

Kirchler, Michael; Lindner, Florian; Weitzel, Utz

**Working Paper**

## Delegated decision making and social competition in the finance industry

Working Papers in Economics and Statistics, No. 2018-07

**Provided in Cooperation with:**

Institute of Public Finance, University of Innsbruck

*Suggested Citation:* Kirchler, Michael; Lindner, Florian; Weitzel, Utz (2018) : Delegated decision making and social competition in the finance industry, Working Papers in Economics and Statistics, No. 2018-07, University of Innsbruck, Research Platform Empirical and Experimental Economics (eeecon), Innsbruck

This Version is available at:

<https://hdl.handle.net/10419/184985>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# Delegated decision making and social competition in the finance industry

**Michael Kirchler, Florian Lindner, Utz Weitzel**

Working Papers in Economics and Statistics

2018-07



**University of Innsbruck**  
**Working Papers in Economics and Statistics**

The series is jointly edited and published by

- Department of Banking and Finance
- Department of Economics
- Department of Public Finance
- Department of Statistics

Contact address of the editor:  
research platform "Empirical and Experimental Economics"  
University of Innsbruck  
Universitaetsstrasse 15  
A-6020 Innsbruck  
Austria  
Tel: + 43 512 507 71022  
Fax: + 43 512 507 2970  
E-mail: [eeecon@uibk.ac.at](mailto:eeecon@uibk.ac.at)

The most recent version of all working papers can be downloaded at  
<https://www.uibk.ac.at/eeecon/wopec/>

For a list of recent papers see the backpages of this paper.

# Delegated Decision Making and Social Competition in the Finance Industry\*

Michael Kirchler, Florian Lindner, and Utz Weitzel<sup>†</sup>

May 12, 2018

## Abstract

Two aspects of social context are central to the finance industry: (i) financial professionals make investment decisions for customers and (ii) social competition/rankings are a pervasive feature. We link both lines of literature to investigate professionals' risk-taking behavior when investing funds for clients. We run online and lab-in-the-field experiments with 965 financial professionals and collect survey evidence from 1,349 respondents. We find that rankings drive professionals' investment behavior: those lagging behind increase risk-taking, but this effect disappears as soon as professionals' incentives are flat. Moreover, we show that professionals' preferences for high rank are stronger than for the general population.

JEL: G02, G11, D03, C93

Keywords: Experimental finance, behavioral finance, social competition, rank incentives, financial professionals, delegated decision making, investment game, lab-in-the-field experiment.

---

\*We thank Sascha Füllbrunn, Matthias Stefan, Matthias Sutter, Erik Wengström, seminar participants at the Universities of Innsbruck and Nijmegen, the Max Planck Institute for Research on Collective Goods, as well as conference participants of the Innsbruck Winter School on Credence Goods, Incentives, and Behavior 2017 for very valuable comments on earlier versions of this paper. We are grateful to Achiel Fenneman, Dirk-Jan Janssen, Patricia Leitner, Fritz Pöhlmann, Lorenz Titzler, Alexander Wolf, and Jan Zatocil for excellent research assistance. We particularly thank Rani Piputri and all financial institutions and participating professionals for the excellent collaboration and their enthusiasm. Financial support from the Austrian Science Fund (FWF START-grant Y617-G11, SFB F63), Radboud University and the Swedish Research Council (grant 2015-01713) is gratefully acknowledged. This study was ethically approved by the IRB of the University of Innsbruck.

<sup>†</sup>Kirchler: Corresponding author. University of Innsbruck, Department of Banking and Finance, Universitätsstrasse 15, 6020 Innsbruck, and University of Gothenburg, Department of Economics, Centre for Finance, Vasagatan 1, 40530 Gothenburg. Phone: +43 512 507 73014, E-mail: michael.kirchler@uibk.ac.at. Lindner: Max Planck Institute for Research on Collective Goods, Kurt-Schumacher-Str. 10, 53113 Bonn. E-mail: florian.r.lindner@gmail.com. Weitzel: Utrecht University School of Economics, Kriekenpitplein 21-22, 3584 EC Utrecht, E-mail: u.weitzel@uu.nl; Radboud University, Institute for Management Research, Thomas van Aquinstraat 5.1.26, 6525 Nijmegen. E-mail: u.weitzel@uu.nl.



Research in Economics and Finance has traditionally focused on individual decision making without considering the social context of decision makers (e.g., Holt and Laury, 2002; Abdellaoui et al., 2011; Dohmen et al., 2011; Falk et al., 2015). Particularly on financial markets a financial professional is rarely the person that is affected most by his decisions and, in addition, actions of peers influence his behavior as well. Hence, two dimensions of social context are crucial for professional decision making in financial markets: first, many professionals (e.g., financial advisers, fund managers) decide for third parties like customers and not for themselves (Eriksen and Kvaloy, 2010; Andersson et al., 2016). Second, professionals compete for rank against their peers and often face incentives with tournament components, potentially elevating preferences for social competition (Diamond and Rajan, 2009; Kirchler et al., 2018). In this paper, we link both lines of literature and analyze the impact of social competition on professionals' risk-taking behavior when investing customers' money.

Excessive risk-taking has been depicted as one of the main contributors to the global financial crisis (Financial Crisis Inquiry Commission, 2011; Dewatripont and Freixas, 2012). In particular, payment schemes that (at least partly) align professionals' incentives with customers' returns (e.g., bonus schemes, tournament incentives) have been identified among the main drivers for excessive risk-taking in developed financial markets (Jensen and Meckling, 1976; Rajan, 2006; Diamond and Rajan, 2009; Bebchuk and Spamann, 2010; Kleinlercher et al., 2014). Not only the monetary aspect of these incentives—salaries depend on relative performance compared to peers—trigger excessive risk-taking. This can also be fueled by its second component: non-monetary social competition or rank incentives that promise utility to those at the top of the ranking and disutility to those at the bottom (Barankay, 2015).<sup>1</sup> In a recent study, Kirchler et al. (2018) has shown that rank incentives increase risk-taking among underperforming professionals when investing money for themselves. Moreover, the authors find that competition for rank is robust to various settings and treatment variations. The study of Kirchler et al. (2018) is also part of a growing literature in Experimental Economics, documenting that rank incentives, on average, increase individuals' effort and performance in labor market and educational settings (Azmat and Iriberri, 2010; Blanes-i-Vidal and Nossol, 2011; Tran and Zeckhauser, 2012; Bandiera et al., 2013; Delfgaauw et al., 2013), although it can promote unethical behavior (Charness et al., 2014).

There is also a growing literature on risk-taking in delegated investment decisions. Empirical studies on mutual fund performance provide first evidence that fiduciary decision making can be influenced by the performance of peers. For instance, Brown et al. (1996) and Elton et al. (2003) show that mid-year losers increase fund volatility in the second part of the year compared to mid-

---

<sup>1</sup>See Veblen (1899) and Festinger (1954) for two classical papers and Roussanov (2010) for one application in finance.

year winners. However, one drawback of these studies is that causal inference of professionals' behavior is impossible as several explanatory factors are potentially active at the same time. Especially rank incentives and tournament incentives might contribute simultaneously. Here, laboratory and online experiments are a powerful tool to overcome identification problems. The few studies exploring drivers of risk-taking in delegated investment decisions with student or general population samples offer a wide range of approaches and show rather mixed results. A number of studies report a "risky shift", indicating that decision makers take more risks or show less loss averse behavior for others than for themselves (e.g., Sutter, 2009; Chakravarty et al., 2011; Andersson et al., 2016). In contrast, a substantial number of studies find a "cautious shift" when money of third parties is invested. Here, for instance, Bolton and Ockenfels (2010) and Eriksen and Kvaloy (2010) report that decision makers take fewer risks when investing for third parties compared to investments for themselves. See Füllbrunn and Luhan (2015) and Eriksen et al. (2017) for excellent overviews on the designs, the results and the implications of associated studies.

Given that financial professionals regularly invest on behalf of third parties and react strongly to rank incentives (Kirchler et al., 2018), it is striking that no causal evidence exists showing how rank incentives (social competition) and monetary incentives impact professionals' risk-taking behavior when investing money for customers. This study narrows this gap by bringing both strands of literature together and testing investment behavior of financial professionals. Despite the emerging literature on rank incentives and tournament incentives (e.g., Dijk et al., 2014; Kirchler et al., 2018) and on delegated decision making in finance (e.g., Agranov et al., 2013; Andersson et al., 2013, 2016), the novelty in our approach is that (i) we study financial professionals as fiduciary investment managers, that (ii) we let them invest real money from clients, and that (iii) we analyze whether professionals' rank incentives and monetary incentives impact risk-taking on behalf of others. In particular, we conducted an online experiment with 805 financial professionals from the United States and, in addition, a lab-in-the-field experiment with 160 professionals from various OECD countries. Importantly, we only recruited professionals who regularly engage in investment decisions in their professional life (e.g., private bankers, fund managers, traders, and portfolio managers). Running both experiments allows us drawing a more comprehensive picture of the role of social competition for professionals' risk-taking behavior when investing third parties' funds.

In the online experiment OPM ("other people's money") we investigate whether social competition drives professionals' delegated investment behavior. In the baseline treatment professionals made repeated portfolio choices between a risk-free alternative and a risky asset for themselves. Both alternatives have the same expected return, indicating that the risk-free asset dominates the risky alternative. The investment task is a modified version of Kuziemko et al. (2014) and identical to the online experiment with professionals in Kirchler et al. (2018). In each group of six the computer randomly assigned each professional a rank in the distribution of initial

wealth in USD in each period from the set  $\{54.0, 49.5, 45.0, 40.5, 36.0, 31.5\}$ . This anonymous league-table of initial wealth was common knowledge and displayed.

In three additional treatments we kept everything identical to the baseline treatment, except that we let professionals invest for recruited customers. The payoff of the customers solely depended on professionals' investment performance and thus on professionals' investment decisions. The novel aspect of these treatments is that customers used their own money for taking part in the experiment. Consequently, this also applied to the downside, which the clients agreed to cover personally, *ex ante and in written consent*, should the allocated professional incur losses. In all three treatments (i) we varied the salience of the customer during the investment task (low versus high customer salience) and (ii) we varied professionals' monetary incentives (either incentives that are aligned with the customers' incentives or flat/non-aligned incentives). With this innovative design choice, we aim to get closer to reality, as clients participate with their own money in the experiment and can occur real losses.

We show that rankings drive professionals' behavior on behalf of their customers especially when the monetary incentives of professionals are aligned with the monetary incentives of their customers. In particular, we find that professionals who are lagging behind in the ranking increase risk-taking in comparison to their peers. This rank-driven behavior is statistically not different from professionals' behavior when they are not investing for customers but solely for themselves. However, we also find that rank-driven behavior is mitigated and even disappears when professionals are exposed to flat and thus non-aligned incentives when investing for others. This finding extends prior studies where professionals exhibited rank-driven risk-taking when investing for themselves (Kirchler et al., 2018). Moreover, we show that professionals' perceived risk attitudes of customers do not drive their investment behavior. In contrast, professionals mainly focus on their individual risk attitudes and their level of loss aversion when making decisions for clients. This finding is particularly relevant when monetary incentives are flat.

In a second experiment, we recruited another 160 financial professionals and administered a laboratory experiment, OPMLAB. This experiment is a slightly modified setting of the lab-in-the-field experiment in Kirchler et al. (2018). In the baseline treatment professionals made repeated portfolio choices between a risk-free alternative and a risky asset, but this time for two clients. The payoff of the professionals was flat and, like in reality, the payoff of the clients (initial wealth of 1,000 Euro each) was aligned to the performance of the managed fund. As in Experiment OPM clients participated with their money and agreed to cover the downside personally, *ex ante and in written consent*, should the allocated professional incur losses. To measure the role of social competition, we ran a ranking treatment which was identical to the baseline treatment except that professionals were exposed to an anonymous and non-incentivized ranking among peers. In the tournament treatment we made the ranking payoff-relevant for the professionals and thus aligned professionals' payout with customers' linear incentives by applying convex tournament incentives. We find similar results as in the online experiment OPM, showing

that professionals do not exhibit rank-driven behavior in delegated investment decisions when incentives are flat. Moreover, we report that rank-driven behavior is turned on again once tournament incentives are introduced. Here, underperforming professionals increase risk-taking when investing customers' funds compared to their outperforming peers.

Our results in this paper and the findings in our companion paper (Kirchler et al., 2018) reveal that rank-driven behavior of financial professionals is robust across many different settings, including investment decisions for others. This raises the question to what extent financial professionals differ in their rank-driven behavior from other groups, such as their customers. If customers are equally rank-driven it is possible that they do not only enjoy the monetary but also the non-monetary benefits from the fact that their chosen fund manager (or private banker) tries to outperform other peers.<sup>2</sup> We therefore investigated, in a final and exploratory step, whether professionals differ in their preferences for relative performance and in related attitudes from a representative sample of the general population (as a proxy for customers) and from other competitive professions. Specifically, we administered an online survey to another sample of 125 financial professionals, a representative sample of 1,000 respondents from the general population, as well as 120 professional athletes and 104 academics (1,349 respondents in total). Financial professionals stand out in the survey as their self-reported importance of relative performance is more pronounced compared to the general population and to academics, coming close to the high level of professional athletes. Professionals also differ from the general population in other aspects, e.g., in higher status concerns and risk preferences. This indicates that rank-driven behavior is rooted in "special" attitudes among financial professionals, including strong concerns about relative performance, which are not reflected to such an extent by their customer base.

Our paper contributes to several emerging areas in the literature. First, we contribute to the small, but growing body of literature analyzing behavior of financial professionals. Across studies, one major result is that professionals' behavior can be substantially different from the behavior of standard (student) subjects and from representative samples of the general population. For instance, professionals exhibit a higher degree of myopic loss aversion (Haigh and List, 2005), are less prone to anchoring than students (Kaustia et al., 2008), are able to better discern the quality of public signals in information cascades (Alevy et al., 2007), react more strongly to rank incentives (Kirchler et al., 2018), and assess others' risk preferences more accurately (Roth and Voskort, 2014). However, professionals apparently also show herd behavior similar to student subjects (Cipriani and Guarino, 2009) and apply behavior in line with prospect theory (Abdellaoui et al., 2013). Moreover, Cohn et al. (2014, 2017) show that professionals acting in their banker identity cheat more and take less risks compared to making decisions when their private identity is salient. We contribute by learning more about the preferences and behavior of professionals in delegated investment decisions when social competition is present.

---

<sup>2</sup>In our experiment, customers were unaware of the ranking of professionals. In reality, however, the performance of fund managers and their ranking against alternatives is known to customers.

This is important as professionals’ role of agents for their customers is central for society and the economy. Together with the findings from our online survey, this indicates that more lab-in-the-field experiments with industry professionals are important, particularly when specific features of the business culture are investigated.

Second, we add to the emerging literature on rank incentives and social competition, in particular to those studies investigating the relationship of social competition and risk-taking. Kirchler et al. (2018) show that professionals’ preference for high rank in investment decisions for themselves is fundamentally different from student subjects. Moreover, the authors report that the rank-effect is robust to the experimental frame (investment frame versus abstract frame), to the underlying incentives (non-incentivized ranking versus tournament incentives), to social identity priming (private identity versus professional identity), and to professionals’ gender (no gender differences among professionals). Recently, Frydman (2016) provides first biological foundations of humans’ preferences over relative wealth. In a portfolio choice experiment using fMRI imaging he finds that neural activity in reward-related regions of the brain is increasing in a subject’s own wealth, but decreasing in a peer’s wealth. With our study we contribute by showing that professionals’ preference for high rank and their attitudes towards social competition are still active in delegated investment decisions when professionals’ incentives are aligned to customers’ performance. In addition, we show that rank-driven behavior can be turned off when professionals’ monetary incentives are independent from the ranking.

Third, we contribute to the expanding literature on delegated decision making for third parties in financial frameworks. As mentioned above, the literature is mixed in terms of approaches and results. Whereas some studies find that agents deciding for principals take less risks compared to own decisions (Bolton and Ockenfels, 2010; Eriksen and Kvaloy, 2010; Bolton et al., 2015), other studies report the opposite or no effect (e.g., Sutter, 2009; Chakravarty et al., 2011; Andersson et al., 2016). However, we contribute with the novelty of our approach as (i) we study financial professionals in their role of fiduciary investment managers, who (ii) invest real money from real clients, and who (iii) are exposed to competition for rank.

## 1 Experiment 1: OPM – Professionals Investing for Clients

### 1.1 Setup of Experiment OPM

In this online experiment we divided each session into two parts. Subjects played an investment game in the first and major part and participated in additional tasks and survey questions eliciting loss aversion, attitudes towards risk, and personal characteristics in the second part.

For the first part of the experiment—the investment game—we designed a modified version of Kuziemko et al. (2014). Our baseline treatment OWN is identical to Treatment TRANK<sup>FIN</sup>

of the online experiment in Kirchler et al. (2018).<sup>3</sup> We outline details on Treatment OWN first and add differences in the three treatments in which professionals invest real clients' money below.

In each group of six the computer randomly assigned each player a rank in the distribution of initial wealth in USD  $\{54.0, 49.5, 45.0, 40.5, 36.0, 31.5\}$  which is common knowledge and displayed. Professionals decided between two alternatives: They either selected \$2.25 euro with 100% probability or a lottery paying out \$9 with 75% probability or \$-18 with 25% probability. After each period, all random draws were independently and separately drawn for each player and the new league table with the final wealth of this period was displayed. The final wealth was computed by adding \$2.25 to the initial wealth, in case the safe option was chosen, and by either adding \$9 or subtracting \$18 if the lottery was chosen. For the next period the professionals were randomly selected into another group of six and re-randomized to the same  $\{54.0, \dots, 31.5\}$  distribution of initial wealth levels. Each online session consisted of three independent periods. Final wealth of one randomly selected period (including the loss aversion task ran as additional control task) was paid out with 20% probability. One important feature of this design is that the safe payment is always equal to half the difference between ranks (\$2.25) and therefore, *ceteris paribus*, does not improve one's position. The positive lottery outcome equals the difference of two ranks above the decision maker (\$9) and the negative lottery outcome the difference of four ranks below her (\$-18). Note that the final wealth was always above zero and that both alternatives (safe and lottery) had the same expected value assuming risk-neutrality. According to literature, participants in the lab have been shown to exhibit diminishing absolute risk aversion and risk-taking is believed to increase in initial wealth levels (see, among others, Levy, 1994; Holt and Laury, 2002). This means that, purely based on wealth levels, the player with the worst rank (rank 6) would be the least likely to choose the lottery (Kuziemko et al., 2014). Hence, our design takes a conservative position, because rank-driven behavior would have to work against a possible increase of risk-taking in wealth.

In all treatments of Experiment OPM we first made subjects' professional identity salient before the investment task with the protocol of Cohn et al. (2014, 2017) and Kirchler et al. (2018).<sup>4</sup> Second, we let them play against other professionals and displayed de-personalized information on job function, years of experience in the finance industry, and on what professionals considered as the most important personality characteristic for an employee in the finance indus-

---

<sup>3</sup>We recruited 51 additional professionals for Treatment OWN (N=202 in total).

<sup>4</sup>We asked the following 7 priming questions in each treatment: "At which financial institution are you presently employed?"; "What is your function at this financial institution?"; "For how many years have you been working in the financial sector? (Please enter full years; can be in different organizations and/or functions)"; "Why did you decide to become an employee in the financial sector? Please describe your answer in two to three sentences."; "What are, in your opinion, the three major advantages of your occupation as an employee in the financial sector?"; "Which three characteristics of your personality do you think are typical for an employee in the financial sector?"; "What are the three most important things you learned in your occupation as an employee in the financial sector?".

try. The information was extracted from the initial priming questions and displayed alongside each subject’s rank and initial (final) wealth on the decision (results) screen, thereby making the professional identity of the other players in the group salient.<sup>5</sup>

Treatment SAL\_LO was identical to the baseline treatment, except that professionals invested for real customers with aligned (linear) incentives and low customer salience on the computer interface. In all treatments with customers we set up a novel design and raised funds from real customers amounting to the distribution of initial wealth in USD {54.0, 49.5, 45.0, 40.5, 36.0, 31.5}. In each period professionals decided whether to invest their clients’ portfolio wealth either in the risky lottery or to take the fixed payment. Importantly, professionals’ incentives were aligned such that they got the same payout as their customers (although their initial level of wealth is a windfall gain which differs to customers’ incentives, as they brought money in). With this design choice, we aim to get closer to professionals’ real-world decision making. In our design, professionals know that negative returns in the investment decisions indicate real monetary losses among the customer.

We only recruited clients according to the following characteristics: male, 30-50 years of age, academic degree, no financial troubles. This information was given to the professionals as well. We did not forward any other additional customer information to the professionals to allow for sufficiently large freedom of choice among the professionals. Salience of the assigned customer was low, meaning that we mentioned the customer in the general instructions in two paragraphs, but only once at the beginning of the experiment and without any reminders on subsequent decision screens. Compared to the baseline treatment we added the following information: *“Your decisions in the following rounds also affect the payout of a client, whom we randomly assigned to you and who will receive a payout according to your decisions. The client is not part of the group of the five other experimental participants with whom you will play the game on the next screens, but another person who we approached separately. The client is a male, between 30 and 50 years old, holds a university degree, is in no financial trouble, and knows the rules of this game (the client has read the instructions and agreed to them by signing a declaration of consent). The client does not receive the initial wealth from us, but pays it out of his own pocket. At the end of all rounds, we will randomly draw one round, and then pay the client his new wealth (initial wealth plus outcome of your choice). At the end of this experiment, you can indicate whether you want to receive depersonalized information about the amount earned by everyone in this research project (including the clients).”* This information was displayed on a separate page and professionals had to click a button to proceed, which made them aware of the existence of the customer. With this treatment we can investigate whether making investment decisions for third parties changes investment behavior compared to taking

---

<sup>5</sup>Similar to Cohn et al. (2014) we collected data on the other players in a pilot group ex ante and imported the data into both treatments. Only the characteristics of the pilot group were shown to others (depersonalized) after their explicit consent.

decisions for oneself like in Treatment OWN.<sup>6</sup>

Treatment SAL\_HI is identical to Treatment SAL\_LO except that we substantially increased customer salience by adding the following reminder above the decision entry field in each period: *“Keep in mind that your decision below also affects the payoff of the client, whom we matched with you. The client does not receive the initial wealth of \$54<sup>7</sup> from us, but pays it out of his own pocket.”* With this treatment we can identify whether increasing customers’ salience (Bordalo et al., 2013) substantially moderates rank-driven behavior compared to Treatment SAL\_LO.

Finally, Treatment FLAT is identical to Treatment SAL\_HI except that incentives were no longer aligned with the customers’ performance. Here, professionals received a fixed payment of \$45 from the experiment, irrespective of performance. With this treatment we test whether non-aligned incentives moderate rank-driven behavior (Eriksen and Kvaloy, 2010; Andersson et al., 2013, 2016). Table A1 in the Online Appendix outlines details on all treatments used in this paper.

In the second part of the experiment we run additional tasks and asked survey questions. In particular, we measured risk attitudes (on a Likert scale from 1 to 7) with two survey questions from the German Socio-Economic Panel asking about subjects’ general willingness to take risks and their willingness to take risks in financial matters (SOEP; Dohmen et al., 2011). Professionals answered the questions: (1) *“How do you see yourself: Are you willing to take risks or try to avoid risks?”* (2) *“People can behave differently in different situations. How would you rate your willingness to take risks in the following areas: ... in financial matters”*. The answers were provided on a Likert scale from 1 (not at all willing to take risks) to 7 (very willing to take risks). In the second task, we measured loss aversion using the procedure of Gächter et al. (2007), also applied in Kirchler et al. (2018). Subjects earned \$18 as a show-up fee for participating in the experiment, which covered the potential maximum loss in the loss aversion task. In particular, professionals had to decide whether to play a lottery or not. If they decided to play the lottery, participants either received, with equal probability, \$15 or incurred a loss of X which varied from \$3 to \$18 in steps of \$3. If participants decided not to play a specific lottery, they received a payout of zero. At the end of the experiment one lottery and the associated decisions were paid out with 20% probability together with the payout of the investment experiment.

In addition, we administered a survey and measured participants’ attitudes toward social comparison with three questions on social status, financial success, and relative performance, taken from Cohn et al. (2014, 2017). Moreover, we have added the 5-item competition subscale of the Work and Family Orientation (WOFO) questionnaire of Helmreich and Spence (1978) to measure professionals’ willingness to compete.<sup>8</sup> Questions on demographics concluded the

---

<sup>6</sup>See the Online Appendix A2 and A3 for instructions of all experiments of this paper.

<sup>7</sup>\$54 are mentioned for illustrative purposes. Of course, the five other initial endowments were mentioned conditional on the initial rank.

<sup>8</sup>The five questions, answered on 5-point Likert-scales, are: *“I enjoy working in situations involving competi-*



experiment.

For Experiment OPM we recruited 805 professionals, selected with the same criteria as in Kirchler et al. (2018): in particular, we only recruited professionals who regularly engage in investment decisions in their professional life (e.g., private bankers, fund managers, traders, and portfolio managers). 45.5% of the sample were men and the average age was 41.9 years with 12.8 years of working experience in the finance industry. We consciously recruited a similar number of male and female professionals to potentially address questions about gender differences among financial professionals.

In total, professionals received an average payout of \$12.5 for both parts of Experiment OPM for an average duration of 10 minutes, which is equal to an average hourly salary of \$75.<sup>9</sup> For subjects who were paid out, the average payout was \$62.9, ensuring salient incentives for professionals. We therefore consider our monetary incentives to be substantial and are confident that they induced sincere behavior. The payout was administered via PayPal to the professionals and via bank transfer to the clients.

## 1.2 Results of Experiment OPM

In Figure 1 we present a first overview on professionals’ choices for the risky lottery as a function of rank across all treatments. In Table 1 we show probit estimations of professionals’ likelihood to invest in the lottery (*RISK*) conditional on rank at the beginning of the period. In addition to variable *RANK*, indicating subject *i*’s rank according to period’s initial wealth, we include controls for professionals’ self-assessed risk attitudes in financial matters (*RISKFIN*), for professionals’ beliefs about the customers’ willingness to take risks (*RISKCUST*), for professionals’ loss attitudes (*LOSTOL*: normalized from 0 to 1; higher values indicate lower loss aversion and thus higher loss tolerance), for *AGE*, gender (*FEMALE*), and professionals’ willingness to enter competitions and to compete (*COMPETE*, measured with the 5-item competition subscale of the Work and Family Orientation (WOFO) questionnaire).

We find clear and significant evidence for rank-driven behavior when professionals invest for themselves. In particular, variable *RANK* is significantly positive at the 1% level in Treatment OWN. This is in line with the results in Kirchler et al. (2018), showing that underperforming professionals increase risk-taking markedly compared to their high-ranked peers. Once professionals invest for customers and show aligned (linear) incentives in treatments SAL\_LO and SAL\_HI, rank-driven behavior remains strong as underperformers also increase risk-taking

---

*tion with others*”; “*It is important to me to perform better than others on a task*”; “*I feel that winning is important in both work and games*”; “*It annoys me when other people perform better than I do*”; “*I try harder when I’m in competition with other people*”.

<sup>9</sup>This is comparable to other studies with financial professionals. For instance, Kirchler et al. (2018) report that they paid an hourly equivalent of €69, which amounted to roughly 2.7 times the average hourly wage (after taxes) of the professionals in their experiment. Haigh and List (2005) report in footnote 6 that their average traders’ payment for a 25 minutes task was \$40 which translates to an hourly payout of \$96.

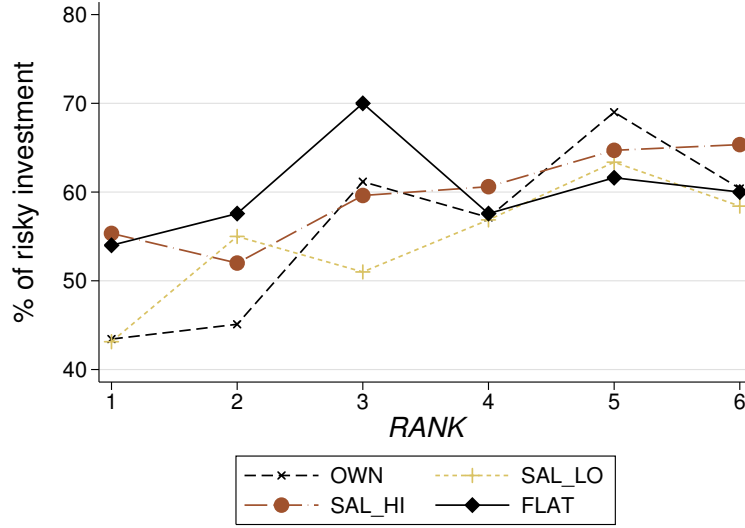


Figure 1: **Ranks and Risk-Taking Across Treatments in Experiment OPM**

This figure shows the fraction of choices for investment in the risky lottery (*RISK*) conditional on professionals' rank at the beginning of the period, separated by treatments. *RANK* indicates the position in the ranking at the beginning of the period with higher numbers pointing at lower initial wealth levels. In Treatment OWN professionals invest for themselves and face linear incentives. In treatments SAL\_LO and SAL\_HI professionals invest for real customers with aligned (linear) incentives and low or high customer salience, respectively. In Treatment FLAT customer salience is high as well, but professionals earn a fixed payment.

significantly compared to high-ranked peers. Only the introduction of flat incentives for professionals renders rank-driven behavior in Treatment FLAT, turning variable *RANK* insignificant.

Focusing on the control variables of professionals' risk-taking, we find that professionals' beliefs about the customers' willingness to take risks (*RISK\_CUST*) do not explain risk-taking. The most significant control variable, explaining risk-taking in the investment game, is professionals' self-assessed risk attitude in financial matters. Here, *RISK\_FIN* exhibits significant coefficients in three out of four treatments and on aggregate for all treatments with delegated decision making (column OPM ALL of Table 1). Loss tolerance (*LOSSTOL*) also explains risk-taking in the investment game, but to a smaller degree with significant coefficients only for Treatment FLAT and on aggregate. All other variables, including age, gender, and professionals' willingness to compete do not systematically explain professionals' risk-taking in the investment game.<sup>10</sup>

In addition, we find a moderate risky shift when going from aligned linear incentives in Treatment SAL\_LO to flat incentives in Treatment FLAT as risk-taking is significantly higher in

<sup>10</sup>Note that participants' attitudes toward social comparison using the three questions from Cohn et al. (2014, 2017), also do not explain risk-taking. Analyses using these variables instead of the WOFO questionnaire can be provided upon request.

the latter, but only on a 10%-level (column OPM ALL). Following previous studies by Füllbrunn and Luhan (2017) we conjecture that risk aversion and loss aversion decrease slightly because of less emotional engagement when investing other peoples' money and when incentives are not aligned.

Importantly, variable *FEMALE* mainly exhibits insignificant coefficients in Table 1, providing evidence that gender differences might not exist. We have consciously recruited around 50% of female professionals in each treatment, letting us investigate gender differences in greater detail. In Table A2 in the Online Appendix we add  $RANK * FEM$  as additional explanatory variable. This variable is an interaction term of *RANK* and the female dummy, measuring women rank-driven behavior compared to men (measured with *RANK*). We find no significant coefficients, implying that rank-driven behavior of female professionals is indifferent from male professionals. Moreover, we run the regressions of Table 1 with the subsample of female professionals and find overall very similar with respect to the full sample.<sup>11</sup>

---

<sup>11</sup>Results can be provided upon request.

Table 1: **Ranks and Risk-Taking in Experiment OPM**

This table outlines probit regressions of professionals' choices for investment in the risky lottery (*RISK*) conditional on professionals' rank at the beginning of the period. *RANK* indicates subject *i*'s rank at the beginning of the period according to initial wealth. *RISKFIN* is the self-reported willingness to take risks in financial matters (7-point Likert scale; taken from the German SOEP), *RISKCUST* is professionals' belief about the customer's willingness to take risks (7-point Likert scale; adapted from the German SOEP) and *LOSSTOL* is a measure of loss attitudes (from 0 to 1: higher values indicate lower loss aversion and thus higher loss tolerance). *AGE* and *FEMALE* indicate professionals' age and gender, respectively, and *COMPETE* is the 5-item competition subscale of the Work and Family Orientation (WOFO) questionnaire. In Treatment OWN professionals invest for themselves and face linear incentives. In treatments SAL\_LO and SAL\_HI professionals invest for real customers with aligned (linear) incentives and low or high customer salience, respectively. In Treatment FLAT customer salience is high as well, but professionals receive a fixed payment. In the far-right column all treatments except OWN are included with FLAT serving as the base category. Standard errors are clustered on a subject-level and provided in parentheses. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels, respectively.

<i>RISK</i>	OWN	SAL_LO	SAL_HI	FLAT	OWN	SAL_LO	SAL_HI	FLAT	OPM ALL
<i>RANK</i>	0.111*** (0.028)	0.078*** (0.030)	0.066** (0.029)	0.022 (0.028)	0.114*** (0.029)	0.077*** (0.030)	0.067** (0.029)	0.025 (0.029)	0.056*** (0.017)
<i>RISKFIN</i>					0.157*** (0.046)	0.086* (0.045)	0.068 (0.048)	0.146*** (0.052)	0.098*** (0.028)
<i>RISKCUST</i>						0.004 (0.046)	-0.046 (0.052)	0.044 (0.053)	-0.005 (0.029)
<i>LOSSTOL</i>					0.061 (0.230)	0.100 (0.245)	0.271 (0.249)	0.663** (0.261)	0.319** (0.146)
<i>AGE</i>					0.006 (0.006)	0.002 (0.006)	0.003 (0.006)	0.002 (0.006)	0.002 (0.003)
<i>FEMALE</i>					0.196 (0.135)	0.100 (0.137)	-0.011 (0.127)	0.251* (0.139)	0.097 (0.077)
<i>COMPETE</i>					-0.038 (0.085)	-0.021 (0.087)	-0.030 (0.079)	0.087 (0.085)	-0.004 (0.048)
SAL_LO									-0.155* (0.088)
SAL_HI									-0.025 (0.087)
$\alpha$	-0.234** (0.112)	-0.156 (0.118)	0.015 (0.117)	0.180 (0.114)	-1.165** (0.463)	-0.654 (0.508)	-0.208 (0.434)	-1.493*** (0.470)	-0.612** (0.275)
N	603	606	609	597	603	606	609	597	1812
N cluster	201	202	203	199	201	202	203	199	604
Chi <sup>2</sup>	16.011	6.922	5.101	0.612	28.717	11.058	9.861	26.677	36.734
p-value	0.000	0.009	0.024	0.434	0.000	0.136	0.197	0.000	0.000

## 2 Experiment 2: OPMLAB – Professionals Investing for Real Clients in the Laboratory

To get a comprehensive picture of how social competition influences professionals’ risk-taking when investing third party funds, we additionally run Experiment OPMLAB. This investment experiment is a slightly modified setting of the lab-in-the-field experiment in Kirchler et al. (2018). Compared to Experiment OPM, we innovate along the following dimensions: (i) we let professionals invest high stakes funds of two customers (1,000 euro each); (ii) we run three treatments: a baseline treatment with flat incentives and without rank information; a ranking-treatment with flat incentives and a tournament treatment with convex tournament incentives, aligning professional’s incentives to customers’ performance; (iii) we run the experiment in the laboratory, offering a broader picture in terms of experimental methods.

### 2.1 Setup of Experiment OPMLAB

Again, we divided each session into two parts. Subjects played an investment game in the first part and participated in additional tasks eliciting risk attitudes, loss aversion and personal characteristics in the second part.

In the first part we set up a novel laboratory design and raised funds from real customers. We let each professional invest the total sum of 2,000 euro from two clients in an investment game. Professionals repeatedly made portfolio choices between a risk-free alternative and a risky asset over eight periods. In each period they decided which fraction (*RISK*) of their clients’ portfolio wealth to invest in the risky asset. Clients’ portfolio wealth was carried over from one period to the next and professionals were allowed to invest up to 200 percent. We used historical index returns for the risky asset and drew one random sequence of two years (eight quarters of a year) from ten large stock market indices for the period Jan 1989 to Dec 2014.<sup>12</sup> Professionals did not know about the name of the index and the time period selected. They did know, however, about the average mean and standard deviation per quarter of a year for the entire sample period of 26 years of the selected index and about the risk-free rate of 0.3 percent per period.

The recruited clients received detailed instructions about the experiment and they signed declarations of consent. Like in the first experiment, we only recruited clients according to the following characteristics: male, 30-50 years of age, academic degree, no financial troubles. This information about the customers was given to the professionals and we did not forward any other additional information to the professionals to allow for a sufficiently large degree of freedom in decision making.

---

<sup>12</sup>The ten selected indices were: CAC 40, DAX, Dow Jones Industrial Average (INDU), EURO STOXX (SXXE), FTSE 100 Index (UKX), Hang Seng Index (HSI), NASDAQ-100 (NDX), Nikkei 225 (NKY), Swiss Market Index (SMI), S&P 500 (SPX). In particular, one index was selected randomly and one quarter of a year within the 26 years period of this particular index was selected randomly as starting point before the experiment began.

In a between-subjects design, we randomly assigned professionals to groups of four, which remained the same for the duration of the investment game. We have opted for groups of four to be able to run all three treatments simultaneously within each session and to randomize subjects into treatments within sessions (i.e., 12 was the minimum number of participants for each session). We therefore made sure that all random sequences of the indices used were the same across all treatments, allowing us to control for idiosyncratic characteristics of the sequences.

In the baseline treatment, TBASE, professionals received a fixed payment of 40 euro, similar to private bankers whose pay is not directly related to their clients' performances. Like in reality clients were aligned to the performance of the managed fund. This means that clients were paid by the experimenter in case the professional's fund rose above the initial endowment of 2,000 euro, but also that clients had to cover the losses themselves in case the professional's final fund wealth dropped below 2,000 euro. Therefore, the payout to a client was half of the difference of the final wealth minus the initial endowment of 2,000 euro in case of a positive portfolio return. In contrast, a client had to pay half of the difference between 2,000 euro and the final wealth of the professionals' managed portfolio if the overall return was negative. This realistic feature was, of course, common knowledge for clients and professionals. Importantly, the fact that the professionals invested for real clients was made salient in the instructions and on the investment interface mentioning terms like "your clients' current wealth". Because of the high stakes of the clients and the difficulty in recruiting them for this experiment, a coin flip for each professional determined whether her decisions were relevant for the clients. In particular, each pair of customers was matched to ten professionals (in different sessions) and one professional was drawn randomly for payout for each pair. A growing number of studies indicate that these commonly used payment schemes with random components do not bias risk-taking behavior in experiments (Starmer and Sugden, 1991; Cubitt et al., 1998; Hey and Lee, 2005; March et al., 2015). Recently, Charness et al. (2016) pointed out that the pay-one (or pay-a-subset) method is either equal or even superior to the pay-all method in the majority of cases. These payment schemes with random components are also frequently used in studies with financial professionals to facilitate high stakes (Cohn et al., 2014, 2017; Kirchler et al., 2018). Moreover, all professionals received an anonymous summary of all payouts to the clients (matched IDs of clients and professionals) by e-mail after all data for this experiment was collected. This feature was announced *ex ante*.

To measure the impact of social competition we ran a ranking treatment, TRANK, which was identical to Treatment TBASE with the exception that professionals received feedback on their position in an *anonymous and non-incentivized* ranking (like in Kirchler et al., 2018) after each period in their group of four. As in Treatment FLAT in the first experiment, the ranking itself was not payoff-relevant and professionals were paid with a fixed wage of 40 euro for their fiduciary investment management.

Finally, in the tournament treatment, TTOUR, we kept everything identical to Treatment TRANK except that the ranking was payout-relevant for the professionals. The professional with the highest clients' final wealth received 90 euro, the second-best performer 50 euro and the two underperformers 10 euro each.

In the second part of Experiment OPMLAB, we administered three experimental tasks, one of which was paid out randomly, and survey questions. Part 2 of the instructions was handed out after all subjects had completed Part 1. In the first task we measured risk-attitudes with the BRET (bomb risk elicitation task) by Crosetto and Filippin (2013). We also measured risk attitudes using the survey questions from the German Socio-Economic Panel (SOEP; Dohmen et al., 2011) like in the first experiment and in Kirchler et al. (2018). In the second task of Part 2, we measured loss aversion applying identical procedure and stakes like in the first experiment and in the third task we elicited distributional preferences using the equality equivalence test of Kerschbamer (2015). In the survey, we also measured subjects' attitudes toward social competition with the three questions used in Cohn et al. (2014, 2017) and Kirchler et al. (2018). Questions on demographics concluded the experiment.

For Experiment OPMLAB we recruited another 160 professionals from several OECD countries, working in the same areas like in the first experiment. Of them, 89.4 percent were male, their average age was 38.2 years, and they had been working in the finance industry for 13.2 years on average. In total, 56, 52, and 52 professionals participated in Treatments TBASE, TRANK, and TTOUR, respectively. All professionals that participated in these treatments are regularly confronted with competitive rankings and bonus incentives—i.e., professionals from private banking, trading, portfolio management, fund management, and wealth management.<sup>13</sup>

Like in Kirchler et al. (2018) we booked a conference room on location, set up our mobile laboratory and invited professionals to show up. Our mobile laboratory is similar to the Innsbruck EconLab at the University of Innsbruck. It consists of laptops and partition walls on all sides for each participant, ensuring conditions as in regular experimental laboratories (see pictures in the Appendix A4). We mainly recruited members of professional associations/societies, ensuring that most sessions were populated with professionals from different institutions. We programmed and conducted Experiment OPMLAB using z-Tree (Fischbacher, 2007). In total, professionals received an average payout of 54 euro (minimum payout: 10 euro; maximum payout: 165 euro) for both parts of Experiment OPMLAB for an average duration of 45 minutes. In turn, clients received on average 213 euro (minimum payout: -11 euro; maximum payout: 541 euro) for their passive role and taking the risk of investing own money.

---

<sup>13</sup>We signed non-disclosure agreements (NDA) for not disclosing the identity of the participating financial institutions.

## 2.2 Results of Experiment OPMLAB

In Figure 2 we report professionals' risk-taking conditional on their rank in the previous period ( $RANK_{t-1}$ ). In Table 2 we run fixed effects panel regression with AR(1) disturbance, testing treatment differences and explanatory variables of professionals' percentage invested in the risky asset ( $RISK$ ).<sup>14</sup> As most important explanatory variables we include either  $RANK_{t-1}$ , indicating subject  $i$ 's rank at the end of the preceding period, or the binary dummy  $UNDERPERFORMER$ , representing underperforming professionals at ranks 3 and 4. Moreover,  $RET\_PF_{t-1}$  is the log-return of subject  $i$ 's portfolio since the start of the experiment and  $RET\_ASSET_{t-1}$  is the preceding period's asset return (see also Table A3 in the Online Appendix for a robustness check without AR(1) disturbance, yielding qualitatively similar results).<sup>15</sup>

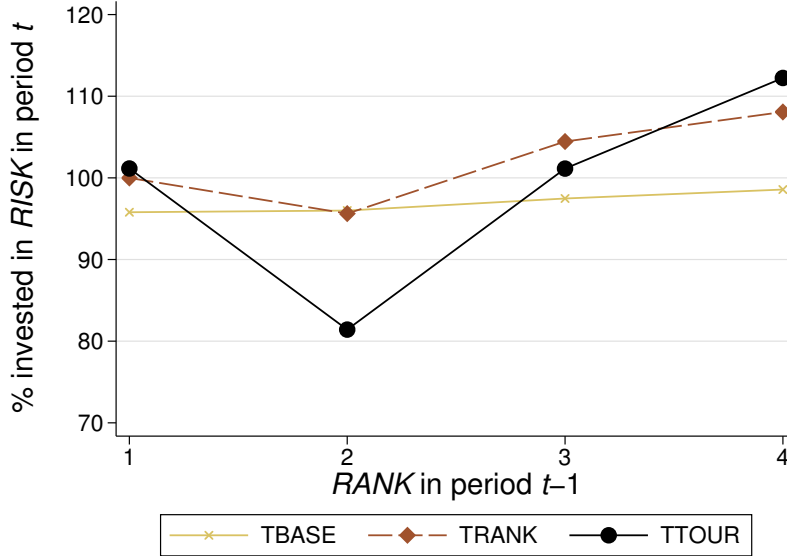


Figure 2: **Ranks and Risk-Taking in Experiment OPMLAB**

This figure depicts the average percentage invested in the risky asset ( $RISK$ ) in period  $t$  conditional on subject's rank in the previous period ( $RANK_{t-1}$ ) across all treatments. In Treatment TBASE professionals received a fixed payment and the funds of real clients were aligned to the performance of the managed fund. Treatment TRANK was identical except for the display of an anonymous and non-incentivized ranking after each period. In Treatment TTOUR solely the ranking was payout-relevant for the professionals.

We observe similar results as in Experiment OPM. In particular, we find that underperformers do not increase risk-taking when they face flat incentives in Treatment TRANK. This

<sup>14</sup>Hausman tests reveal that we have to use fixed effects models in most cases.

<sup>15</sup>For Figure 2 we ran fixed effects panel regressions similar to the ones in Table 2, including  $RET\_PF_{t-1}$ ,  $RET\_ASSET_{t-1}$ , dummy variables for each individual rank in period  $t-1$  and standard errors clustered on a group level. Each data point in Figure 2 shows the sum of the intercept and the coefficient of the respective rank dummy, reflecting the rank-specific average of  $RISK$  after controlling for portfolio wealth and asset returns.



is evident in columns 2 and 5 as neither the dummy for underperformers, nor the rank-variable are significantly positive. This is in line with the insignificant rank-effect in Treatment FLAT in Experiment OPM. Rank-driven behavior changes as soon as the ranking gets payout-relevant in Treatment TTOUR. We find that underperformers increase risk-taking significantly by on average 23.4 percentage points compared to the outperformers (column 3). This rank-effect appears to be slightly weaker as in Experiment OPM as the rank variable in column 6 is only significant on the 10 percent level. The reason could be that sample size is relatively small and therefore potential outliers like the relatively high level of risk-taking of the top performers turn the rank-coefficient marginally significant.

When focusing on the control variables, the negative relationship between the portfolio return  $RET\_PF_{t-1}$  and professionals' risk-taking is worth mentioning. Although only one coefficient is significant, this indicates that professionals mildly increase (decrease) risk-taking, the lower (higher) the portfolio return since the start falls (rises). Results are stronger in the specification without AR(1) disturbance, as 4 of the 6 coefficients turn significantly negative (see Table A3 in the Online Appendix). This finding has been shown by Kirchler et al. (2018) in a more pronounced way when professionals invest for themselves. Thus, it seems that when professionals invest for third parties, customers' presence is de-biasing professionals slightly from this disposition effect (Odean, 1998), leading to less reference-dependent levels of risk-taking.

Moreover, in the final column (ALL) we pool all treatments and investigate differences in risk-taking. We find that average risk-taking is statistically indifferent across all three treatments with values of 96.9 percent in TBASE, 97.3 percent in TRANK, and 103.4 percent in TTOUR.<sup>16</sup>

---

<sup>16</sup>As a robustness check we also ran RE-regressions with clustered standard errors on a group level and find qualitatively identical results. More information can be provided upon request.

Table 2: **Ranks and Risk-Taking in Experiment OPMLAB**

This table shows fixed effects panel regression with AR(1) disturbance, testing treatment differences of professionals' percentage invested in the risky asset (*RISK*).  $RET\_PF_{t-1}$  is the log-return of subject  $i$ 's portfolio since the start of the experiment and  $RET\_ASSET_{t-1}$  is the preceding period's asset return. *UNDERPERFORMER* is a binary dummy variable marking underperforming professionals at ranks 3 and 4. Moreover,  $RANK_{t-1}$  indicates subject  $i$ 's rank at the end of the preceding period. In Treatment TBASE professionals received a fixed payment and the funds of real clients were aligned to the performance of the managed fund. Treatment TRANK was identical except for the display of an anonymous and non-incentivized ranking after each period. In Treatment TTOUR the setup was identical to TRANK, except that the ranking was payout-relevant for the professionals with a convex tournament scheme. Standard errors are provided in parentheses. \*\*\*, \*\*, and \* represent significance at the 1, 5, and 10 percent levels, respectively.

<i>RISK</i>	TBASE	TRANK	TTOUR	TBASE	TRANK	TTOUR
$RET\_PF_{t-1}$	-0.043 (0.224)	-0.140 (0.306)	-0.421 (0.267)	-0.065 (0.225)	-0.150 (0.312)	-0.456* (0.272)
$RET\_ASSET_{t-1}$	-0.120 (0.236)	-0.073 (0.260)	-0.119 (0.268)	-0.107 (0.236)	-0.068 (0.262)	-0.101 (0.271)
$UNDERPERFORMER_{t-1}$	2.510 (9.288)	8.923 (8.063)	23.352*** (8.251)			
$RANK_{t-1}$				-0.674 (4.294)	2.974 (4.183)	7.309* (4.219)
$\alpha$	93.608*** (3.693)	97.607*** (4.056)	85.912*** (4.333)	96.617*** (7.290)	94.714*** (7.679)	79.545*** (8.766)
N	336	312	312	336	312	312
R <sup>2</sup>	0.001	0.025	0.007	0.073	0.027	0.008
F	0.214	0.710	4.956	0.197	0.469	3.247
p-value	0.887	0.547	0.002	0.898	0.704	0.023

Turning to other control variables explaining risk-taking in the investment game, we run an OLS-regression, outlined in Table A4 in the Online Appendix. Again, we find that professionals' self-assessed risk attitude in financial matters, measured with the self-reported question from the German SOEP, significantly explains professionals' average risk-taking. Neither loss tolerance, nor all other control variables, measuring professionals' attitudes towards financial success, social status, and relative performance explain risk-taking in the investment game.

Finally, results and implications of Experiment OPMLAB warrant some discussion. Given the relatively small sample size of 160 professionals in all three treatments, we do not want to over-interpret findings generated from this experiment. One drawback is that it was difficult to recruit more customers investing 1,000 euro each. However, we consider it very encouraging to find similar qualitative patterns as in Experiment OPM in this modified setting, making the major results of this paper stronger. We believe that this setting and the associated similar findings strengthen the robustness of the first experiment, as (i) professionals invest real high stakes of customers and (ii) are faced with rank incentives or, as innovation, tournament incentives in a more realistic and practically relevant environment in the laboratory, allowing for better control of subjects' behavior.

### 3 Online Survey Evidence on Preferences for Relative Performance, Competitiveness and Risk

Our results in this paper and the findings in our companion paper (Kirchler et al., 2018) reveal that rank-driven behavior of financial professionals is robust across different settings, including investment decisions for others. This raises the question to what extent financial professionals differ in their rank-driven behavior from other groups, such as their customers. Usually, the performance of fund managers and their ranking against alternative funds is known to customers. If customers are equally rank-driven as professionals it is possible that customers do not only enjoy the monetary but also the non-monetary benefits from the fact that their chosen fund manager (or private banker) outperformed other peers. Hence, if customers benefit from a higher ranking of "their" fund, rank-driven behavior of professionals could be in the interest of customers, as it directly translates into non-monetary customer benefits. If, however, rank incentives are stronger for professionals than for the average customer, then any increased risk-taking due to social competition among peers is at least partly violating customer interests. Given the performance-oriented business culture in the financial industry and the possibility that very competitive individuals self-select into this sector and are also shaped by it, financial professionals might differ from other groups in their preferences for relative performance, competitiveness, and risk preferences.

To shed more light on the role that professionals' individual characteristics may play, we administered an online survey to financial professionals, a representative general population sam-

ple, and individuals from other competitive environments like professional sports and academia (the survey questions are outlined in the Online Appendix A5). In particular, we asked survey questions measuring risk attitudes according to the German SOEP (Dohmen et al., 2011) and attitudes toward social status, financial success, and relative performance like in Cohn et al. (2014, 2017).<sup>17</sup> In addition, we asked for preferences regarding social status and relative performance in specific domains (job, hobbies, family, friends) and how attitudes towards social status and relative performance developed during childhood and adolescence.<sup>18</sup> We readily acknowledge that the answers to questions on earlier periods should be treated with great care, because looking back can deliver consistency—or hindsight-biased responses by participants. However, we are mainly interested in the time trend within participants (subject pools). The potential biases might therefore be less critical as they arguably apply to all ages similarly. Finally, alongside general demographic questions such as age, gender, income, profession, hierarchy level, we added the 5-item competition subscale of the Work and Family Orientation (WOFO) questionnaire of Helmreich and Spence (1978) as in Experiment OPM. The WOFO subscale, which is a widely used psychometric measure of individuals’ competitiveness, serves as a robustness check for the single-item question on relative performance (see Appendix A5 for the exact wording of the survey). In further analyses we have re-scaled the WOFO-score to a 7-point Likert-scale to make it comparable with the other variables.

In total we have recruited 1,000 respondents from two general population samples, 120 professional athletes from individual and team sports, 104 academics (from the level of PhD candidates to the full professor level), and 125 financial professionals that share the same characteristics as the professionals in our experiments. For the professional athletes the major selection criterion was that sports is their major or even sole income source. All of the athletes in this sample compete regularly on an international level. Importantly, all non-financial professional samples were selected from the same countries as the financial professionals sample in Experiment OPMLAB and the survey.

Figure 3 outlines the most relevant results. Table A5 in the Online Appendix reports more detailed results including pairwise MW U-tests which we refer to in all comparisons that follow.<sup>19</sup> For our main variable, *RELATIVE\_PERFORMANCE*, we find a clear pattern. Being the best is most important for professional athletes, followed by financial professionals and then—with a clear margin—by academics and respondents from the general population. These results are

---

<sup>17</sup>Q1 (*SOCIAL\_STATUS*): “How important is it for you what others think about you?”; Q2 (*FINANCIAL\_SUCCESS*): “Social status is primarily defined by financial success.” Q3 (*RELATIVE\_PERFORMANCE*): “How important is it for you to be the best at what you do?” Answers to all questions were given on a 7-point Likert scale ranging from 1 (not important) to 7 (very important).

<sup>18</sup>Survey participants had to self-report their attitudes at age 4-10, 11-18, and 19-25. The wording was as follows (e.g., for 19-25): “Think about your time as a young adult from age 19 to 25. How important was it for you what others thought about you?”

<sup>19</sup>Also, in the following, when we mention differences between groups we refer to statistically significant differences as reported in Table A5.

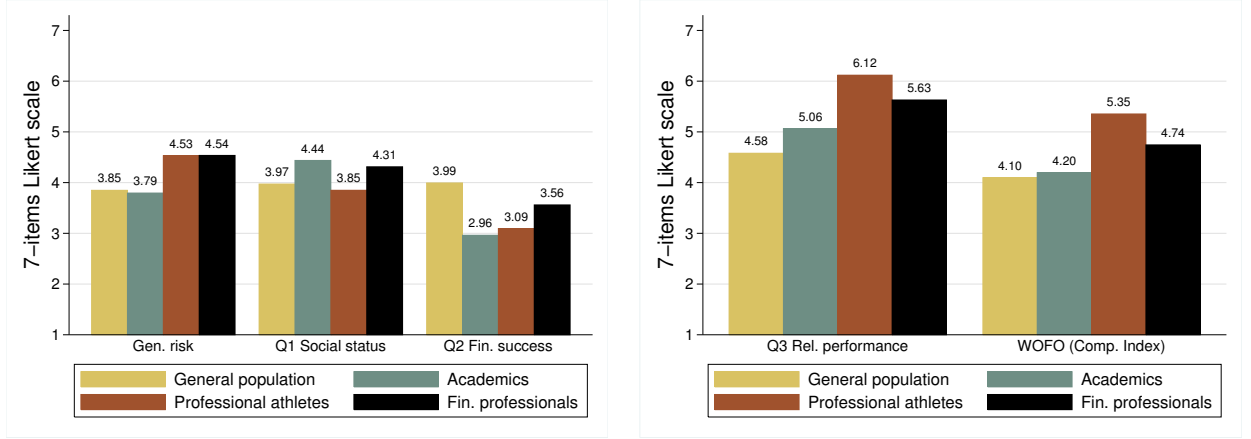


Figure 3: **Online Survey: Evidence on Preferences for Risk, Social Status, Financial Success, Relative Performance, and Competitiveness (WOFO) for Different Subject Pools**

Average survey responses of samples of the general population ( $N=1000$ ), academics ( $N=104$ ), professional athletes ( $N=120$ ), and financial professionals ( $N=125$ ) for general risk-taking (*GENERAL\_RISK*, the self-reported willingness to take risks from the GSOEP (scaled to 7-point Likert)), *SOCIAL\_STATUS*, *FINANCIAL\_SUCCESS*, and *RELATIVE\_PERFORMANCE* (representing the answers to corresponding survey questions on a 7-point Likert scale taken from Cohn et al. (2014, 2017) and Kirchler et al. (2018) with higher values indicating stronger preferences). The WOFO (*COMPETITIVENESS\_INDEX*) is the aggregate outcome of the 5-item WOFO test on competitiveness by Helmreich and Spence (1978) (scaled to 7-point Likert.)

supported by the aggregate outcome of the *COMPETITIVENESS\_INDEX* (5-item WOFO competitiveness subscale of Helmreich and Spence, 1978), showing the same ordinal ranking across subject pools in the importance of being competitive and winning in competitions (in our data, the internal reliability of the WOFO-subscale is very high with a Cronbach’s  $\alpha$  of 0.839). Moreover, relative performance is significantly more important in the job than in any other area of life. This pattern holds for all subject pools, but is particularly pronounced for financial professionals and athletes. The general question on relative performance and the job-domain are the only domains where financial professionals have significantly stronger concerns for relative performance than both academics and the general population. Interestingly, differences across subject pools are less pronounced regarding social status. Here, financial professionals share the top position with academics. Financial success as a signal is considered important by financial professionals and the general population. The role of financial success is considered significantly less important by professional athletes and academics. Importantly, financial professionals and professional athletes stand out in their general level of risk-taking and show significantly higher values compared to all other subject pools.

These survey results point out that financial professionals share similar preferences in crucial professional characteristics with professional athletes. Both groups consider competing and being top in competitions very important, particularly in their professional life, and thereby differ from the general population and academics. In addition, they both report to take more risks than the other subject pools as well. These findings further support our results from the experiments in this paper and in Kirchler et al. (2018), showing that professionals react on rankings and show concerns for relative performance in the investment tasks.

Following these findings the question arises whether these attitudes have been shaped by the professional environment or whether they have already been established at young age (or both). Figure A1 in the Online Appendix depicts participants' self-reported development of preferences for social status and relative performance since childhood. We find that the importance of relative performance clearly differs significantly across most subject pools at a very young age (4-10 years). At the age of 11-18, most groups have reached current levels. Financial professionals, however, are the exception. Their preference for relative performance steadily increases over all age groups.<sup>20</sup> Financial professionals report to have been as competitive as academics in their childhood and adolescence, but then their concerns for relative performance increase to (current) levels, which are close to professional athletes.<sup>21</sup> Although these analyses have to be treated with great care for the aforementioned reasons, they indicate that general differences in competitiveness and in relative performance across groups may already vary at a young age. Moreover, this is a hint that the profession and the business culture in the financial industry further shapes and accentuates professionals' concerns for relative performance beyond adolescence and up to the current age. This stands in stark contrast to preferences for social status, which decline after the age of 18 and where professionals do not differ from other groups.<sup>22</sup>

## 4 Conclusion and Discussion

In this paper we provided causal evidence on how rank incentives and monetary (tournament) incentives impact professionals' risk-taking when investing money for real customers. Despite the emerging literature on rank and tournament incentives (e.g., Dijk et al., 2014; Kleinlercher et al., 2014; Kirchler et al., 2018) and on delegated decision making in finance (e.g., Agranov et al., 2013; Andersson et al., 2013, 2016), the novelty in our approach is that (i) we studied financial professionals as fiduciary investment managers, that (ii) we let them invest real money from clients (up to 2,000 euro of two customers) and that (iii) we analyzed whether professionals' competition for high rank—aligned with or without monetary incentives—can influence risk-taking on behalf of others. We conducted an online experiment with 805 financial professionals,

---

<sup>20</sup>A Cuzick trend test shows a significantly increasing trend for financial professionals with  $p=0.000$ .

<sup>21</sup>Financial professionals have significantly higher values than academics at the current age (see Table A5), but not at ages from 4-10, 11-18, and 19-25.

<sup>22</sup>A Cuzick trend test shows that all groups have a declining trend after age 18 with  $p=0.003$ .

a lab-in-the-field experiment with another 160 professionals, and an online survey with another sample of professionals, a representative sample of the general population, as well as professional athletes and academics (1,349 respondents in total).

First, we showed that rankings drove professionals’ behavior on behalf of their customers, especially when professionals’ monetary incentives were aligned with customers’ incentives. In particular, we found that professionals that were lagging behind in the ranking increased risk-taking compared to their peers and this rank-driven behavior was indifferent from professionals’ behavior when investing solely for themselves. Given that participants in the lab usually exhibit diminishing absolute risk aversion and risk-taking increases in initial wealth levels (see, among others, Levy, 1994; Holt and Laury, 2002), this finding is remarkable as the player with the worst rank would be the least likely to choose the risky lottery (Kuziemko et al., 2014). Hence, our design takes a conservative position, because the observed rank-driven behavior actually works in the opposite direction to a possible increase of risk-taking in wealth. Moreover, we reported that rank-driven risk-taking on behalf of customers disappeared as soon as professionals’ incentives were flat. Importantly, these findings held both for the online experiment and the robustness check experiment in the laboratory. In addition, we found insignificant effects of increasing customer salience on risk-taking.

Second, we found that professionals’ perceived risk attitudes of customers did not drive behavior in the online experiment. In contrast, professionals mainly focused on their individual risk attitudes and their level of loss aversion when making decisions for clients. This finding was particularly relevant when monetary incentives were flat.

Finally, we reported that professionals stood out in their self-reported importance of relative performance compared to the general population and to academics, coming close to the high level of professional athletes. Professionals also differed from the general population in other aspects, like in higher status concerns and elevated risk preferences. These findings indicate that rank-driven behavior is rooted in “special” attitudes among financial professionals, including strong concerns about their relative performance compared to peers.

In general, this paper addresses an important feature of the finance industry, namely that professionals primarily manage funds from third parties. However, in some areas of the finance industry like in trading and fund management customers are probably not salient in professionals’ daily activities. Although professionals invest other people’s money, individual incentives—be it non-monetary rankings or tournament and bonus schemes—are more salient and important. In this case, the results of our companion paper Kirchler et al. (2018), showing robust rank-driven behavior when professionals invest for themselves, are probably more relevant. For some other areas like private banking customers are salient in everyday decisions. Here, professionals meet regularly and interact with the customers trying to meet their preferences best. Thus, results of this paper are probably more relevant for these particular areas in the finance industry.

Our findings provide implications for professionals’ investment decisions outside the labora-

tory. First, the increased appetite for risk of underperforming professionals implies that regulating tournament incentives might be ineffective as long as social competition drives behavior as well. However, it seems encouraging for the industry that professionals' competition for rank and associated elevated risk-taking can be moderated by decoupling incentives of professionals to customers' portfolio performance. Second, results of this paper and findings of Kirchler et al. (2018) suggest that one alternative to mitigate rank-driven behavior in the finance industry could be to increase the salience of clients together with limiting aligned professionals' incentives to lower social competition among professionals. This combined effect could create less rank-driven behavior which might lead to better portfolio management and better product selection for clients accounting more for customers' risk attitudes and preferences and less for idiosyncratic competitive and status concerns of clients' advisers.

## References

- Abdellaoui, Mohammed, Aurélien Baillon, Laetitia Placido, Peter P. Wakker. 2011. The rich domain of uncertainty: Source functions and their experimental implementation. *American Economic Review* **101**(2) 695–723.
- Abdellaoui, Mohammed, Han Bleichrodt, Hilda Kammoun. 2013. Do financial professionals behave according to prospect theory? An experimental study. *Theory and Decision* **74**(3) 411–429.
- Agranov, Marina, Alberto Bisin, Andrew Schotter. 2013. An experimental study of the impact of competition for other people's money: the portfolio manager market. *Experimental Economics* **17**(4) 564–585.
- Alevy, Jonathan E., Michael S. Haigh, John A. List. 2007. Information cascades: Evidence from a field experiment with financial market professionals. *Journal of Finance* **62**(1) 151–180.
- Andersson, Ola, Hakan J. Holm, Jean-Robert Tyran, Erik Wengström. 2013. Risking other people's money. *IFN Working Paper* .
- Andersson, Ola, Hakan J. Holm, Jean-Robert Tyran, Erik Wengström. 2016. Deciding for others reduces loss aversion. *Management Science* **62**(1) 29–36.
- Azmat, Ghazala, Nagore Iriberri. 2010. The importance of relative performance feedback information: Evidence from a natural experiment using high school students. *Journal of Public Economics* **94**(7-8) 435–452.
- Bandiera, Oriana, Iwan Barankay, Imran Rasul. 2013. Team incentives: Evidence from a firm level experiment. *Journal of the European Economic Association* **11**(5) 1079–1114.



- Barankay, Iwan. 2015. Rank incentives: Evidence from a randomized workplace experiment. Working Paper.
- Bebchuk, Lucian, Holger Spamann. 2010. Regulating bankers' pay. *Georgetown Law Journal* **98**(2) 247–287.
- Blanes-i-Vidal, Jordi, Mareike Nossol. 2011. Tournaments without prizes: Evidence from personnel records. *Management Science* **57**(10) 1721–1736.
- Bolton, Gary, Axel Ockenfels. 2010. Betrayal aversion: Evidence from brazil, china, oman, switzerland, turkey, and the united states: Comment. *American Economic Review* **100**(1) 628–633.
- Bolton, Gary, Axel Ockenfels, Julia Stauf. 2015. Social responsibility promotes conservative risk behavior. *European Economic Review* **74** 109–127.
- Bordalo, Pedro, Nicola Gennaioli, Andrei Shleifer. 2013. Salience and consumer choice. *Journal of Political Economy* **121**(5) 803–843.
- Brown, Keith C., W.V. Harlow, Laura T. Starks. 1996. Of tournaments and temptations: An analysis of managerial incentives in the mutual fund industry. *Journal of Finance* **51**(1) 85–110.
- Chakravarty, Sugato, Glenn Harrison, Ernan Haruvy, Elisabeth Rutström. 2011. Are you risk averse over other peoplesâ money? *Southern Economic Journal* **77** 901–913.
- Charness, Gary, Uri Gneezy, Brianna Halladay. 2016. Experimental methods: pay one or pay all. *Journal of Economic Behavior and Organization* **131** 141–150.
- Charness, Gary, David Masclet, Marie Claire Villeval. 2014. The dark side of competition for status. *Management Science* **60**(1) 38–55.
- Cipriani, Marco, Antonio Guarino. 2009. Herd behavior in financial markets: An experiment with financial market professionals. *Journal of the European Economic Association* **7**(1) 206–233.
- Cohn, Alain, Ernst Fehr, Michel André Maréchal. 2014. Business culture and dishonesty in the banking industry. *Nature* **516** 86–89.
- Cohn, Alain, Ernst Fehr, Michel André Maréchal. 2017. Do professional norms in the banking industry favor risk-taking? *Review of Financial Studies* forthcoming.
- Crosetto, Paolo, Antonio Filippin. 2013. The “bomb” risk elicitation task. *Journal of Risk and Uncertainty* **47**(1) 31–65.

- Cubitt, Robin P., Chris Starmer, Robert Sugden. 1998. On the validity of the random lottery incentive system. *Experimental Economics* **1**(2) 115–131.
- Delfgaauw, Josse, Robert Dur, Joeri Sol, Willem Verbeke. 2013. Tournament incentives in the field: Gender differences in the workplace. *Journal of Labor Economics* **31**(2) 305–326.
- Dewatripont, Mathias, Xavier Freixas. 2012. *Bank resolution: Lessons from the crisis*. London: Centre for Economic Policy Research.
- Diamond, Douglas W., Raghuram G. Rajan. 2009. The credit crisis: Conjectures about causes and remedies. *American Economic Review* **99**(2) 606–610.
- Dijk, Oege, Martin Holmen, Michael Kirchler. 2014. Rank matters – The impact of social competition on portfolio choice. *European Economic Review* **66** 97–110.
- Dohmen, Thomas J., Armin Falk, David Huffman, Juergen Schupp, Uwe Sunde, Gert Wagner. 2011. Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the European Economic Association* **9**(3) 522–550.
- Elton, Edwin J., Martin J. Gruber, Christopher R. Blake. 2003. Incentive fees and mutual funds. *The Journal of Finance* **58**(2) 779–804.
- Eriksen, Kristoffer, Ola Kvaloy. 2010. Myopic investment management. *Review of Finance* **14**(3) 521–542.
- Eriksen, Kristoffer, Ola Kvaloy, Miguel Luzuriaga. 2017. Risk-taking on behalf of others. *CESIFO Working Paper* .
- Falk, Armin, Anke Becker, Thomas Dohmen, Benjamin Enke, David Huffman, Uwe Sunde. 2015. The Nature and Predictive Power of Preferences: Global Evidence .
- Festinger, Leon. 1954. A theory of social comparison processes. *Human Relations* **7** 117–140.
- Financial Crisis Inquiry Commission. 2011. *The Financial Crisis Inquiry Report: The Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States Including Dissenting Views*. Cosimo, Inc.
- Fischbacher, Urs. 2007. z-tree: Zurich toolbox for ready-made economic experiments. *Experimental Economics* **10**(2) 171–178.
- Frydman, Cary. 2016. Relative wealth concerns in portfolio choice: neural and behavioral evidence. Working Paper.
- Füllbrunn, Sascha, Wolfgang Luhan. 2015. Am i my peer’s keeper? social responsibility in financial decision making. *Working Paper* .

- Füllbrunn, Sascha, Wolfgang Luhan. 2017. Decision making for others: The case of loss aversion. *Economics Letters* **161** 154–156.
- Gächter, Simon, E. J. Johnson, A. Hermann. 2007. Individual-level loss aversion in riskless and risky choices. CeDEx Discussion Paper No. 2007-02.
- Haigh, Michael S., John A. List. 2005. Do professional traders exhibit myopic loss aversion? An experimental analysis. *Journal of Finance* **60**(1) 523–534.
- Helmreich, Robert L., Janet T. Spence. 1978. The work and family orientation questionnaire: An objective instrument to assess components of achievement motivation and attitudes toward family and career. *Catalog of Selected Documents in Psychology* **8**(2) Document 1677.
- Hey, John D., Jinkwon Lee. 2005. Do subjects separate (or are they sophisticated)? *Experimental Economics* **8**(3) 233–265.
- Holt, Charles A., Susan K. Laury. 2002. Risk aversion and incentive effects. *American Economic Review* **92**(5) 1644–1655.
- Jensen, Michael C., William H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics* **3** (4) 305–360.
- Kaustia, Markku, Eeva Alho, Vesa Puttonen. 2008. How much does expertise reduce behavioral biases? the case of anchoring effects in stock return estimates. *Financial Management* **37**(3).
- Kerschbamer, Rudolf. 2015. The geometry of distributional preferences and a non-parametric identification approach: The equality equivalence test. *European Economic Review* **76** 85–103.
- Kirchler, Michael, Florian Lindner, Utz Weitzel. 2018. Rankings and risk-taking in the finance industry. *Journal of Finance* **forthcoming**.
- Kleinlercher, Daniel, Jürgen Huber, Michael Kirchler. 2014. The impact of different incentive schemes on asset prices. *European Economic Review* **68** 137–150.
- Kuziemko, Ilyana, Ryan Buell, Taly Reich, Michael I. Norton. 2014. "Last-place aversion": Evidence and redistributive implications. *Quarterly Journal of Economics* **129**(1) 105–149.
- Levy, Haim. 1994. Absolute and relative risk aversion: An experimental study. *Journal of Risk and Uncertainty* **8** 289–307.
- March, Christoph, Anthony Ziegelmeyer, Ben Greiner, René Cyranek. 2015. Monetary incentives in large-scale experiments: A case study of risk aversion. Working Paper.
- Odean, Terrance. 1998. Are investors reluctant to realize their losses? *The Journal of Finance* **53**(3) 1175–1789.

- Rajan, Raghuram G. 2006. Has finance made the world riskier? *European Financial Management* **12**(4) 499–533.
- Roth, Benjamin, Andrea Vostro. 2014. Stereotypes and false consensus: How financial professionals predict risk preferences. *Journal of Economic Behavior and Organization* **107** 553–565.
- Roussanov, Nikolai. 2010. Diversification and its discontents: Idiosyncratic and entrepreneurial risk in the quest for social status. *Journal of Finance* **65**(5) 1755–1788.
- Starmer, Chris, Robert Sugden. 1991. Does the random-lottery incentive system elicit true preferences? An experimental investigation. *American Economic Review* **81**(4) 971–978.
- Sutter, Matthias. 2009. Individual behavior and group membership: Comment. *American Economic Review* **99**(5) 2247–2257.
- Tran, Anh, Richard Zeckhauser. 2012. Rank as an inherent incentive: Evidence from a field experiment. *Journal of Public Economics* **96**(9-10) 645–650.
- Veblen, Thorstein. 1899. *The theory of the leisure class: An economic study of institutions*. Macmillan.

## Appendix

### A1 Additional Figures and Tables

Table A1: **Treatment Overview**

This table outlines details on all treatments. In Treatment OWN professionals invest for themselves and face linear incentives. In treatments SAL\_LO and SAL\_HI professionals invest for real customers with aligned (linear) incentives and low or high customer salience, respectively. In Treatment FLAT customer salience is high as well, but professionals receive a fixed payment. In Treatment TBASE professionals receive a fixed payment and the funds of real clients are aligned to the performance of the managed fund. Treatment TRANK is identical except for the display of an anonymous and non-incentivized ranking after each period. In Treatment TTOUR the setup is identical to TRANK, except that the ranking is payout-relevant for the professionals with a convex tournament scheme.

Treatment feature	Experiment OPM				Experiment OPMLAB		
	OWN	SAL_LO	SAL_HI	FLAT	TBASE	TRANK	TTOUR
Incentives professionals (they receive windfall money)	linear	linear	linear	flat	flat	flat	tournament
Incentives customers (they cover losses personally with their own money)	linear	linear	linear	linear	linear	linear	linear
Ranking displayed (Y/N)	Y	Y	Y	Y	N	Y	Y
Number of periods	3	3	3	3	8	8	8
One-shot (OS); multi-period (MP)	OS	OS	OS	OS	MP	MP	MP
Number of professionals	201	202	203	199	56	52	52
Number of professionals/cohort (ranking)	6	6	6	6	(4)	4	4

Table A2: **Ranks and Risk-Taking in Experiment OPM Controlling for Gender Effects in *RANK***

This table outlines probit regressions of professionals' choices for investment in the risky lottery (*RISK*) conditional on professionals' rank at the beginning of the period. *RANK* indicates subject *i*'s rank at the beginning of the period according to initial wealth and *RANK \* FEM* is an interaction term of *RANK* and a dummy for female professionals, measuring womens' rank-driven behavior compared to men (measured with *RANK*). *RISKFIN* is the self-reported willingness to take risks in financial matters (7-point Likert scale; taken from the German SOEP), *RISKCUST* is professionals' belief about the customer's willingness to take risks (7-point Likert scale; adapted from the German SOEP) and *LOSSTOL* is a measure of loss attitudes (from 0 to 1: higher values indicate lower loss aversion and thus higher loss tolerance). *AGE* indicates professionals' age and is the 5-item competition subscale of the Work and Family Orientation (WOFO) questionnaire. In Treatment OWN professionals invest for themselves and face linear incentives. In treatments SAL\_LO and SAL\_HI professionals invest for real customers with aligned (linear) incentives and low or high customer salience, respectively. In Treatment FLAT customer salience is high as well, but professionals receive a fixed payment. In the far-right column all treatments except OWN are included with FLAT serving as the base category. Standard errors are clustered on a subject-level and provided in parentheses. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels, respectively.

<i>RISK</i>	OWN	SAL_LO	SAL_HI	FLAT	OWN	SAL_LO	SAL_HI	FLAT	OPM ALL
<i>RANK</i>	0.110*** (0.032)	0.076** (0.035)	0.077** (0.034)	0.013 (0.033)	0.130*** (0.037)	0.078 (0.047)	0.081* (0.042)	0.055 (0.042)	0.071*** (0.025)
<i>RANK * FEM</i>	0.003 (0.031)	0.004 (0.032)	-0.021 (0.030)	0.016 (0.033)	-0.032 (0.057)	-0.002 (0.061)	-0.027 (0.059)	-0.051 (0.058)	-0.025 (0.034)
<i>RISKFIN</i>					0.157*** (0.046)	0.086* (0.045)	0.068 (0.048)	0.147*** (0.052)	0.098*** (0.028)
<i>RISKCUST</i>						0.004 (0.046)	-0.046 (0.052)	0.044 (0.053)	-0.005 (0.029)
<i>LOSSTOL</i>					0.058 (0.230)	0.100 (0.245)	0.272 (0.249)	0.661** (0.261)	0.320** (0.146)
<i>AGE</i>					0.006 (0.006)	0.002 (0.006)	0.003 (0.006)	0.002 (0.006)	0.002 (0.003)
<i>FEMALE</i>					0.307 (0.234)	0.106 (0.248)	0.080 (0.242)	0.431* (0.248)	0.184 (0.140)
<i>COMPETE</i>					-0.038 (0.085)	-0.021 (0.087)	-0.031 (0.079)	0.087 (0.085)	-0.004 (0.048)
SAL_LO									-0.155* (0.088)
SAL_HI									-0.025 (0.088)
$\alpha$	-0.234** (0.112)	-0.156 (0.118)	0.014 (0.117)	0.180 (0.114)	-1.219** (0.475)	-0.658 (0.519)	-0.254 (0.442)	-1.595*** (0.487)	-0.661** (0.282)
N	603	606	609	597	603	606	609	597	1812
N cluster	201	202	203	199	201	202	203	199	604
Chi <sup>2</sup>	16.008	6.924	5.469	0.829	29.345	11.058	10.098	27.777	37.450
p-value	0.000	0.031	0.065	0.661	0.000	0.198	0.258	0.001	0.000

Table A3: **Ranks and Risk-Taking in Experiment OPMLAB Without AR(1) Disturbance for Robustness**

This table shows fixed effects panel regression with clustered standard errors on a group level, testing treatment differences of professionals' percentage invested in the risky asset (*RISK*).  $RET\_PF_{t-1}$  is the log-return of subject  $i$ 's portfolio since the start of the experiment and  $RET\_ASSET_{t-1}$  is the preceding period's asset return. *UNDERPERFORMER* is a binary dummy variable marking underperforming professionals at ranks 3 and 4. Moreover,  $RANK_{t-1}$  indicates subject  $i$ 's rank at the end of the preceding period. In Treatment TBASE professionals receive a fixed payment and the funds of real clients are aligned to the performance of the managed fund. Treatment TRANK is identical except for the display of an anonymous and non-incentivized ranking after each period. In Treatment TTOUR the setup is identical to TRANK, except that the ranking is payout-relevant for the professionals with a convex tournament scheme. Standard errors are provided in parentheses. \*\*\*, \*\*, and \* represent significance at the 1, 5, and 10 percent levels, respectively.

<i>RISK</i>	TBASE	TRANK	TTOUR	TBASE	TRANK	TTOUR
$RET\_PF_{t-1}$	-0.517* (0.285)	-0.274 (0.409)	-0.699** (0.278)	-0.515* (0.280)	-0.268 (0.419)	-0.748** (0.292)
$RET\_ASSET_{t-1}$	0.153 (0.258)	0.041 (0.176)	-0.000 (0.304)	0.152 (0.263)	0.039 (0.175)	0.023 (0.300)
$UNDERPERFORMER_{t-1}$	2.234 (10.155)	8.937 (7.904)	16.639*** (4.860)			
$RANK_{t-1}$				1.021 (4.819)	3.771 (5.456)	4.801 (3.308)
$\alpha$	95.783*** (5.253)	97.606*** (5.063)	90.529*** (2.704)	94.342*** (12.075)	92.609*** (14.645)	87.107*** (8.602)
N	392	364	364	392	364	364
N cluster	14	13	13	14	13	13
R <sup>2</sup>	0.018	0.025	0.003	0.018	0.026	0.003
F-value	1.30	0.62	9.94	1.26	0.39	3.61
p-value	0.315	0.613	0.001	0.328	0.763	0.046

Table A4: **Individual Preferences and Investments in the Risky Asset in Experiment OPMLAB**

This table shows ordinary least squares regressions of professionals' average amount invested in the risky asset,  $\overline{RISK}$ .  $FINANCIAL\_SUCCESS$ ,  $SOCIAL\_STATUS$ , and  $RELATIVE\_PERFORMANCE$  represent the answers to subjects' importance of corresponding survey questions on a 7-point Likert scale (higher values indicate stronger preferences) following Cohn et al. (2014), Cohn et al. (2017), and Kirchler et al. (2018).  $RISKFIN$  is the self-reported willingness to take risks in financial matters according to the German SOEP-questionnaire (11-point Likert scale) and  $LOSSTOL$  is a measure of loss attitudes (from 0 to 1; higher values indicate lower loss aversion). Standard errors are clustered on a group level and provided in parentheses. \*\*\*, \*\*, and \* represent significance at the 1, 5, and 10 percent levels, respectively.

$\overline{RISK}$	TBASE	TRANK	TTOUR	ALL
$FINANCIAL\_SUCCESS$	-3.731 (6.735)	-7.181* (3.488)	3.851 (3.736)	-2.206 (2.736)
$SOCIAL\_STATUS$	5.579 (3.312)	-6.512 (4.950)	5.198 (4.091)	1.114 (3.005)
$RELATIVE\_PERFORMANCE$	3.709 (6.015)	6.267 (6.916)	-0.232 (7.691)	3.953 (4.638)
$LOSSTOL$	12.305 (30.629)	-14.589 (33.789)	43.978 (32.031)	5.727 (17.051)
$RISKFIN$	9.768** (3.972)	6.996* (3.788)	5.324* (2.521)	7.620*** (1.865)
$\alpha$	-9.221 (53.236)	89.001* (43.639)	3.425 (47.295)	27.699 (26.974)
N	56	52	52	160
N cluster	14	13	13	40
R <sup>2</sup>	0.162	0.191	0.143	0.114
F-value	2.265	2.564	3.289	5.138
p-value	0.109	0.084	0.042	0.001



Table A5: Online Survey: Univariate Analysis of Preferences for Relative Performance, Status, Financial Success and Risk Attitudes for Different Subject Pools

Univariate analysis of samples of the general population ( $N=1000$ ), academics ( $N=104$ ), professional athletes ( $N=120$ ), and financial professionals ( $N=125$ ) for the following variables: *SOCIAL\_STATUS*, *FINANCIAL\_SUCCESS*, and *RELATIVE\_PERFORMANCE* represent the answers to corresponding survey questions on a 7-point Likert scale (higher values indicate stronger preferences). For all three questions the preferences were also elicited for different areas such as job, hobbies, family, and friends. *GENERAL\_RISK* is the self-reported willingness to take risks (11-point Likert scale from 0 to 10; higher values indicate stronger preferences). *COMPETITIVENESS\_INDEX* is the aggregate outcome of the 5-item WOFO test on competitiveness by Helmreich and Spence (1978) (5-point Likert scales; higher values indicate stronger preferences). \*\*\*, \*\*, and \* represent significance at the 1, 5, and 10 percent levels of double-sided Mann-Whitney U-tests, respectively. Headers of pairwise tests involving financial professionals are written in **bold**.

Variable	Subject pools			MW-U tests ( Z-values )						
	Gen. pop.	Aca- demics	Prof. athletes	Fin. prof.	Gen v acad	Gen v athletes	Gen v fin	Acad v athletes	Acad v fin	Athletes v fin
<i>SOCIAL_STATUS</i>	3.97	4.44	3.85	4.31	2.315**	0.882	2.021**	2.712***	0.548	2.431**
<i>SOCIAL_STATUS_JOB</i>	4.84	5.13	4.66	5.34	0.944	1.640	2.618***	2.070**	1.107	3.603***
<i>SOCIAL_STATUS_HOBBIES</i>	3.73	3.41	2.91	3.06	1.727*	4.823***	4.067***	1.846*	1.345	0.519
<i>SOCIAL_STATUS_FAMILY</i>	4.72	4.80	4.59	4.73	0.069	0.712	0.242	0.594	0.277	0.370
<i>SOCIAL_STATUS_FRIENDS</i>	4.74	4.51	4.37	4.62	1.745*	2.573**	1.484	0.590	0.492	1.155
<i>FINANCIAL_SUCCESS</i>	3.99	2.96	3.09	3.56	4.793***	5.455***	2.767***	0.828	2.667***	2.296**
<i>RELATIVE_PERFORMANCE</i>	4.58	5.06	6.12	5.63	2.713***	10.443***	7.427***	5.493***	2.846***	3.816***
<i>RELATIVE_PERFORMANCE_JOB</i>	5.01	5.46	6.51	5.98	2.688***	11.311***	7.285***	6.143***	2.643***	4.717***
<i>RELATIVE_PERFORMANCE_HOBBIES</i>	4.15	3.90	4.23	3.86	1.119	0.219	1.744*	1.208	0.106	1.717**
<i>RELATIVE_PERFORMANCE_FAMILY</i>	4.51	3.91	3.74	4.53	2.528**	3.998***	0.892	0.608	2.101**	3.069***
<i>RELATIVE_PERFORMANCE_FRIENDS</i>	4.45	3.78	4.01	4.46	3.185***	3.022***	0.012	0.892	2.694***	2.428**
<i>GENERAL_RISK</i>	6.05	5.96	7.12	7.13	0.342	4.613***	4.815***	3.281***	3.330***	0.085
<i>COMPETITIVENESS_INDEX</i>	2.93	3.00	3.82	3.39	0.876	10.685***	6.137***	6.582***	3.158***	4.973***
N	1,000	104	120	125						
Percentage FEMALE	49.90	19.23	17.50	12.80						

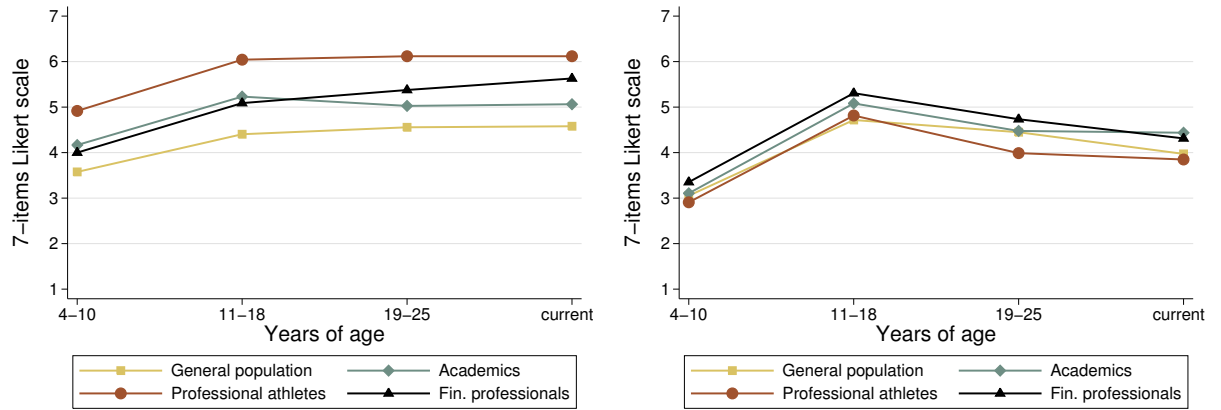


Figure A1: **Online Survey: Self-Reported Development of Preferences for Relative Performance (Left) and Social Status (Right) Since Childhood**

Average survey responses of samples of the general population ( $N=1000$ ), academics ( $N=104$ ), professional athletes ( $N=120$ ), and financial professionals ( $N=125$ ) for relative performance and social status (representing the answers to corresponding survey questions on a 7-point Likert scale taken from Cohn et al. (2014, 2017) and Kirchler et al. (2018) with higher values indicating stronger preferences).

## A2 Instructions of Online Experiment OPM

[WELCOME SCREEN]<sup>23</sup>

We are researchers from several universities conducting a study on your personal opinions and attitudes.

Participation will take less than 10 minutes. With your participation, you will make an important contribution to research and you can earn money: one in five participants can win up to \$81! **one in five participants will receive at least \$45!** At the end of the data collection (in about 10 days), a random draw will determine whether you are one of those that are paid out according to your decisions. In this case, you will receive your payout in points which you can cash in and retrieve via Paypal or other methods. Note that your earnings can vary according to the decisions you take in this study.

All data will be depersonalized and will only be used for scientific purposes. This online study adheres to the principles of economic experiments: participants are not deceived and earnings are paid out in real.

Thank you very much for participating!

Michael Kirchler (Innsbruck University, Gothenburg University), Utz Weitzel (Utrecht University, Radboud University), Florian Lindner (Innsbruck University)

\*\*\* Please click below to start. Note that you will not be able to go back to previous pages throughout the whole study. \*\*\*

[PRIMING SCREEN—PROFESSIONAL PRIME]

We start with a few questions. Please answer all of the following questions:

- At which financial institution are you presently employed?
- What is your function at this financial institution?
- For how many years have you been working in the financial sector? (Please enter full years; can be in different organizations and/or functions)
- Why did you decide to become an employee in the financial sector? Please describe your answer in two to three sentences.

---

<sup>23</sup>Instructions are for Treatment OWN in experiment OPM, additional text regarding the customer for treatments SAL\_LO, SAL\_HI, and FLAT is in *italic*. Additional text for Treatment FLAT is written in **teletype**.

- What are, in your opinion, the three major advantages of your occupation as an employee in the financial sector?
- Which three characteristics of your personality do you think are typical for an employee in the financial sector?
- What are the three most important things you learned in your occupation as an employee in the financial sector?

[INVESTMENT TASK—SCREEN 1]

On the following screens you will play a game with five other experimental participants from the financial sector, who will be randomly matched with you. We will show you some depersonalized characteristics of the other participants in your group. You will play several rounds in each of which you can choose between a fixed payment of \$2.25 and a lottery where you can win \$9 with 75% probability or lose \$18 with 25% probability.

- At the beginning of each round, the computer will hold a lottery and give you and the other players in your group different amounts of money, referred to as initial wealth. You will see a ranking with the initial position you hold in your group according to your wealth.
- At the end of each round, after your decision, you will see a results screen with your new wealth. We also provide you with an updated ranking indicating your new position based on your decision and that of the others in the group.

In each round you will face a new draw of group members and initial wealth allocations. If you are selected for payment we will randomly draw one of the rounds and pay your new wealth. As any of the following rounds can be the one which is actually paid out, you should play the whole game as if you are playing for real money in each round.

[Begin alternative text for Treatment FLAT]

On the following screens you will play a game with five other experimental participants from the financial sector, who will be randomly matched with you. We will show you some depersonalized characteristics of the other participants in your group. You will play several rounds in each of which you can choose between a fixed payment of \$2.25 and a lottery where you can win \$9 with 75% probability or lose \$18 with 25% probability.

- At the beginning of each round, the computer will hold a lottery and give you and the other players in your group different amounts of money, referred to as

initial wealth. You will see a ranking with the initial position you hold in your group according to your wealth.

- At the end of each round, after your decision, you will see a results screen with your new wealth. We also provide you with an updated ranking indicating your new position based on your decision and that of the others in the group.

In each round you will face a new draw of group members and initial wealth allocations. If you are selected for payment you will receive from us a fixed fee of \$45 for completing this task.

[INVESTMENT TASK—EXTRA SCREEN for Treatments SAL\_LO, SAL\_HI, FLAT]  
*ADDITIONAL INSTRUCTIONS FOR NEXT SCREENS*

*Your decisions in the following rounds also affect the payout of a client, whom we randomly assigned to you and who will receive a payout according to your decisions. The client is not part of the group of the five other experimental participants with whom you will play the game on the next screens, but another person who we approached separately. The client is a male, between 30 and 50 years old, holds a university degree, is in no financial trouble, and knows the rules of this game (the client has read the instructions and agreed to them by signing a declaration of consent).*

*The client does not receive the initial wealth from us, but pays it out of his own pocket. At the end of all rounds, we will randomly draw one round, and then pay the client his new wealth (initial wealth plus outcome of your choice). At the end of this experiment, you can indicate whether you want to receive depersonalized information about the amount earned by everyone in this research project (including the clients).*

[INVESTMENT TASK—SCREEN 2]  
ROUND 1

You are matched with five other participants from the financial sector. Please click the button below to start.

[INVESTMENT TASK—SCREEN 3]

Your initial wealth: **\$40.50**

Your initial position: **4th Place**

**Ranking in your group:**

<i>Place</i>	<i>Player</i>	<i>Wealth</i>	<i>Function</i>	<i>Exp. in yrs</i>	<i>Characteristic #1</i>
1st	other	\$54	Financial Advisor	38	Analytical
2nd	other	\$49.50	Trading	38	Discipline
3rd	other	\$45	Financial advisor	10	Social
<b>4th</b>	<b>YOU</b>	<b>\$40.50</b>	Portfolio manager	11	competitiveness
5th	other	\$36	analyst	10	assertive
6th	other	\$31.50	Licensed support speciali	7	Patient

**In this round, which would you prefer?**

**Win \$2.25 with 100% probability**

**Win \$9 with 75% probability or lose \$18 with 25% probability**

Should this round be randomly selected your payment is determined as follows. If you have chosen the upper option, you receive your initial wealth plus \$2.25. If you have chosen the lower option, you receive your initial wealth plus \$9 with 75% probability or you receive your initial wealth minus \$18 with 25% probability. All random draws are computer-generated and are independently and separately drawn for each round and player.

Figure A1: Decision screen in treatments OWN and SAL\_LO.

Your initial wealth: **\$45**  
Your initial position: **3rd Place**

**Ranking in your group:**

<i>Place</i>	<i>Player</i>	<i>Wealth</i>	<i>Function</i>	<i>Exp. in yrs</i>	<i>Characteristic #1</i>
1st	other	\$54	Financial Advisor	38	Analytical
2nd	other	\$49.50	Trading	38	Discipline
<b>3rd</b>	<b>YOU</b>	<b>\$45</b>	Portfolio manager	11	competitiveness
4th	other	\$40.50	Financial advisor	10	Social
5th	other	\$36	analyst	10	assertive
6th	other	\$31.50	Licensed support speciali	7	Patient

**In this round, which would you prefer?**

Keep in mind that your decision below solely affects the payoff of the client, whom we matched with you. The client does not receive the initial wealth of \$45 from us, but pays it out of his own pocket.

**Win \$2.25 with 100% probability**

**Win \$9 with 75% probability or lose \$18 with 25% probability**

Should this round be randomly selected the payment of the client is determined as follows. If you have chosen the upper option, the client receives the initial wealth plus \$2.25. If you have chosen the lower option, the client receives the initial wealth plus \$9 with 75% probability or the initial wealth minus \$18 with 25% probability. All random draws are computer-generated and are independently and separately drawn for each round and player. Your decision does not affect your own payment, which is a fixed fee of \$45 (if you are selected for payment).

Figure A2: Decision screen in treatments SAL\_HI and FLAT.  
(The final sentence concerning the fixed payout of \$45 only applies to Treatment FLAT.)

[INVESTMENT TASK—SCREEN 4: RESULTS SCREEN for all treatments]

**Your result:**

You chose: Win \$9 with 75% probability or lose \$18 with 25% probability

The computer has drawn: \$9

Your new wealth: **\$49.50**

Your new position: **3rd Place**

**New ranking in your group:**

<i>Place</i>	<i>Player</i>	<i>Wealth</i>	<i>Function</i>	<i>Exp. in yrs</i>	<i>Characteristic #1</i>
1st	other	\$58.50	Trading	38	Discipline
2nd	other	\$56.25	Financial Advisor	38	Analytical
<b>3rd</b>	<b>YOU</b>	<b>\$49.50</b>	Portfolio manager	11	competitiveness
4th	other	\$47.25	Financial advisor	10	Social
5th	other	\$45	analyst	10	assertive
6th	other	\$33.75	Licensed support speciali	7	Patient

Figure A3: Results screen in all treatments OWN, SAL\_LO, SAL\_HI, and FLAT. (The outcome shown on this screen results from choosing and winning the lottery in the decision screen shown in Figure A1.)



[INVESTMENT TASK—SCREENS 2 to 4 are repeated for three rounds]

[MANIPULATION CHECK]

**This is the end of the decision rounds. Please complete the task below:**

Try to fill the gaps with letters to form existing words. Please enter in each case the full solution word into the input field.

Example: \_ o u s e      H o u s e

_ _ o c k	<input type="text"/>
_ a t	<input type="text"/>
_ _ o k e r	<input type="text"/>
_ o n e y	<input type="text"/>
T h _ n _	<input type="text"/>
B _ n d	<input type="text"/>

Figure A4: Manipulation check in all treatments.

## [LOSS AVERSION TASK]

In the 6 decisions below you have to decide whether you want to participate in a lottery where you can win or lose money. If you reject the lottery, you will receive \$0 (in addition to your initial endowment). If you are one of the participants who receive payment, the initial endowment and one of your 6 decisions below will be paid out.

**For this task you receive an initial endowment of \$18.**

**Please decide for each of the six rows below:**

	Accept this lottery	Reject this lottery
<b>Loss of \$3</b> with 50% probability or <b>gain of \$15</b> with 50% probability.	<input type="radio"/>	<input type="radio"/>
<b>Loss of \$6</b> with 50% probability or <b>gain of \$15</b> with 50% probability.	<input type="radio"/>	<input type="radio"/>
<b>Loss of \$9</b> with 50% probability or <b>gain of \$15</b> with 50% probability.	<input type="radio"/>	<input type="radio"/>
<b>Loss of \$12</b> with 50% probability or <b>gain of \$15</b> with 50% probability.	<input type="radio"/>	<input type="radio"/>
<b>Loss of \$15</b> with 50% probability or <b>gain of \$15</b> with 50% probability.	<input type="radio"/>	<input type="radio"/>
<b>Loss of \$18</b> with 50% probability or <b>gain of \$15</b> with 50% probability.	<input type="radio"/>	<input type="radio"/>

If you are one of the participants who receive payment, the computer will randomly draw one of the above six rows and will execute your choice in that row. So, if you have chosen to play the lottery in that row, the computer will randomly draw one of the outcomes mentioned in that specific lottery and increase/decrease your initial endowment of \$18 accordingly. If you have chosen not to play the lottery in that row, you receive the initial endowment of \$18. The task on this screen is paid out separately from your previous decisions/rounds.

Figure A5: Loss aversion task in all treatments.

## A3 Instructions of Experiment OPMLAB

**Welcome to the experiment and thank you for your participation!**<sup>24</sup>

*Please do not talk with the other participants during the experiment from now on.*

### **General Information**

This experiment consists of two parts in which you can earn money separately. Your entire payment will be paid out to you privately and in cash after the experiment. At the beginning of each part you will receive detailed instructions. If you have questions please raise your hand and your questions will be answered privately.

### **PART 1**

#### **Task**

In this task you have to make investment decisions for two clients outside the laboratory. Each client wants to invest 1000 euro of his own money. Each client is a real person, who committed real money to us before the start of this experiment. All clients are males, between 30 and 50 years old, hold a university degree, are in no financial troubles and know the rules of the experiment (the clients read the instructions and agreed on participating in this experiment by signing a declaration of consent). On your table you can find a sheet of paper, where you can insert your email address and tick boxes if you (i) want to receive detailed information about the amount earned by each client in this research project, and/or (ii) willing to participate in short online experiments.

Each of the two clients has delegated the investment of 1000 euro to you and you manage the FUND of 2000 euro for them. You have to decide in each of eight periods how much of your clients' wealth you invest in a stock market index (each period corresponds to one quarter of a year). The rest is invested at a risk-free rate of 0.3% per period. The development of the stock market index over the eight periods (quarters) follows a historical price path of a real stock market index. The price paths are a randomly picked sequence of 8 quarters (2 years) from one of ten major stock market indices for the time span between January 1989 and December 2014. In Table 1 you get information about the average quarterly returns and the average quarterly standard deviations of returns of the indices in the sample. Each index is equally likely to be selected. You will not receive information on the name of the index and on the exact time span of the randomly chosen 8 consecutive quarters.

In each period you can invest between 0 and 200% of your clients' current wealth in the stock market index. If you invest more than 100%, then the fraction exceeding 100% is borrowed at the risk-free rate of 0.3%. At the beginning of this task you will be randomly assigned to a

---

<sup>24</sup>Instructions are for Treatment TBASE in experiment OPMLAB, additional text for treatments TRANK and TTOUR are in *italic*. The relevant parts on the payout in Treatment TTOUR are in **teletype**.

Index	Quarterly return	Quarterly standard deviation
1	1.93%	7.94%
2	1.22%	11.22%
3	2.03%	7.47%
4	3.05%	14.13%
5	1.10%	9.11%
6	-0.48%	11.81%
7	2.10%	13.21%
8	1.07%	11.38%
9	2.02%	12.82%
10	2.17%	9.05%
ALL	1.62%	11.02%

Average quarterly returns and the average quarterly standard deviations of returns of the indices in the sample for the time span between January 1989 and December 2014.

group of four participants and you will remain in the same group for all eight periods in this task. All market participants (group members) observe the same index development as outlined above. At the end of each period the wealth of your clients will be calculated according to your investment decisions.

Investment examples (for one period):

1. Assume, your clients' current wealth is 2000 euro and you decide to invest 50% in the stock market index. Thus, the remaining 50% will be invested at the risk-free rate. If the stock market index yields a return of +3.0%, then the clients' wealth in the next period will be as follows: Profit/loss from the stock market index:  $(50\% \text{ Investment} * 2000 \text{ euro}) * 3.0\% \text{ Return} = 30 \text{ euro}$ . Profit from investing in the risk-free interest rate:  $(50\% \text{ Investment} * 2000 \text{ euro}) * 0.3\% \text{ Interest} = 3 \text{ euro}$ . Your clients' wealth in the subsequent period:  $2000 \text{ euro (previous period's wealth)} + 30 + 3 = 2033 \text{ euro}$ .

2. Assume, your clients' current wealth is 2000 euro and you decide to invest 150% in the stock market index. Thus, the remaining 50% will be borrowed at the risk-free rate. If the stock market index yields a return of +3.0%, then the clients' wealth in the next period will be as follows: Profit/loss from the stock market index:  $(150\% \text{ Investment} * 2000 \text{ euro}) * 3.0\% \text{ Return} = 90 \text{ euro}$ . Cost of borrowing 50% at the risk-free rate:  $(-50\% \text{ Loan} * 2000 \text{ euro}) * 0.3\% \text{ Interest} = -3 \text{ euro}$ . Your clients' wealth in the subsequent period:  $2000 \text{ euro (previous period's wealth)} + 90 - \frac{1}{2} 3 = 2087 \text{ euro}$ .

In each period, your decision screen shows the current wealth of your clients, the wealth change relative to the previous period, the return of the index in the previous period, the fraction invested in the index in the previous period, the risk-free rate and the fraction invested at the risk-free rate in the previous period A6).<sup>25</sup>

The decision screen in all 8 periods looks as follows:

[Begin additional text for treatments TRANK and TTOUR]

*Beginning with Period 2, a league-table is displayed which shows your rank in your group of four, based on the clients' current wealth. You also get information about the clients' current*

<sup>25</sup>See Figure A7 for treatments TRANK and TTOUR.

Period	
2 out of 8 ←	→ Remaining time [sec]: 86
<div>Current period</div> <div>Time remaining</div>	
Return of the stock market index in the previous period (in %) Fraction you invested into the stock market index in the previous period (in %) Risk-free rate (in %) Fraction you invested into the risk-free rate in the previous period (in %)	<div>Information on previous period</div>
<div>Information on your clients' current wealth</div>	Your clients' current wealth in Euro Change of wealth in comparison to the previous period Fraction of wealth (in %) that you want to invest in the stock market index in this period (min: 0%; max 200%)
	<div>OK</div>

Figure A6: Decision screen in each period (note that this screen is only shown in Treatment TBASE).

*wealth and the corresponding rank of the other participants in your group. This table appears for 20 seconds at the beginning of each period (see Figure A8) and is also displayed at the bottom of the decision screen (see Figure A7).*

[End additional text for treatments TRANK and TTOUR]

Period: 2 out of 8 ← **Current period** | **Time remaining** → Remaining time (sec): 90

---

Return of the stock market index in the previous period (in %)

Fraction you invested into the stock market index in the previous period (in %)

Risk-free rate (in %)

Fraction you invested into the risk-free rate in the previous period (in %)

Information on previous period

---

Information on your clients' current wealth

Your clients' current wealth in Euro

Change of wealth in comparison to the previous period

Fraction of wealth (in %) that you want to invest in the stock market index in this period (min: 0%; max 200%)

---

Your clients' current wealth and your respective rank among the 4

Ranking of the clients' wealth of the 4 participants.

Your clients' current wealth:	
Your current rank:	
Rank	
1	
2	
3	
4	

Figure A7: Decision screen in each period (note that this screen is only shown in treatments TRANK and TTOUR).

## Payment

[Begin text for treatments TBASE and TRANK]

This same task is done by 10 investment managers for each pair of clients. At the end of this task the decisions of one of the 10 investment managers will be selected randomly to determine the payment for the two clients. If your decision is selected, your clients will be paid according to your investment decisions. The final wealth will be split equally between them. So, they will receive money in addition to their committed 2000 euro if the final wealth exceeds 2000 euro after the experiment. They will lose some of their committed money if the final wealth is below 2000 euro. For your services you will receive a fixed payment of 40 euro, irrespective of the final wealth of your clients.

[End text for treatments TBASE and TRANK]

[Begin text for Treatment TTOUR]

This same task is done by 10 investment managers for each pair of clients. At the end of this task the decisions of one of the 10 investment managers will be selected randomly to determine the payment for the two clients. If your decision is selected, your clients will be paid according to your investment decisions. The final wealth will be split equally between them. So, they will receive money in addition to their

Period
2 out of 8
←
Current period
Time remaining
→
Remaining time [sec]: 17

At the beginning of period 2 your clients' current wealth is [REDACTED] Euro. You have rank [REDACTED] among the 4 participants. The table below shows the detailed ranking.

Your clients' current wealth and your respective rank among the 4 participants.

Ranking of the clients' current wealth of the 4 participants.

Your clients' current wealth: [REDACTED]
Your current rank: [REDACTED]

Rank			
1		[REDACTED]	
2		[REDACTED]	
3		[REDACTED]	
4		[REDACTED]	

Figure A8: Screen on your ranking and the clients' current wealth of the other participants at the beginning of each period. This table is shown from period 2 onward (note that this screen is only shown in Treatments TRANK; TTOUR).

committed 2000 euro if the final wealth exceeds 2000 euro after the experiment. They will lose some of their committed money if the final wealth is below 2000 euro. For your services you will receive a fixed payment according to your final rank as follows: the participant with rank 1 receives 90 euro, rank 2 receives 50 euro, ranks 3 and 4 receive 10 euro each.

[End text for Treatment TTOUR]

## A4 Pictures of the Experimental Laboratories



Figure A9: Top: Example of a mobile laboratory in the conference room of a financial institution. Bottom: Innsbruck EconLab.



## A5 Instructions Online Survey<sup>26</sup>

Thank you very much for participating in our survey for a joint research project of the Innsbruck University, Radboud University, and Utrecht University.

Please make sure that you answer all questions which apply to you. The survey will not take longer than 5 minutes.

For the vast majority of questions, there are no incorrect answers. We are merely interested in your opinion. It is important that you remain focused while answering the questions.

All information in this research project will be regarded as confidential and treated according to the ethical norms and standards for scientific research. All data will be used for academic research purposes only.

As a token of our gratitude we are going to award 100 euro to each of three randomly selected participants who fully answered the questionnaire.

If you want to be eligible for one of these prizes, you can enter your email at the end of the questionnaire. Entering your email is completely voluntarily and the information will only be used to contact you in case you are one of the winners and for nothing else. Your email will be deleted from the raw data once we have randomly determined and contacted the winners. After this, all data will be completely de-personalized and cannot be traced back to individuals. We thank you for your cooperation and time.

Prof. Dr. Michael Kirchler (Innsbruck University, Gothenburg University)

Dr. Florian Lindner (Innsbruck University)

Prof. Dr. U. Weitzel (Utrecht University, Radboud University)

- 1. In which year are you born? (Please enter full calendar year with four digits)
- 2. What is your gender? [Male; Female]
- 3: What is your highest level of education? [Compulsory school; Apprenticeship; Technical college; High school; University; Other]
- 3. WHAT IS YOUR HIGHEST FUNCTION AT UNIVERSITY? (US-AMERICAN CATEGORIES)  
[PHD; POSTDOC; ASSISTANT PROFESSOR, ASSOCIATE PROFESSOR; FULL PROFESSOR; TEACHER; OTHER (PLEASE SPECIFY)]
- 4. How many years of experience do you have in your current profession? (Please enter full years; can be across different organizations and/or functions)

---

<sup>26</sup>Survey questions are for the general population. Modified questions for financial professionals, professional athletes, and academics are in *italic*, **teletype**, and SMALL CAPS respectively. [Details on answers and measurements are in square brackets.] For financial professionals, Question 21 was not applicable because only participants from the finance industry were invited and Question 22 was used to select functions that matched the profile of professionals in the experiments.

- 4. How many years of experience do you have as a professional athlete? (Please enter full years; can be across different types of sports)
- 4. HOW MANY YEARS OF EXPERIENCE DO YOU HAVE AS EMPLOYEE AT A UNIVERSITY? (PLEASE ENTER FULL YEARS; CAN BE ACROSS DIFFERENT UNIVERSITIES AND/OR FUNCTIONS)
- 5. How important is it for you what others think about you? [7-point Likert-scale]
- 6. Think about your time as a child from age 4 to 10, as adolescent person from age 11 to 18 and as a young adult from age 19 to 25. How important was it for you what others thought about you? [7-point Likert-scale each]
- 7. People can behave differently in different situations. How important is it for you what others think about you in the following areas: (please choose N/A if specific area does not apply to you) [7-point Likert-scale each, plus N/A, for Profession, Hobbies, Family, Friends]
- 8. Since you are in your current profession, what others think about you has become much less (more) important. [7-point Likert-scale]
- 9. How important is it for you to be the best at what you do? [7-point Likert-scale]
- 10. Think about your time as a child from age 4 to 10, as adolescent person from age 11 to 18 and as a young adult from age 19 to 25. How important was it for you that you were the best at what you did? [7-point Likert-scale each]
- 11. People can behave differently in different situations. How important is it for you to be the best at what you do in the following areas: (please choose N/A if specific area does not apply to you) [7-point Likert-scale each, plus N/A, for Profession, Hobbies, Family, Friends]
- 12. Since you are in your current profession, to be the best at what you do has become much less (more) important. [7-point Likert-scale]
- 13. How do you see yourself: Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? [11-point Likert-scale]
- 14. People can behave differently in different situations. How would you rate your willingness to take risks in the following areas: [11-point Likert-scale each, for financial matters, trust in other people]
- 15. Social status is primarily defined by financial success. [5-point Likert-scale]

- 16. I enjoy working in situations involving competition with others. [5-point Likert-scale]
- 17. It is important to me to perform better than others on a task. [5-point Likert-scale]
- 18. I feel that winning is important in both work and games. [5-point Likert-scale]
- 19. It annoys me when other people perform better than I do. [5-point Likert-scale]
- 20. I try harder when I'm in competition with other people. [5-point Likert-scale]
- 21. Which industry are you working in? [Agriculture, forestry & fishing; Mining & Utilities (e.g. Energy companies); Financial services (e.g. Banks and Insurance companies); Construction; Transport; Communications (e.g. Telecommunications and Postal services); Manufacture of food products; Manufacture of chemical products; Automotive/Aerospace; Manufacturing (other); Distribution (wholesale & retail trade); Hotels & Catering; IT services; Business & other services; Public administration; Education; Health and Social work]
- 21. N/A
- 21. In which type of sport are you a professional athlete?
- 21. IN WHICH BRANCH OF SCIENCE ARE YOU WORKING?
- 22. What is your current profession? [farmer; freelance with 5 employees or less (incl. craftsman, tradesman, industrial); freelance with 6 employees or more (incl. industrial, wholesaler); free professional (doctor, lawyer, notary, ...); member of the general management, senior management (director, manager, ...) responsible for 5 employees or fewer; member of the general management, senior management (director, manager, ...) responsible for 6 to 10 employees; member of the general management, senior management (director, manager ..) responsible for 11 employees or more; middle management, not part of the general management, responsible for 5 employees or fewer; middle management, not part of the general management, responsible for 6 employees or more; other employees, mainly office work; other employees, mainly no office work (nurse, teacher, police, ...); skilled worker, incl. supervisor; unskilled worker, incl. manual labor; in early retirement; retired; incapacitated, disabled; student, in education; housewife or househusband; unemployed; other; never worked]
- 22. Which of the following best describes your current job? [account manager; accounting/controlling; analysis/research/valuation; area manager; asset liability mgmt; compliance; consulting in management; consulting in processes; corporate finance; acquisitions; client advisor; customer support; fund management; fund placement; general mgmt/admin; investment advisor; investment banking; IT-support/mgmt; planning, financial; portfolio

*management; private equity/banking; product manager; project developer; regulation, financial; relationship manager; risk management; sales; supervision, financial; trading/brokerage; treasury; wealth management; other]*

- 22. N/A
- 22. N/A

Thank you very much for participating in our survey. Please make sure that you answered all questions that were applicable to you.

As a token of our gratitude we are going to award 100 euro to each of three randomly selected participants who fully answered the questionnaire. If you want to be eligible for one of these prizes, please enter you email below.

(Entering your email is completely voluntarily and the information will only be used to contact you in case you are one of the winners and for nothing else. Your email will be deleted from the raw data once we have randomly determined and contacted the winners. After this, all data will be completely de-personalized and cannot be traced back to individuals. All data will be used for academic research purposes only.)

**University of Innsbruck - Working Papers in Economics and Statistics**  
**Recent Papers** can be accessed on the following webpage:

<https://www.uibk.ac.at/eeecon/wopec/>

- 2018-07 **Michael Kirchler, Florian Lindner, Utz Weitzel:** Delegated decision making and social competition in the finance industry
- 2018-06 **Manuel Gebetsberger, Reto Stauffer, Georg J. Mayr, Achim Zeileis:** Skewed logistic distribution for statistical temperature post-processing in mountainous areas
- 2018-05 **Reto Stauffer, Georg J. Mayr, Jakob W. Messner, Achim Zeileis:** Hourly probabilistic snow forecasts over complex terrain: A hybrid ensemble postprocessing approach
- 2018-04 **Utz Weitzel, Christoph Huber, Florian Lindner, Jürgen Huber, Julia Rose, Michael Kirchler:** Bubbles and financial professionals
- 2018-03 **Carolin Strobl, Julia Kopf, Raphael Hartmann, Achim Zeileis:** Anchor point selection: An approach for anchoring without anchor items
- 2018-02 **Michael Greinecker, Christopher Kah:** Pairwise stable matching in large economies
- 2018-01 **Max Breitenlechner, Johann Scharler:** How does monetary policy influence bank lending? Evidence from the market for banks' wholesale funding
- 2017-27 **Kenneth Harttgen, Stefan Lang, Johannes Seiler:** Selective mortality and undernutrition in low- and middle-income countries
- 2017-26 **Jun Honda, Roman Inderst:** Nonlinear incentives and advisor bias
- 2017-25 **Thorsten Simon, Peter Fabsic, Georg J. Mayr, Nikolaus Umlauf, Achim Zeileis:** Probabilistic forecasting of thunderstorms in the Eastern Alps
- 2017-24 **Florian Lindner:** Choking under pressure of top performers: Evidence from biathlon competitions
- 2017-23 **Manuel Gebetsberger, Jakob W. Messner, Georg J. Mayr, Achim Zeileis:** Estimation methods for non-homogeneous regression models: Minimum continuous ranked probability score vs. maximum likelihood
- 2017-22 **Sebastian J. Dietz, Philipp Kneringer, Georg J. Mayr, Achim Zeileis:** Forecasting low-visibility procedure states with tree-based statistical methods
- 2017-21 **Philipp Kneringer, Sebastian J. Dietz, Georg J. Mayr, Achim Zeileis:** Probabilistic nowcasting of low-visibility procedure states at Vienna International Airport during cold season

- 2017-20 **Loukas Balafoutas, Brent J. Davis, Matthias Sutter:** How uncertainty and ambiguity in tournaments affect gender differences in competitive behavior
- 2017-19 **Martin Geiger, Richard Hule:** The role of correlation in two-asset games: Some experimental evidence
- 2017-18 **Rudolf Kerschbamer, Daniel Neururer, Alexander Gruber:** Do the altruists lie less?
- 2017-17 **Meike Köhler, Nikolaus Umlauf, Sonja Greven:** Nonlinear association structures in flexible Bayesian additive joint models
- 2017-16 **Rudolf Kerschbamer, Daniel Muller:** Social preferences and political attitudes: An online experiment on a large heterogeneous sample
- 2017-15 **Kenneth Harttgen, Stefan Lang, Judith Santer, Johannes Seiler:** Modeling under-5 mortality through multilevel structured additive regression with varying coefficients for Asia and Sub-Saharan Africa
- 2017-14 **Christoph Eder, Martin Halla:** Economic origins of cultural norms: The case of animal husbandry and bastardy
- 2017-13 **Thomas Kneib, Nikolaus Umlauf:** A primer on bayesian distributional regression
- 2017-12 **Susanne Berger, Nathaniel Graham, Achim Zeileis:** Various versatile variances: An object-oriented implementation of clustered covariances in R
- 2017-11 **Natalia Danzer, Martin Halla, Nicole Schneeweis, Martina Zweimüller:** Parental leave, (in)formal childcare and long-term child outcomes
- 2017-10 **Daniel Muller, Sander Renes:** Fairness views and political preferences - Evidence from a large online experiment
- 2017-09 **Andreas Exenberger:** The logic of inequality extraction: An application to Gini and top incomes data
- 2017-08 **Sibylle Puntischer, Duc Tran Huy, Janette Walde, Ulrike Tappeiner, Gottfried Tappeiner:** The acceptance of a protected area and the benefits of sustainable tourism: In search of the weak link in their relationship
- 2017-07 **Helena Fornwagner:** Incentives to lose revisited: The NHL and its tournament incentives
- 2017-06 **Loukas Balafoutas, Simon Czermak, Marc Eulerich, Helena Fornwagner:** Incentives for dishonesty: An experimental study with internal auditors
- 2017-05 **Nikolaus Umlauf, Nadja Klein, Achim Zeileis:** BAMLSS: Bayesian additive models for location, scale and shape (and beyond)
- 2017-04 **Martin Halla, Susanne Pech, Martina Zweimüller:** The effect of statutory sick-pay on workers' labor supply and subsequent health

- 2017-03 **Franz Buscha, Daniel Müller, Lionel Page:** Can a common currency foster a shared social identity across different nations? The case of the Euro.
- 2017-02 **Daniel Müller:** The anatomy of distributional preferences with group identity
- 2017-01 **Wolfgang Frimmel, Martin Halla, Jörg Paetzold:** The intergenerational causal effect of tax evasion: Evidence from the commuter tax allowance in Austria

University of Innsbruck

Working Papers in Economics and Statistics

2018-07

Michael Kirchler, Florian Lindner, Utz Weitzel

Delegated decision making and social competition in the finance industry

**Abstract**

Two aspects of social context are central to the finance industry: (i) financial professionals make investment decisions for customers and (ii) social competition/rankings are a pervasive feature. We link both lines of literature to investigate professionals' risk-taking behavior when investing funds for clients. We run online and lab-in-the-field experiments with 965 financial professionals and collect survey evidence from 1,349 respondents. We find that rankings drive professionals' investment behavior: those lagging behind increase risk-taking, but this effect disappears as soon as professionals' incentives are flat. Moreover, we show that professionals' preferences for high rank are stronger than for the general population.

ISSN 1993-4378 (Print)

ISSN 1993-6885 (Online)