.71 (-1.31)	0.21 (1.56)
Direct only	0.05 (1.04)	0.07* (1.68)	-1.00 (-0.11)	0.15 (1.06)
Assets	-0.00*** (-3.70)	-0.00*** (-3.01)	0.04* (1.87)	-0.00** (-2.56)
Participants	-0.00 (-1.39)	-0.00 (-0.96)	-0.00 (-0.62)	0.00** (2.50)
Constant	0.10*** (5.14)	0.08*** (4.68)	2.30 (0.84)	2.78*** (54.15)
Observations	122	122	122	122
R-squared	0.114	0.114	0.040	0.073