Investing for Others:

Principals' vs. Agents' Preferences

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Abstract: We study the degree to which financial investment advice is driven by the client's preferences, versus the preferences and incentives of the advisor. In a typical financial advice setting, clients can communicate their preferred investment profile to their financial advisor. We observe a high willingness of advisors to follow their clients' preferred investment profiles, but also replicate evidence that advisor preferences also matter for investment choices. However, even though advisors are willing to follow their clients' preferences, they often fail to do so from their clients' perspective. This is because the investment profile terms often used in financial advice are very noisy in their perception and participants associate them with highly heterogeneous investments into risky assets.

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1. Introduction

As part of the revised Markets in Financial Instruments Directive (MiFID II) financial advisors in the European Union are obliged to assess their customers' personal attitudes towards taking risks, their risk tolerance, and their risk bearing capacity (Hallahan et al. 2004). Similarly, investment advisors in the United States of America face a *duty to inquire* and a *duty to give only suitable advice* which entail assessments of the risk tolerance and risk bearing capacity of their clients. Clearly, these are neither easy nor clearly defined tasks and their implementation varies widely ranging from customer risk attitude questionnaires to behavioral measures of risk preferences (Roszkowski and Grable 2005; Grable and Lytton 1999; Kaufmann et al. 2013). Independent of jurisdiction, the goals of these regulatory efforts are to align the interests of clients and advisors and prevent the former from fraudulent exploitation by the latter.

Despite these efforts, financial decisions by advisors are commonly believed to deviate from their clients' interests. This can be the results of two aspects: First, advisors might disregard their clients' preferences and act in (monetary) self-interest, or second, advisors intent to follow their clients' preferences but fail to implement them correctly. The evidence for these aspects is mixed. On the one hand, Chakravarty et al. (2011) find that advisors do not try to act in accordance with what they believe are the risk attitudes of their clients. On the other hand, Füllbrunn and Luhan (2017) report that advisors invest according to what they believe their clients wish to invest for themselves. Importantly, in both laboratory studies the clients were not able to communicate their preference to their advisor. Foerster et al. (2017) study the question using data from Canadian mutual fund dealers. Their data contains both stated investment preferences from Know Your Customer (KYC) forms and actual investment portfolio holdings. They find that advisors own risk attitudes are the strongest predictor for the risky investments on behalf of their clients.

Utilizing a laboratory experiment, we systematically address both aspects: We elicit participants' perceptions of common investment profile terminology used in financial advice, let clients communicate their preferred profile to their advisor, and observe the advisors subsequent investment decisions. In addition, we are able to test the effects of the salience of heterogeneity in clients' investment preferences as well as the effects of different compensation schemes on the behavior of financial advisors.

In a 2-by-3 between-subject design, advisors either take a decision for only one client or for a group of five clients and receive either a fixed payment or earn a share of the profit or the client's outcome. In the first part of our experiment, participants individually and privately map a set of investment profiles, which range in wording from "very conservative" to "aggressive growth", to investment shares into a risky asset. The terms used to describe the investment profiles are commonly used in financial advisory documents (Mutual Fund Dealers Association of Canada, 2014; subsequently MFDA). In the second part, participants take a Gneezy and Potters (1997) investment

decision: Clients choose one of the five investment profiles which is subsequently communicated to their financial agent. Knowing their clients' preferred strategies, financial agents then decide how much of their clients' endowments to invest in the risky asset.

Initially collecting the individual mappings of investment profiles into risky investment shares offers us the unique opportunity to investigate the perception of the profiles and thus to control for mismatches in perceptions in financial advice relationships. We find a sizable overlap of the investment profiles and conclude that risk attitude terms commonly used in financial advice are very noisy in perception. Thus, they offer room for a fundamental misunderstanding between financial advisors and their clients. We can carefully examine the behavior of advisors given their own perception of the investment profiles. Agents follow their clients' investment profiles in 49.3% of the decisions and there are no effects of our treatments on the propensity to do so. In our group treatments, the visibility of several clients makes the heterogeneity of different investment profiles more salient. We find evidence for a high level of differentiation which highlights the agents' willingness to follow their clients' profiles. Even with strong financial incentives for the advisors to disregard their clients' preferences, the clients' preferences still substantially determine the level of investments. We conclude that agents are in general willing to follow their clients' wishes. Finally, we take an outcome perspective and ask whether clients get "what they want". We find evidence of a substantial problem of communication between advisors and clients: That is, even if advisors are highly keen to follow their clients' preferences and actually do so according to their own perception of the investment profiles, they often don't succeed from their clients' perspective, simply because they differ in their understanding of the investment profile.

In addition, we consider two control conditions. In the first, we remove uncertainty about the perception of the different investment strategies. This condition is aimed at removing the fundamental translation error between clients' and advisors' understanding of the investment strategies. In the second control condition, we remove accountability and frame the experiment neutrally, instead of in a financial decision making context. The condition allows us to assess to what degree the possibility of holding advisors accountable for their actions contributes to the large proportion of advisors following their clients' preferences.

The remainder of the article is organized as follows: In the next section we present a short overview of the existing literature on risk taking for others. In the third section we present our experimental design and the procedures. Section four shows the results and section five provides a short discussion of the results. Section six concludes.

2. Related Literature

A growing body of literature on risky decision making for others is focused on determining whether risky decisions for others are different from risky decisions for oneself. If a difference exists, the

question of the direction emerges: Do advisors take higher or lower levels of risk for their clients than they do for themselves? The evidence is mixed. This section provides a short overview of the existing literature. We start by providing some evidence for advisors taking higher levels of risk when deciding for others[1].

Pollmann et al. (2014) employ the Gneezy and Potters (1997) investment task with agents taking decisions for one principal. Comparing their decisions to agents who decide for themselves, they find them taking less risk averse investments when deciding for others. Furthermore, Andersson et al. (2014) use a multiple price list method to study risk taking for others both in situations when losses are possible and when they are not. They do not find any difference in risk levels taken between decisions for themselves and for others if losses are impossible. Still, participants' decisions involve more risk when deciding for others if losses are possible. Another finding is that higher levels of risk are primarily driven by a decrease in loss aversion. Hence, the authors conclude that making decisions for others has a de-biasing advantage over decisions for oneself. This is in line with the findings of Polman (2012). He shows the stable result in several studies that decisions for others involve less loss aversion than decisions for oneself. Moreover, Pahlke et al. (2015) study the effect of being responsible for someone else's payoff on risk attitudes. In the gain domain, they find an increase in risk aversion. However, in the loss domain, they observe more risk seeking behavior. Due to their finding of an increase in risk seeking under responsibility for small probabilities in the gain domain, they reject the hypothesis of a cautious shift when being responsible for other peoples' payoff.

By using both a multiple price list experiment as well as a first-price sealed-bid auction, Chakravarty et al. (2011) find that subjects are less risk averse when deciding for others as compared to deciding for themselves. Further, they apply a belief elicitation method to get to the finding that people do not try to act in accordance with what they believe are the risk attitudes of their principals. Hsee and Weber (1997) investigate how people predict the risk preferences of others and examine possible mechanisms that people may use when estimating others' risk tolerance. They find evidence for the *Risk-as-Feeling*s hypothesis according to which "people predict others to have similar risk preferences to themselves, but they predict others to be more risk neutral than themselves" (Hsee and Weber 1997, p.45). According to this hypothesis people base their predictions of other peoples' risk preferences both on their own feelings towards risk as well as on risk neutrality because they have problems in imagining that people have feelings that are as strong as their own. Hereby the extent to which people base it on their own feelings depends on how vivid the other person is. Thus, when the

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[1] As some studies measure risk seeking behavior and others measure risk aversion, we report both studies which find higher levels of risk seeking as well as lower levels of risk aversion in the subsequent paragraphs.

other person is abstract, they base their predictions to a larger part on risk neutrality and hence overestimate others' willingness to take risks[2].

Besides the findings of increased risk taking in decisions for others, there is also some evidence for lower levels of risk. First, Reynolds et al. (2009) compare decisions of participants when they decide between a safe and a risky option for their own and when they decide between the same options for a group of people. They find them choosing higher levels of risk when deciding for themselves as compared to deciding for others. Eriksen and Kvaløy (2010) find that participants take significantly lower levels of risk when they make investments for other people as compared to making investments for themselves. The authors interpret this finding by means of the empathy gap (Loewenstein, 1996) such that agents underestimate their principals' willingness to take risks. In Charness and Jackson (2009), participants play a stag-hunt game. In one treatment, they take the decision for their own while in the other treatment, a participant takes the decision for another passive participant as well. They find less subjects choosing the risky option when another player earns the same payoff. Montinari and Rancan (2018) use lotteries with negative expected returns. They find participants investing more for themselves than for friends. Yet, they find no difference in investments for themselves and on behalf of a stranger. Bolton and Ockenfels (2010) let participants choose between a risky and a safe option. They compare the decisions when they affect the chooser's payoff only and when they affect both the chooser's as well as another participant's payoff and find that choices are more risk averse in the latter situation[3]. Füllbrunn and Luhan (2017) hold the variety of different designs responsible for the different results. They point out differences concerning the payoff alignment between agents and principals in the existing literature. On the one hand, agents take decisions for their principals only[4] and earn a fixed payment. On the other hand, the same decision is implemented for themselves[5]. In their own experiment, they find evidence for a cautious shift, which is independent of payoff alignment. Additionally, they find that agents invest according to what they believe their principals wish to invest for themselves which stands in contrast to Chakravarty et al. (2011).

By means of our experimental design, we aim to address this controversy. First, we give principals the opportunity to communicate their preferred investment profile to their agent, thereby reducing the information asymmetry. Furthermore, since we know the agents' perception of the investment profiles, we can distinguish two reasons why mismatches happen: Either the agent deliberately chooses not to follow the principals preferred profile or he perceives the profile differently and follows the principals request according to his own notion of the terms.

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[2] The term abstract refers to not seeing that person or having a picture of her.
[3] This holds as long as choosing the safe option does not imply inequality to the detriment of the chooser.
[4] Andersson et al. (2014), Chakravarty et al. (2011), Eriksen & Kvaløy (2010), Montinari & Rancan (2018), Pollmann et al. (2014), Polman (2012), Reynolds et al. (2009)
[5] Andersson et al. (2014), Bolton & Ockenfels (2010), Charness & Jackson (2009), Pahlke et al. (2015)

3. Experimental Design

3.1 Overview

During the course of the computerized laboratory experiment, participants pass three stages and take on both the role of a client and a financial advisor. The experiment starts with the Profile Perception Stage where participants are asked to map investment profiles onto an investment scale ranging from 0 to 100%. In the Preference Stage we elicit participants' own investment preferences as a client. Finally, we put them into the roles of financial advisors to take an investment decision for other participants. In this Investment Stage, financial advisors are informed about their clients' investment preferences before making their decision. The experiment concludes with a short demographics questionnaire.

3.2 Investment Profile Perception

In the Profile Perception Stage, we present participants with investment profile names, which are commonly used in the financial industry[6]. Participants learn that there are two investment opportunities: a safe and a risky asset. We then ask each participant to map the investment profiles into ranges of investment amounts in the risky asset on a scale from 0% to 100%. That is, we ask participants to reveal which levels of investment into a risky asset they think of when confronted with each investment profile. We enforce consistency, i.e. that investment profiles that imply greater risk appetite than others cannot be mapped into lower risky investment levels. The Profile Perception Stage provides us with an individual measure of how participants perceive the investment profiles in terms of the investment ranges in the Gneezy and Potters (1997) setup.

Figure 1, Panel A shows the starting point of the mapping procedure as it was presented to the participants on their screens. Starting with the investment profile *very conservative* participants can successively drag and drop each profile box onto the scale. Participants can adjust the size of each box, i.e. adjust lower and upper limits of an investment amount in the risky asset such that it matches their perception of the investment profile. Panel B shows an example of an intermediate step in the elicitation process. In this example, the participant has already mapped two of the profiles to risky investment levels and has adjusted the ranges they cover. Panel C finally shows an example of the completed elicitation process. The participant perceives a risky asset share of roughly 0-10% to match a *very conservative* profile. The *conservative income* profile covers a wide range of risky asset shares from approximately 10% to 50%. A risky asset share of 50-70% maps into a *balanced* profile. Finally, 70% to 80% and 80% to 100% are considered to be adequate for *growth* and *aggressive growth* profiles, respectively. Note that the full range of 0% to 100% had to be covered by the five profiles. Simply dragging them onto the scale was not enough, as they would only cover about 80% of

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[6] These are used by the Mutual Fund Dealers Association of Canada (2014).

the range by default. Participants had to adjust the size of at least one profile to be able to continue. This was implemented to make sure participants had to familiarize themselves with the range adjustment feature.

FIGURE 1 – INVESTMENT PROFILE PERCEPTION ELICITATION

Panel A

Panel B

Panel C
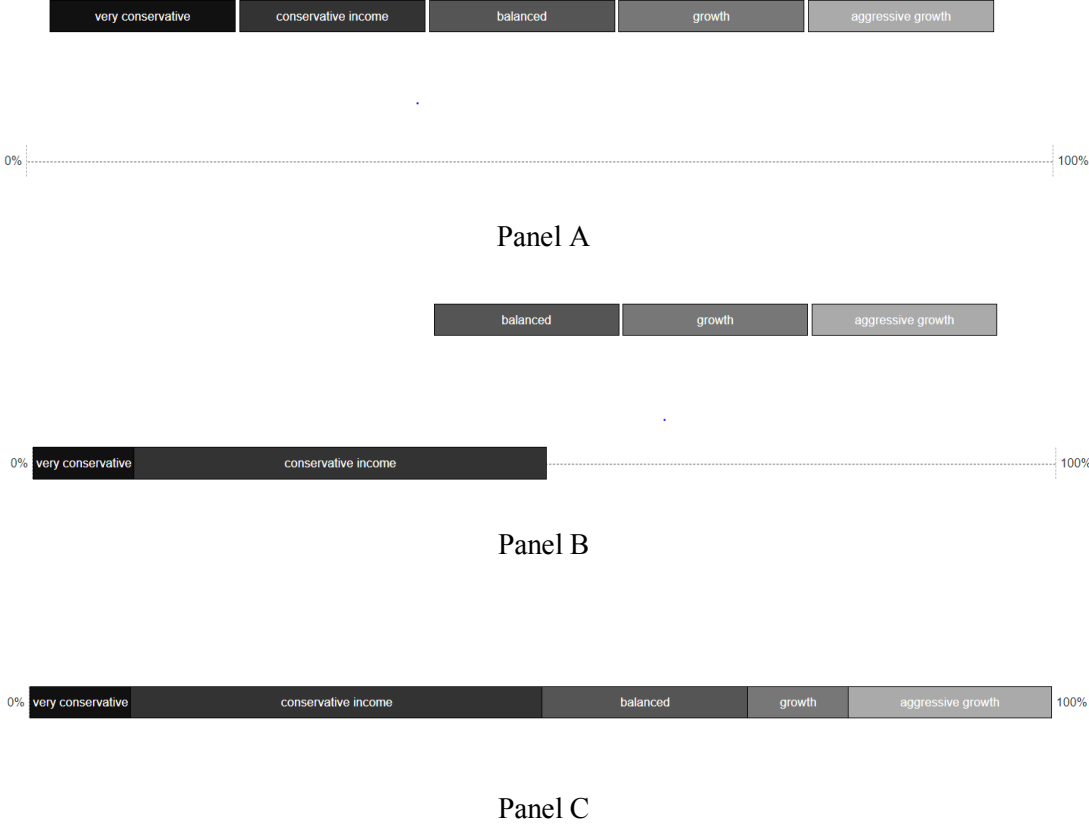
3.3 Investment Preferences

In the Preference Stage, we make participants familiar with the details of the Gneezy and Potters (1997) investment task in the agency setting: The client owns an endowment of 10 Euro which the advisor has to allocate between a safe and a risky asset. The risky asset resembles a lottery and has a return of $+250\%$ with probability $p = 1/3$ and a return of -100% with a probability of $1 - p = 2/3$. The expected return of the risky asset is 16.67%. The safe asset has a return of 0%. The advisor decides to invest an amount $x \in [0,10]$ in the risky asset. The remainder $10 - x$ is automatically put into the safe asset. In this stage, all participants take on the roles of clients and state their investment preference by selecting one of the investment profiles they already encountered in the Profile Perception Stage. The selected profile is then communicated to the advisor in the Investment Stage.

3.4 Investment Decisions

Finally, in the Investment Stage, all participants become financial advisors and make the investment decision for their clients. In this stage, advisors are informed about the investment profile selected by their clients in the Preference Stage. Advisors are not bound by their clients' investment

profile preference, but can freely choose any feasible investment in the risky asset. When deciding on how much to invest on their clients' behalf, advisors have full information: For each client they see the preferred investment profile. For reference, they are also reminded of their own mapping of investment profiles into investment levels in the risky asset. Advisors make their investment decision by moving a slider to set the risky investment for each one of their clients. Next to the slider, advisors see the clients' resulting minimum and maximum payoffs as well as their own resulting minimum and maximum advisor payoffs. The payoff displays update with every move of a slider for instant feedback on the effects of different investment levels. Advisors always take the investment decisions for all of their clients simultaneously on the same screen. This allows them to easily differentiate investments between different profile preferences, if they intend to do so. Figure 2 shows an example of the decision screen.

At this point, agents and clients are also aware of a weak accountability mechanism: After learning about their payoff relevant role, the investment decision of their advisor and their final payoff, clients are asked to send a short message to their advisors expressing their (dis)satisfaction with the investment decision. The pre-defined messages read: "I am [very satisfied / satisfied / dissatisfied / very dissatisfied] with your decision".

FIGURE 2 – AGENTS' DECISION SCREENS

Client		Investment				Payoff Client		Payoff Advisor	
#	Investment Profile	safe			risky	no success	success	no success	success
1	very conservative	9.00€	0% ●——— 100%		1.00€	9.00€	12.50€	5.00€	5.88€
2	very conservative	7.90€	0% —●—— 100%		2.10€	7.90€	15.25€	5.00€	6.84€
3	balanced	6.00€	0% ——●— 100%		4.00€	6.00€	20.00€	5.00€	8.50€
4	growth	0.00€	0% ———— 100%		0.00€ .	0.00€	0.00€	0.00€	0.00€
5	aggressive growth	0.00€	0% ———— 100%		0.00€	0.00€	0.00€	0.00€	0.00€

As a reminder: This is your own mapping of the risk profiles:

0%	very conservative	conservative	balanced	growth	aggressive growth	100%

Note: The figure shows the lower half of the advisors' decision screen in the Group treatments. The first column shows the investment profile communicated by each of the five clients. The next three columns show investments in the safe and risky assets as well as the decision slider which is used to allocate the endowment between the two. In this example, the decision maker has already set investments for the first three clients, but has not started to select investments for the last two (no default slider position). The next two columns show the payoffs the clients receive in the investment success / no success cases. The final two columns show the corresponding payoffs to the advisor. All values in the table update instantly with slider movements. Below the decision table a reminder of the agent's own mapping of the investment profiles to investment shares in the risky asset is shown.

3.5 Treatments

Using a 2-by-3 between-subject design we systematically vary the number of clients on whose behalf advisors have to take the investment decision as well as the payment schemes for advisors. In the Single treatments, advisors take the investment decision for exactly one client whereas in the Group treatments, advisors take the decision for a total of five clients simultaneously. Advisors can set the

investment for each of their five clients individually. In the Fixed payment scheme, advisors get a fixed payment for their investment decision. Under Limited Liability, advisors get a fixed payment plus an additional share of the positive return of the investment decision. That is, they do not face any downside risk. Finally, in the Co-Investment condition, advisors get a fixed payment and a share of their client's portfolio after the investment decision and its outcome have materialized.

Single and Group Treatments

In the Single treatments, the computer matches two participants within a session. We are particularly interested in situations in which a client's and an advisor's preferred investment strategies differ. Therefore, we match them such that we observe the highest possible variability of investment preferences within pairs. Unbeknownst to them, both participants take the investment decision as advisors for each other. After all investment decisions have been made, one of the two participants in a pair is randomly selected to be the payoff-relevant advisor, the other one becomes the client.

In the Group treatments, participants are allocated into groups of six. We introduce this treatment in order to increase the probability of agents observing heterogeneous investment preferences of their clients and hence being able to observe the extent to which they differentiate. Hence, we again match groups to maximize the variability of preferred investment profiles. Every participant takes the investment decision as an advisor for every one of the five other participants in the group. Finally, we randomly select three participants of each group to be the payoff-relevant advisors and randomly match each one of them with one of the remaining three participants, who become clients. We choose three advisors from each group in order to keep the probability of being an advisor constant across treatments. Thus, participants in both the Single and Group conditions face a 50% probability of being paid according to their decisions as financial advisors.

The group size of six participants is motivated by our desire to expose participants to the largest possible variation in investment strategies preferred by their agents. With a group size of six, each participants takes the decision for five clients which is exactly the number of available investment profiles. Indeed, only 4 out of the 108 Group treatment participants faced the maximum variety and observed five different investment profiles. However, 53 of the participants faced four different investment profiles and 47 faced three different ones. Only 4 participants faced two different profiles and there was no case in which participants faced only one profile. In total, 96.3% of our participants faced at least three different investment profiles from their clients and were thus exposed to a reasonable degree of heterogeneity.

Payment Schemes

We further systematically vary three payment schemes put in place for the financial advisors. Under all payment schemes clients get paid according to the investment task. In the Fixed payment scheme advisors get a fixed payment of 5 Euro whereas in the Co-Investment and Limited Liability payment

scheme, advisors' pay is partially linked to their investment decision(s). Under the Limited Liability compensation scheme, advisors receive a fixed payment of 5 Euro plus a share of 35% on the positive return of their corresponding clients. That is, advisors do not face any downside risk, because their compensation is bounded below by the fixed payment, which is independent from investment success. However, they do have clear and substantial risk taking incentives to increase their own payoffs, creating a situation of limited liability.

The Co-Investment compensation scheme lies in between the two extremes. Under this compensation scheme, advisors receive a fixed payment of 5 Euro plus a share of 25% on the payoff of their corresponding clients. In contrast to the Limited Liability treatment, advisors' face a downside risk because they can also lose by choosing riskier investments. Still, advisors' expected earnings increase as they invest more in the risky asset. That is, advisors face a similar payoff structure as their clients but in an attenuated form: The variance in payoff is lower as compared to their clients' and in worst case, they end up with a payoff of 5 Euro whereas their clients can end up with a payoff of zero.

To simplify the experiment, advisors' compensations are always paid by the experimenter and do not come out of clients' portfolios. Figure 3 shows the advisors' earnings as a function of the investment in the risky asset for our payment schemes.

FIGURE 3 – COMPENSATION SCHEMES ADVISORS

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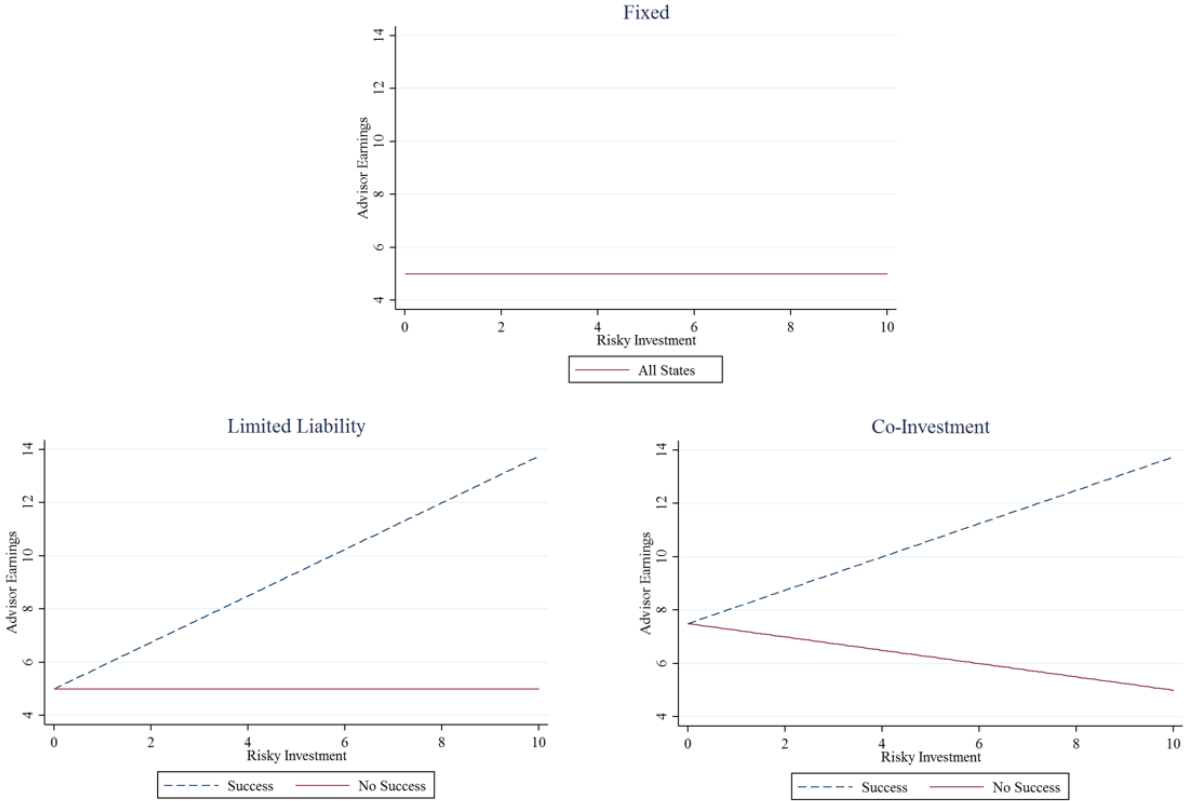
Additional Control Treatments

We also conduct two additional control treatments. The first aims at examining how the uncertainty surrounding the understanding of the investment profiles affects the decisions. Thus, in the *Certainty* treatment, we modify the profile perception stage, while all other stages stay unchanged. In contrast to our main treatments, we do not elicit participants' perception of each investment strategy. We rather establish a common understanding of these terms. This is done by showing participants the five investment profiles and explicitly defining how they are supposed to map into different investment levels. Each investment profile now covers a fixed range of 20% as shown in Figure 4. Fixing the perception of the profiles removes the possibility of observing unintended mismatches: If an advisor follows his client's preferred profile, the client will perceive the advisor's behavior as in line with his investment request by design. If there is a mismatch, it must be because of advisors deliberately choosing an investment that is incompatible with clients' preferences. The remaining experiment stays unchanged: Clients pick their preferred investment profile which is communicated to their advisor. Advisors make the investment decisions. The compensation is analogous to the Limited Liability treatment. We only run the Single variant of our design for the Certainty condition.

FIGURE 4 – PREFERENCE PERCEPTION STAGE
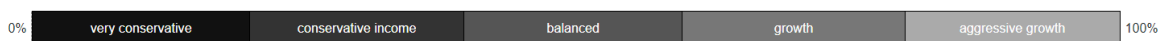
Note: We establish a common understanding of the investment strategies by fixing each interval to a size of 20%.

Note that our main treatments all include accountability aspects: 1) the experiment is framed in a finance context; 2) clients can tell their advisors how they would like them to invest; and 3) clients can send messages expressing their satisfaction or dissatisfaction with their advisors' decision after they learn about the investment decision and its outcome. In a second control condition, we remove these aspects. The experiment is neutrally framed[7], there is no elicitation and explicit communication of investment preferences, and clients can no longer express their satisfaction or dissatisfaction with the advisors' decisions. In line with the first control condition, we again run the Single / Limited Liability variant only.

3.6 Procedures

The experiment was conducted in the experimental laboratory at Heidelberg University in Germany. Sessions were organized with the software Hroot (Bock et al. 2014) and the experiment was programmed using oTree (Chen et al. 2016). Participants entered the laboratory and were randomly

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[7] We use "decision maker" and "recipient" instead of "advisor" and "client".

placed at one of the 20 separated computers. All instructions were displayed on-screen and questions were answered in private. We ensure understanding of the instructions by letting participants advance through the instruction section only after answering a set of comprehension questions correctly. The experiment concluded with a short demographic questionnaire. Participants received cash payments in private and were dismissed from the laboratory. A total of 434 participants took part in the experiment (56.2% female, 30.2% economics students, average age: 23.0). In total we ran 26 sessions (6x 3 for the main treatments and 2x 4 for the additional control conditions) with 324 participants in the main treatments and 110 participants in the controls. Each session lasted about 45 minutes and participants earned an average amount of 11.85 Euro including a show up fee of 4 Euro.

4. Results

Our main intention is to investigate what drives risky investment shares in an agency setting. To do so, we divide the analysis into two subparts. We focus on advisors' behavior first and investigate whether they follow their clients' profiles or rather base their decision on their own risk preference. Next, we take on the perspective of clients and investigate whether they "get what they want". As an intermediate step, we examine the perception of the investment profiles and how differences thereof might affect the decisions taken. Unless otherwise stated, we base the results on our six main treatment conditions. We only draw upon the data from our control conditions in the discussions in section five.

4.1 Advisors' Behavior

Visual Inspection

We start our analysis by an examination of the investments in the risky asset. We are interested in whether advisors follow their clients' preferred investment profiles or if they implement investments that correspond to their own risk preference.

FIGURE 5 – INVESTMENT IN THE RISKY ASSET BY CLIENTS' AND ADVISORS' PROFILES
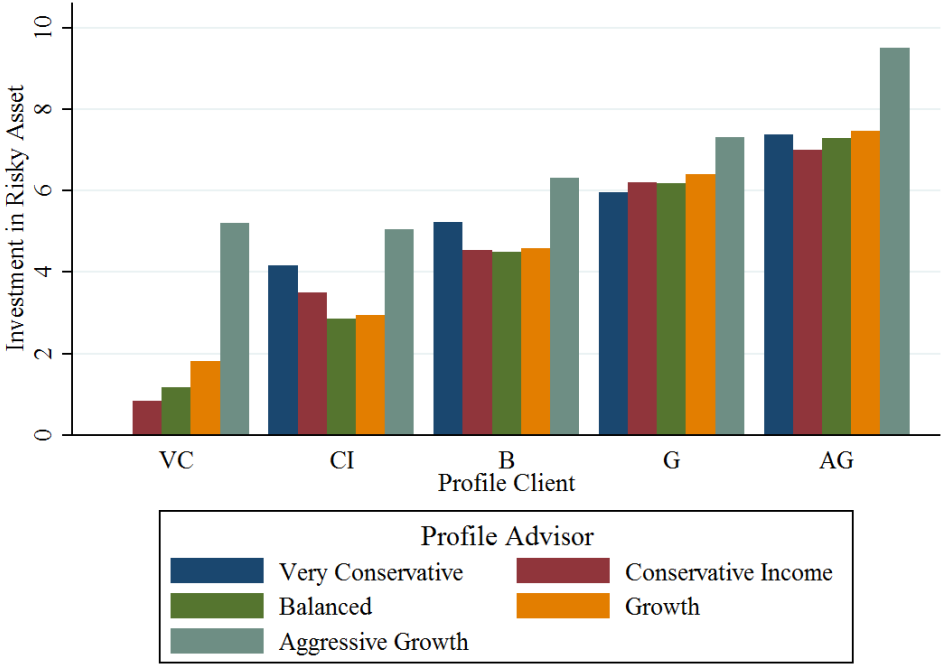

Note: This figure shows the average investments in the risky asset for each client and advisor profile combination. Profile Client refers to the preferred investment strategy of the client while Profile Advisor refers to the preferred investment profile of an advisor chosen in the preference stage. VC, CI, B, G and AG denote the investment profiles Very Conservative, Conservative Income, Balanced, Growth and Aggressive Growth, respectively.

Figure 5 shows the average investment in the risky asset for different combinations for the clients' and advisors' preferred investment strategies. In line with Foerster et al. (2017), we find that advisors' own risk preferences influence the risk they take on behalf of their clients. Within each profile preferred by clients, we find that the average investment in the risky asset increases with the

preferred profile of the advisor. A first visual inspection reveals that both the risk preference of the client as well as the risk preference of the advisor seem to play a role when taking risky decisions on behalf of others.

As a second step, we are interested in whether advisors follow their clients' investment profile given how they perceive the scale of investments in the risky assets and the profile of their client. That is, we base the analysis in this section on whether advisors implement the profile of their clients according to the advisors' perception, irrespective of how the client himself perceives the profile. As an example, suppose an advisor stated in the elicitation stage to perceive investment levels in the risky asset between 40% and 60% of the endowment as *balanced*. Suppose further that his client communicated the profile *balanced* to him. If the advisor then decides to invest 50% of his clients' endowment in the risky asset, he follows his client according to our definition given above.

FIGURE 6 – IMPLEMENTATION OF THE INVESTMENT PROFILES
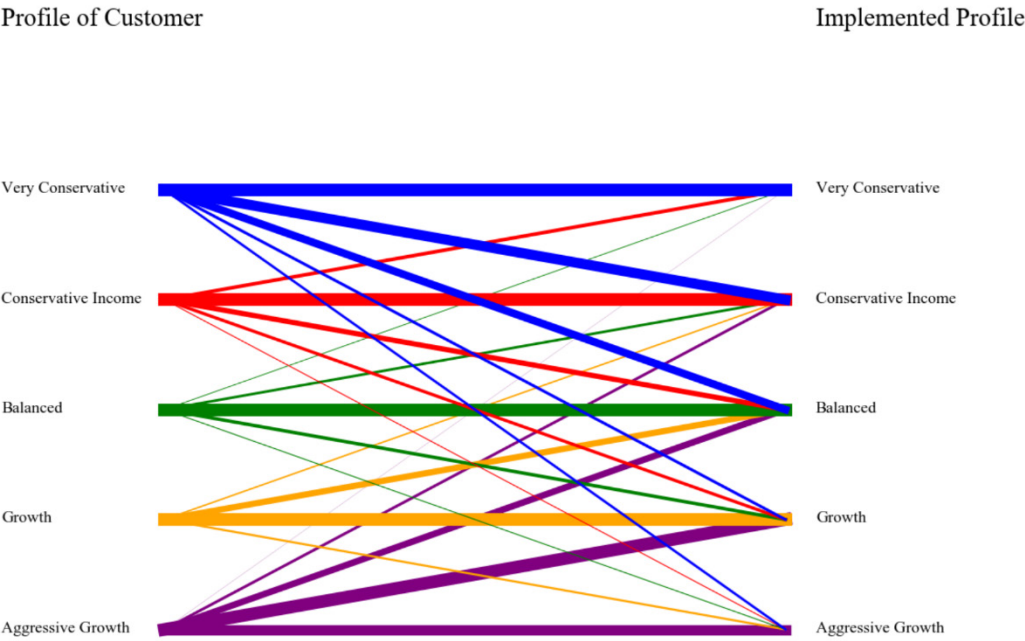
Notes: The left-hand side shows the profiles communicated by the client to the advisor. The right-hand side shows the profiles which were actually implemented by the advisor given his perception of the profiles. The width of the lines illustrates the frequencies that given a left-hand side profile, a right-hand side profile was implemented.

Figure 6 shows which profiles advisors implement knowing the preferred profiles of their clients. The width of the lines illustrates the frequencies. As an example, consider all situations in which advisors face customers who demand balanced profiles. In most cases, advisors follow their clients. This is illustrated by the green horizontal line. However, there are also some advisors who choose to invest according to a *growth-oriented* profile although their client preferred *balanced*. This is illustrated by the green line from *balanced* to *growth*. There are also cases in which agents invest

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either *very conservatively, conservative income-oriented* or *aggressively growth-oriented* when their client asked them to implement a *balanced* profile. Those cases are indicated by the remaining thin green lines. Visual inspection reveals that the largest proportion of advisors follow their clients for any investment profile. Indeed, in 49.3% of the decisions over all main treatments, advisors follow their clients' preferred investment profile[8]. This is despite the fact that none of our payment schemes provides incentives to follow the clients' wishes. In contrary, the Limited Liability conditions even unambiguously incentivizes advisors to take risks above and beyond their client's preferences for own monetary gain.

TABLE 1 – RISKY INVESTMENT SHARES BY TREATMENT CONDITION

| | Compensation | | |
	Fixed	Co-Investment	Limited Liability
Single	47.8%	50.7%	50.9%
Group	46.9%	50.1%	56.5%

Note: For Single the number of observations is 54 for each compensation treatment. For Group it is 270, because we observe five investments decisions (not independent) for each participant.

Risky Investment Shares

Table 1 provides an overview of risky investment shares separated by treatment conditions. In order to investigate advisors' investment behavior more formally and test for treatment differences, we use OLS regressions to estimate the investment in the risky asset. In specification (1) we regress the risky share on the advisors' and the clients' preferred investment profiles, representing their risk preferences. In specification (2) we add treatment indicators and their interactions, as well as control variables. Table 2 reports the results. Disregarding treatment differences, clients' and advisors' preferred investment strategies already explain a large fraction of the observed variation. The effect of clients' preference on the amount invested into the risky asset is larger than the effect of advisors' preferences (F-test, p-value < 0.01 for specifications (1) and (2)). When considering our treatment conditions, we observe that investments are lower in the group conditions under fixed payments, but react differentially to the two other compensation schemes. We therefore conclude that advisors base their investment decisions to large parts on their clients' preferences but also take their own risk preferences into account. This is generally in line with the visual impression of Figures 5 and 6.

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[8] If we allow for a 'wiggle room' of 5 percentage points (0.50€ in the investment task) for the perception of the profiles, advisors follow their clients in 59.9% of the decisions.

TABLE 2 – REGRESSION ANALYSIS INVESTMENTS IN THE RISKY ASSET

	Investment in Risky Asset	Investment in Risky Asset
	(1)	(2)
CI Treatment		0.02
		(0.35)
LL Treatment		-0.05
		(0.35)
Group Treatment		-0.44*
		(0.26)
CI × Group		0.92**
		(0.45)
LL × Group		0.88*
		(0.49)
Profile Client	1.49***	1.52***
	(0.07)	(0.07)
Profile Advisor	0.28**	0.30**
	(0.13)	(0.13)
Age		0.05
		(0.03)
Female		0.01
		(0.24)
Constant	-0.60	-2.07**
	(0.47)	(0.87)
Observations	972	972
R^2	0.37	0.40

Notes: We report OLS regression coefficient estimates with robust standard errors in parentheses. The standard errors are clustered on the individual level. The dependent variable is investment in the risky asset. CI and LL indicate the treatment conditions Co-investment and Limited Liability, respectively. Profile Client indicates the category the client has chosen as preferred investment strategy. Profile Advisor indicates the profile the advisor has chosen as preferred investment strategy in the Preference Stage. ***/**/* indicate significance at 1%/5%/10%.

TABLE 3 – OVERINVESTMENT IN THE RISKY ASSET

	Overinvestment (1)	Overinvestment (2)
CI Treatment		0.07
		(0.35)
LL Treatment		0.11
		(0.38)
Group Treatment		-0.24
		(0.28)
CI × Group		0.60
		(0.46)
LL × Group		0.65
		(0.53)
Midpoint Profile Client	-0.44***	-0.43***
	(0.04)	(0.04)
Midpoint Profile Advisor	0.08	0.06
	(0.06)	(0.06)
Age		0.04
		(0.03)
Female		-0.41*
		(0.25)
Constant	2.02***	1.23
	(0.33)	(0.83)
Observations	972	972
R^2	0.22	0.24

Notes: Robust standard errors are clustered on the individual level and reported in parentheses. The dependent variable is overinvestment in the risky asset and is defined as the difference between the actual investment in the risky asset and the midpoint of the client's preferred profile (according to the agents' perception of the profile). CI and LL indicate the treatment conditions Co-investment and Limited Liability, respectively. Midpoint Profile Client indicates the midpoint of the profile the client has chosen as preferred investment strategy (according to the advisor's perception of the profile). Midpoint Profile Advisor indicates the midpoint of the profile the advisor has chosen as preferred investment strategy. ***/**/* indicate significance at 1%/5%/10%.

Overinvestment

Advisors can freely decide how much to invest for their clients. If advisors want to adhere to their clients' preferences, they are limited to investment levels they perceive to be compatible with the stated preferences. However, they still have discretionary power as there is always a range of compatible investment levels for any given client preference by design of our experiment. We can rely on this feature to get a more fine-grained measure of the advisors' behavior by defining a measure of what we call *overinvestment*. We define the overinvestment as the difference between an advisors' investment in the risky asset and the midpoint of the range of investment levels which is compatible with the client's preferred profile from the advisor's perspective.

We regress our measure of overinvestment on the midpoint of the interval consistent with the clients preference to account for the level at which the overinvestment takes place. In addition, we also add the midpoints of the investment profiles the advisors pick for themselves. This represents the advisors' risk preferences similar to the profile indicators we added in earlier regressions. Finally, we add the usual set of treatment indicators and their interactions. Table 3 reports the results of these

estimations. First, we find no support for treatment effects on overinvestment. Secondly, overinvestment is statistically significantly lower for more risky profiles. This effect suggests that there is conservatism in advisor's investment choices, a tendency to choose balanced profiles rather than extreme investment profiles. This is also apparent in Figure 6.

Differentiation Between Preferences

While we observe that about half of our advisors factually do not invest in a way that is in line with their clients' preferences, they might still have the intent to do so, but fail in implementing their intent. The group treatment makes the heterogeneity of different investment profiles among an advisor's clients salient. The advisors in this condition are aware that clients have different tastes. By measuring how strongly individual advisors differentiate between customers with different investment profile preferences, we can uncover the advisors' intentions to follow their customers' preferences. The more they take their clients into account, the stronger they should differentiate investments between profiles. The less importance they put on clients' preferences, the more similar should be the invested amounts for all clients. Furthermore, we are interested in whether the compensation scheme affects the extent of differentiation between clients with different investment preferences.

Due to the monetary incentives under the Limited Liability compensation, we expect advisors to invest more and differentiate less as compared to the Fixed treatment. Figures 7, 8 and 9 show the investments chosen by each advisor for his five clients and illustrate how they differentiate for different investment profiles under the different compensation schemes. The visual inspection points towards high levels of differentiation. Under the Limited Liability compensation multiple advisors ignore their clients' investment profiles and choose the highest investment level for any client (see for example agents 81, 93, 140, 174, 202, 206 in Figure 8). Nevertheless, a majority of advisors still differentiates between different investment profiles to some degree, which highlights advisors' willingness to follow their clients. It makes salient that even under the Limited Liability condition, advisors differentiate and are willing to forgo higher expected payoffs in order to implement their clients' investment profiles. This confirms our prior finding that advisors strongly consider their clients' preferences when taking a risky investment decision on their behalf. Figure 10 aggregates the fitted values for our three compensation schemes. It summarizes the findings from above: The degree of differentiation is highest under the Fixed compensation and lowest under the Limited Liability compensation. The correlation coefficients are all positive and significantly different from zero (Fixed: $\rho = 0.79$, p < 0.01; Limited Liability: $\rho = 0.49$, p < 0.01; Co-Investment: $\rho = 0.61$, p < 0.01, all of them are spearman correlation coefficients). The correlation between the clients' profiles and the investment in the risky asset is strongest under Fixed compensation and (marginally) significantly different from both correlations under Limited Liability (0.79 vs. 0.49, p < 0.01) and Co-Investment compensation (0.79 vs. 0.61, p = 0.055).

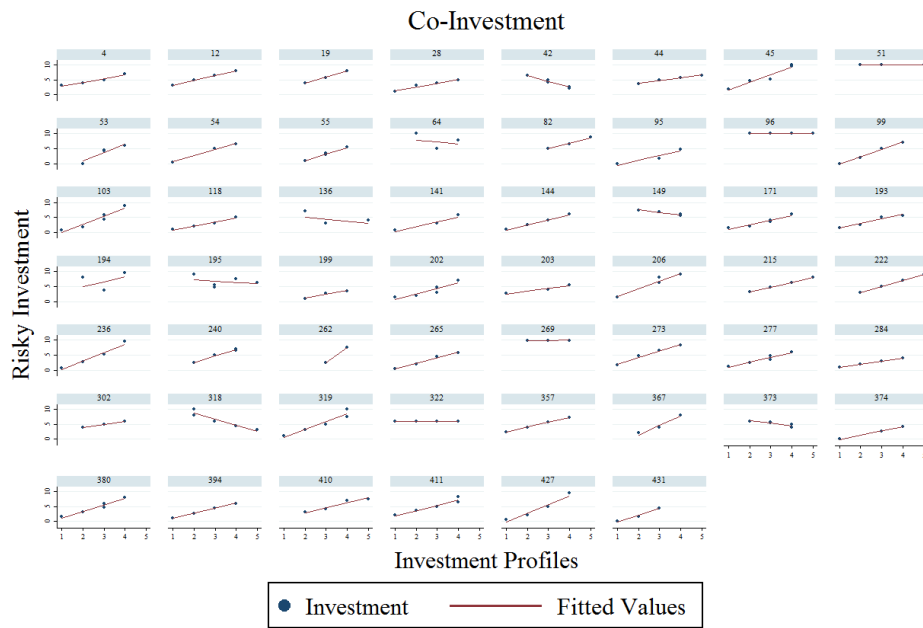FIGURE 7 – RISKY INVESTMENT BY AGENT IN FIXED TREATMENT

Notes: The graph shows for each participant in the Fixed/Group treatment the investment given the communicated profiles of his clients as well as the fitted values.

FIGURE 8 – RISKY INVESTMENT BY AGENT IN THE LIMITED LIABILITY TREATMENT
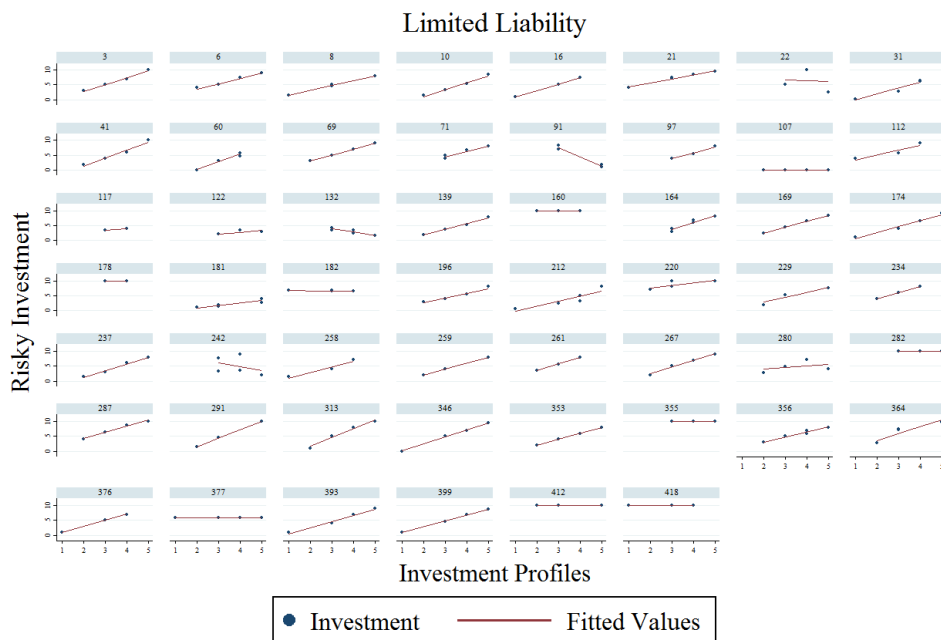
Notes: The graph shows for each participant in the Limited Liability/Group treatment the investment given the communicated profiles of his clients as well as the fitted values.

FIGURE 9 – RISKY INVESTMENT BY AGENT IN THE CO-INVESTMENT TREATMENT

Notes: The graph shows for each participant in the Co-Investment/Group treatment the investment given the communicated profiles of his clients as well as the fitted values.

FIGURE 10 – RISKY INVESTMENTS IN GROUP TREATMENTS BY COMPENSATION SCHEME
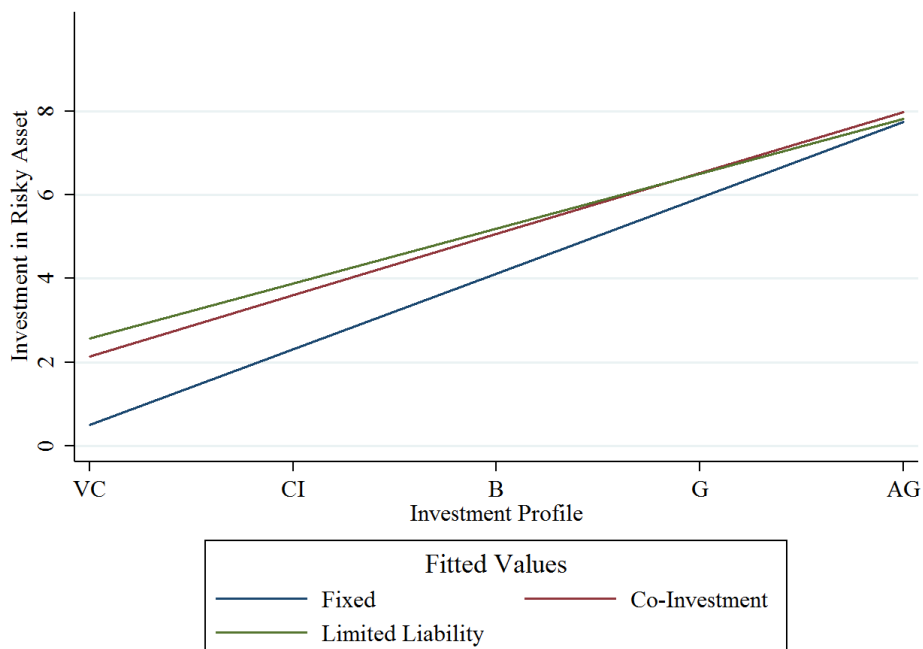
Notes: The graph shows aggregated investments for each communicated investment profile in the Group conditions. We plot separately fitted values for each compensation scheme.

FIGURE 11 – PERCEPTION OF INVESTMENT PROFILES
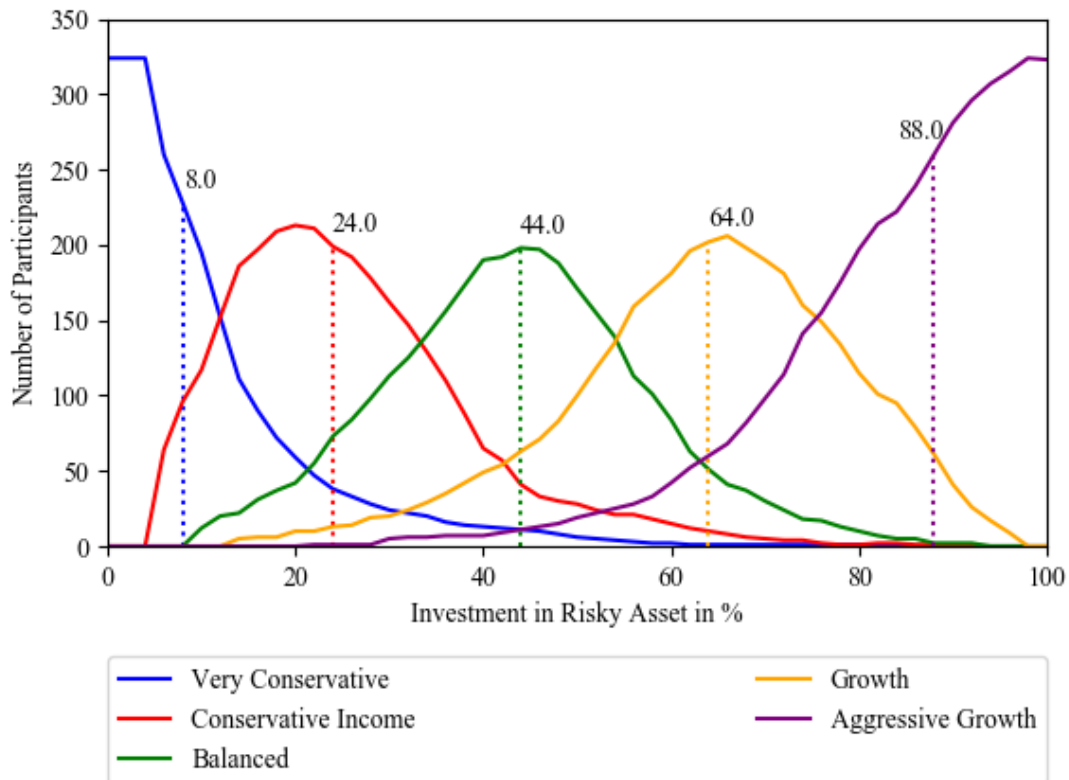
Note: For each possible investment share in the risky asset, the graph shows the number of participants who mapped the respective investment profile to the investment share. The individual distributions are labeled with their medians.

4.2 Clients' Perspective

We now turn to investigating how people perceive the investment profiles. Figure 11 shows the distributions of perceptions of the different investment profiles in our sample. The figure highlights a sizeable overlap of the profiles. For instance, investments in the risky asset between 30% and 60% of the endowment are perceived to match any of the available investment profiles by some participants. Consequently, there is a high degree of heterogeneity in the perception of the different investment profiles and it is far from obvious what they mean to people subjectively. Moreover, the left-shifted medians[9] in Figure 11 provide slight evidence for risk aversion in the perception of risky investments. Taken together, the investment profiles commonly used in financial advice appear to be very noisy in their perception.

The most interesting aspect for clients, naturally, is whether they end up with an investment level that is compatible with the preference they indicated to their agents, i.e. whether clients "get what they want". Across all treatments, this is only the case for 43.8% of all clients. Table 4 breaks this down by treatment conditions. Each cell shows the percentage of clients that get what they want. For

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[9] In comparison to a uniform distribution in which each one of the five categories covers 20% of the scale.

the group treatments, clients seem to get what they prefer more often compared to the single treatments, however none of the differences are statistically significant.

TABLE 4 – SHARE OF CLIENTS WHO GET WHAT THEY WANT

| | Compensation | | |
	Fixed	Co-Investment	Limited Liability
Single	42.6%	42.6%	40.7%
Group	54.4%	45.6%	45.9%

Notes: The table reports the share of clients who get what they prefer according to their own perception of the investment strategies.

Given this dire picture, one might reasonably ask whether the situation remains the same if we restrict the analysis to those agents, who, according to their knowledge, did their best to implement the profiles preferred by their clients. For only 61.6% of these investments, clients perceive the investment as being compatible with their preferred investment profile. Expressed differently, in 38.4% of the decisions in which agents try to implement their clients' preferred investment profiles, they fail to comply from their clients' point of view. With 19.2% of clients perceiving the decision being lower than preferred and 19.2% perceiving the decision as being higher than preferred there seems to be no systematic deviation but simply a mismatch in communication on how the strategies are translated into investments in the risky asset. These results are depicted in Figure 12.

FIGURE 12 – TRANSLATION ERROR

Principals' Perception when Agents followed According to their Own Perception
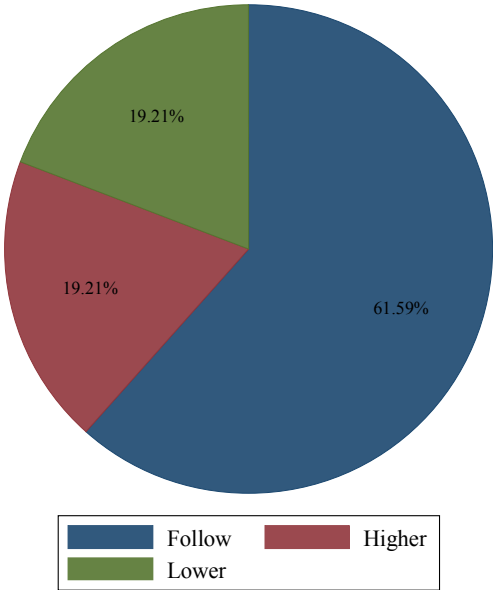
Notes: The graph shows how clients perceive the decisions in which advisors followed their preferred investment profile according to the agents' perception of the profile.

5. Discussion

Our results suggest that advisors are in general willing to follow their clients' preferences. Even under unambiguous monetary incentives to take larger risks, advisors strongly consider their clients' preferred investment profiles. Yet, our results hint at an explanation why financial advisors could be perceived to deviate from their clients' preferences. We find evidence for a fundamental problem of communication in financial advice when relying on the use of investment profile terminology. There is a large degree of heterogeneity in the perception of these profiles, which opens up the door for unintended mismatches between advisors' decisions and clients' preferences. The question arises whether this translation error can be reduced by better defining the investment profiles and fostering a common understanding between advisors and their clients.

To shed some light on this issue, we conducted the *Certainty* treatment as described before. By design, there is no room for translation error. Disregarding advisors intentions, we find that 42.6% of the clients in this treatment get what they prefer. This is not significantly different from the 40.7% (test of proportions, $p = 0.85$) in the most comparable Single/Limited Liability treatment. In terms of the outcome clients end up with, the Certainty treatment does not seem to make a difference. However, there are opposing effects acting behind the scenes. In our main treatment, clients may end up with an investment that is compatible with their preferences, despite the fact that their advisor did not intent to implement it. This can happen by chance because of the different perceptions of the investment profiles.

Therefore, a more adequate test of the effects of Certainty is to consider only those observations from our Single/Limited Liability treatment, in which the advisors' intent is to implement the clients' preferences. Limiting the analysis to these observations reveals that the possibility of translation error leads to clients getting an investment they are comfortable with in 46.2% of the cases, substantially less than the 100% in the Certainty case who correctly implement if it is their intention to do so (test of proportions, $p < 0.01$). However, the Certainty treatment also shows that the absence of uncertainty about the clients' perception of the investment profiles increases the effect of incentives on agents' behavior. Investments in Certainty are higher than in the main Single / Limited Liability treatment after controlling for advisors' and clients' preferences.[10] The share of advisors who invest more than preferred by their clients is significantly larger than the share of advisors who invest less than preferred in the Certainty treatment (test of proportions, 0.44 vs. 0.13, $p < 0.01$). This is not the case for the Single / Limited Liability treatment under uncertainty (test of proportions, 0.30 vs. 0.22, $p = 0.38$).

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[10] We regress investment in the risky asset on a Certainty treatment indicator and advisors' and clients' preferred investment profiles. The OLS coefficient estimate for the Certainty indicator is 1.19, $p < 0.05$.

The consistently high degree to which advisors follow their clients' preferences in our experiment is quite remarkable. While observing larger heterogeneity in preferences among clients (group treatments) appears to increase differentiation as well as investment levels slightly, different incentive schemes do not have much of an effect on investment levels. We hypothesize that the accountability aspect, which is common to all of our main treatments, could be the driving force behind this result. Recall that in all treatment conditions, accountability can stem from multiple sources: First, clients tell advisors how to invest for them. Second, clients can always hold their advisors directly accountable for their decision by sending messages of satisfaction or dissatisfaction with the investment decisions after the fact. Finally, the clear and consistent framing of the experiment as a situation of financial decision making might instill a heightened feeling of responsibility in agents for their clients' well-being. After all, financial decisions are often considered a matter of mutual trust. To investigate to which degree accountability affects our findings, we conduct our second, additional control treatment *No Accountability*. As described in the design section, we remove all elements which could reasonably make advisors feel accountable for their actions, yet, we do not find a significant increase in the risky investment shares. It seems that advisors have a feeling of responsibility for their clients, even in the absence of accountability-enhancing design aspects.

6. Conclusion

We study whether financial advisors behave in ways clients desire when making risky investments on their behalf. In general, we observe a high willingness of advisors to follow their clients' preferred investment profiles. Even in light of unambiguous monetary incentives to disregard their clients' preferences, advisors still differentiate between various investment profiles. By means of our experimental design, we also study the financial advice relationship from another perspective: We examine how clients perceive the investment decisions taken by advisors on their behalf. This reveals that even though advisors are highly keen to follow their clients' preferred investment profiles, they often fail to achieve their goal from their principals' perspective. One reason for this is that the investment profile terminology, which is often used in financial advice, is very noisy in their perception and people associate them with highly heterogeneous investments into risky assets.

Our results have practical implications for financial advice: In spite of the common perception that financial advisors deviate from their clients' interests, we find advisors to be in general willing to follow their clients' preferences. This still holds under compensation schemes which provide strong financial incentives for advisors to take large risks. However, our findings also point to a fundamental problem in the communication of investment preferences in financial advice. Misunderstanding between advisors and clients are abundant and thus might strengthen the common perception that financial decisions taken by advisors deviate from their clients' interests.

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