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Financial Advisors: A Case of Babysitters?*

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and Tullio Jappelli[3]

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Abstract:
We merge administrative information from a large German discount brokerage firm with regional data to examine if financial advisors improve portfolio performance. Our data track accounts of 32,751 randomly selected individual customers over 66 months and allow direct comparison of performance across self-managed accounts and accounts run by, or in consultation with, independent financial advisors. In contrast to the picture painted by simple descriptive statistics, econometric analysis that corrects for the endogeneity of the choice of having a financial advisor suggests that advisors are associated with lower total and excess account returns, higher portfolio risk and probabilities of losses, and higher trading frequency and portfolio turnover relative to what account owners of given characteristics tend to achieve on their own. Regression analysis of who uses an IFA suggests that IFAs are matched with richer, older investors rather than with poorer, younger ones.

JEL Classification: G1, E2, D8

Keywords: Financial Advice, Portfolio Choice, Household Finance.

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1. Introduction

In recent years households have increased their exposure to financial risk taking, partly in response to the demographic transition and increased responsibility for retirement financing. Recent research points to differential financial literacy and sophistication across households, creating the potential for important distributional consequences of these developments (Campbell, 2006; Lusardi and Mitchell, 2007; Bilias, Georgarakos, Haliassos, 2008).

In principle, financial advisors could ameliorate consequences of differential ability to handle finances by improving returns and ensuring greater risk diversification among less sophisticated households. Indeed, delegation of portfolio decisions to advisors opens up economies of scale in portfolio management and information acquisition, because advisors can spread information acquisition costs among many investors. Such economies of scale, as well as possibly superior financial practices of advisors, create the potential for individual investors to improve portfolio performance by delegating financial decisions. But delegation entails costs in terms of commissions and fees, and might give rise to agency problems between advisors and firms and between advisors and customers, as shown by Inderst and Ottaviani (forthcoming). These arise mainly because of conflicting incentives for financial advisors: on the one hand they need to sell financial products and on the other they need to advise customers on what is best for them to do.

Underlying much of the existing literature on financial literacy, the possible role of financial advice and the case for regulation of financial advisors is the notion that financial advisors tend to be used by less informed or sophisticated investors who could be easily misled by them. Regulation and/or incentives are then needed to make sure that advisors contribute their expertise to these inexperienced investors. In this paper, we examine three questions. First, we ask how brokerage accounts run by individuals without financial advisors actually perform compared to accounts run by (or in consultation with) financial advisors. Second, whether financial advisors tend to be matched with poorer, uninformed investors or with richer, experienced but presumably busy investors. Third, whether the contribution of financial advisors to the accounts they do run is actually positive relative to what investors with the characteristics of their clients tend to obtain on their own. Such direct comparisons are made possible by an unique administrative data

set from a large German discount brokerage firm that allows its clients choice of whether to run their accounts themselves or with the guidance of an independent financial advisor (IFA). The answers we obtain provide quite a different perspective on financial advice.

Our data track accounts of 32,751 randomly selected individual customers over 66 months. Descriptive statistics, likely to find their way into marketing brochures and/or to shape perceptions of the public, paint a very positive picture: financial advisors accounts offer on average greater returns, both in total and relative to the security market line; lower risk, systematic and unsystematic; lower probabilities of losses and of substantial losses; and greater diversification through investments in mutual funds. In econometric analysis that controls for client demographics and experience and for possible endogeneity of the use of a financial advisors, the latter are seen to lower total and excess returns, raise portfolio risk (systematic and unsystematic), increase the probabilities of losses and of substantial losses, and increase trading frequency and portfolio turnover relative to what account owners of given characteristics tend to achieve on their own. Regression analysis of who delegates portfolio decisions suggests that advisors are matched with richer, older investors rather than with poorer, younger ones. In this respect, they are similar to babysitters: they are matched with well-to-do households, they perform a service that parents themselves could do better, they charge for it, but observed child achievement is often better than what people without babysitters obtain, because other contributing factors are favorable.

The paper is organized as follows. In Section 2 we discuss the role of financial advice in overcoming investors' informational constraints and their incentives in handling financial portfolios in view of relevant existing literature. Section 3 describes the data and the measures that we use to characterize portfolio performance. Section 4 compares descriptive statistics of account performance with and without involvement of financial advisors which might help shape public perceptions about the usefulness of IFAs. Section 5 studies econometrically the role of investor characteristics and regional factors in determining which investors are matched with financial advisors. Sections 6 and 7 report regression estimates of the effects of financial advisors on account performance, return volatility, trading, turnover, and diversification. Section 8 summarizes our main findings.

2. The Role of Financial Advice

There is a limited but budding theoretical literature on the possible role of financial advisors. Current theoretical work but also policy debate on financial regulation seem to be based on the idea that financial advisors know what is good for individual customers but have an incentive to misrepresent this and to take advantage of their customers, who are typically uninformed and cannot figure out the poor quality of advice. Regulation is then needed to make sure that this conflict of incentives is dealt with. In early work, Ottaviani (2000) built a model of financial advice, where an informed agent (financial advisor) provides information to investors who are otherwise uninformed and have an uncertain degree of strategic sophistication. The emphasis was on deriving incentives for truthful information disclosure and information acquisition. In a recent pioneering paper, Inderst and Ottaviani (forthcoming) analyze 'misselling', i.e. the practice of misdirecting clients into buying a financial product that is not suitable for them.

Their model hinges on the conflict between sales agents' incentives to prospect for customers and to provide adequate advice to them on whether to buy a particular product. There are certain types of customers for which the financial product is unsuitable and to whom the advisor should not sell it. The conflict of interest between agent and customer arises endogenously from the agent's compensation set by the firm. There is also conflict of interest between the firm and the agent. If the product is sold to the wrong people, there is a probability with which the firm receives a complaint and a policy-determined fine that it has to pay, part of which goes to the disgruntled customer. The firm must ensure that its agents comply with its internal suitability standards when advising customers. It chooses these standards by trading off the benefits from a sale (net of the expected ex post losses associated with misselling) with the agency costs of inducing the agent to uphold the standards. When the sales force requires steeper incentives (for example, as competition for customers intensifies), ensuring compliance with a given standard becomes more costly for the firm. Faced with a higher marginal cost of compliance, the firm gradually becomes more permissive towards potential misselling. In equilibrium, standards are affected by several factors, such as the difficulty in attracting customers, the transparency of the

commission structure, and the organization of the sales process. The authors conclude that, when addressing misselling, policymakers must take into account these organizational variables.

While the conflict of interest between selling a product and advising what is best for the customer is important and we also find evidence for it below, at least three important empirical questions arise. First, what exactly can professional advisors contribute to individual investors? Second, whom do they tend to serve? Third, what difference do they make to the accounts they run relative to what investors like their clients could do on their own?

Regarding the first question, an issue that has received considerable attention in existing empirical literature is whether professional analysts and advisors have an informational advantage to contribute to individual investors when it comes to predicting stock price movements. Ever since Cowles (1933), there have been questions regarding the ability of stock market forecasters and analysts to predict movements in the stock market. Early studies include Barber and Loeffler (1993) on The Wall Street Journal's Dartboard column, Desai and Jain (1995) on "Superstar" money managers in *Barron's*, Womack (1996) on brokerage analysts, and Metrick (1999) on investment newsletters.

For example, Womack (1996) examines stock price movements following 'buy' or 'sell' recommendations by fourteen major U.S. brokerage firms. He documents significant price and volume reactions in the direction of the recommendation within a three-day interval, as well as significant post-recommendation stock price drift in the forecast direction, especially for new 'sell' recommendations. He concludes that there is value to these recommendations viewed as returns to information search costs. He also notes, however, that new 'buy' recommendations occur seven times more often than 'sell' recommendations, suggesting that brokers are reluctant to issue sell recommendations, both in order to avoid harming potential investment banking relationships and to maintain future information flows from managers.

Metrick (1999) analyzes a database of recommendations of 153 investment newsletters and finds no evidence that newsletters have superior stock-selection skill, either over short or long horizons. Average abnormal returns are close to zero and the best-performing newsletter under each return model the authors employ does not seem unusual given the sample size.

These papers indicate whether there are gains to be had by following strategies that take into account analyst recommendations, in the absence of transactions costs. Barber et al. (2001) take

a more investor-oriented approach and examine whether investors can earn positive abnormal profits on these strategies after accounting for transactions costs. They analyze abnormal gross returns that would result from purchasing (selling short) stocks with the most (least) favorable consensus recommendations, in conjunction with daily portfolio rebalancing and a timely response to recommendation changes. Although they find that such strategies would yield annual abnormal gross returns greater than four percent, they also show that high trading levels are required to capture these excess returns. Once the transactions costs entailed by these strategies are taken into account, abnormal net returns for these strategies are not statistically significant.

The general impression given by the literature on informational contributions of analysts to direct stockholding is that these may be present but unlikely to be exploitable by individuals given the trading costs they entail. However, some researchers take a different angle and point out that, even if professional advisors do not have superior information that is exploitable for the normal trading within an individual account, they may be less likely to exhibit behavioral biases that hurt account performance. They could thus help either by running the account themselves or by encouraging investors to behave appropriately.

A behavioral bias that has received considerable attention is the 'disposition effect', i.e. the tendency of some individuals to sell winners and keep losers when it comes to direct stockholding (Odean 1998). Shapira and Venezia (2001) found that the disposition effect is significantly less pronounced among professional than among self-directed investors.

Well trained IFAs might be able to ameliorate behavioral biases of their clients and moderate trading activity (Campbell and Viceira, 2003). Barber and Odean (2000) show that some investors trade excessively in brokerage accounts, suffering transactions costs that result in significantly lower returns. Such behavior is often attributed to overconfidence, especially pronounced among male investors (Odean, 1998; 1999; Barber and Odean, 2001; Niessen and Ruenzi, 2008). Shu et al. (2004) analyze the returns on common stock investments by 52,649 accounts at a brokerage house in Taiwan for 45 months ending in September 2001. They find a U-shaped turnover and performance relation rather than the monotonic one predicted by overconfidence: the most frequent traders in the top turnover quintile perform better than investors in the middle three quintiles. Other behavioral biases have been found to influence

some individual investors, such as trading on the basis of past returns, reference prices, or the size of gain or loss over the holding period (Grinblatt and Keloharju, 2001).

While the list of potential behavioral biases can grow longer, an important question - consistent with our approach in this paper - remains as to whether individuals who exhibit such biases are likely to make use of professional investors. For example, Guiso and Japelli (2006) argued that overconfidence (i.e. the disposition of investors to overstate the value of their private information) reduces their propensity to seek advice. Indeed, the Barber and Odean data come from a discount broker that does not offer advice. Even if overconfident traders approach financial advisors, one might wonder whether financial advisors who earn sales commissions would actually discourage them from executing too many trades without some incentive scheme.

On the other hand, financial advisors may help correct behavioral biases or investment mistakes when such correction is aligned with their interests. A case in point is diversification. A number of empirical studies find that many individual investors hold undiversified portfolios (see e.g. Blume and Friend, 1975; Dorn and Huberman, 2002; Campbell, 2006; Goetzmann and Kumar, 2008). Financial advisors who earn commissions for selling mutual funds have an incentive to promote such sales and through them diversification of their client's accounts.

Our paper takes a more direct approach to the issue of the role and contribution of financial advisors than previous research. Recognizing both the potential informational advantage and the potential contribution of professional investors to controlling behavioral biases and correcting investment mistakes, it compares directly what *investors actually accomplish* on their own versus to what they accomplish with the guidance of a financial advisor, net of transactions costs. Moreover, it does so with reference not to theoretical portfolios of individual stocks, but to portfolios actually chosen and adjusted through time by investors, which may include directly held stocks, bonds, and mutual funds. Central to our interpretation of results is the question of which individual investors are more likely to be matched with a financial advisor.

3. Data

3.1. Descriptive Statistics

The primary data set we are using in this study is administrative information from a large German discount brokerage firm. It covers the investments of 32,751 randomly selected individual customers who opened an account with the brokerage firm prior to January 2001 and kept the account active through June 2006. If customers opened multiple accounts we consolidated them into one single account.

For each sampled customer we have information on date of birth, gender, marital status, profession (including status as employed or self-employed), zip-code of place of residence, nationality, and self-reported security-trading experience in years.[1] All information was collected by the brokerage firm on the date of account opening and updated according to new information that the firm has obtained from the customer in the interim. Table 1 shows descriptive statistics of our sample, after dropping accounts that report age of account owner below 18.[2] As shown in the Table, 77.8 percent of account owners were male, and 47.8 percent married. Overall, 86.1 percent were employed, 13.2 percent self-employed, and 0.7 percent public servants, retirees, housewives or students. Average trading experience as of January 2001 was 7.56 years. For each sampled customer account, we record all trades and all monthly position statements over the entire observation period. Trading records indicate type (i.e. sale, purchase, dividend payment, etc.), currency, trading channel (e.g. internet, telephone, fax, etc.), and execution date.

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[1] Self-reported trading experience is reported on a scale with intervals equal to five years. We construct a variable that has the interval midpoints as values and then add the number of years between account opening date and January 2001 to measure trading experience at the beginning of our observation period.

[2] These are typically accounts run by parents on behalf of their children. Specifically, 796 investors in our original sample were younger than 18 on September 5, 2006, and the youngest investor in that sample was just under 6 years old. Tax advantages for parents arise because during the observation period there was a threshold level of interest or dividend income above which capital income tax needed to be paid. We have also run the regressions including investors under 18, but our results were hardly affected in terms of sign, significance, and even size of estimates, except for small changes in the estimates for age categories.

Importantly, transaction amounts are *net* of any transactions costs and provisions charged by the brokerage house or the IFA and processed through the brokerage house.[3] The bank claims to only work with trustworthy IFAs who do not earn more than 200 basis points on their average client. These are divided between bank and IFA, with the bank typically earning roughly 30 basis points for transaction fees, account maintenance, and front loads, leaving about 170 basis points for the IFA. There is a minority of advisors who follow a different business model: instead of earning front loads or kickbacks, they forward those to their clients and earn a flat fee as a percentage of account volume. As this flat fee is not run through the bank, it is not observed by us and it is not taken into account in computing returns and other measures of performance net of costs. Since we obtain negative effects of IFAs in econometric estimation below, the resulting understatement of costs in these cases, if anything, strengthens our findings on the role of IFAs.

The monthly position statements list for each item the type of security (e.g. stocks, bonds, mutual funds etc.), the number of securities, and the market value per security at month end. At the start of the observation period, average annual account volume was 10,015 Euro. We computed monthly turnover by dividing the combined transaction value of all purchase transactions for a given month by the average of beginning-of-month and end-of-month account volume. Average monthly turnover was 4.7 percent in our sample.

In order to get some idea of the composition of portfolios in the accounts of the brokerage firm, we report that on average (not excluding account owners aged under 18) sample customers held 38.6 percent of account volume in the form of equity mutual funds, 47.4 percent in the form of single stocks (28 percent thereof in German stocks), 2.4 percent in the form of bond mutual funds, 3.8 percent in the form of single bonds and the remainder in the form of structured investment certificates, warrants, and other assets.

Our administrative data set includes a variable that indicates whether a given brokerage customer is also a client of an IFA who registered with the brokerage firm. We know that,

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[3] Although we do not observe costs separately in our data, we know from the data provider that the bank and the IFA combined earn typically 100-200 basis points on clients with account volume greater than 50,000 Euros. For smaller accounts, this number is typically in the neighborhood of 200 basis points, although it can be as high as 300-500 basis points, due to front loads and kick-backs from mutual funds.

typically, these registered IFAs first solicited clients by offering their advisory services (or were approached by clients themselves) and then assisted their clients in opening an account with the brokerage firm. At the time of account opening, IFAs had typically obtained a client mandate to place orders on behalf of the client. We do not have information on which clients fully delegate trading decisions to their IFAs and which only consult their IFAs for guidance and then place trades themselves. The brokerage firm offers several compensation schemes to IFAs but all schemes have a sales commission as their major component. In the case of mutual funds this commission is a function of the upfront load the brokerage firm earns from the fund producer.

Of the customers in our sample, 12.7 percent consult IFAs registered with the brokerage firm. We cannot rule out that (presumably other) customers obtain professional advice from outside advisors. This is, however, rather unlikely because such outside advisors do not participate in the fees and commissions paid by the client to the brokerage firm and must therefore charge their services on top of the full brokerage fees and commissions.

In order to handle possible endogeneity of the decision to consult with an IFA, we used regional instruments in a second data set we retrieved from the *destatis* files of the German Federal Statistical Office. *destatis* provides a broad set of structural data on some 500 German regions. We obtained size of region in square kilometers, population per region, total disposable income per region, disposable income per capita per region, fraction of college graduates and average voter participation in communal, state and federal elections per region. The system of German zip codes is more granular than the regional grid of *destatis*. We mapped customer accounts to regions by assuming that all zip-codes in the same *destatis* region share the same structural characteristics. Finally, we augmented our second data set with the number of bank branches per *destatis* region, which we acquired from a commercial data provider.

3.2. Measuring Portfolio Return and Risk

In this paper we are interested in the effect of financial advice on portfolio performance and portfolio risk. In order to compute monthly portfolio returns, we assume as in Dietz (1968) and that all transactions occur in the middle of a given month:

$$R_{p,t} = \frac{(V_{p,t} - V_{p,t-1}) - (P_{t-1\to t} - S_{t-1\to t}) + E_{t-1\to t}}{V_{p,t-1} + \left(\frac{P_{t-1\to t} - S_{t-1\to t} + E_{t-1\to t}}{2} \right)} \quad (1)$$

where:

$V_{p,t}$ = market value of portfolio p at end of month t;

$P_{t-1\to t}$ = market value of all purchases (including fees) between t and t-1;

$S_{t-1\to t}$ = market value of all sales (including fees) between t and t-1;

$E_{t-1\to t}$ = cash proceeds from dividends, coupons etc. received between t and t-1.

Monthly returns from (1) are winsorized by treating returns that fall into the first or the 100th percentile as missing values.[4] We construct log returns and use them and the standard regression model in (2) to estimate abnormal (log) returns for each portfolio.

$$r_{p,t} - r_{f,t} = \alpha_p + \beta_p (r_{M,t} - r_{f,t}) + \varepsilon_{p,t} \quad (2)$$

where:

α_p = estimated abnormal return (Jensen's Alpha) for portfolio *p*;

β_p = estimated market beta for portfolio *p*;

$r_{M,t}$ = log return of the Euro-denominated MSCI-World Index in month *t*;

r_f = log return on the one-month Euribor;

$\varepsilon_{p,t}$ = error term of regression for portfolio *p*.

We also decompose total portfolio risk into systematic risk and unsystematic risk:

$$\sigma_p^2 = \beta_p^2 \sigma_B^2 + \sigma_{\varepsilon,p}^2 \quad (3)$$

where

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[4] Extreme monthly return observations were treated as missing (and not set to the upper/lower boundary that would be customary for Winsorization) because a) they most likely represent erroneous data, and b) we do not lose customers but just single months. As a consequence, some customers have only 63 or 64 instead of 65 monthly return observations.

σ_p^2 = total variance of log returns of portfolio p;

β_p^2 = square of estimated benchmark beta for portfolio p;

σ_B^2 = variance of log returns on benchmark portfolio B (MSCI-World index);

$\sigma_{\varepsilon,p}^2$ = variance of error term from the regression in (2).

The first term on the right hand side of (3) measures systematic risk and the second term measures diversifiable portfolio risk. In our regressions, we use the portion of diversifiable risk in total risk:

$$\frac{\sigma_{\varepsilon,p}^2}{\sigma_p^2} = \frac{\sigma_{\varepsilon,p}^2}{\beta_p^2\sigma_B^2 + \sigma_{\varepsilon,p}^2} \tag{4}$$

We also consider the probability that returns fall short of some target return. This is a special case (for n=0) of lower partial moments (LPM_n) of returns as measures for (downside) risk:

$$LPM_n = \sum_{x=-\infty}^{\tau} P\left(X = x\right)\left(\tau - x\right)^n \tag{5}$$

where τ = monthly target return (we use 0 or -5 percent p.a.) and n is the order of the moment.

4. How Would Financial Advisors Look in a Prospectus?

For many clients, a natural first step towards deciding whether to use an IFA or not would be to compare the historical performance of accounts run with IFA involvement and those run without it. This would be the most natural input for a prospectus promoting the services of IFAs or even for informal discussions of prospective clients with IFAs themselves or with members of their social circle who have used them. In this Section, we make use of our extensive sample and ask how IFA accounts (defined as those that benefit from the input of IFAs collaborating with the brokerage firm, which ranges from mere consultation to full responsibility for trades) have performed over the observation period compared to those run without input from IFAs.

Figure 1 plots histograms of average monthly returns over our observation period for accounts that were self-managed and for those run with IFA input. We see clearly that the IFA

accounts exhibit more mass towards the center and higher end of the distribution, indicating better performance. Table 1 shows logarithmic returns. The sample mean log return on IFA accounts is considerably higher than that of self-managed accounts (-.44 versus -.80, which translates to rates of return of 0.64 versus 0.45 percent per month), with self-managed accounts being in turn close to the average of all accounts (-.75, i.e. monthly return of 0.47 percent). Based on average realized returns, then, it would not be difficult to argue to prospective customers that IFAs 'add value' to the account.

A refinement to this statement could be made by looking at any excess return over and above what standard finance models would justify on the basis of covariance with the market portfolio. Jensen's alpha (the average excess of realized returns relative to the security market line) is compared in Figure 2 for the two sample groups. We observe that excess returns of investors with IFA exhibit much greater concentration around zero than what is shown for self-managed accounts. IFA accounts tend also to be closer to the security market line than individual investors, certainly from below. This suggests that they may be using the market line as a performance benchmark: they do not want to be found under it, but they also do not feel compelled to exceed it systematically compared to what individuals tend to accomplish on their own. Table 1 confirms that IFA accounts can claim a higher average excess return on accounts run with their input, as well as a higher average return.

A suspicious prospective client might wonder if these higher returns are offered by IFAs simply because they introduce more risk into the portfolio. Table 1 shows that this argument does not fit the sample statistics: the overall portfolio risk of IFA accounts is about two thirds of that of non-IFA accounts; unsystematic risk is twenty percent lower for IFA accounts; and the beta coefficient capturing covariance with the market portfolio (proxied by the MSCI World Index) is two thirds of its value without IFA involvement, implying that systematic risk is also two thirds. Figure 3 shows that the distribution of total portfolio variance under IFAs is 'squeezed' towards values closer to zero compared to what is produced by individuals managing their accounts. The distribution of betas is also much less skewed and more symmetric under IFAs (Fig. 4); the same holds for unsystematic risk (Fig. 5).

Some prospective clients may pay particular attention to the probability of making losses or substantial losses. This would be particularly evident with loss aversion utility or rank-dependent

utility, but even under expected utility clients could be influenced by very bad states because of high marginal utility of consumption in those states. Based on histograms and descriptive statistics, IFA accounts have exhibited, on average, lower probabilities of losses or substantial losses. Table 1 shows that the fraction of investors that exhibited a loss (the return is negative) over a month is 48 percent for investors with IFA and 45 percent without (45 and 40 percent, respectively, for substantial losses. If one compares the distributions of these probabilities in Figure 6, IFA accounts look like some mass has been displaced from values between .4 and .5 to values between .3 and .4, which seems to speak in favor of IFA accounts.

Comparison of IFA and non-IFA accounts also shows that frequency of trades is smaller among IFA accounts, but average portfolio turnover (which is sensitive to the size of purchases) is much greater. The average monthly number of trades per 1000 euro of account volume is .32 for IFA and .44 for non-IFA accounts, but the turnover rate is more than double for IFA accounts. Looking at Figures 7 and 8, IFA accounts tend to be clustered closer to zero trades per year standardized by account volume, but to be distributed away from zero in terms of turnover. In other words, IFAs get commission based on the volume of purchases and tend to exhibit greater purchases than individual clients on average, but they do not do so by pushing the trading button more often. IFA accounts tend also to be larger, and are therefore associated with larger positions and trades.

Finally, IFA accounts tend to exhibit far greater diversification than those run by individuals alone. The average share of directly held stocks among self-managed accounts is just under 60 percent, while that for IFA accounts is about 20 percent. Given incentives to sell mutual funds that IFAs have, this is not surprising. However, based on these descriptive statistics, it is not even harmful: it does not seem to hurt either average portfolio returns or any risk measure.

All in all, descriptive statistics seem to offer a lot of ammunition for a marketing campaign: IFA accounts have offered greater returns, both in total and relative to the security market line; lower risk, systematic and unsystematic; lower probabilities of losses and of substantial losses; and greater diversification. The deeper question is, of course, whether these differences are due to IFAs themselves or to the customers they tend to attract. It is to this that we now turn.

5. Who Has a Financial Advisor?

We first consider which characteristics of the brokerage firm client contribute to the client's account being run with input from an IFA. A priori, two very different cases seem plausible. One is that IFAs tend to be matched with smaller, younger investors, to whom they promise to offer knowledge and guidance that will help avoid mistakes and improve account performance. Another is that IFAs tend to be matched with wealthier, older investors who can benefit from IFA services by saving valuable time and/or by improving returns on sizeable investments.

Table 2 reports probit regressions of whether the client makes use of an IFA on a number of factors; rather than the original coefficients, we report marginal effects. The first column uses as regressors only characteristics of the client. We see that an extra year of self-reported experience with the relevant financial products actually increases the probability of using an IFA. Being self-employed increases the probability of IFA use by a sizeable amount of about 6.5 percentage points, while there is no significant effect for employees relative to remaining occupational categories in the population. Given other characteristics, males are less likely to use an IFA, suggesting an analogy to the role of gender in trading behavior and reinforcing the view that males tend to have more (over)confidence in their ability to run financial investments. Married clients are also less likely to use an IFA, controlling for other factors, probably because spouses can be used as sounding boards both for investment decisions and for whether an IFA should be hired. We also find that clients over 60 years of age have a significantly greater probability of using an IFA, by about 15 percentage points. The comparison group for age dummies (i.e. the excluded category) is investors younger than 30 years old but above 18.

Column 2 uses the same regressors but controls also for account volume at the very start of the observation period. This serves as a scale or 'wealth' variable, and we focus on the beginning-of-period value to minimize endogeneity problems running from the use of IFA to account volume. Introduction of this control has small influence on estimated marginal effects, except for lowering the contribution of old age and eliminating statistical significance of experience on the choice to use an IFA, suggesting that these were partly proxying for wealth.

In column 3 we control also for features of the region where the client is located, constructed from primary information on zip codes. Being located in a region with a larger fraction of college graduates substantially reduces the probability of using an IFA; a small marginal effect in the same direction is found for higher income regions. This could be due to two, not mutually exclusive, factors. First, IFAs are less needed because these regions have greater concentrations of educated, high-income neighbors from whom they can learn. Second, IFA supply is not proportional to college graduates and high-income households, so that each given client is less likely to be approached by an IFA and finds it more difficult to secure one in competition with many other attractive clients. Importantly, however, marginal effects of own client characteristics are hardly affected when we also control for regional variables.

Based on these findings, we conclude that IFAs tend to be matched with wealthier and older investors. These investors have good reasons to want to delegate to IFAs, such as high opportunity cost or low inclination to spend a lot of time managing investments, as well as sizeable wealth holdings. On the supply side, IFAs seem to have chosen to go for the big players who have a lot to invest rather than for the younger, smaller or inexperienced investors who have a lot to learn.

6. Financial Advice and Portfolio Performance

We now turn to how IFA use affects various aspects of account performance once we control for client characteristics. OLS regressions, reported in the Appendix, yield results consistent with the descriptive statistics we reported above. However, since use of an IFA not only affects but could also be motivated by account performance, such results could be misleading as the IFA variable has not been instrumented.

We carry out instrumental variable estimation, using as instruments the following variables (recorded at the broader region level and assigned to each customer based on the customer's zip code): bank branches per capita, log income in the region, voter participation, and fraction of the population with college degree. As usual, the assumption is that these regional variables can influence the choice of whether to use an IFA or not but they affect individual account

performance only through that choice and not directly. The standard errors of the estimates are corrected for clustering at the zip code level.

To assess the quality of our instruments we perform the test of over-identifying restrictions and the rank test. In each of the regressions, the Hansen-Sargan test does not reject the over-identifying restrictions: the p-values associated with the test always exceed 5 percent, except in the case of the regressions for log returns (p-value of 0.045) and Jensen's alpha (p-value of 0.029), where they exceed 1 percent. We also check the rank condition testing the null hypothesis that the coefficients of the four instruments are jointly equal to zero in the first-stage regression. The F-test (37.44) rejects this null at 1 percent level and implies that the rank condition is satisfied.

6.1. Portfolio Returns

We first examine the difference that having an IFA makes to the average return on the account over the 66-month observation period, after all transactions fees have been paid to the broker. The first two columns of Table 3 show the relevant instrumental variables regressions for total returns on the account. Whether we control for initial account volume or not, the contribution of an IFA to the total account return is negative, once we control for observable characteristics of the account owner.

Years of experience contribute to higher total return. This is consistent with some recent studies indicating that the magnitude of investment mistakes decreases with sophistication and experience (see e.g. Grinblatt and Keloharju, 2001; Zhu, 2002; Feng and Seasholes, 2005; Lusardi and Mitchell, 2007). For example, Feng and Seasholes (2005) ask whether investor sophistication and trading experience eliminate behavioral biases, such as the disposition effect, using data from the PR of China.[5] They conclude that sophistication and experience eliminate the reluctance to realize losses, but only reduce the propensity to realize gains by 37%. Male gender detracts from account returns, consistent with the literature on overconfidence.

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[5] They proxy sophistication mainly by the *number of trading rights* (indicating the number of methods to trade) and an indicator of *initial portfolio diversification*, both at the start of the observation period. Experience is proxied by the number of positions taken by investor *i* up until d ate *t*, a time-varying covariate.

Is it the case that IFAs create value for their customers by increasing the return they get over and above what the security market line implies? Columns 3 and 4 report similar regressions for Jensen's alpha, namely the excess return, first without and then with controls for account volume. In both cases, the IFA contribution is negative, once the characteristics of the account owner are taken into account. The patterns of sign and significance, as well as how these are affected by the scale variable are very similar to those for total returns.

The implication of our findings in this section is that involvement of IFAs with these brokerage accounts tends on average to reduce both the total portfolio return and the excess return, once the characteristics of the owner are taken into account. This reverses the impression from descriptive statistics that IFAs improve performance and is quite consistent with our findings in the section on who has an IFA. On the basis of these findings, IFAs tend to be matched with the older and wealthier account owners. Those who choose to collaborate with an IFA end up obtaining lower returns than what their peers obtain who do not involve IFAs in the running of their brokerage accounts.

6.2. Volatility of Returns

The finding that IFAs tend to lower account returns is not necessarily negative by itself. It is a priori conceivable that IFA involvement lowers returns in exchange for ensuring that clients are exposed to smaller portfolio risk. We therefore turn next to the effect of IFA involvement on different measures of return variance on the account. Table 4 reports our findings.

Columns 1 and 2 regress total variance of portfolio returns from equation (3) above on the instrumented IFA dummy and the remaining client characteristics, as in the case of returns. We find no evidence of a systematic moderation of total account risk when an IFA is used. Indeed, use of an IFA is estimated to have a positive and significant effect on total portfolio variance, regardless of whether we control for account volume.

Other variables that consistently contribute to greater return volatility are being male and young. Investors' experience and being married tend to moderate total return variance, but by a

small amount. Account volume, when included, is associated with smaller variance, presumably because it allows greater diversification.[6]

As equation (3) indicates, overall portfolio variance can be decomposed into systematic, resulting from the extent to which the account covaries with the market portfolio ('beta"), and unsystematic. We investigate impact on each type of risk separately (columns 3 to 6 in Table 4). Involvement of IFAs contributes to both types of risk, regardless of whether we control for account volume.

Being male increases both types of risk. Experience has a statistically significant moderating effect on both types of risk, though the effect is quantitatively negligible for unsystematic risk. Bigger accounts tend to exhibit less of both types of risk.

All in all, accounts run by financial advisors have lower returns and higher portfolio variance, which implies lower risk-adjusted returns. However, use of IFAs is not the only factor that simultaneously lowers returns and increases risk: other factors, such as being male or having limited experience, also contribute in this direction.

6.3. Probabilities of Losses

If use of IFAs does not increase returns, excess returns, or returns adjusted for risk, maybe it limits the probability of losses or substantial losses. This could be particularly relevant for clients who are disproportionately concerned about bad outcomes. Table 5 reports our findings regarding determinants first of the probability of a negative portfolio return and then of the probability of a negative return of more than 5 percent per month in absolute value.

Controlling for client characteristics, IFA accounts tend to exhibit higher probabilities of losses and higher probabilities of losses of more than 5 percent per month. Estimated IFA contributions to these probabilities are of the order of 7 percentage points for losses, and 9 percentage points for losses of more than 5 percent monthly. The finding that point estimates and statistical significance are greater for the probability of substantial losses than for the probability of any loss makes it difficult to argue that IFAs help prevent disasters.

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[6] We find below that larger accounts have smaller share of directly held stocks.

Controlling for other factors, being male contributes to greater probabilities of losses and of substantial losses, by 1.5 to 2 pp, and the estimated contribution of this factor is hardly sensitive to whether we control for account volume or not. This extends usual results of being male on portfolio returns to risk and to the likelihood of substantial losses. An additional year of financial experience has a strongly significant moderating effect on probabilities of any loss and of sizeable losses, but estimated effects are small, implying that large differences in experience are necessary for sizeable reductions in the probability of losses. Being older than 60 also lowers the probability of losses, but much of the effect appears to be due to larger account volumes associated with old age. Young investor age (between 30 and 40) is found to have a positive but small effect on the loss probabilities. This is of some interest, but given the cross-sectional nature of our data on account performance, disentangling age from cohort and time effects is problematic. Controlling for other factors, account volume tends to reduce the probability of both types of losses, presumably because it makes it more likely that the account is diversified. All in all, we fail to find evidence of a positive effect of IFAs even in reducing the probability of losses or of substantial losses on the account.

7. Going Behind the Scenes: Trading, Turnover, and Diversification

Given our results on returns and risk, it is natural to ask what type of behavior underlies them. Recent literature has stressed overtrading as a powerful source of account underperformance, precisely because of the additional trading costs it imposes on the account owner. In our present context, IFAs get commissions mainly when the account owner purchases mutual funds. Although this does not create an overall incentive for overtrading, it creates an incentive to the IFA to encourage the account owner to make fund purchases.

The first column of Table 6 examines the effect of IFA on the number of purchases per month. These purchases exclude corporate actions, periodic saving plan investments and portfolio transfers, so as to be more directly linked to the IFA incentives to sell specific financial instruments. We standardize the number of purchases by account volume as a scale variable (although we add back account volume as an additional regressor in some specifications). Our

results imply a positive effect of IFA on the standardized number of purchases, consistent with their incentives. As purchases result in transactions costs, they contribute to lower realized returns on the account net of these costs. The regression also confirms the positive role of male gender found in other studies (see above). Financial experience is found to have a strongly statistically significant effect in moderating the frequency of purchases, albeit the effect of a single additional year of experience tends to be small. This finding is consistent with the finding of Dorn and Huberman (2005) that survey respondents with longer investment experience trade substantially less.

Commissions are linked to the size of purchases and not merely to their frequency. The 3rd and 4th columns of Table 6 examine the effect of IFAs on average account turnover over the observation period, defined in terms of purchases so that it relates to IFA incentives. They show a strongly statistically significant effect of IFAs on increasing account turnover. This could be part of the explanation for why IFAs contribute negatively to portfolio returns.[7] Again, males are more likely to have larger account turnover,[8] but small positive effects are found, somewhat surprisingly, for married account owners. This parallels the effect of being married on the standardized frequency of trading and may be reflecting a greater frequency of life changes that require portfolio rebalancing, especially since we are not able to control for household size, number and ages of children, etc. Self-employed customers tend to have lower turnovers than the rest, maybe because they have less time in their hands to evaluate purchases. Experience discourages turnover, although the effect of a single-year difference tends to be small. Younger investors are estimated to have higher turnovers, as they actively expand their portfolios, while the opposite finding holds for those above 60.

A different perspective on the possible role of IFAs refers to their role in encouraging diversification of the account. We would expect this to have a first-order effect on portfolio

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[7] Higher turnover might be motivated simply by commissions but also by an incentive of IFAs to justify their fees by rebalancing client portfolios (see e.g. Lakonishok et al., 1992).

[8] Indeed, Niessen and Ruenzi (2006) show gender effects even for fund managers. According to their estimates, portfolio turnover is lower for female than for male fund managers.

return variance, although it is also likely to affect returns as well. Given the incentives of financial advisors to sell mutual funds, we examine the average share of directly held stocks in the account over the 66-month observation period. Regardless of whether we control for account volume, we find no significant effect of IFA on this share, although the point estimate is negative. Thus, the apparent effect of IFAs on diversification based on descriptive statistics is not found to be statistically significant when the nature of matching between IFAs and clients is controlled for.

Controlling for other factors, male account owners tend to have a tendency to put larger shares of their account in directly held stocks; being married tends to have the opposite effect, presumably because more people are at risk and maybe vocal in encouraging diversification. Employees and self-employed account owners tend to invest more in directly held stocks, probably because of their increased social interactions and the greater likelihood of receiving relevant information in the course of their everyday business. Interestingly, experience tends to lower the share of directly held stocks, indicating that experience works more as a factor dampening overconfidence than as one that encourages account owners to handle the usually more difficult task of managing direct investments in stocks. We find no indication that older age groups invest less in directly held stocks (indeed, we find the opposite effect for account owners in their 50s), but we cannot distinguish age from cohort effects in our cross-sectional data.

The conclusion from the regression analysis is that IFAs seem to encourage frequent trading and large turnover buy do not appear to have a significant effect on the fraction of the account invested in directly held stocks.

8. Conclusions

We have investigated whether individual investors tend to produce better account performance on their own rather than with the help of an independent financial advisor. Our data track accounts of a major internet brokerage for a large number of randomly selected individual customers over a period of 5.5 years. We find a marked contrast between descriptive statistics and econometric results. While accounts run by or with input from financial advisors offer on

average greater returns, both in total and relative to the security market line; lower risk, systematic and unsystematic; lower probabilities of losses and of substantial losses; and greater diversification through investments in mutual funds, the effect of financial advisors is negative once we control for investor characteristics and for endogeneity of IFA use, except in promoting greater diversification where it is statistically insignificant. IFAs also increase trading frequency and portfolio turnover relative to what characterizes non-IFA account owners of similar characteristics. As confirmed by regression analysis, advisors tend to be matched with richer, older investors rather than with poorer, younger ones.

Our results provide a new perspective on the role of financial advisors that might be useful for theoretical and policy analysis of their conflicting incentives, their likely effects, and the need to regulate them. Based on our findings, it should not be taken for granted that financial advisors provide their services to small, young investors typically identified as in need of investment guidance. Indeed, for the internet broker data we consider, the opposite is true. It is a matter of further research if advisors for more broadly held financial products tend to offer their services to inexperienced investors, and what effect they have on performance. With commissions based on the volume of purchases, the costs of persuading small investors to purchase probably need to be very low before such investors provide a profitable hunting ground for financial advisors.

An important policy issue is whether financial advice is a substitute for financial literacy and sophistication. Given the rapidly growing literature on investment mistakes, providing financial advice to inexperienced, naïve investors could have been an alternative to trying to educate them in financial matters. Our findings caution against relying on this alternative when financial advisor incentives and tendencies of inexperienced clients result in relatively few matches. Other alternatives, such as simpler products and carefully designed default options, may be more promising than financial advice in averting negative distributional consequences.

Our findings imply that, even if advisors add value to the account, they end up collecting more in fees and commissions than what they add. This raises the further question of whether they overcharge and they should be regulated. In answering this question, it is useful to know whether the individuals would have undertaken the investment themselves if it were not for the help of IFAs. The issue of whether IFAs encourage participation is worth exploring in future research, albeit impossible to explore with our data. If it turns out that IFAs tend to convert non-

participants to participants, with a tendency to approach older and wealthier investors, should they be regulated? While the conflict of interest between marketing products and advising clients on suitable products is still there, there seems no issue of IFAs attracting substandard customers and lowering the standards of the financial firm, at least in samples such as ours.

Finally, our comparison of portfolio performance using financial advisors might prove useful for evaluating the recent implementation of the MIFID EU Directive aimed at increasing financial markets transparency and competition. This requires financial institutions to elicit and rate investors' financial abilities through simple questionnaires. In these, investors are asked to report knowledge of specific assets (such as stocks or mutual funds) or, in general, whether they consider themselves financially sophisticated. The directive also aims at avoiding conflicts of interests between individual investors and financial institutions and advisors. Our study suggests that high investor quality does not necessarily eliminate the need to monitor quality of services by financial advisors, especially since we found negative performance effects even for experienced clients.

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Figure 1

The Distributions of Monthly Returns (Percentage Values)

Figure 2

The Distribution of Jensen's Alpha (Percentage Values)

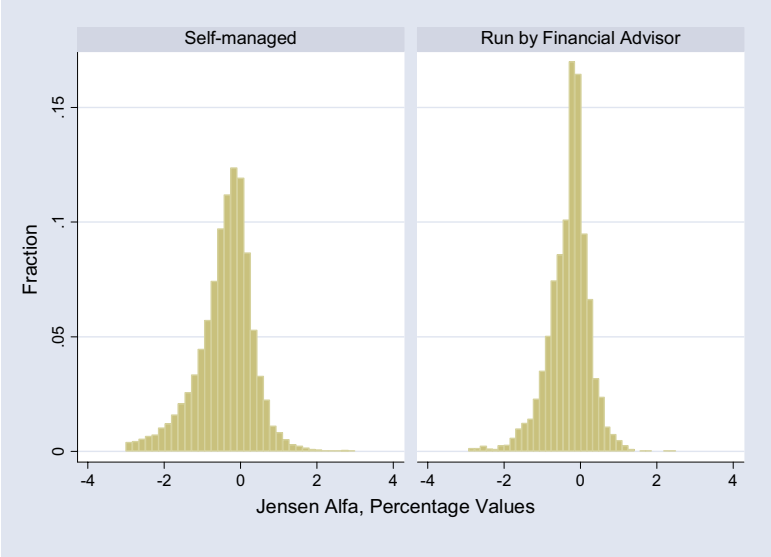

Figure 3

The Distributions of the Variance of Portfolio Returns

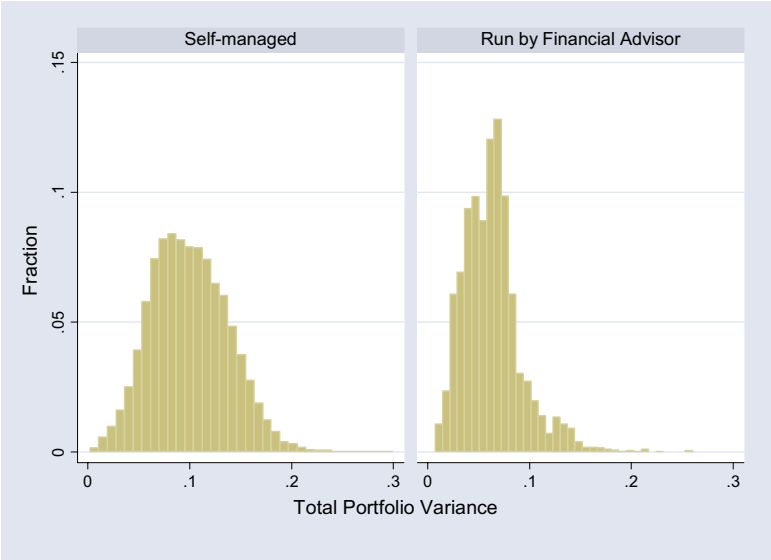

Figure 4

The Distributions of Beta

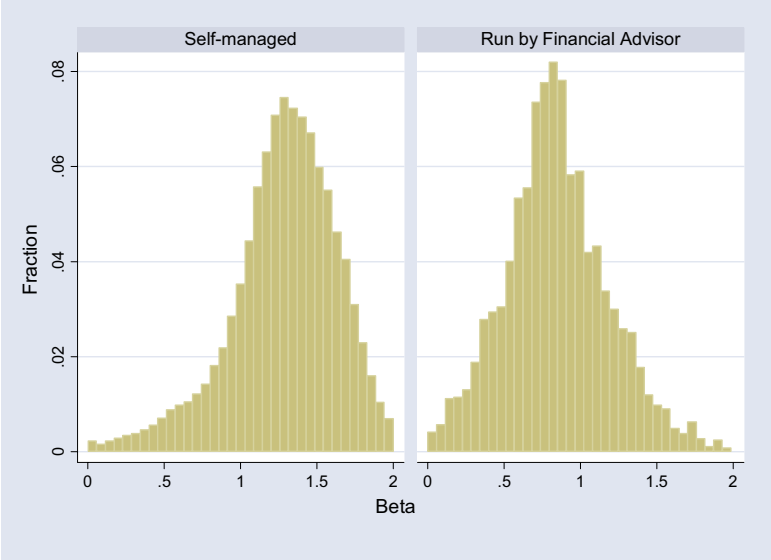

Figure 5

The Distributions of Unsystematic Risk

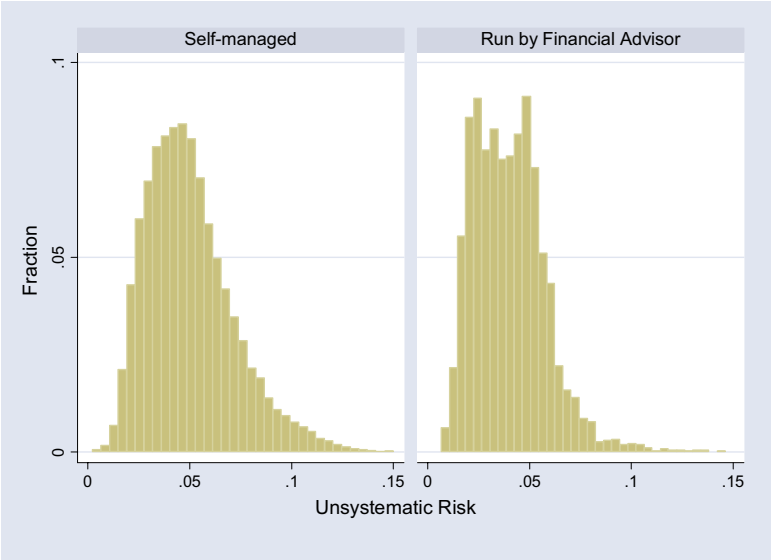

Figure 6

The Distributions of the Probability of Low Returns

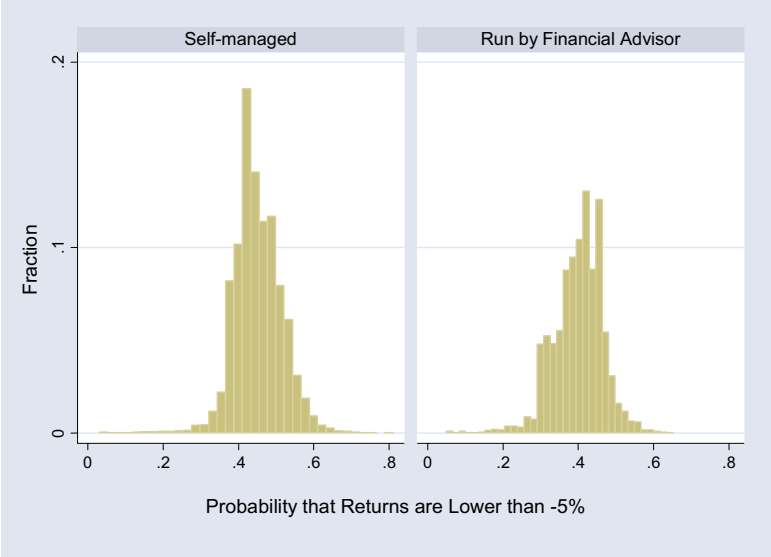

Figure 7

The Distribution of Number of Trades

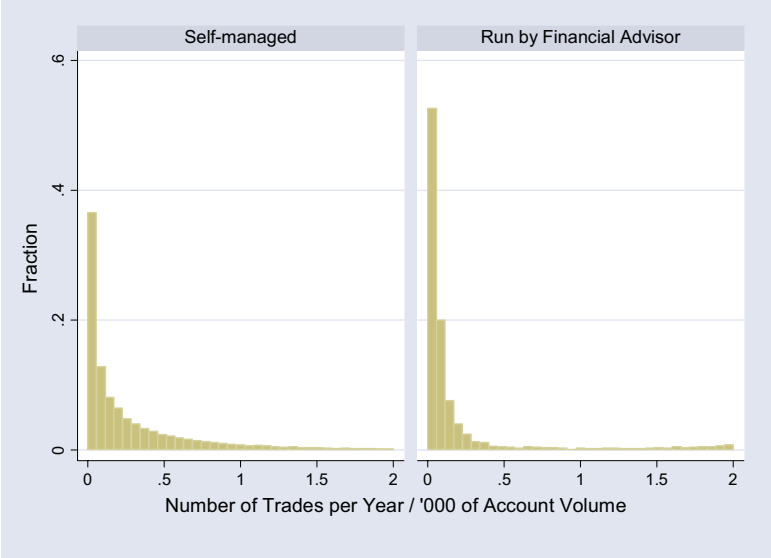

Figure 8

The Distribution of Turnover

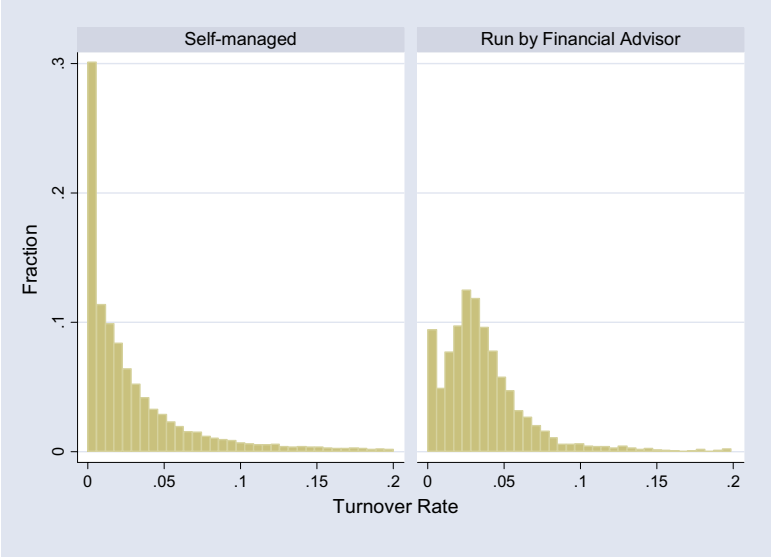

Figure 9

The Distribution of Portfolio Diversification

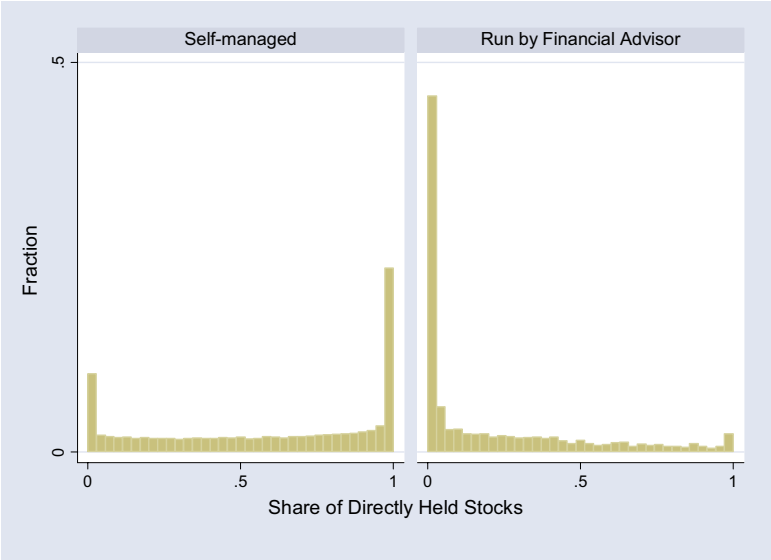

Table 1

Descriptive statistics

	Sample mean			*Median*	*Standard deviation*
	Self-managed account	***Run by financial advisor***	***All accounts***	***All accounts***	***All accounts***
Dependent variables					
Log returns	-0.801	-0.439	-0.755	-0.614	0.916
Alpha	-0.475	-0.316	-0.455	-0.303	0.878
Variance of portfolio returns	0.100	0.063	0.095	0.092	0.039
Unsystematic risk	0.050	0.040	0.049	0.046	0.021
Beta	1.289	0.843	1.233	1.272	0.387
Probability return <-5%	0.451	0.401	0.445	0.446	0.065
Probability return < 0	0.479	0.447	0.475	0.469	0.058
N. of trades / ‘000 account volume	0.444	0.319	0.428	0.113	1.265
Turnover rate	0.041	0.089	0.047	0.020	0.086
Share of directly held stocks	0.588	0.211	0.540	0.575	0.373
Control variables					
Male	0.793	0.674	0.778	1.000	0.416
Married	0.480	0.464	0.478	0.000	0.500
Employed	0.865	0.834	0.861	1.000	0.346
Self-employed	0.129	0.158	0.132	0.000	0.339
Experience	7.335	9.161	7.562	3.900	6.211
18≤Age≤30	0.047	0.042	0.046	0.000	0.210
30< Age≤40	0.260	0.119	0.242	0.000	0.428
40< Age ≤50	0.344	0.269	0.335	0.000	0.472
50< Age ≤60	0.195	0.229	0.199	0.000	0.399
Age > 60	0.154	0.341	0.178	0.000	0.382
Instrumental variables					
Log Account Volume in 2001	9.854	11.119	10.015	9.897	1.344
Bank Branches, per Capita	0.186	0.176	0.185	0.079	0.186
Log Income in Region, per Capita	9.826	9.835	9.827	9.824	0.136
Log Income in Region	15.455	15.361	15.443	15.339	0.869
Voter Participation	0.784	0.786	0.784	0.785	0.029
Pop. with college degree (fraction)	0.258	0.248	0.256	0.247	0.080
Observations	25,475	3,701	29,176	29,176	29,176

Table 2

The determinants of having the account run by a financial advisor. Probit estimates

	(1)	(2)	(3)
Male	-0.060***	-0.066***	-0.069***
	(12.77)	(14.81)	(15.67)
Married	-0.018***	-0.015***	-0.019***
	(4.74)	(4.17)	(5.02)
Employee	0.035	0.038*	0.038**
	(1.62)	(1.94)	(1.96)
Self-employed	0.064**	0.046*	0.048*
	(2.31)	(1.83)	(1.92)
Experience	0.003***	0.000	0.001
	(10.80)	(1.17)	(1.44)
30< Age <=40	-0.035***	-0.035***	-0.033***
	(3.51)	(3.88)	(3.51)
40< Age <=50	0.014	-0.012	-0.010
	(1.34)	(1.31)	(1.01)
50< Age <=60	0.057***	0.003	0.004
	(4.97)	(0.34)	(0.39)
Age > 60	0.143***	0.037***	0.039***
	(11.12)	(3.49)	(3.36)
Log Account Volume in 2001		0.059***	0.060***
		(41.51)	(38.76)
Bank Branches per Capita			-0.005
			(0.27)
Log Income in Region			-0.009**
			(2.27)
Voter Participation			0.049
			(0.40)
Population with college degree (fraction)			-0.197***
			(3.95)
Observations	28631	28631	28264

Note. The table reports probit estimates for the probability of having a financial advisor. We report marginal effects rather the original probit coefficients. Asymptotic standard errors corrected for clustering at the zip code level are reported in parenthesis.

Table 3

The determinants of log returns and Jensen's Alpha. Instrumental variable estimates

	Log returns		*Jensen's Alfa*	
	(1)	**(2)**	**(3)**	**(4)**
Financial Advisor	-2.037***	-1.893***	-1.922***	-1.840***
	(4.39)	(5.35)	(4.57)	(5.58)
Male	-0.271***	-0.280***	-0.239***	-0.250***
	(8.04)	(9.70)	(7.81)	(9.29)
Married	-0.013	-0.010	-0.009	-0.008
	(0.72)	(0.61)	(0.55)	(0.49)
Employee	-0.062	-0.046	-0.058	-0.042
	(0.78)	(0.66)	(0.82)	(0.66)
Self-employed	-0.056	-0.105	-0.057	-0.098
	(0.66)	(1.45)	(0.75)	(1.47)
Experience	0.022***	0.012***	0.019***	0.010***
	(9.89)	(9.23)	(9.59)	(8.74)
30< Age <=40	-0.088**	-0.113***	-0.060*	-0.084**
	(2.28)	(3.12)	(1.69)	(2.46)
40< Age <=50	-0.036	-0.139***	-0.018	-0.110***
	(0.95)	(3.92)	(0.51)	(3.29)
50< Age <=60	0.103**	-0.073**	0.101**	-0.054
	(2.25)	(1.99)	(2.40)	(1.56)
Age > 60	0.426***	0.136***	0.367***	0.113***
	(5.61)	(3.23)	(5.28)	(2.83)
Log Account Volume in 2001		0.212***		0.191***
		(8.45)		(8.16)
Constant	-0.451***	-2.391***	-0.175**	-1.919***
	(5.13)	(11.19)	(2.19)	(9.63)
Observations	28264	28264	28264	28264

Note. The table reports instrumental variables estimates using the following instruments for financial advice at the zip code level: bank branches per capita, log income in the zip code of residence, voter participation, and fraction of the population with college degree. Asymptotic t-statistics corrected for clustering at the zip code level are reported in parenthesis.

Table 4

The determinants of portfolio variance, Beta and unsystematic risk. Instrumental variable estimates

	Portfolio Variance		*Beta*		*Unsystematic Risk*	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Financial Advisor	0.060***	0.049***	0.440**	0.361***	0.034***	0.028***
	(3.20)	(3.61)	(2.45)	(2.72)	(3.71)	(4.15)
Male	0.014***	0.014***	0.105***	0.107***	0.007***	0.008***
	(10.12)	(12.41)	(7.97)	(9.61)	(11.17)	(13.46)
Married	-0.001**	-0.002***	0.003	0.001	-0.001***	-0.001***
	(1.98)	(2.70)	(0.40)	(0.18)	(3.32)	(4.25)
Employee	0.002	0.002	0.021	0.017	0.001	0.001
	(0.68)	(0.61)	(0.58)	(0.50)	(0.49)	(0.38)
Self-employed	0.003	0.006*	0.019	0.038	0.002	0.004**
	(0.95)	(1.89)	(0.48)	(1.08)	(1.18)	(2.15)
Experience	-0.001***	-0.001***	-0.009***	-0.005***	-0.000***	-0.000***
	(11.52)	(11.41)	(10.22)	(10.17)	(10.70)	(8.76)
30< Age <=40	0.006***	0.007***	0.069***	0.077***	0.002**	0.003***
	(4.09)	(5.19)	(4.74)	(5.63)	(2.44)	(3.33)
40< Age <=50	0.003**	0.008***	0.037***	0.075***	0.001	0.003***
	(2.24)	(5.84)	(2.66)	(5.62)	(0.86)	(4.29)
50< Age <=60	-0.003	0.005***	-0.014	0.051***	-0.002**	0.002***
	(1.49)	(3.76)	(0.81)	(3.67)	(2.26)	(2.89)
Age > 60	-0.018***	-0.005***	-0.166***	-0.058***	-0.009***	-0.001
	(5.92)	(2.89)	(5.69)	(3.63)	(5.62)	(1.58)
Log Account Volume in 2001		-0.009***		-0.076***		-0.005***
		(9.55)		(7.94)		(10.45)
Constant	0.084***	0.170***	1.144***	1.843***	0.043***	0.090***
	(22.13)	(20.15)	(28.22)	(21.93)	(21.62)	(21.12)
Observations	28264	28264	28264	28264	28264	28264

Note. The table reports instrumental variables estimates using the following instruments for financial advice at the zip code level: bank branches per capita, log income in the zip code of residence, voter participation, and fraction of the population with college degree. Asymptotic t-statistics corrected for clustering at the zip code level are reported in parenthesis.

Table 5

The determinants of the probability of low returns. Instrumental variable estimates

	Probability of return less than –5%		*Probability of return less than 0*	
	(1)	**(2)**	**(3)**	**(4)**
Financial Advisor	0.094***	0.088***	0.071***	0.068***
	(3.29)	(4.03)	(3.15)	(3.76)
Male	0.021***	0.022***	0.014***	0.015***
	(9.81)	(11.67)	(8.62)	(9.90)
Married	-0.001	-0.001	-0.001	-0.001
	(0.98)	(1.21)	(1.21)	(1.38)
Employee	0.015**	0.014**	0.014***	0.013***
	(2.33)	(2.31)	(2.67)	(2.67)
Self-employed	0.018***	0.021***	0.018***	0.020***
	(2.69)	(3.46)	(3.34)	(4.07)
Experience	-0.002***	-0.001***	-0.001***	-0.001***
	(11.05)	(10.50)	(11.46)	(11.48)
30< Age <=40	0.007***	0.009***	0.003	0.004**
	(2.75)	(3.56)	(1.49)	(2.14)
40< Age <=50	0.005**	0.012***	0.002	0.007***
	(2.09)	(4.92)	(0.96)	(3.32)
50< Age <=60	-0.003	0.008***	-0.004	0.005**
	(0.97)	(3.29)	(1.42)	(2.11)
Age > 60	-0.025***	-0.007**	-0.018***	-0.005**
	(5.22)	(2.39)	(4.76)	(2.21)
Log Account Volume in 2001		-0.014***		-0.010***
		(8.77)		(7.70)
Constant	0.416***	0.541***	0.454***	0.544***
	(61.78)	(38.12)	(82.96)	(47.07)
Observations	28264	28264	28264	28264

Note. The table reports instrumental variables estimates using the following instruments for financial advice at the zip code level: bank branches per capita, log income in the zip code of residence, voter participation, and fraction of the population with college degree. Asymptotic t-statistics corrected for clustering at the zip code level are reported in parenthesis.

Table 6

The determinants of trading frequency, turnover and diversification. Instrumental variable estimates

	Number of Trades per '00(Account Volume		*Turnover*		*Share of Directly Held Stocks*	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Financial Advisor	1.396***	1.306***	0.304***	0.280***	-0.235	-0.192
	(2.69)	(3.07)	(6.16)	(7.11)	(1.46)	(1.51)
Male	0.254***	0.269***	0.032***	0.032***	0.101***	0.104***
	(7.61)	(8.98)	(9.08)	(10.32)	(8.80)	(9.97)
Married	0.033*	0.031*	0.006***	0.006***	-0.017***	-0.016***
	(1.88)	(1.90)	(3.40)	(3.50)	(2.89)	(2.90)
Employee	-0.004	-0.025	-0.009	-0.010	0.080**	0.077**
	(0.07)	(0.41)	(0.99)	(1.23)	(2.53)	(2.47)
Self-employed	-0.140*	-0.090	-0.020**	-0.015*	0.121***	0.117***
	(1.90)	(1.43)	(2.01)	(1.77)	(3.67)	(3.67)
Experience	-0.017***	-0.006***	-0.002***	-0.001***	-0.007***	-0.008***
	(8.78)	(5.40)	(8.41)	(7.59)	(10.41)	(17.45)
30< Age <=40	0.034	0.063	0.010***	0.011***	0.012	0.013
	(0.78)	(1.54)	(2.72)	(3.46)	(0.90)	(0.98)
40< Age <=50	-0.025	0.091**	0.003	0.012***	0.020	0.019
	(0.60)	(2.34)	(0.82)	(3.60)	(1.54)	(1.45)
50< Age <=60	-0.113**	0.081**	-0.004	0.012***	0.036**	0.034**
	(2.34)	(2.06)	(0.90)	(3.38)	(2.36)	(2.54)
Age > 60	-0.341***	-0.024	-0.034***	-0.008*	0.030	0.024
	(3.83)	(0.46)	(4.29)	(1.84)	(1.17)	(1.57)
Log Account Volume in 2001		-0.240***		-0.018***		-0.000
		(8.54)		(6.57)		(0.01)
Constant	0.274***	2.461***	0.010	0.176***	0.394***	0.391***
	(3.54)	(10.54)	(1.01)	(7.38)	(11.27)	(5.00)
Observations	28264	28264	28264	28264	28264	28264

Note. The table reports instrumental variables estimates for number of trades and turnover, and instrumental variable tobit estimates for the share of directly help stocks using the following instruments for financial advice at the zip code level: bank branches per capita, log income in the zip code of residence, voter participation, and fraction of the population with college degree. Asymptotic t-statistics corrected for clustering at the zip code level are reported in parenthesis.

Table A1
The determinants of log returns, Jensen's Alpha, Portfolio variance and Beta.
OLS estimates

	Log returns	*Alfa*	*Portfolio variance*	*Beta*	*Unsystematic risk*
Financial Advisor	0.298***	0.044***	-0.029***	-0.393***	-0.006***
	(22.23)	(3.14)	(39.42)	(47.94)	(12.47)
Male	-0.122***	-0.118***	0.008***	0.056***	0.005***
	(10.78)	(10.69)	(16.67)	(10.91)	(17.93)
Married	0.040***	0.035***	-0.004***	-0.017***	-0.002***
	(3.52)	(3.17)	(7.79)	(3.78)	(8.41)
Employee	-0.159***	-0.135***	0.006**	0.056*	0.002*
	(3.23)	(3.14)	(2.38)	(1.82)	(1.85)
Self-employed	-0.197***	-0.187***	0.010***	0.076**	0.005***
	(3.83)	(4.10)	(3.91)	(2.46)	(3.90)
Experience	0.014***	0.010***	-0.001***	-0.005***	-0.000***
	(16.62)	(12.09)	(15.05)	(13.43)	(9.89)
30< Age <=40	-0.022	-0.014	0.004***	0.048***	0.001**
	(0.80)	(0.52)	(3.93)	(4.33)	(2.11)
40< Age <=50	-0.059**	-0.067**	0.006***	0.057***	0.002***
	(2.11)	(2.47)	(5.65)	(5.15)	(3.86)
50< Age <=60	-0.017	-0.047	0.005***	0.047***	0.002***
	(0.58)	(1.63)	(4.28)	(4.01)	(3.15)
Age > 60	0.097***	0.015	-0.001	-0.019	0.000
	(3.34)	(0.51)	(0.54)	(1.59)	(0.55)
Log Account Volume in 2001		0.060***	-0.004***	-0.023***	-0.003***
		(13.21)	(20.25)	(12.31)	(24.34)
Constant	-0.646***	-0.880***	0.126***	1.421***	0.071***
	(12.46)	(14.60)	(40.62)	(40.23)	(41.03)
Observations	28631	28631	28631	28631	28631
R-squared	0.03	0.02	0.15	0.17	0.08

Table A2
The determinants of probabilities of low returns, trading frequency, turnover, and diversification. OLS estimates

	Less than -5%	*Less than zero*	*Number of trades*	*Turnover*	*Share of direct stocks (Tobit estimates)*
Financial Advisor	-0.041***	-0.026***	0.113***	0.057***	-0.485***
	(25.90)	(20.17)	(6.59)	(15.57)	(42.63)
Male	0.012***	0.009***	0.188***	0.017***	0.089***
	(14.13)	(10.72)	(14.99)	(15.13)	(14.01)
Married	-0.004***	-0.003***	0.005	0.001	-0.034***
	(5.37)	(4.71)	(0.33)	(1.00)	(6.40)
Employee	0.021***	0.018***	0.040	0.002	0.104***
	(4.38)	(4.53)	(0.85)	(0.44)	(3.18)
Self-employed	0.028***	0.025***	-0.027	-0.003	0.152***
	(5.76)	(6.18)	(0.55)	(0.82)	(4.55)
Experience	-0.001***	-0.001***	-0.006***	-0.001***	-0.008***
	(13.78)	(13.87)	(5.46)	(10.78)	(17.66)
30< Age <=40	0.004*	0.001	0.022	0.004	-0.000
	(1.96)	(0.52)	(0.60)	(1.63)	(0.02)
40< Age <=50	0.009***	0.005**	0.065*	0.007***	0.018
	(4.44)	(2.57)	(1.77)	(3.17)	(1.31)
50< Age <=60	0.008***	0.004**	0.077**	0.011***	0.038***
	(3.61)	(2.12)	(2.07)	(4.68)	(2.61)
Age > 60	-0.000	-0.000	0.037	0.004	0.043***
	(0.06)	(0.24)	(0.89)	(1.56)	(2.83)
Log Account Volume in 2001	-0.005***	-0.003***	-0.156***	-0.002***	0.005**
	(14.00)	(11.48)	(21.85)	(6.00)	(2.51)
Constant	0.469***	0.492***	1.791***	0.051***	0.421***
	(82.03)	(100.33)	(22.70)	(9.12)	(10.89)
Observations	28631	28631	28631	28631	28631
R-squared	0.10	0.06	0.03	0.05	

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