Rankings and Risk-Taking in the Finance Industry

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ABSTRACT

Rankings are omnipresent in the finance industry, yet the literature is silent on how they impact financial professionals' behavior. Using lab-in-the-field experiments with 657 professionals and lab experiments with 432 students, we investigate how rank incentives affect investment decisions. We find that both rank and tournament incentives increase risk-taking among underperforming professionals, while only tournament incentives affect students. This rank effect is robust to the experimental frame (investment frame versus abstract frame), to payoff consequences (own return versus family return), to social identity priming (private identity versus professional identity), and to professionals' gender (no gender differences among professionals).

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In recent years, excessive risk-taking in the finance industry has been depicted as one of the main factors contributing to the global financial crisis (Financial Crisis Inquiry Commission (2011), Dewatripont and Freixas (2012)). In particular, bonus schemes and tournament incentives have been identified as among the main drivers of excessive risk-taking in developed financial markets (Rajan (2006), Diamond and Rajan (2009), Bebchuk and Spamann (2010)). Tournament incentives are characterized by two major components. The first and more obvious component comprises salary and other material rewards that depend on performance, which create rank-dependent "monetary incentives" to outperform others. The second and less obvious component comprises "nonmonetary incentives" to outperform peers. This second component—called "rank incentives"—provides utility to those at the top of the ranking and disutility to those at the bottom (Barankay (2015)) and thus captures relative performance preferences.[1] These non-monetary, relative performance preferences can be driven by the desire for a positive self-image (Bénabou and Tirole (2006), Köszegi (2006)), or by concerns about public status (Frank (1985), Moldovanu, Sela, and Shi (2007)). Hence, rank incentives play a prominent, explicit role in tournaments. In the finance industry, rankings, ratings, and awards are the visible hallmarks of a strong culture of relative performance measurement and social competition. Funds are ranked or rated annually as are their managers.[2] Awards to the "Fund Manager of the Year," "Banker of the Year," or "Analyst of the Year" are sought-after distinctions in many areas of finance.[3] More informally, financial professionals (henceforth, professionals) often compare themselves with others in discussions about their investments and successes ("cheap talk"; see Crawford (1998)), effectively ranking each other on an ongoing basis. Recent evidence from laboratory and field experiments shows that, on average, rank incentives increase individuals' effort and performance (Azmat and Iriberri (2010), Blanes-i-Vidal and Nossol (2011), Tran and Zeckhauser (2012), Bandiera, Barankay, and Rasul (2013), Delfgaauw, Dur, Sol, and Verbeke (2013)), but they also promote unethical behavior (Charness, Masclet, and Villeval (2014)).

In an industry where competition and relative performance evaluation take center stage, it is striking that no evidence exists showing how competition for rank affects professionals' behavior. In this study we narrow this gap by investigating the impact of rankings on professionals' risk-taking in investment decisions. To do so, we conducted lab-in-the-field experiments and online experiments with 657 financial professionals from major financial institutions in various OECD countries as well as laboratory experiments with 432 students. Importantly, we only recruited professionals who regularly engage in investment decisions. The experiments differ in the selection of participants (professionals versus students), in the frame in which the investment

[1] See Veblen (1899) and Festinger (1954) for classical papers and Roussanov (2010) for a finance application.

[2] See, for example, http://www.morningstar.com/, http://money.usnews.com/funds/mutual-funds, and http://www.bloomberg.com/news/articles/2014-01-08/glenview-s-robbins-tops-hedge-fund-ranking-with-bet-on-obamacare.

[3] See, for example, http://www.fmya.com/, http://www.investmentawards.com, and http://excellence.thomsonreuters.com/award/starmine.

decisions were made (investment frame versus abstract lottery frame), in payoff consequences (own return versus family return), in professionals' social identity (private identity versus professional identity), and whether the ranking was payoff-relevant (non-incentivized ranking versus tournament incentives). Such variation allows us to draw a comprehensive picture of the role of rankings in professionals' risk-taking behavior.

In the first experiment, PROF, we investigate the extent to which non-incentivized rankings and tournament incentives drive professionals' risk-taking in framed investment decisions. Specifically, we recruited 252 professionals and administered repeated portfolio choices between a risk-free asset and a risky asset over eight periods. In the baseline treatment professionals faced linear incentives and were paid according to their final wealth. In the ranking treatment the setup was identical except that participants also received feedback on their anonymous ranking among their peers. The ranking itself was not payoff-relevant. We find that, compared to the baseline, underperformers take significantly more risk when an anonymous and non-incentivized ranking is displayed. We also administered a tournament treatment that was identical to the ranking treatment except that the ranking was relevant for payout. In line with the literature on bonuses and risk-taking (e.g., Rajan (2006), Kleinlercher, Huber, and Kirchler (2014)), we find that the average risk-taking of professionals increases with tournament incentives compared to the baseline. This increase in risk-taking is driven mainly by underperformers. When focusing on rank-dependent risk-taking, the results suggest that rank incentives shape risk-taking in the tournament treatment. In fact, monetary incentives in the tournament treatment have little effect on the rank-dependent risk-taking that we observe in the ranking treatment. This finding indicates that simply displaying a non-incentivized ranking activates professionals' relative performance concerns, often at the tournament level.

If relative performance concerns are universal in framed investment decisions, one might expect rank-driven behavior to be equally strong among professionals and nonprofessionals. To test this prediction, we conduct a second experiment, STUD, in which we examine whether the results above hold for a sample of 432 students who obviously have no financial professional identity. This experiment is identical to PROF in treatments and design except that the stakes are lower. We find that, in contrast to the results for professionals, in the ranking treatment students' risk-taking is not driven by rank incentives. In the tournament treatment, however, incentivized rankings increase risk-taking among underperformers, in line with our findings for professionals.

These findings raise questions about the source of behavioral differences between industry professionals and nonprofessionals. One possible explanation for such differences is that professionals import their professional identity and industry experience into the laboratory. According to the social identity theory of Akerlof and Kranton (2000), decision makers have multiple social identities (based on, for example, gender, ethnicity, or occupation) that prescribe how they should behave when a certain identity is salient. Behavior is influenced because individuals expe-

rience disutility if their behavior deviates from what their identities specify. Cooper, Kagel, Lo, and Gu (1999), for example, show that the behavior of Chinese managers depends on whether the framing of the task relates to the managers' business reality or is presented in abstract terms. The authors suggest that the business frame activates managers' experience from outside the laboratory and increases comprehension. Similarly, Cohn, Fehr, and Maréchal (2014, 2017) show that financial professionals cheat more and take less risk when their professional identity is salient than when their private identity is salient. Translated to our context these results suggest that rank-driven behavior could be imported from professionals' experience in the industry, where rankings, relative performance, and tournament incentives are salient and important.

To investigate this channel and test for robustness, we first report survey evidence from the experiments. We find significantly stronger relative performance preferences among professionals compared to students and a positive correlation with their risk-taking in the investment game in the PROF experiment. This result is in line with the view that relative performance concerns play a major role in rank-driven investment behavior. We next run two additional treatments with 102 professionals. In the first additional treatment we changed the investment frame of the experiment to an abstract lottery frame, to de-activate or downplay participants' professional identity. In the second additional treatment we retained the original frame of the investment task but downplayed the role of professional identity by letting participants invest jointly for themselves and a self-selected family member. Results of both treatments continue to show that professionals' rank-driven behavior is pronounced.

A concern with the lab-in-the-field treatments is that professionals knew that they were playing against other professionals. It is possible that this common knowledge kept professional identity activated, dominating possible effects of the abstract lottery frame and family concerns. To further test the role of professional identity importing in a cleaner setting, we run an online experiment, $\text{PROF}^{\text{ONLINE}}$, where we have more control over professionals' knowledge about others. Specifically, we recruited another 303 financial professionals and designed two treatments: one in which the professionals were primed (as in Cohn et al. (2014, 2017)) with their professional identity and were informed that they were playing with other professionals, and one in which the professionals were primed with their private identity and were informed that they were playing with others from the general population. We, again, find strong, similar rank-driven behavior in both treatments. These results suggest that professionals care about rankings no matter whether their private or professional identity is salient. Importantly, by recruiting almost 50% female professionals in the online experiment, we are able to investigate gender differences in the finance industry. We find no differences between male and female professionals in either their general level of risk-taking or their rank-driven behavior. The results together suggest that the effect of relative performance concerns is not driven by gender or private/professional identity.

Our paper contributes to several emerging strands of the literature. First, we contribute to the growing literature on the behavior of financial professionals, which is still in its infancy.

Shedding more light on the behavior of professionals is important as they play a central role in the economy. Moreover, they differ from students (and other subject pools) along many dimensions such as age, income, education, and industry experience and thus their behavior may differ from that of students. Indeed, professionals have been shown to exhibit a higher degree of myopic loss aversion (Haigh and List (2005)) than students. However, professionals show similar herd behavior as students (Cipriani and Guarino (2009)) and behavior in line with prospect theory (Abdellaoui, Bleichrodt, and Kammoun (2013)). We show that professionals' relative performance preferences in investment decisions are fundamentally different from those of students, a question that has not been the subject of research to date.

Second, we contribute to the emerging literature on rank incentives, in particular, to studies investigating the relationship between rank incentives and risk-taking. Kuziemko, Buell, Reich, and Norton (2014) show that individuals are last-place averse and take more risk when at the very bottom of a ranking. Dijk, Holmen, and Kirchler (2014) further show that underperformers invest predominantly in positively skewed assets, while outperformers mainly choose assets with negative skewness. Frydman (2016) provides biological foundations for preferences over relative wealth. In a portfolio choice experiment, he finds that neural activity in reward-related regions of the brain is increasing in a participant's own wealth but decreasing in a peer's wealth. We contribute to this literature by showing that rankings drive risk-taking among professionals but not among students in framed investment decisions.

Third, we contribute to the literature on social identity theory (Akerlof and Kranton (2000)). Studies by Cooper et al. (1999) and Cohn et al. (2014, 2017) show that the behavior of industry professionals in lab-in-the-field experiments can differ depending on framing and identity priming. We provide evidence that the origin of rank-driven behavior among professionals is not solely due to their professional identity, as they demonstrate similar concerns for relative performance when their private identity is salient. This finding indicates that professionals care about relative performance and rankings in general.

Our findings have a number of important practical implications. First, regulators should be aware that not only tournament incentives, but also the widespread use of rank incentives could lead to too much risk in the financial sector. Second, underperforming professionals' increased appetite for risk implies that regulating monetary tournament incentives may be ineffective if rank incentives trigger similar behavior. Third, because competitive pressure in the finance industry ultimately originates with customers to the extent that they demand high abnormal returns (see Sirri and Tufano (1998), Kaniel and Parham (2017)), better financial literacy of customers could help prevent unrealistic demand for outperformance. Fourth, our results shed new light on the claim that a larger number of female professionals would reduce risk-taking and the propensity of bubbles (Eckel and Füllbrunn (2015)). Prior evidence is based on student samples. In our tests using financial professionals, we find no gender effects with regard to general risk-taking and rank-driven behavior. This difference may indicate that professionals,

who self-select into the financial industry and are subsequently exposed to the sector's specific rules and norms, exhibit similar behavior across gender. Finally, our results have implications for employers, as we show that rank incentives can substitute for expensive bonuses, which can be advantageous if increased risk-taking is a desirable strategy. If increased risk-taking is not desired, our results suggest that companies might want to downplay rank incentives, in particular to limit the risk-taking of underperformers.

The remainder of the paper is organized as follows: In Section I we introduce the experimental design and present results of the investment experiment with professionals. In Section II we present results of the investment experiment with student subjects. In Section III we summarize results of tests with professionals in which we investigate the role of identity importing. Finally, in Section IV we conclude.

I. Investment Experiment with Professionals (PROF)

We divided each lab-in-the-field and laboratory experiment into two parts. In the first part, participants played an investment game. In the second part, they participated in additional tasks designed to elicit risk attitudes, loss aversion, and personal characteristics.

A. The Investment Game

Participants made repeated portfolio choices between a risk-free asset and a risky asset over eight periods. The investment game was inspired by, and resembles games of, Lohrenz, McCabe, Camerer, and Montague (2007), Ehm, Kaufmann, and Weber (2014), Bradbury, Hens, and Zeisberger (2015), and Huber, Kirchler, and Stöckl (2016). In each period, the risk-free asset yielded a return of $RF = 0.015$ (1.5%) and the risky asset paid an expected return of $RET\_ASSET = 0.036$ (3.6%) with a standard deviation of 15.9%. As in Bradbury et al. (2015), we computed these numbers using time series of the six-month EURIBOR for the risk-free rate (before 1999: FIBOR, Frankfurt Interbank Offered Rate) and the DAX 30 for the risky asset. We calculated (semiannual) returns and standard deviations for a 20-year period from January 1, 1994 to December 31, 2013. Participants received information about the mean and standard deviation of the return distribution but no information about the origin of the underlying data (except that they were part of historical financial market data). In each period participants decided which fraction, $RISK$, of their current portfolio wealth, $WEALTH_t$, to invest in the risky asset. Portfolio wealth is carried over from one period to the next. Participants were allowed to invest up to 200% of their portfolio wealth, with the amount exceeding $WEALTH_t$ borrowed at the risk-free rate RF.[4] Using a between-subjects design, we randomly assigned

[4]Before the investment game started, participants had to sample 30 returns from the theoretical distribution with the first two moments mentioned above. This allowed them to become familiar with the properties of the risky asset. As Kaufmann, Weber, and Haisley (2013) and Bradbury et al. (2015) report, experience sampling

participants to groups of six, which remained the same for the duration of the investment game. Each group played one of the three treatments described below. In Treatment TBASE, participants faced linear incentives and allocated their portfolio in eight periods without peer feedback. They further received an initial endowment of 90 euro and accumulated gains and losses depending on their investments over time. In line with Cohn et al. (2014, 2017), each participant received the payout of the investment game with a probability of 20%, to create high stakes. An increasing 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, Starmer, and Sugden (1998), Hey and Lee (2005), March, Ziegelmeyer, Greiner, and Cyranek (2015)). Recently, Charness, Gneezy, and Halladay (2016) point out that the pay-one (or pay-a-subset) method is equal or even superior to the pay-all method in the majority of cases.

In Treatment TRANK, participants received the same linear incentives as in TBASE, but after each period we made available an anonymous league table detailing all group members' current wealth levels and associated rank ($RANK \in \{1, 2, \ldots, 6\}$), as well as their own position in the ranking. This ranking was not incentivized and there was no public disclosure of the ranking in the end.[5]

Treatment TTOUR is the same as Treatment TRANK except that the ranking was payout relevant. Participants who finished the investment experiment in ranks four to six received no payout. For participants finishing in the top three ranks, the final wealth of all six participants was aggregated and divided as follows: the winner received 1/2, the runner-up received 1/3, and the third-ranking participant received 1/6 of the aggregate payout. This was done to ensure identical expected stake sizes across treatments. This treatment is an important extension in view of the prevalence of bonuses and tournament-like payments in the finance industry. It allows us disentangling rank-driven behavior rooted in nonmonetary incentives in the ranking treatment from monetary rank incentives in the tournament treatment.

In the second part of the experiment, we administered two additional experimental tasks (one of which was paid out randomly) and survey questions. Part 2 of the instructions were handed out after all participants completed Part 1. In the first task we measured risk attitudes in a standard choice list setting (Bruhin, Fehr-Duda, and Epper (2010), Abdellaoui, Baillon,

increases decision commitment and confidence, and can decrease known biases such as overestimation of loss probabilities.

[5]We provided participants with information on their wealth, in addition to the ranking, for two reasons. First, doing so made the experimental setup much more realistic, as finance professionals are used to having instantaneous access to wealth-related performance measures. Second, demoralization could have occurred if participants realized that their actual rank was below their desired rank without any indication as to how much they had to catch up to reach their desired rank. When wealth is displayed along with rank, this demoralization effect is reduced—the associated mechanism is known as the path-goal model (House (1971, 1996))—which serves to increase motivation. See also Barankay (2015) regarding the display of performance along with rank in his field experiment. For theoretical contributions on the relation between relative wealth and risk-taking behavior, see DeMarzo, Kaniel, and Kremer (2004, 2007, 2008).

Placido, and Wakker (2011)). We also measured risk attitudes using a survey question from the German Socio-Economic Panel (SOEP; Dohmen, Falk, Huffman, Schupp, Sunde, and Wagner (2011)): "How do you see yourself: Are you willing to take risks or try to avoid risks?" The answers were provided on a Likert scale from 1 (not at all willing to take risks) to 7 (very willing to take risks). We modified the scale with respect to Dohmen et al. (2011) to fit the other questions in the survey part of the task. In the second task, we measured loss aversion using the procedure of Gächter, Johnson, and Herrmann (2007). Participants earned 18 euro as a show-up fee for participating in the experiment, which covered the potential maximum loss in the loss aversion task. In the survey, we measured participants' attitudes toward social comparison using three questions from Cohn et al. (2014) on social status, financial success, and relative performance. We also computed CRT scores (Cognitive Reflection Test; Frederick (2005)) using slightly modified questions (see Section VI of the Internet Appendix).[6] Questions on demographics concluded the experiment. See Internet Appendix Sections III and V for the instructions employed in our experiments.[7]

For the PROF experiment, we recruited 252 professionals from major financial institutions in several OECD countries. All of the professionals that participated in the experiments in this paper are regularly subject to competitive rankings, bonus incentives, and investment decisions. They represent professionals from private banking, trading, investment banking, portfolio management, fund management, and wealth management.[8] Of the professionals participating in this experiment, 88.9% were male, their average age was 35.6 years, and they had been working in the finance industry for an average of 11.7 years.

In our offline experiments with professionals, we booked a conference room on location or in close proximity (for several organizations to participate simultaneously), we set up our mobile laboratory, and we invited professionals to show up. Our mobile laboratory was virtually identical to the Innsbruck EconLab at the University of Innsbruck, where we ran the experiment with students (see pictures in Internet Appendix Section VII). The mobile lab consisted of laptops and partition walls on all sides for each participant, ensuring conditions as in regular experimental laboratories. We mainly recruited members of professional associations/societies, to ensure that most sessions were populated with professionals from different institutions. This

[6]The Internet Appendix is available in the online version of the article on the Journal of Finance website.

[7]In the standard choice list setting eliciting risk preferences, participants chose between a risky option, paying either 0 or 24 euro with equal probability, or a safe payment, which varied from 3 to 21 euro in steps of 3 euro. In the task measuring loss aversion, participants had to decide whether to play a particular lottery. If they decided to play the lottery, with equal probability, participants either received, 15 euro or incurred a loss of X. The loss X varied from 3 to 18 euro in steps of 3 euro. If participants decided not to play a particular lottery, they received a payout of zero. We also elicited the 10-item Big Five personality traits following Rammstedt and John (2007) and the socially undesirable personality traits of narcissism, psychopathy, and Machiavellianism (i.e., Dark Triad) using the 12-item test of Jonason and Webster (2010). The survey questions are provided in Section IV of the Internet Appendix.

[8]We signed nondisclosure agreements (NDA) for not disclosing the identity of the participating financial institutions.

procedure resulted in high comparability with the student sample, as most professionals did not know, or barely knew, each other. In total, 78, 102, and 72 professionals participated in treatments TBASE, TRANK, and TTOUR, respectively. We programmed and conducted all experiments using z-Tree (Fischbacher (2007)).

Professionals received an average payout of 52 euro for both parts of the PROF experiment with a maximum payout of 600 euro and an average duration of 45 minutes per session. For participants who received money in the investment game, the average payout was 134 euro for a task of 20 minutes. In the questionnaire, professionals reported an average annual gross salary of 90,500 euro. Accordingly, the average (maximum) hourly payoff from the experiment amounted to roughly 2.7 times (31 times) the average professional's hourly wage after taxes.[9] We therefore consider our monetary incentives to be substantial and are confident that they induced meaningful behavior. Finally, we administered the payout privately by handing out sealed envelopes containing the payout from the experiment.

B. Results

Taking a first, descriptive look at average risk-taking across all periods and ranks, we find that the percentage invested in the risky asset is highest in treatment TTOUR at 110.8%, which exceeds risk-taking in the TBASE and TRANK treatments by 14.9 and 11.8 percentage points, respectively (see Figure IA1 in the Internet Appendix). To investigate statistical significance of the variables of interest, we run random-effects panel regressions with an AR(1) disturbance where participant i's invested share $RISK$ in period t is the dependent variable.[10] We account for asset- and portfolio-specific effects by including last period's asset return, RET_ASSET_{t-1}, and the log-return of participant i's portfolio since the start of the task, RET_PF_{t-1}=$ln(WEALTH_{t-1}/90)$, where $WEALTH_{t-1}$ is the portfolio wealth in euro in period t-1. Henceforth we refer to this econometric specification as the "baseline regression" except where explicitly stated otherwise.

[9] In this calculation, we assumed that a professional works 45 hours/week for 47 weeks/year and pays income taxes of 40%, which implies an hourly net wage of 26 euro. In our experiment, participants' average (maximum) hourly payment was 69 (800) euro (52*60/45 and 600*60/45), which thus amounts to 270% (3,116%) of their salary. Haigh and List (2005) report in their footnote 6 that their average traders' payment for a 25-minute task was 40 USD, which translates to an hourly payment of 96 USD. Given an exchange rate of about 1.32 at the time of the study, the payment in Haigh and List (2005) is equivalent to an average hourly wage of 73 euro. Note that monetary incentives in experiments using a representative sample of the general population are less accurate due to high heterogeneity in participants' salaries. In our case, the hourly payout of nearly three times the average applies to a sample with a more homogeneous salary distribution.

[10] A Hausman specification test indicates that the individual-level effects are adequately modelled with a random-effects model. Moreover, we prefer this method over, for instance, simple difference-in-means tests, because this approach gives us more control over the dynamics of the data set.

Table I
Ranks and Risk-Taking in Experiment PROF

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' (professionals') percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TTOUR are dummy variables for the treatments with rank incentives and with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	97.065***	104.845***	113.971***	97.173***	106.765***	90.989***
	(5.583)	(5.063)	(6.308)	(5.769)	(6.560)	(5.849)
RET_PF_{t-1}	-0.400***	-0.480***	-0.369***	-0.411***	-0.381***	-0.415***
	(0.076)	(0.088)	(0.082)	(0.047)	(0.084)	(0.060)
RET_ASSET_{t-1}	-0.124	-0.013	-0.464***	-0.180**	-0.205*	-0.242**
	(0.139)	(0.129)	(0.147)	(0.080)	(0.122)	(0.116)
TRANK				7.658	-12.337	23.872***
				(7.664)	(8.736)	(7.865)
TTOUR				16.285**	-8.686	31.776***
				(8.320)	(9.587)	(8.613)
N	546	714	504	1764	882	882
R^2	0.094	0.099	0.111	0.109	0.002	0.301
$\chi 2$	36.569	35.516	40.388	112.924	34.907	86.918
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	109.336***	86.272***	86.661***
	(7.933)	(7.635)	(9.414)
RET_PF_{t-1}	-0.444***	-0.384***	-0.273***
	(0.079)	(0.092)	(0.085)
RET_ASSET_{t-1}	-0.096	-0.067	-0.510***
	(0.140)	(0.129)	(0.146)
$RANK_{t-1}$	-3.470**	5.055***	7.764***
	(1.661)	(1.566)	(2.030)
N	546	714	504
R^2	0.122	0.114	0.152
$\chi 2$	41.706	46.438	56.405
Prob > $\chi 2$	0.000	0.000	0.000

Table I reports results of the baseline regression for each treatment separately (Columns 1 to 3) and for pooled data with dummies for treatments TRANK and TTOUR (Column 4, ALL).[11] We find significantly higher levels of risk-taking in TTOUR compared to the baseline but no differences between TRANK and the baseline. A post-estimation Wald test reports no difference between the coefficients on the dummies for TRANK and TTOUR (p=0.272). This result is in line with the literature arguing that tournament incentives increase risk-taking (Hvide (2002), Rajan (2006), Kleinlercher et al. (2014)).

For a closer inspection of the effects of rank incentives, we split the data set into a sample of outperformers (ranks 1 to 3) and a sample of underperformers (ranks 4 to 6) in each period. We find that risk-taking across treatments is statistically similar for outperformers (Column 5, HIGH), but differs markedly for underperformers (Column 6, LOW). Here, significantly more risk is taken in TRANK and TTOUR compared to the baseline.[12]

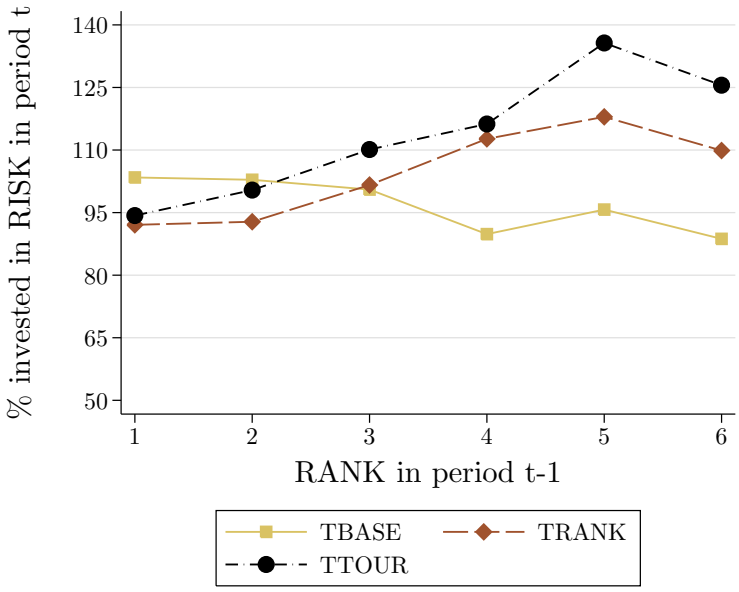

Figure 1. Ranks and risk-taking in experiment PROF. This figure plots the average percentage invested in the risky asset ($RISK$) in period t conditional on rank in the previous period ($RANK_{t-1}$) across all treatments in the professional sample. $RANK_{t-1}$ indicates the position in the ranking, with higher numbers indicating weaker relative performance.

Complementing the above results on rank effects, Figure 1 plots professionals' risk-taking conditional on their rank in the previous period.[13] We find that outperforming professionals,

[11] For robustness, we estimate all models in Table I without an AR(1) disturbance. The results do not change qualitatively. See Table IAI.

[12] A post-estimation Wald test reports no difference between the coefficients of TRANK and TTOUR among underperformers (p=0.339).

[13] Here, we ran the baseline regressions (Columns 1 to 3 in Table I) with dummy variables for each $RANK$ in $t-1$ and without an AR(1) disturbance. Figure 1 shows the sum of the intercept and the coefficient of each rank

who were in first place in $t-1$, invested relatively similarly in the risky asset across treatments, ranging from 92% in TRANK to 103% in the baseline. However, underperforming professionals in TRANK (ranks 4 to 6) clearly took on more risk, investing on average 112.7%, 118.0% and 109.9% of their current wealth in the risky asset, respectively. The differences in underperformers' risk-taking between treatments TRANK and TBASE are substantial, ranging from 21 to 23 percentage points. Figure 1 also shows that rank-dependent monetary incentives in TTOUR change this rank effect little compared to the ranking treatment.

In Columns 7 to 9 of Table I we deepen our analyses of the rank effect outlined in Figure 1 by including the variable $RANK_{t-1}$, which records a professional's rank in portfolio wealth in the previous period. We find that the coefficient on $RANK_{t-1}$ is positive and statistically highly significant in both the tournament treatment and the ranking treatment. In TRANK, with anonymous rank feedback only, risk-taking among professionals increases by roughly 5.1 percentage points with each position down the league table. Accordingly, the magnitude of the coefficient on $RANK_{t-1}$ in the tournament treatment is close to the corresponding effect in TRANK.[14] In contrast, in the absence of rank information in the baseline treatment, risk-taking decreases significantly in $RANK_{t-1}$ (Column 7). In other words, risk-taking is lower in poorer ranks, which is expected as those who take more risks should end up higher in the ranking, on average.

In addition to the effects of ranking on risk-taking, we observe a highly significant and consistent negative relationship between the portfolio return RET_PF_{t-1} and participants' risk-taking, which suggests that professionals tend to decrease (increase) risk-taking in gains (losses). This behavior is related to the disposition effect (Weber and Camerer (1998)) and suggests a monetary reference point and/or nonlinear curvature in monetary incentives.[15] To gain more insight into this investment behavior, we add a dummy variable for positive portfolio returns ($RET\_PF_{t-1}^{POS}$). The results, reported in Table IAV in the Internet Appendix, show that risk-taking is indeed negatively related to positive portfolio returns in most specifications. This is generally in line with the disposition effect as professionals seem to ride losses more than gains. We further find a negative and significant relationship between last period's risky asset return RET_ASSET_{t-1} and risk-taking in the tournament treatment and in the joint regressions in Columns 4 and 6. These results indicate that professionals do not consider the random draws independent, but rather they exhibit behavior in line with the Gambler's Fallacy (Rabin (2002)).

One interesting feature in this setting is the role of relative wealth concerns among profes-

dummy, reflecting the rank-specific average of $RISK$ after controlling for portfolio wealth and asset returns.

[14] We find no significant interaction effect for $RANK_{t-1}$ and a dummy for TTOUR in a pooled sample with both treatments TRANK and TTOUR. See Table IAII in the Internet Appendix.

[15] We acknowledge that it is not clear where such a monetary reference point would lie. A natural candidate could be the initial endowment, which we assume in the analysis below, but other references such as the compounded expected asset return are also possible.

sionals. Following DeMarzo et al. (2004) others' past or current relative wealth can influence one's own investment choices. In our setting, while relative wealth levels and ranks are correlated, relative wealth levels contain additional information in terms of distance to peers. A clean separation of the role of pure rank information and pure relative wealth concerns would call for additional treatments that build on TRANK but do not display relative wealth levels. We leave such separation for future research.

Results of this experiment suggest that anonymous rankings strongly increase risk-taking among underperformers. Although monetary tournament incentives increase risk-taking in general, nonmonetary rank incentives seem to be a crucial force that shapes professionals' rank-dependent investment behavior.

II. Investment Experiment with Students (STUD)

If relative performance concerns are universal in framed investment decisions, one might expect rank-driven behavior to be equally strong among professionals and nonprofessionals. Students are perfectly suited for this analyses, as they do not have professional experience making investment decisions. Moreover, students represent the most prevalent, "classic" lab participants in experimental studies. We administered the same experiment to bachelor and master students from various disciplines at the University of Innsbruck (Austria). In total, 432 students took part, 144 in each treatment. To closely mirror the gender ratio of the professionals, we recruited 79.9% male participants. The average age was 23.9 years and 52.5% were economics or management students. All specifications were identical to the experiment using professionals except for the stake size. Similar to other studies (List and Haigh (2005), Alevy, Haigh, and List (2007), Cohn et al. (2014)), we scaled student stakes down to 1/3 of the professionals' payoffs in all parts of the experiment. Average earnings were 18 euro with a maximum payout of 323 euro.

We find that average risk-taking (104.5%) is higher in the tournament treatment than in TRANK and TBASE, with values of 76.9 and 74.0, respectively (see Figure IA1 in the Internet Appendix for an overview). This result finds support in the panel regression results reported in Table II, which show that the coefficient on TTOUR in Columns 4 to 6 is positive and significant. This finding applies to both underperformers and outperformers, indicating that tournament incentives increase risk-taking among students at all levels.[16]

[16] A post-estimation Wald test also shows significant differences between the coefficients of TRANK and TTOUR (p=0.000 for ALL and LOW; p=0.015 for HIGH).

Table II
Ranks and Risk-Taking in Experiment STUD

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' (students') percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TTOUR are dummy variables for the treatments with rank incentives and with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	73.560***	79.091***	106.806***	73.600***	73.646***	74.919***
	(4.213)	(4.418)	(4.290)	(4.303)	(4.808)	(4.872)
RET_PF_{t-1}	-0.436***	-0.329***	-0.383***	-0.394***	-0.177**	-0.468***
	(0.063)	(0.070)	(0.073)	(0.040)	(0.069)	(0.055)
RET_ASSET_{t-1}	-0.022	-0.071	-0.099	-0.056	-0.054	-0.133
	(0.078)	(0.093)	(0.129)	(0.057)	(0.083)	(0.087)
TRANK				5.888	-0.023	7.006
				(6.089)	(6.623)	(6.678)
TTOUR				33.069***	16.039**	42.795***
				(6.081)	(6.625)	(6.681)
N	1008	1008	1008	3024	1512	1512
R^2	0.098	0.046	0.040	0.097	0.000	0.243
$\chi 2$	54.791	31.039	35.075	153.791	17.853	146.822
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.003	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	70.189***	73.192***	70.271***
	(6.373)	(6.569)	(7.050)
RET_PF_{t-1}	-0.417***	-0.295***	-0.211***
	(0.068)	(0.076)	(0.077)
RET_ASSET_{t-1}	-0.029	-0.090	-0.204
	(0.079)	(0.094)	(0.128)
$RANK_{t-1}$	0.972	1.630	10.458***
	(1.383)	(1.343)	(1.624)
N	1008	1008	1008
R^2	0.096	0.049	0.079
$\chi 2$	55.346	32.607	77.920
Prob > $\chi 2$	0.000	0.000	0.000

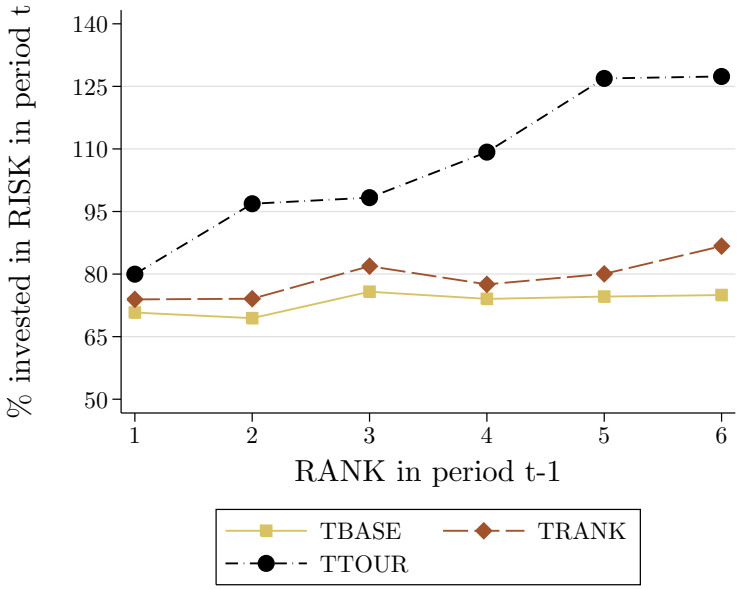

Figure 2. Ranks and risk-taking in experiment STUD. This figure plots the average percentage invested in the risky asset ($RISK$) in period t conditional on rank in the previous period ($RANK_{t-1}$) across all treatments in the student sample. $RANK_{t-1}$ indicates the position in the ranking, with higher numbers indicating weaker relative performance.

Moreover, in contrast to the professionals, students do not show any reaction to rank incentives, even when they underperform. Figure 2 shows the missing rank effect in TRANK, which indicates that underperformers do not increase risk-taking compared to outperformers. Column 8 in Table II provides statistical support for this result, as the coefficient on $RANK_{t-1}$ in the ranking treatment is insignificant.[17] These results stand in contrast to those using professionals. However, when the ranking is payout-relevant, we find that students' behavior is almost identical to that of professionals. Here, the coefficient on $RANK_{t-1}$ in the tournament treatment (Column 9) is positive and highly significant with a value of 10.5.

Turning to the control variables in Table II, we find that the coefficients on portfolio returns, RET_PF_{t-1}, are significantly negative across all specifications. This pattern is similar to that in the professionals' sample; indeed, when including an additional dummy for positive portfolio returns (see Table IAIX in the Internet Appendix), these patterns continue to prevail. Note, however, that the effect is statistically and economically weaker with smaller coefficients and lower statistical significance. With regard to last period's asset return RET_ASSET_{t-1} and risk-taking, we find some differences between students and professionals, as students do not fall

[17]Note that this finding also rules out learning as a possible alternative explanation for the observed rank effect in the sample of professionals. With feedback in the TRANK treatment, underperformers could learn that more risk-taking is rewarded with higher returns. However, as we observe no rank effect in TRANK with students, learning does not hold as an explanation.

prey to the Gambler's Fallacy to the same extent.[18]

To investigate whether economics and management students exhibit similar behavior as professionals, in Table IAX in the Internet Appendix we split the student sample between econ/management students and students from other fields. We do not find marked differences in behavior between econ/management students and students from other fields. More importantly, the interaction effects of $RANK_{t-1}$ * $ECON$ are insignificant in TRANK and TTOUR treatments, indicating no differences in rank-driven behavior between the two groups of students.[19] These results suggest that the professional banking environment may drive at least part of the risk-taking we document following underperformance.

Finally, in Table III, we test whether the rank-dependent behavior of professionals in the PROF experiment differs from students in the STUD experiment. To do so, we run the same regressions as in the first three and last three columns of Tables I and II and add a dummy for professionals ($PROFESSIONALS$ in Columns 1 to 3) as well as its interaction with the previous period's rank in Columns 4 to 6. The interaction term captures differences between professionals' and students' rank-dependent behavior. Although the experiments differed in stake sizes, which may limit the power of this comparison, the results in Table III confirm our finding that rank-driven behavior, as measured by $RANK_{t-1}$, is significantly stronger in the professional sample than in the student sample in the TRANK treatment (Column 5), but does not differ between the two samples when the ranking is payout-relevant in the tournament treatment (Column 6).[20] Columns 1 and 2 also support earlier results that professionals' risk-taking exceeds that of students in the baseline and the ranking treatments, but not when tournament incentives are introduced (Column 3).[21]

Overall, our results indicate that rank-driven behavior in an investment context is not universal and that professionals' behavior deviates markedly from that of students. It seems that non-incentivized and anonymous rankings trigger professionals' relative performance preferences, which results in increased risk-taking among underperformers. Tournament incentives, however, which translate ranks into monetary rewards, trigger similar behavior in both subject pools.

[18]For robustness we estimate all models in Table II without an AR(1) disturbance. The results do not change qualitatively (see Table IAVI).

[19]We find only marginally lower risk-taking (at the 10% level) of econ/management students in the TTOUR treatment. However, these results should be treated with caution because splitting the student sample into two groups lowers statistical power.

[20]Note that the interaction term is marginally significantly negative in the TBASE treatment, indicating that the difference in risk-taking between outperformers and underperformers among professionals is significantly larger than the difference between the two groups in the student sample.

[21]In Table IAXI we run the same regressions as in Tables I and II but with a dummy variable for professionals. Moreover, we run all regressions in Tables III and IAXI with interaction terms between the variables RET_PF_{t-1} and RET_ASSET_{t-1}, respectively, and the dummy for professionals. We find that all results stay essentially the same. See Tables IAXII and IAXIII in the Internet Appendix.

Table III
Ranks and Risk-Taking in Experiments PROF and STUD Testing for Differences Between Both Subject Pools

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. $PROFESSIONALS$ is a binary dummy variable equal to one for professionals, and zero for students. In Columns 4 to 6 the impact of last period's rank is investigated. Here, $RANK_{t-1}$ is participant i's rank in the preceding period, and the interaction between treatment and prior period rank (e.g., $RANK_{t-1}$*$PROFESSIONALS$) measures differences in rank-driven behavior of professionals with respect to students. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR
α	73.709***	79.430***	106.947***
	(4.174)	(4.332)	(4.359)
RET_PF_{t-1}	-0.421***	-0.386***	-0.386***
	(0.048)	(0.055)	(0.056)
RET_ASSET_{t-1}	-0.048	-0.049	-0.220**
	(0.069)	(0.075)	(0.099)
$PROFESSIONALS$	23.208***	24.563***	6.494
	(7.039)	(6.699)	(7.545)
N	1554	1722	1512
R^2	0.116	0.090	0.062
$\chi 2$	101.441	75.923	69.332
Prob > $\chi 2$	0.000	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(4) TBASE	(5) TRANK	(6) TTOUR
α	70.941***	74.518***	71.206***
	(6.343)	(6.339)	(6.783)
RET_PF_{t-1}	-0.430***	-0.331***	-0.239***
	(0.050)	(0.059)	(0.059)
RET_ASSET_{t-1}	-0.043	-0.080	-0.303***
	(0.070)	(0.076)	(0.098)
$PROFESSIONALS$	36.769***	10.550	12.683
	(9.839)	(9.526)	(11.789)
$RANK_{t-1}$	0.787	1.312	10.223***
	(1.391)	(1.299)	(1.513)
$RANK_{t-1}$*$PROFESSIONALS$	-3.861*	3.950**	-1.827
	(2.006)	(1.946)	(2.633)
N	1554	1722	1512
R^2	0.124	0.099	0.100
$\chi 2$	107.124	88.952	129.161
Prob > $\chi 2$	0.000	0.000	0.000

III. Additional Experiments Testing Identity Transfer

The results so far raise questions about the source of the behavioral differences between financial professionals and student participants. One possible explanation is that professionals import their professional identity and industry experience into the laboratory and hence behavior in their private identity could differ. According to the literature on social identity theory (Akerlof and Kranton (2000)), decision makers have multiple social identities (based on, for example, gender, ethnicity, or occupation) that prescribe how they should behave when a certain identity is salient. For instance, Cohn et al. (2014, 2017) show that industry professionals exhibit different behavior when their professional identity has been made less salient. Translated to our context, this suggests that rank-driven behavior could be imported from professionals' experience in the industry, where rankings, relative performance, and tournament incentives are salient, while the rank effect may be weaker or even irrelevant in decisions that are less related to participants' professional identity. To shed more light on the determinants of the rank effect and its robustness, we first follow this literature and provide survey evidence on professionals' preferences for relative performance. We then run additional experiments focusing on participants' professional identity and contrast their behavior when professional identity is salient to their behavior when private identity is salient.

A. Survey Evidence on Preferences for Relative Performance

To shed light on potential "special" characteristics of professionals, we elicited preferences for financial success, relative performance, and social status and investigated their relation to behavior in the investment game. Following Cohn et al. (2014), we asked

Q1 (SOCIAL_STATUS): How important is it for you what others think about you? (1: not important; 7: very important)

Q2 (FINANCIAL_SUCCESS): Social status is primarily defined by financial success. (1: completely disagree; 7: fully agree)

Q3 (RELATIVE_PERFORMANCE): How important is it for you to be the best at what you do? (1: not important; 7: very important)

Figure 3 and Table IAXV in the Internet Appendix present the results. We observe no differences between professionals and students in the average importance of financial success, but highly significant differences with regard to social status and relative performance. Social status is significantly more important for professionals than for students, and relative performance is the most important trait. These results support the view that subject-pool-specific differences in attitudes about relative performance can explain differences in rank-dependent risk-taking between professionals and students. Indeed, economics and management students are closer to professionals in some of their attitudes than to students pursuing other majors (e.g., natural

sciences, life sciences, humanities). When we split the student sample along these lines, we find that economics and management students consider social status and relative performance significantly more important than do other students. It therefore seems that status-seeking behavior and relative performance preferences are already present to some extent before entering the finance industry.

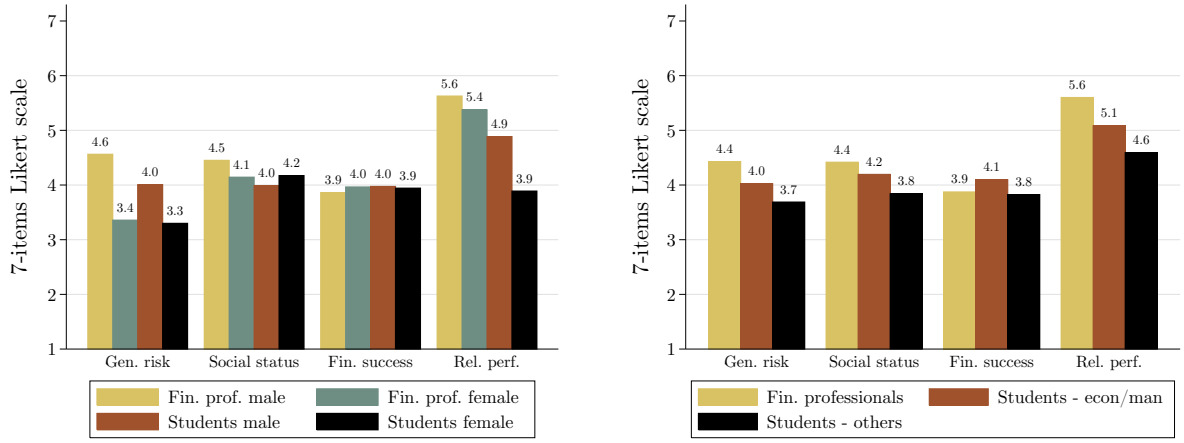

Figure 3. Preferences for social status, financial success, relative performance, and risk-taking, by gender (left panel) and field of study (right panel). This figure shows average post-experimental survey responses on a seven-point Likert scale, with higher values indicating stronger preferences, for the following variables: *GENERAL_RISK*, *SOCIAL_STATUS*, *FINANCIAL_SUCCESS*, and *RELATIVE_PERFORMANCE*. Several risk attitudes (*GENERAL_RISK*) are measured using the German SOEP survey question, with higher values indicating higher self-reported risk-taking in real life. *Students – econ/man* refers to economics and management students. Data from the PROF and STUD experiments are split by subject pool and gender (left panel) and by field of study for the student sample (right panel).

We also investigate whether professionals' relative performance and social status concerns influence their behavior in the investment experiment.[22] We find that professionals who consider relative performance to be important invest significantly more in the risky asset (probably in an effort to obtain a high rank) than those who consider it less important, even after controlling for risk attitudes and loss aversion. In line with results on missing rank effects in the student sample, individual relative performance preferences fail to predict the risk-taking behavior of students. See Internet Appendix Section II for more details and further analyses.

[22]In this analysis, we run OLS regressions with a participant's average risk over all eight periods ($\overline{RISK}$) as the dependent variable and answers to the questions on social status (Q1), financial success (Q2), and relative performance (Q3) as independent variables. We add loss aversion and general risk attitude as additional control variables and cluster standard errors at the group level. To capture loss aversion, we use the normalized sum of accepted lotteries, *LOSS_TOLERANCE*, which takes values from zero (rejects all gambles—highly loss averse) to one (accepts all gambles—loss seeking). To capture risk attitude, we use the answer to the German SOEP survey question, with higher values indicating more self-reported risk-taking in real life.

Taken together, relative performance is more important for professionals than for students and this affects risk-taking when professionals receive feedback on their ranking in investment decisions. Although students from economics and management show stronger preferences for relative performance than their peers in other fields, these preferences are not strong enough to exhibit rank-driven behavior in the investment game. Our results thus suggest that the professional banking environment itself contributes to risk-taking following underperformance. We investigate the impact of professional identity on rank-driven behavior in greater detail in the following two subsections.

B. Treatments TRANK^{LOT} *and* TRANK^{FAM}

In the TRANK^{LOT} treatment we build on the work of Cooper et al. (1999) and reframe the TRANK treatment in abstract lottery terms without any reference to real investment decisions. Following Cohn et al. (2014, 2017), we might expect different behavior because participants' professional identity as investment managers is less salient in this task. In particular, the setup here is identical to the TRANK treatment except that we reframe all investment-related terms to abstract terms, for example, from "return" to "number," "wealth" to "points," "stock index" to "alternative B," and "risk-free rate" to "alternative A" (see Internet Appendix Section III for details).

A concern with the above analysis is that framing the experiment in abstract lottery terms may be too weak to the extent that professionals recognize the investment features behind the abstract frame. We, therefore, also administered the TRANK^{FAM} treatment in which we activated professionals' family identity by letting them invest for a family member. This treatment is identical to the TRANK treatment except that a professional invests 90 euro for herself and 90 euro for a self-selected family member with the same portfolio. At the beginning of the experiment, professionals had to identify the family member they would invest for. We paid the family member via bank transfer after the experiment. Importantly, the fact that professionals were investing for a family member was made salient both in the instructions and on the investment screen, which made use of terms such as "your family member's current wealth." To further increase the salience of the family member in professionals' thought processes, professionals had to answer three questions about the self-selected family member just before the investment game started.[23] For the TRANK^{LOT} and TRANK^{FAM} treatments we recruited another 54 and 48 professionals each; 81.4% were male, their average age was 33.5 years, and they had been working in the finance industry for 7.9 years on average. If both of these alternative treatments exhibit similar rank-driven behavior as in the TRANK treatment, this would be strong evidence of

[23]See the instructions in Internet Appendix Section III for further details. The questions regarding the family member were: "What do you think will the chosen family member do with the money?;" "How many hours per week do you spend time with the selected family member on average?;" and "How do you see your selected family member: Is he/she willing to take risks or try to avoid risks?"

relative performance preferences among professionals even outside the finance domain.

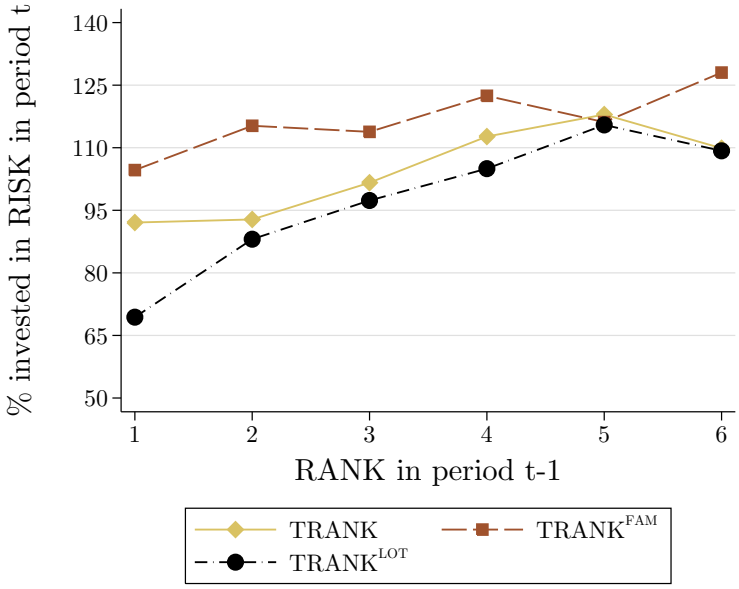

Figure 4. Ranks and risk-taking in treatments TRANK, TRANK^{LOT}, and TRANK^{FAM} in the professional sample. This figure plots the average percentage invested in the risky asset ($RISK$) in period t conditional on rank in the previous period ($RANK_{t-1}$) across all included treatments. $RANK_{t-1}$ indicates the position in the ranking, with higher numbers indicating weaker relative performance.

Figure 4 and Table IV show the results. We find that all of our main results continue to hold. In particular, rank-driven behavior is strong in the TRANK^{LOT} treatment (Column 5) with a coefficient on $RANK_{t-1}$ of 7.1. Moreover, the rank effect remains significant at close to the 5% level (p=0.053) when concerns for family members are activated in the TRANK^{FAM} treatment (Column 6). However, it is worth noting that the coefficient is now lower at 3.5. This result indicates that even when professionals invest for a family member they still take more risk following underperformance, but the effect is less pronounced (albeit insignificantly so) than in a more professional environment.[24]

[24]To determine whether the family treatment already moderates the rank effect (i.e., whether the rank effect is significantly weaker than in the other treatments with rank information), we would need more data. We leave this question for future research.

Table IV
Ranks and Risk-Taking in Treatments TRANK^{LOT} and TRANK^{FAM} in the Professional Sample

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for rank-driven behavior in treatments TRANK^{LOT} and TRANK^{FAM}. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. In Columns 3 to 7 the impact of last period's rank is investigated. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TRANK^{LOT}	(2) TRANK^{FAM}
α	95.764***	116.318***
	(6.480)	(8.449)
RET_PF_{t-1}	-0.589***	-0.161**
	(0.093)	(0.072)
RET_ASSET_{t-1}	0.212	-0.503***
	(0.132)	(0.159)
N	378	336
R^2	0.274	0.080
$\chi 2$	42.447	19.989
Prob > $\chi 2$	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(3) TBASE	(4) TRANK	(5) TRANK^{LOT}	(6) TRANK^{FAM}	(7) TTOUR
α	109.336***	86.272***	72.751***	104.466***	86.661***
	(7.933)	(7.635)	(8.184)	(10.367)	(9.414)
RET_PF_{t-1}	-0.444***	-0.384***	-0.460***	-0.133*	-0.273***
	(0.079)	(0.092)	(0.097)	(0.073)	(0.085)
RET_ASSET_{t-1}	-0.096	-0.067	0.129	-0.519***	-0.510***
	(0.140)	(0.129)	(0.133)	(0.159)	(0.146)
$RANK_{t-1}$	-3.470**	5.055***	7.104***	3.477*	7.764***
	(1.661)	(1.566)	(1.740)	(1.797)	(2.030)
N	546	714	378	336	504
R^2	0.122	0.114	0.359	0.099	0.152
$\chi 2$	41.706	46.438	64.241	23.913	56.405
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.000

Although the absolute level of risk-taking seems to be the highest in the TRANK^{FAM} treatment, it is not statistically different from those in the other treatments that contain rank incentives—TRANK and TRANK^{LOT} (see Table IAXIV in the Internet Appendix). In addition, we observe similar patterns for RET_PF_{t-1} compared to the treatments in the PROF Experiment. The coefficients on portfolio returns are significantly negative in both treatments, indicating that professionals decrease (increase) risk-taking after high (low) portfolio returns when investing in an abstract lottery frame or when investing for a family member. Further, also in line with previous results, we observe support for the Gambler's Fallacy (Rabin (2002)) in the family treatment, where the coefficient on last period's asset return is significantly negative.

Taken together, these results suggest that professionals' rank-driven behavior is a robust behavioral pattern, with relative performance concerns not significantly changed when we employ a neutral experimental frame or when we activate family concerns.

C. Online Experiment PROF^{ONLINE}

A concern with the TRANK^{LOT} and TRANK^{FAM} treatments is that it is not clear whether participants' professional identity was sufficiently less salient when the frame was abstract or when family concerns were activated. The lab-in-the-field experiments were run in the institutional environment in which the professionals work. Importantly, professionals knew that they were playing against other professionals, and thus their professional identity was likely still activated at least to some extent, which could override the abstract lottery frame and family concerns. To circumvent this problem we also ran an online experiment, PROF^{ONLINE}, with two treatments: one in which we primed professionals on their private identity and let them play against people from the general population, and another in which we primed professionals on their professional identity and let them play against other professionals. This design provides an institutionally cleaner task with a clear distinction between private and professional settings.

For the investment task we designed a modified version of Kuziemko et al. (2014) that is sufficiently simple for an online task and is framed in abstract lottery terms. At the beginning of the first period professionals were randomly selected into a group of six and for each group of six the computer randomly assigned each player a rank in the distribution of initial wealth in euro {54.0, 49.5, 45.0, 40.5, 36.0, 31.5}.[25] In both treatments the league table of initial wealth was displayed and common knowledge. Professionals could decide between two alternatives: they could go for either 2.25 euro with 100% probability or for a lottery paying out 9 euro with 75% probability or -18 euro with 25% probability. At the end of the period, all random draws were independently and separately drawn for each player and a new league table with final wealth as of the end of the period was displayed. Final wealth was computed by adding 2.25 euro to

[25] The instructions for the online experiment in Internet Appendix Section V are in USD, which we also quoted for convenience for some of the participants. At the time of the experiment the euro and USD were practically on par.

initial wealth if the safe option was chosen or by either adding 9 euro to or subtracting 18 euro from initial wealth if the lottery was chosen. In the next period professionals were randomly selected into another group of six and rerandomized to the same {54.0, . . ., 31.5} distribution of initial wealth. Play then followed the same setup as for the first period. Each online session consisted of three independent periods. Final wealth of one randomly selected period (including the loss-aversion task from the PROF experiment) was paid out with 20% probability. One important feature of this design is that the safe payment is always equal to half of the difference between consecutive ranks (2.25 euro) and therefore, ceteris paribus, does not improve one's position. The positive lottery outcome is equal to the difference between the decision maker's rank and two ranks above her (9 euro) and the negative lottery outcome is equal to the difference between the decision maker's rank and four ranks below her (-18 euro). Note that final wealth is always above zero and both options (safe and lottery) have the same expected value under risk-neutrality. Related literature shows that participants in the lab 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, based on wealth levels, the player with the worst rank (rank 6) would be least likely to choose the lottery (Kuziemko et al. (2014)). Our design therefore takes a conservative position, because—in order to be observable—rank effects would have to work against a possible decrease in risk aversion in wealth.

In the $\text{TRANK}^{\text{PRIV}}$ treatment we took care to activate professionals' private identity. We first primed professionals on their private identity before the investment task using the protocol of Cohn et al. (2014, 2017). We then let the professionals play against people from the general population. This was common knowledge ex ante and highlighted in the task by adding to the league table depersonalized information about participants' last vacation and two preferred leisure activities with family and friends.[26] This information was extracted from the initial priming questions and displayed together with each participant's rank and initial (final) wealth on the decision (results) screen, making the nonprofessional identity of the other players in the group very salient. Similarly, in the $\text{TRANK}^{\text{FIN}}$ treatment, we first made participants' professional identity salient before the investment task using the protocol of Cohn et al. (2014, 2017).[27] We

[26]See Internet Appendix Section V for details on the priming procedure. In brief, we asked the following seven priming questions in the $\text{TRANK}^{\text{PRIV}}$ treatment: "What is your favorite leisure activity? Please describe your answer in two to three sentences," "Which three opportunities for leisure activities would you most like in your area?," "How many hours per week on average do you watch TV?," "Where did you spend your last vacation?," "Which three things did you like most about your last vacation?," "Are you actively involved or have you ever been involved in a club?," and "Which three leisure activities do you enjoy most with your friends or family?"

[27]We asked the following seven priming questions in the $\text{TRANK}^{\text{FIN}}$ 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?," and "What are the three most important things you learned in your occupation as an employee in the financial sector?"

then let them play against other professionals and displayed depersonalized information on job function, years of experience in the finance industry, and the personality characteristic viewed as most important for an employee in the finance industry. Again, this information was extracted from the answers in the priming task and displayed in the league table together with each professional's rank and wealth.[28]

For this experiment we recruited another 303 professionals using the same criteria as in the other experiments with professionals. Of this sample, 53.8% were men, the average age was 40.2 years, and average experience working in the financial industry was 12.8 years. We recruited a similar number of male and female professionals to address questions about gender differences among financial professionals. For the online experiments we had a larger pool of participants, which allowed us to investigate this issue with more statistical power.

In Figure 5 we present preliminary evidence on professionals' choices for the risky lottery as a function of rank. In Table V we report results of probit estimations of professionals' likelihood of investing in the lottery ($RISK$) conditional on rank at the beginning of the period. We find clear and highly significant evidence for rank-driven behavior regardless of whether professionals' private or professional identity was activated and regardless of whether the professionals were male or female. In particular, $RANK$, which indicates a professional's rank according to their initial wealth, is highly significant at the 1% level under both primes (Columns 1 and 2). Again, as in all other experiments in this paper, underperforming professionals increase risk-taking markedly. Moreover, the variable $FEMALE$ and its interaction with $RANK$, $FEMALE * RANK$, are insignificant under both primes, indicating no gender differences in risk-taking or in rank-driven behavior (Columns 3 and 4).[29] In general, we find no differences in the overall level of risk-taking or in the rank effect across the two primes using the aggregate data (Column 5); the dummy variable for $\text{TRANK}^{\text{FIN}}$ and the interaction term $\text{TRANK}^{\text{FIN}} * RANK$ are insignificant. In Columns 6 and 7 we conduct robustness checks using the aggregate data in which we include a dummy for each rank according to initial wealth ($RANK$={2, . . ., 6}, with the first rank serving as the base category). Again, professionals that are down in the ranking increase risk-taking significantly under both primes.

[28]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.

[29]To provide a broader picture on gender differences among professionals, we investigate whether the behavior of male and female professionals differs in the investment experiments PROF and STUD. The results should be treated with caution as sample size among female professionals is rather low. We find that risk-taking is insignificantly different between male and female professionals when we rerun the tests in Table I using gender dummies (see Table IAIV in the Internet Appendix Section I). Results for the student sample differ as risk-taking in the pooled analyses for all treatments appears to be significantly lower among female students compared to their male counterparts (see Table IAVIII in the Internet Appendix Section I).

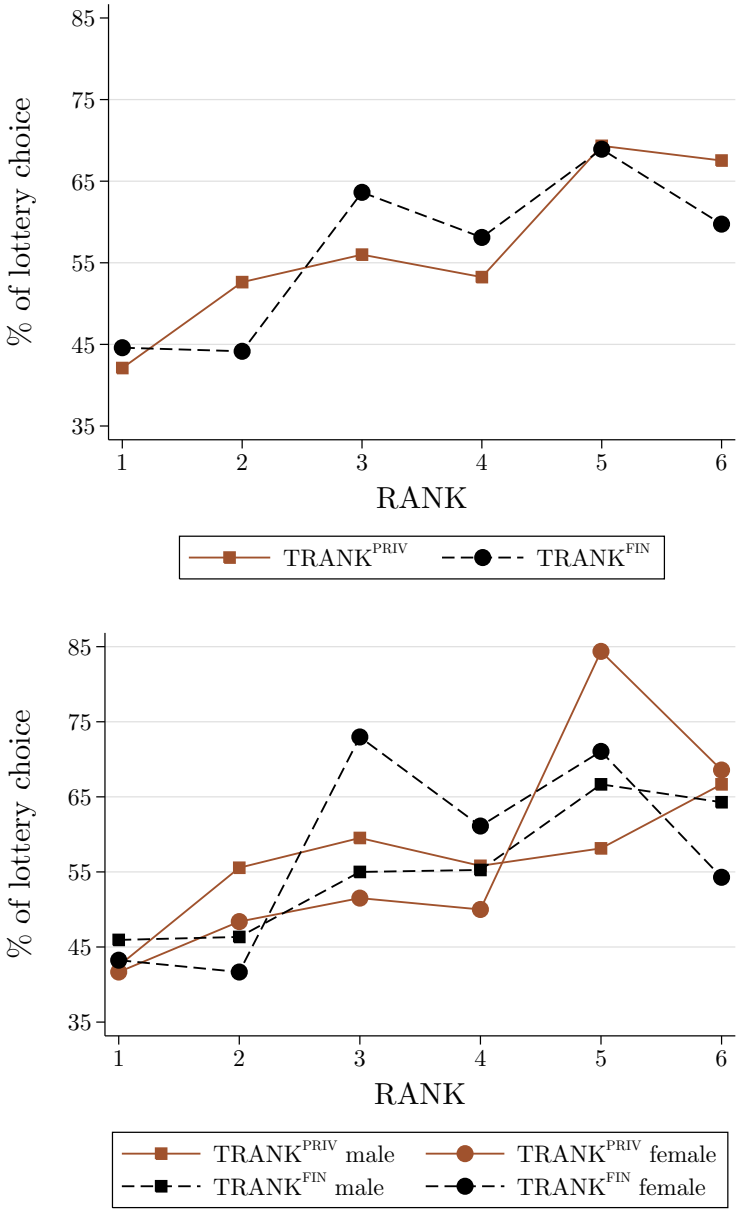

Figure 5. Ranks and risk-taking in treatments TRANK^{PRIV} and TRANK^{FIN} in the online experiment PROF^{ONLINE}. This figure plots the fraction of professionals invest in the risky lottery conditional on professionals' rank at the beginning of the period, by prime (top panel) and by gender and prime (bottom panel). *RANK* indicates position in the ranking with higher numbers indicating lower initial wealth levels.

Table V
Ranks and Risk-Taking in Treatments TRANK^{PRIV} and TRANK^{FIN} in the Online Experiment PROF^{ONLINE}

This table presents results of probit estimations of professionals' likelihood of investing in the lottery ($RISK$) as a function of rank at the beginning of the period. $RISK$ is a binary dummy equal to one if a participant selects the lottery, and zero otherwise (i.e., chooses the fixed payment). $RANK$ is participant i's rank at the beginning of the period according to initial wealth. $FEMALE$ is a dummy for gender effects. $RANK$={2, . . ., 6} are dummies for the respective rank. Standard errors are provided in parentheses and are clustered at the participant level. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, choice of lottery	(1) TRANK^{PRIV}	(2) TRANK^{FIN}	(3) TRANK^{PRIV}	(4) TRANK^{FIN}	(5) ALL
α	-0.274**	-0.200	-0.149	-0.248	-0.274**
	(0.134)	(0.127)	(0.184)	(0.170)	(0.134)
$RANK$	0.128***	0.105***	0.089**	0.111***	0.128***
	(0.033)	(0.031)	(0.045)	(0.039)	(0.033)
$FEMALE$			-0.280	0.097	
			(0.268)	(0.255)	
$FEMALE * RANK$			0.088	-0.013	
			(0.066)	(0.061)	
TRANK^{FIN}					0.074
					(0.185)
TRANK$^{\text{FIN}} * RANK$					-0.024
					(0.045)
N	456	453	456	453	909
Clusters	152	151	152	151	303
Pseudo R^2	0.0218	0.0146	0.0243	0.0150	0.0182
$\chi 2$	15.089	11.748	17.345	12.533	26.938
Prob $> \chi 2$	0.000	0.001	0.001	0.006	0.000

Dep. variable: $RISK$, choice of lottery	(6) TRANK^{PRIV}	(7) TRANK^{FIN}
α	-0.199	-0.136
	(0.145)	(0.147)
$RANK = 2$	0.265	-0.011
	(0.205)	(0.205)
$RANK = 3$	0.350*	0.485***
	(0.190)	(0.185)
$RANK = 4$	0.281	0.341*
	(0.185)	(0.193)
$RANK = 5$	0.705***	0.629***
	(0.204)	(0.212)
$RANK = 6$	0.654***	0.383**
	(0.202)	(0.173)
N	456	453
Clusters	152	151
Pseudo R^2	0.0261	0.0254
$\chi 2$	18.202	18.599
Prob $> \chi 2$	0.003	0.002

To analyze whether the priming was successful, we used the experimental protocol of Cohn et al. (2014, 2017) for a manipulation check. Directly after the investment task we ran a word completion task with six words of which four could be completed in either a finance-related or a non-finance-related way. For instance, "..ock" could be complemented as either "clock" or "stock" (see Figure IA2 in the Internet Appendix for details on these four words). We find that for three of the four relevant words, the frequency of finance-related completes is significantly higher when participants were primed with their professional identity compared to having been primed with their private identity ($p<0.010$, MW U-tests). These results increase confidence that our priming was successful and that professionals acted under different social identities in the two treatments.

In sum, the results suggest that professionals' rank-driven behavior and relative performance concerns are robust to changes in the experimental frame (investment frame versus abstract lottery frame), to changes in the payoff consequences (own return versus family return), to changes in the identity with which professionals are primed (private identity versus professional identity), and to professionals' gender (no difference between male and female professionals).

IV. Conclusion

In this paper we run lab-in-the-field and online experiments with 657 financial professionals and laboratory experiments with 432 student participants to examine whether competition for rank among financial professionals influences risk-taking in investment decisions.

We find that professionals care about relative performance. In particular, we find that underperformers take more risk when an anonymous and non-incentivized ranking is displayed compared to a baseline setting without rank revelation. The observed effect of rank incentives is remarkable given that we employed anonymous ranking instead of public disclosure of identities. Moreover, we find that while monetary incentives in the tournament treatment increase risk-taking in general, they have little effect on the rank-dependent investment behavior observed in the ranking treatment: in both treatments, underperformers take more risk than outperformers.

To check the generalizability of this effect we rerun the experiment with student participants. We find that their investment behavior is not driven by rankings – only payout-relevant rankings in the tournament treatment increase students' risk-taking. This suggests that professionals care more about relative performance and gain a higher utility from rank incentives.

To further analyze the source of professionals' rank-driven behavior as well as test the robustness of our main results, we first summarize survey evidence obtained from the professional and student experiments above. This evidence is consistent with professionals having stronger preferences for relative performance compared to students. We also conduct additional lab-in-the-field and online experiments. We find that the rank effect is robust to changes in the experimental frame (investment frame versus abstract lottery frame), to changes in the payoff consequences

(own return versus family return), to changes in the identity with which the professionals are primed (private identity versus professional identity), and to professionals' gender (no difference between male and female professionals).

According to the literature on social identity theory (Akerlof and Kranton (2000)), professional identity importing from a closely related environment outside the lab (where rankings and tournament incentives are important) may influence professional's rank-driven behavior (Cohn et al. (2014, 2017)). In our experiments this identity-importing effect is less clear-cut. We find that professionals display rank-driven behavior outside their professional environment, which raised questions about the source of this rank effect. First, it could be the case that highly competitive individuals self-select into the finance industry. Second, the strong focus on relative performance among professionals may be shaped by the business culture of the finance industry, where rankings and relative performance are pervasive features that can potentially improve a professional's self-image (Maslow (1943), Bénabou and Tirole (2003), Köszegi (2006)) or public status (Frank (1985), Moldovanu et al. (2007)). In addition, monetary tournament incentives, which are typical of the finance industry, could "train" professionals on the importance of outperforming others. For instance, professional fund managers' actions in the experiment may have been driven by their real-world experience, in which a top rank means higher net fund inflows and in turn higher income. This conjecture is supported by empirical evidence suggesting that fund flows chase top performers (Sirri and Tufano (1998), Kaniel and Parham (2017)). We believe that a clean separation of the effects of self-selection and business culture would require a longitudinal study that starts at adolescence (or earlier).

Our findings have a number of practical implications. First, regulators should be aware that both rank incentives and tournament incentives have the power to increase risk-taking, particularly among underperformers. Our results are supported by studies on fund manager performance showing that it is generally the poorly performing fund managers that increase risk over the next evaluation period (e.g., Brown, Harlow, and Starks (1996), Goetzmann, Ingersoll, and Ross (2003)). However, this strand of the literature cannot disentangle the effects of rank incentives and tournament incentives. We provide evidence that rank incentives alone have the power to increase risk-taking among underperformers. The increased appetite for risk of underperforming professionals implies that regulating monetary tournament incentives might be ineffective if rank incentives trigger similar behavior.

Second, turning to the source of rank-driven risk-taking, one potential reason for competitive pressure in the finance industry is the customer demand for high abnormal returns and corresponding fund flows (Sirri and Tufano (1998), Kaniel and Parham (2017)). Here, better financial literacy of customers in investment-related matters could help, particularly regarding the well-known finding that it is almost impossible to consistently outperform the market.

Third, Eckel and Füllbrunn's (2015) claim that a higher fraction of female professionals would lower risk-taking and the propensity of bubbles warrants some discussion. While Eckel

and Füllbrunn (2015) test male and female students, we find no differences in risk-taking or rank-driven behavior between male and female professionals. Our results suggest that financial professionals, no matter their gender and whether they operate under a private or professional identity, show similar concerns for relative performance. This indicates that male and female professionals that self-select into the industry show similar behavior, and hence increasing the ratio of women without changing the business culture might be ineffective.

Fourth, from an employer's perspective, it is important to know that rank incentives can substitute for expensive bonuses in cases in which increased risk-taking is desirable. Such substitution is limited, however, if strong competition for talent leads to excessive pay for top performers (Bénabou and Tirole (2016)). If the tasks of a professional do not contain a risk component, rank incentives could be used as they increase effort in general (Azmat and Iriberri (2010), Blanes-i-Vidal and Nossol (2011), Tran and Zeckhauser (2012), Bandiera et al. (2013), Delfgaauw et al. (2013)), although they can also induce unethical behavior (Charness et al. (2014)). In contrast, if increased risk-taking is not desirable, companies may want to limit or downplay rank incentives. This is especially important where underperformers are concerned, because this group of investors (who are more likely to experience losses) tend to increase risk-taking the most.

The importance of these implications calls for future research to disentangle the mechanisms underlying the distortions in risk-taking due to rankings and the source of financial professionals' motivation for relative performance.

References

Abdellaoui, Mohammed, Aurélien Baillon, Laetitia Placido, and Peter P. Wakker, 2011, The rich domain of uncertainty: Source functions and their experimental implementation, *American Economic Review* 101, 695–723.

Abdellaoui, Mohammed, Han Bleichrodt, and Hilda Kammoun, 2013, Do financial professionals behave according to prospect theory? An experimental study, *Theory and Decision* 74, 411–429.

Akerlof, George, and Rachel Kranton, 2000, Economics and identity, *Quarterly Journal of Economics* 115, 715–753.

Alevy, Jonathan E., Michael S. Haigh, and John A. List, 2007, Information cascades: Evidence from a field experiment with financial market professionals, *Journal of Finance* 62, 151–180.

Azmat, Ghazala, and Nagore Iriberri, 2010, The importance of relative performance feedback information: Evidence from a natural experiment using high school students, *Journal of Public Economics* 94, 435–452.

Bandiera, Oriana, Iwan Barankay, and Imran Rasul, 2013, Team incentives: Evidence from a firm level experiment, *Journal of the European Economic Association* 11, 1079–1114.

Barankay, Iwan, 2015, Rank incentives: Evidence from a randomized workplace experiment, Working Paper, Wharton.

Bebchuk, Lucian, and Holger Spamann, 2010, Regulating bankers' pay, *Georgetown Law Journal* 98, 247–287.

Bénabou, Roland, and Jean Tirole, 2003, Intrinsic and extrinsic motivation, *Review of Economic Studies* 70, 489–520.

Bénabou, Roland, and Jean Tirole, 2006, Incentives and prosocial behavior, *American Economic Review* 96, 1652–1678.

Bénabou, Roland, and Jean Tirole, 2016, Bonus culture: Competitive pay, screening, and multitasking, *Journal of Political Economy* 124, 305–370.

Blanes-i-Vidal, Jordi, and Mareike Nossol, 2011, Tournaments without prizes: Evidence from personnel records, *Management Science* 57, 1721–1736.

Bradbury, Meike, Thorsten Hens, and Stefan Zeisberger, 2015, Improving investment decisions with simulated experience, *Review of Finance* 19, 1019–1052.

Brown, Keith C., W.V. Harlow, and Laura T. Starks, 1996, Of tournaments and temptations: An analysis of managerial incentives in the mutual fund industry, *Journal of Finance* 51, 85–110.

Bruhin, Adrian, Helga Fehr-Duda, and Thomas Epper, 2010, Risk and rationality: Uncovering heterogeneity in probability distortion, *Econometrica* 78, 1375–1412.

Charness, Gary, Uri Gneezy, and Brianna Halladay, 2016, Experimental methods: pay one or pay all, *Journal of Economic Behavior and Organization* 131, 141–150.

Charness, Gary, David Masclet, and Marie Claire Villeval, 2014, The dark side of competition for status, *Management Science* 60, 38–55.

Cipriani, Marco, and Antonio Guarino, 2009, Herd behavior in financial markets: An experiment with financial market professionals, *Journal of the European Economic Association* 7, 206–233.

Cohn, Alain, Ernst Fehr, and Michel André Maréchal, 2014, Business culture and dishonesty in the banking industry, *Nature* 516, 86–89.

Cohn, Alain, Ernst Fehr, and Michel André Maréchal, 2017, Do professional norms in the banking industry favor risk-taking?, *Review of Financial Studies* 3801â3823.

Cooper, David J., John H. Kagel, Wei Lo, and Qing Liang Gu, 1999, Gaming against managers in incentive systems: Experimental results with Chinese students and Chinese managers, *American Economic Review* 89, 781–804.

Crawford, Vincent, 1998, A survey of experiments on communication via cheap talk, *Journal of Economic Theory* 78, 286–298.

Cubitt, Robin P., Chris Starmer, and Robert Sugden, 1998, On the validity of the random lottery incentive system, *Experimental Economics* 1, 115–131.

Delfgaauw, Josse, Robert Dur, Joeri Sol, and Willem Verbeke, 2013, Tournament incentives in the field: Gender differences in the workplace, *Journal of Labor Economics* 31, 305–326.

DeMarzo, Peter M., Ron Kaniel, and Ilan Kremer, 2004, Diversification as a public good: Community effects in portfolio choice, *Journal of Finance* 59, 1677–1715.

DeMarzo, Peter M., Ron Kaniel, and Ilan Kremer, 2007, Technological innovation and real investment booms and busts, *Journal of Financial Economics* 85, 735–754.

DeMarzo, Peter M., Ron Kaniel, and Ilan Kremer, 2008, Relative wealth concerns and financial bubbles, *Review of Financial Studies* 21, 19–50.

Dewatripont, Mathias, and Xavier Freixas, 2012, Bank resolution: Lessons from the crisis, in Mathias Dewatripont, and Xavier Freixas, eds., *The Crisis Aftermath: New Regulatory Paradigms*, chapter 5, 105–140 (Centre for Economic Policy Research, London).

Diamond, Douglas W., and Raghuram G. Rajan, 2009, The credit crisis: Conjectures about causes and remedies, *American Economic Review* 99, 606–610.

Dijk, Oege, Martin Holmen, and 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, and Gert Wagner, 2011, Individual risk attitudes: Measurement, determinants, and behavioral consequences, *Journal of the European Economic Association* 9, 522–550.

Eckel, Catherine C., and Sascha Füllbrunn, 2015, Thar SHE blows? Gender, competition, and bubbles in experimental asset markets, *American Economic Review* 105, 906–920.

Ehm, Christian, Christine Kaufmann, and Martin Weber, 2014, Volatility inadaptability: Investors care about risk, but can't cope with volatility, *Review of Finance* 18, 1387–1423.

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, 171–178.

Frank, Robert H., 1985, *Choosing the Right Pond: Human Behavior and the Quest for Status* (Oxford University Press).

Frederick, Shane, 2005, Cognitive reflection and decision making, *Journal of Economic Perspectives* 19, 25–42.

Frydman, Cary, 2016, Relative wealth concerns in portfolio choice: Neural and behavioral evidence, Working Paper, University of Southern California.

Gächter, Simon, Eric J. Johnson, and Andreas Herrmann, 2007, Individual-level loss aversion in riskless and risky choices, CeDEx Discussion Paper No. 2007-02.

Goetzmann, William N., Jonathan E. Ingersoll, and Stephen A. Ross, 2003, High-water marks and hedge fund management contracts, *Journal of Finance* 58, 1685–1718.

Haigh, Michael S., and John A. List, 2005, Do professional traders exhibit myopic loss aversion? An experimental analysis, *Journal of Finance* 60, 523–534.

Hey, John D., and Jinkwon Lee, 2005, Do subjects separate (or are they sophisticated)?, *Experimental Economics* 8, 233–265.

Holt, Charles A., and Susan K. Laury, 2002, Risk aversion and incentive effects, *American Economic Review* 92, 1644–1655.

House, Robert J., 1971, A path-goal theory of leader effectiveness, *Administrative Science Quarterly* 16, 321–339.

House, Robert J., 1996, Path-goal theory of leadership: Lessons, legacy, and a reformulated theory, *Leadership Quarterly* 7, 323–352.

Huber, Jürgen, Michael Kirchler, and Thomas Stöckl, 2016, The influence of investment experience on market prices: Laboratory evidence, *Experimental Economics* 19, 394–411.

Hvide, Hans K., 2002, Tournament rewards and risk taking, *Journal of Labor Economics* 20, 877–898.

Jonason, Peter K., and Gregory D. Webster, 2010, The dirty dozen: A concise measure of the dark triad, *Psychological Assessment* 22, 420–432.

Kaniel, Ron, and Robert Parham, 2017, WSJ category kings – The impact of media attention on consumer and mutual fund investment decisions, *Journal of Financial Economics* 123, 337–356.

Kaufmann, Christine, Martin Weber, and Emily Celia Haisley, 2013, The role of experience sampling and graphical displays on one's investment risk appetite, *Management Science* 59, 323–340.

Kleinlercher, Daniel, Jürgen Huber, and Michael Kirchler, 2014, The impact of different incentive schemes on asset prices, *European Economic Review* 68, 137–150.

Köszegi, Botond, 2006, Ego utility, overconfidence, and task choice, *Journal of the European Economic Association* 4, 673–707.

Kuziemko, Ilyana, Ryan Buell, Taly Reich, and Michael I. Norton, 2014, "Last-place aversion": Evidence and redistributive implications, *Quarterly Journal of Economics* 129, 105–149.

Levy, Haim, 1994, Absolute and relative risk aversion: An experimental study, *Journal of Risk and Uncertainty* 8, 289–307.

List, John A., and Michael S. Haigh, 2005, A simple test of expected utility theory using professional traders, *Proceedings of the National Academy of Science* 102, 945–948.

Lohrenz, Terry, Kevin McCabe, Colin F. Camerer, and Read Montague, 2007, Neural signature of fictive learning signals in a sequential investment task, *Proceedings of the National Academy of Science* 104, 9493–9498.

March, Christoph, Anthony Ziegelmeyer, Ben Greiner, and René Cyranek, 2015, Monetary incentives in large-scale experiments: A case study of risk aversion, Working Paper.

Maslow, Abraham H., 1943, A theory of human motivation, *Psychological Review* 50, 370–396.

Moldovanu, Benny, Aner Sela, and Xianwen Shi, 2007, Contests for status, *Journal of Political Economy* 115, 338–363.

Rabin, Matthew, 2002, Inference by believers in the law of small numbers, *Quarterly Journal of Economics* 117, 775–816.

Rajan, Raghuram G., 2006, Has finance made the world riskier?, *European Financial Management* 12, 499–533.

Rammstedt, Beatrice, and Oliver P. John, 2007, Measuring personality in one minute or less: A 10-item short version of the big five inventory in English and German, *Journal of Research in Personality* 41, 203–212.

Roussanov, Nikolai, 2010, Diversification and its discontents: Idiosyncratic and entrepreneurial risk in the quest for social status, *Journal of Finance* 65, 1755–1788.

Sirri, Erik R., and Peter Tufano, 1998, Costly search and mutual fund flows, *Journal of Finance* 53, 1589–1622.

Starmer, Chris, and Robert Sugden, 1991, Does the random-lottery incentive system elicit true preferences? An experimental investigation, *American Economic Review* 81, 971–978.

Tran, Anh, and Richard Zeckhauser, 2012, Rank as an inherent incentive: Evidence from a field experiment, *Journal of Public Economics* 96, 645–650.

Veblen, Thorstein, 1899, *The Theory of the Leisure Class: An Economic Study of Institutions* (Macmillan).

Weber, Martin, and Colin F. Camerer, 1998, The disposition effect in securities trading: an experimental analysis, *Journal of Economic Behavior & Organization* 33, 167–184.

Internet Appendix to
"Rankings and Risk-Taking in the Finance Industry"

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[1]Citation format: Kirchler, Michael, and Florian Lindner, Utz Weitzel, Internet Appendix for "Rankings and Risk-Taking in the Finance Industry," *Journal of Finance* [DOI String]. Please note: Wiley-Blackwell is not responsible for the content or functionality of any additional information provided by the authors. Any queries (other than missing material) should be directed to the authors of the article.

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Appendix I. Additional Tables and Figures

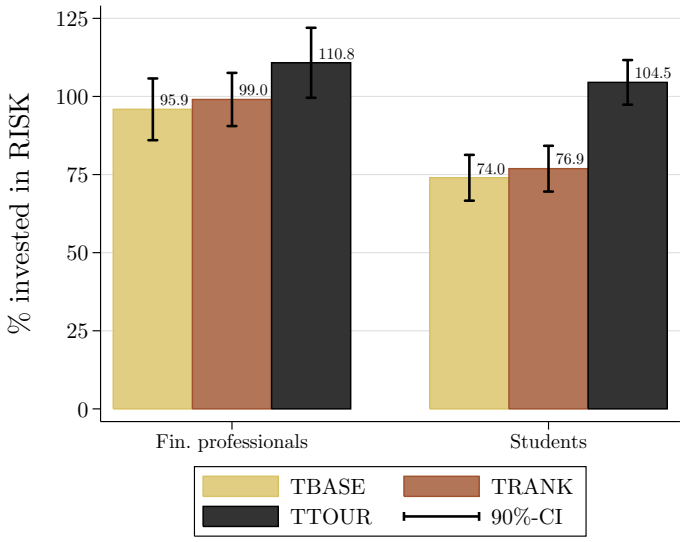

Figure IA1. Risk-taking in experiments PROF and STUD. This figure shows the average percentage invested in the risky asset (*RISK*) across treatments for the financial professionals (PROF) and students (STUD) experiments. For each treatment, 90% confidence bounds are displayed.

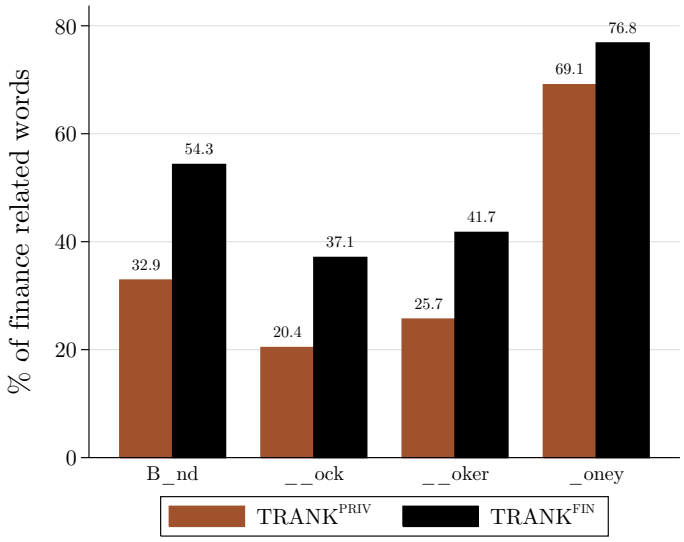

Figure IA2. Manipulation check of online experiment PROF^{ONLINE}. This figure shows the average percentage of finance-related answers (words) for treatments TRANK^{PRIV} and TRANK^{FIN}.

Table IAI
Ranks and Risk-Taking in Experiment PROF

This table presents results of random-effects panel regressions without an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are clustered at the group level and are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	96.761***	105.308***	113.831***	97.091***	106.390***	91.455***
	(6.274)	(6.260)	(8.339)	(6.082)	(7.265)	(7.040)
RET_PF_{t-1}	-0.390***	-0.444***	-0.356***	-0.388***	-0.417***	-0.319***
	(0.122)	(0.160)	(0.114)	(0.075)	(0.120)	(0.071)
RET_ASSET_{t-1}	-0.129	-0.121	-0.502*	-0.248**	-0.131	-0.374**
	(0.165)	(0.142)	(0.269)	(0.112)	(0.167)	(0.170)
TRANK				8.163	-10.940	23.998**
				(8.767)	(9.265)	(10.447)
TTOUR				16.054	-7.814	31.422***
				(10.329)	(13.692)	(10.766)
N	546	714	504	1764	882	882
Clusters	13	17	12	42	42	42
R^2	0.094	0.099	0.110	0.108	0.002	0.294
$\chi 2$	17.324	16.182	12.902	52.567	15.885	47.095
Prob > $\chi 2$	0.000	0.000	0.002	0.000	0.003	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	107.944***	87.317***	87.068***
	(9.224)	(9.090)	(11.301)
RET_PF_{t-1}	-0.425***	-0.357***	-0.263**
	(0.137)	(0.138)	(0.106)
RET_ASSET_{t-1}	-0.102	-0.174	-0.542**
	(0.168)	(0.131)	(0.266)
$RANK_{t-1}$	-3.169*	4.919**	7.613***
	(1.618)	(1.991)	(2.027)
N	546	714	504
Clusters	13	17	12
R^2	0.121	0.115	0.151
$\chi 2$	16.764	21.966	34.798
Prob > $\chi 2$	0.001	0.000	0.000

Table IAII
Ranks and Risk-Taking in Experiment PROF of Treatments TRANK and TTOUR

This table presents results of a random-effects panel regression with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. TTOUR is a dummy variable for the treatment with tournament incentives, with TRANK the baseline reference category. We investigate the different impact of last period's rank of the treatments TRANK and TTOUR. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are clustered at the group level and are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TRANK & TTOUR
α	85.565***
	(7.487)
RET_PF_{t-1}	-0.320***
	(0.063)
RET_ASSET_{t-1}	-0.275***
	(0.097)
TTOUR	1.482
	(11.571)
$RANK_{t-1}$	5.352***
	(1.539)
TTOUR*$RANK_{t-1}$	2.170
	(2.446)
N	1218
R^2	0.137
$\chi 2$	101.135
Prob > $\chi 2$	0.000

Table IAIII
Ranks and Risk-Taking Among Male Participants in Experiment PROF

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in male participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	98.296***	106.386***	113.654***	98.532***	109.025***	93.078***
	(5.834)	(5.623)	(6.503)	(6.009)	(6.882)	(6.181)
RET_PF_{t-1}	-0.379***	-0.513***	-0.402***	-0.417***	-0.424***	-0.414***
	(0.077)	(0.098)	(0.089)	(0.050)	(0.090)	(0.064)
RET_ASSET_{t-1}	-0.114	-0.058	-0.487***	-0.211**	-0.225*	-0.275**
	(0.143)	(0.148)	(0.157)	(0.087)	(0.131)	(0.128)
TRANK				7.599	-14.149	25.146***
				(8.191)	(9.360)	(8.584)
TTOUR				14.532*	-11.070	31.045***
				(8.713)	(10.108)	(9.129)
N	511	595	462	1568	786	782
R^2	0.095	0.120	0.129	0.117	0.007	0.300
$\chi 2$	32.126	34.562	40.489	105.680	37.441	78.338
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	110.503***	88.830***	85.416***
	(8.274)	(8.383)	(9.954)
RET_PF_{t-1}	-0.423***	-0.417***	-0.306***
	(0.079)	(0.104)	(0.091)
RET_ASSET_{t-1}	-0.090	-0.117	-0.539***
	(0.144)	(0.149)	(0.156)
$RANK_{t-1}$	-3.422**	4.901***	7.929***
	(1.720)	(1.774)	(2.174)
N	511	595	462
R^2	0.124	0.152	0.176
$\chi 2$	36.879	43.215	55.317
Prob > $\chi 2$	0.000	0.000	0.000

Table IAIV
Ranks and Risk-Taking in Experiment PROF Including a Dummy for $FEMALE$

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. $FEMALE$ is a dummy variable equal to one for female professionals, and zero otherwise. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	98.407***	105.869***	113.500***	97.572***	106.849***	92.251***
	(5.744)	(5.503)	(6.593)	(5.805)	(6.618)	(5.851)
RET_PF_{t-1}	-0.398***	-0.477***	-0.369***	-0.410***	-0.380***	-0.414***
	(0.076)	(0.088)	(0.082)	(0.047)	(0.084)	(0.060)
RET_ASSET_{t-1}	-0.125	-0.013	-0.464***	-0.180**	-0.205*	-0.247**
	(0.139)	(0.129)	(0.147)	(0.080)	(0.123)	(0.116)
$FEMALE$	-21.057	-6.360	5.618	-6.292	-1.171	-18.954*
	(22.655)	(13.366)	(22.790)	(10.321)	(11.749)	(10.312)
TRANK				8.296	-12.236	26.279***
				(7.734)	(8.799)	(7.913)
TTOUR				16.407**	-8.661	32.098***
				(8.320)	(9.596)	(8.554)
N	546	714	504	1764	882	882
R^2	0.098	0.100	0.112	0.109	0.002	0.310
$\chi 2$	37.480	35.706	40.378	113.277	34.884	91.952
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	111.078***	87.487***	85.640***
	(8.063)	(7.836)	(9.675)
RET_PF_{t-1}	-0.443***	-0.379***	-0.272***
	(0.078)	(0.093)	(0.085)
RET_ASSET_{t-1}	-0.096	-0.068	-0.510***
	(0.140)	(0.130)	(0.146)
$FEMALE$	-22.614	-9.129	10.079
	(21.604)	(13.261)	(22.170)
$RANK_{t-1}$	-3.555**	5.125***	7.814***
	(1.662)	(1.570)	(2.034)
N	546	714	504
R^2	0.126	0.116	0.154
$\chi 2$	42.979	46.898	56.552
Prob > $\chi 2$	0.000	0.000	0.000

Table IAV
Ranks and Risk-Taking in Experiment PROF With Dummy For Positive Portfolio Returns

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment. $RET\_PF_{t-1}^{POS}$ is a dummy variable for positive portfolio returns, and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	104.856***	115.116***	135.077***	111.677***	111.629***	119.538***
	(7.568)	(6.038)	(7.136)	(6.213)	(7.646)	(6.755)
RET_PF_{t-1}	-0.349***	-0.323***	-0.143	-0.287***	-0.324***	-0.207***
	(0.083)	(0.102)	(0.091)	(0.052)	(0.094)	(0.066)
$RET\_PF_{t-1}^{POS}$	-11.630	-19.201***	-38.766***	-21.729***	-7.725	-42.973***
	(7.762)	(6.480)	(7.691)	(4.144)	(6.331)	(5.937)
RET_ASSET_{t-1}	-0.055	0.088	-0.323**	-0.065	-0.161	-0.068
	(0.147)	(0.134)	(0.148)	(0.083)	(0.128)	(0.117)
TRANK				5.395	-12.848	19.926***
				(7.403)	(8.655)	(7.355)
TTOUR				13.546*	-9.044	25.298***
				(8.039)	(9.494)	(8.081)
N	546	714	504	1764	882	882
R^2	0.109	0.127	0.194	0.144	0.005	0.387
$\chi 2$	39.162	45.324	68.868	144.493	35.724	156.106
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	118.563***	96.646***	109.528***
	(9.606)	(8.307)	(10.128)
RET_PF_{t-1}	-0.389***	-0.233**	-0.069
	(0.085)	(0.105)	(0.092)
$RET\_PF_{t-1}^{POS}$	-12.846*	-18.835***	-36.631***
	(7.760)	(6.442)	(7.647)
RET_ASSET_{t-1}	-0.018	0.033	-0.372**
	(0.148)	(0.134)	(0.147)
$RANK_{t-1}$	-3.647**	4.976***	6.931***
	(1.661)	(1.556)	(1.979)
N	546	714	504
R^2	0.138	0.143	0.229
$\chi 2$	44.928	56.233	83.692
Prob > $\chi 2$	0.000	0.000	0.000

Table IAVI
Ranks and Risk-Taking in Experiment STUD

This table presents results of random-effects panel regressions without an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are clustered at the group level and are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	73.242***	79.295***	106.393***	73.418***	74.800***	75.969***
	(5.118)	(5.012)	(5.581)	(4.985)	(6.336)	(6.076)
RET_PF_{t-1}	-0.436***	-0.323***	-0.361***	-0.382***	-0.287**	-0.415***
	(0.103)	(0.107)	(0.106)	(0.063)	(0.112)	(0.081)
RET_ASSET_{t-1}	-0.067	-0.104	-0.221	-0.116*	-0.013	-0.325***
	(0.092)	(0.078)	(0.179)	(0.065)	(0.080)	(0.114)
TRANK				6.406	0.740	6.911
				(7.055)	(9.375)	(8.853)
TTOUR				32.774***	16.571*	42.403***
				(7.326)	(9.845)	(7.632)
N	1008	1008	1008	3024	1512	1512
Clusters	24	24	24	72	72	72
R^2	0.098	0.046	0.040	0.097	0.001	0.246
$\chi 2$	28.437	11.231	17.927	78.641	11.996	101.626
Prob > $\chi 2$	0.000	0.004	0.000	0.000	0.017	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	70.200***	71.625***	72.372***
	(9.370)	(7.613)	(10.493)
RET_PF_{t-1}	-0.419***	-0.280***	-0.209*
	(0.111)	(0.106)	(0.109)
RET_ASSET_{t-1}	-0.073	-0.129*	-0.318*
	(0.091)	(0.074)	(0.177)
$RANK_{t-1}$	0.877	2.122	9.737***
	(1.791)	(1.436)	(2.155)
N	1008	1008	1008
Clusters	24	24	24
R^2	0.096	0.049	0.079
$\chi 2$	32.220	17.977	66.224
Prob > $\chi 2$	0.000	0.000	0.000

Table IAVII
Ranks and Risk-Taking Among Male Participants in Experiment STUD

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in male participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	77.029***	82.615***	107.774***	76.760***	75.515***	78.341***
	(4.970)	(5.421)	(4.457)	(5.104)	(5.674)	(5.768)
RET_PF_{t-1}	-0.538***	-0.354***	-0.377***	-0.424***	-0.191**	-0.473***
	(0.076)	(0.083)	(0.075)	(0.046)	(0.077)	(0.064)
RET_ASSET_{t-1}	-0.040	-0.231*	-0.118	-0.127*	-0.094	-0.241**
	(0.098)	(0.124)	(0.136)	(0.070)	(0.099)	(0.109)
TRANK				5.954	-0.221	8.320
				(7.279)	(7.801)	(8.176)
TTOUR				31.010***	14.073*	41.197***
				(6.826)	(7.347)	(7.598)
N	749	721	945	2415	1231	1184
R^2	0.129	0.057	0.042	0.103	0.000	0.252
$\chi 2$	58.771	34.201	33.248	143.786	15.871	123.070
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.007	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	71.881***	77.065***	68.396***
	(7.593)	(8.131)	(7.313)
RET_PF_{t-1}	-0.508***	-0.324***	-0.189**
	(0.083)	(0.089)	(0.078)
RET_ASSET_{t-1}	-0.051	-0.248**	-0.221*
	(0.098)	(0.126)	(0.134)
$RANK_{t-1}$	1.426	1.596	11.298***
	(1.604)	(1.747)	(1.693)
N	749	721	945
R^2	0.122	0.061	0.088
$\chi 2$	59.861	35.103	79.308
Prob > $\chi 2$	0.000	0.000	0.000

Table IAVIII
Ranks and Risk-Taking in Experiment STUD Including a Dummy for $FEMALE$

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. $FEMALE$ is a dummy variable equal to one for female students, and zero otherwise. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	76.558***	81.785***	107.745***	76.369***	74.632***	78.392***
	(4.864)	(5.198)	(4.424)	(4.591)	(5.163)	(5.111)
RET_PF_{t-1}	-0.446***	-0.329***	-0.384***	-0.398***	-0.181***	-0.473***
	(0.063)	(0.070)	(0.073)	(0.040)	(0.070)	(0.055)
RET_ASSET_{t-1}	-0.020	-0.071	-0.101	-0.056	-0.054	-0.134
	(0.078)	(0.093)	(0.129)	(0.057)	(0.083)	(0.087)
$FEMALE$	-11.702	-9.463	-14.968	-10.788*	-3.703	-14.477**
	(9.650)	(9.692)	(17.675)	(6.376)	(7.019)	(6.757)
TRANK				6.216	0.087	8.325
				(6.074)	(6.624)	(6.653)
TTOUR				30.976***	15.323**	40.306***
				(6.187)	(6.761)	(6.735)
N	1008	1008	1008	3024	1512	1512
R^2	0.105	0.050	0.043	0.101	0.000	0.250
$\chi 2$	56.437	32.014	35.783	157.047	18.084	154.085
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.006	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	73.551***	75.777***	71.234***
	(6.950)	(7.001)	(7.113)
RET_PF_{t-1}	-0.430***	-0.293***	-0.210***
	(0.069)	(0.076)	(0.077)
RET_ASSET_{t-1}	-0.026	-0.091	-0.207
	(0.079)	(0.094)	(0.128)
$FEMALE$	-11.274	-10.256	-16.670
	(9.617)	(9.699)	(17.234)
$RANK_{t-1}$	0.835	1.722	10.481***
	(1.386)	(1.346)	(1.624)
N	1008	1008	1008
R^2	0.102	0.053	0.082
$\chi 2$	56.942	33.761	78.863
Prob > $\chi 2$	0.000	0.000	0.000

Table IAIX
Ranks and Risk-Taking in Experiment STUD With Dummy For Positive Portfolio Returns

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment. $RET\_PF_{t-1}^{POS}$ is a dummy variable for positive portfolio returns, and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	77.882***	86.923***	113.122***	79.855***	76.304***	89.623***
	(5.070)	(5.246)	(5.507)	(4.612)	(5.456)	(5.497)
RET_PF_{t-1}	-0.394***	-0.252***	-0.310***	-0.324***	-0.147**	-0.323***
	(0.069)	(0.077)	(0.083)	(0.045)	(0.075)	(0.061)
$RET\_PF_{t-1}^{POS}$	-7.569	-12.401**	-11.278*	-10.999***	-4.662	-25.852***
	(5.022)	(5.022)	(6.143)	(3.144)	(4.506)	(4.829)
RET_ASSET_{t-1}	0.011	-0.008	-0.026	0.001	-0.032	-0.020
	(0.081)	(0.097)	(0.136)	(0.060)	(0.086)	(0.090)
TRANK				6.559	0.511	7.439
				(6.019)	(6.632)	(6.498)
TTOUR				33.016***	16.104**	42.671***
				(6.008)	(6.613)	(6.500)
N	1008	1008	1008	3024	1512	1512
R^2	0.105	0.073	0.044	0.107	0.000	0.275
$\chi 2$	57.308	37.790	38.674	167.924	18.812	185.207
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.004	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	74.894***	82.371***	75.760***
	(7.101)	(7.567)	(7.982)
RET_PF_{t-1}	-0.379***	-0.232***	-0.157*
	(0.073)	(0.080)	(0.085)
$RET\_PF_{t-1}^{POS}$	-7.397	-11.711**	-8.759
	(5.034)	(5.090)	(6.042)
RET_ASSET_{t-1}	0.004	-0.026	-0.146
	(0.082)	(0.099)	(0.134)
$RANK_{t-1}$	0.833	1.137	10.290***
	(1.384)	(1.361)	(1.624)
N	1008	1008	1008
R^2	0.102	0.074	0.082
$\chi 2$	57.723	38.547	80.166
Prob > $\chi 2$	0.000	0.000	0.000

Table IAX
Ranks and Risk-Taking in Experiment STUD With Dummy For Economics and Management Students

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. $ECON$ is a dummy variable equal to one for economics and management students, and zero for students in other fields. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	66.243***	79.990***	111.081***	66.281***	68.752***	64.959***
	(5.770)	(6.895)	(6.094)	(5.935)	(6.783)	(6.493)
RET_PF_{t-1}	-0.437***	-0.330***	-0.381***	-0.394***	-0.178**	-0.463***
	(0.063)	(0.070)	(0.073)	(0.040)	(0.070)	(0.055)
RET_ASSET_{t-1}	-0.020	-0.071	-0.103	-0.056	-0.053	-0.137
	(0.078)	(0.093)	(0.129)	(0.057)	(0.083)	(0.087)
$ECON$	15.261*	-1.517	-8.424	15.274*	9.564	21.903
	(8.328)	(8.930)	(8.553)	(8.570)	(9.436)	(9.542)
TRANK				14.379	6.475	16.927*
				(8.952)	(10.072)	(9.519)
TRANK*$ECON$				-17.263	-12.186	-21.766
				(12.218)	(13.400)	(13.278)
TTOUR				44.606***	18.365*	58.569***
				(8.506)	(9.721)	(9.111)
TTOUR*$ECON$				-23.595*	-4.952	-33.754**
				(12.115)	(13.304)	(13.303)
N	1008	1008	1008	3024	1512	1512
R^2	0.112	0.046	0.044	0.102	0.001	0.251
$\chi 2$	58.553	31.039	36.046	158.468	19.066	156.436
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.015	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	68.493***	72.117***	70.657***
	(8.811)	(10.332)	(10.231)
RET_PF_{t-1}	-0.410***	-0.296***	-0.207***
	(0.068)	(0.076)	(0.077)
RET_ASSET_{t-1}	-0.026	-0.091	-0.208
	(0.079)	(0.094)	(0.128)
$ECON$	3.932	1.721	-0.835
	(12.176)	(12.751)	(13.541)
$RANK_{t-1}$	-0.614	2.065	11.165***
	(1.875)	(2.056)	(2.299)
$RANK_{t-1}$*$ECON$	3.287	-0.730	-1.436
	(2.553)	(2.559)	(3.053)
N	1008	1008	1008
R^2	0.113	0.049	0.083
$\chi 2$	60.943	32.639	78.598
Prob > $\chi 2$	0.000	0.000	0.000

Table IAXI
Ranks and Risk-Taking in Experiment PROF and STUD Including a Dummy for *PROFESSIONALS*

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. $PROFESSIONALS$ is a dummy variable equal to one for professionals, and zero for students. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	73.709***	79.430***	106.947***	75.310***	79.882***	74.135***
	(4.174)	(4.332)	(4.359)	(3.751)	(4.285)	(4.138)
RET_PF_{t-1}	-0.421***	-0.386***	-0.386***	-0.402***	-0.275***	-0.448***
	(0.048)	(0.055)	(0.056)	(0.031)	(0.054)	(0.041)
RET_ASSET_{t-1}	-0.048	-0.049	-0.220**	-0.094**	-0.097	-0.166**
	(0.069)	(0.075)	(0.099)	(0.046)	(0.068)	(0.070)
$PROFESSIONALS$	23.208***	24.563***	6.494	18.637***	17.303***	18.550***
	(7.039)	(6.699)	(7.545)	(4.100)	(4.572)	(4.396)
TRANK				6.871	-4.612	13.659***
				(4.787)	(5.340)	(5.146)
TTOUR				27.376***	7.241	39.229***
				(4.930)	(5.527)	(5.323)
N	1554	1722	1512	4788	2394	2394
R^2	0.116	0.090	0.062	0.108	0.002	0.263
$\chi 2$	101.441	75.923	69.332	274.114	57.117	232.433
Prob > $\chi 2$	0.000	0.000	0.000	0.000	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	77.024***	68.786***	73.153***
	(5.505)	(5.685)	(6.179)
RET_PF_{t-1}	-0.436***	-0.327***	-0.239***
	(0.050)	(0.059)	(0.059)
RET_ASSET_{t-1}	-0.041	-0.083	-0.303***
	(0.070)	(0.076)	(0.098)
$PROFESSIONALS$	23.287***	24.364***	6.291
	(6.942)	(6.680)	(7.352)
$RANK_{t-1}$	-0.955	2.944***	9.666***
	(1.053)	(1.022)	(1.284)
N	1554	1722	1512
R^2	0.120	0.096	0.100
$\chi 2$	103.063	84.716	128.739
Prob > $\chi 2$	0.000	0.000	0.000

Table IAXII

Ranks and Risk-Taking in Experiments PROF and STUD Testing for Differences Between Both Subject Pools With Interaction Terms of Variables RET_PF_{t-1} and RET_ASSET_{t-1}

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. $PROFESSIONALS$ is a binary dummy variable eual to one for professionals, and zero for students. In Columns 4 to 6 the impact of last period's rank is investigated. Here, $RANK_{t-1}$ is participant i's rank in the preceding period, and the interaction between treatment and prior period rank (e.g., $RANK_{t-1}$*$PROFESSIONALS$) measures differences in rank-driven behavior of professionals with respect to students. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR
α	73.616***	79.050***	106.764***
	(4.178)	(4.332)	(4.347)
RET_PF_{t-1}	-0.439***	-0.332***	-0.387***
	(0.066)	(0.071)	(0.070)
RET_ASSET_{t-1}	-0.016	-0.063	-0.112
	(0.082)	(0.092)	(0.122)
$PROFESSIONALS$	23.381***	25.863***	7.276
	(7.051)	(6.771)	(7.539)
RET_PF_{t-1}*$PROFESSIONALS$	-0.421***	-0.386***	-0.386***
	(0.048)	(0.055)	(0.056)
RET_ASSET_{t-1}*$PROFESSIONALS$	-0.048	-0.049	-0.220**
	(0.069)	(0.075)	(0.099)
N	1554	1722	1512
R^2	0.116	0.092	0.063
$\chi 2$	101.870	77.677	71.880
Prob > $\chi 2$	0.000	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(4) TBASE	(5) TRANK	(6) TTOUR
α	70.699***	73.551***	70.436***
	(6.489)	(6.491)	(6.866)
RET_PF_{t-1}	-0.423***	-0.300***	-0.216***
	(0.071)	(0.076)	(0.074)
RET_ASSET_{t-1}	-0.022	-0.081	-0.214*
	(0.083)	(0.093)	(0.121)
$PROFESSIONALS$	37.191***	12.967	15.256
	(10.148)	(10.137)	(12.209)
RET_PF_{t-1}*$PROFESSIONALS$	-0.008	-0.076	-0.070
	(0.101)	(0.119)	(0.122)
RET_ASSET_{t-1}*$PROFESSIONALS$	-0.079	-0.007	-0.268
	(0.154)	(0.162)	(0.207)
$RANK_{t-1}$	0.841	1.518	10.395***
	(1.449)	(1.338)	(1.546)
$RANK_{t-1}$*$PROFESSIONALS$	-3.923*	3.495*	-2.333
	(2.118)	(2.073)	(2.779)
N	1554	1722	1512
R^2	0.124	0.100	0.102
$\chi 2$	107.331	89.527	132.014
Prob > $\chi 2$	0.000	0.000	0.000

Table IAXIII
Ranks and Risk-Taking in Experiment PROF and STUD Including a Dummy for $PROFESSIONALS$ With Interaction Terms of Variables RET_PF_{t-1} and RET_ASSET_{t-1}

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for treatment differences in participants' percentage invested in the risky asset, $RISK$. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. $PROFESSIONALS$ is a dummy variable equal to one for professionals, and zero for students. TRANK and TTOUR are dummy variables for the treatment with rank incentives and the treatment with tournament incentives, respectively, with TBASE the baseline reference category. Column 4 (ALL) displays treatment differences in risk-taking for the entire data set. In Columns 5 and 6, the data set is split into a sample of outperformers in each period (ranks 1 to 3, HIGH) and a sample of underperformers in each period (ranks 4 to 6, LOW). In Columns 7 to 9, we investigate the impact of last period's rank. Here, $RANK_{t-1}$ is participant i's rank in the preceding period. Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	(1) TBASE	(2) TRANK	(3) TTOUR	(4) ALL	(5) HIGH	(6) LOW
α	73.616***	79.050***	106.764***	75.164***	78.419***	73.823***
	(4.178)	(4.332)	(4.347)	(3.747)	(4.312)	(4.161)
RET_PF_{t-1}	-0.439***	-0.332***	-0.387***	-0.396***	-0.193***	-0.464***
	(0.066)	(0.071)	(0.070)	(0.040)	(0.070)	(0.054)
RET_ASSET_{t-1}	-0.016	-0.063	-0.112	-0.055	-0.057	-0.134
	(0.082)	(0.092)	(0.122)	(0.056)	(0.083)	(0.084)
$PROFESSIONALS$	23.381***	25.863***	7.276	19.125***	20.751***	19.115***
	(7.051)	(6.771)	(7.539)	(4.112)	(4.847)	(4.462)
RET_PF_{t-1}*$PROFESSIONALS$	0.044	-0.138	-0.002	-0.012	-0.177	0.041
	(0.096)	(0.112)	(0.118)	(0.062)	(0.108)	(0.083)
RET_ASSET_{t-1}*$PROFESSIONALS$	-0.109	0.029	-0.318	-0.128	-0.146	-0.100
	(0.153)	(0.161)	(0.209)	(0.100)	(0.147)	(0.150)
TRANK				6.905	-4.647	13.751***
				(4.781)	(5.302)	(5.142)
TTOUR				27.399***	7.310	39.337***
				(4.923)	(5.488)	(5.319)
N	1554	1722	1512	4788	2394	2394
R^2	0.116	0.092	0.063	0.108	0.004	0.262
$\chi2$	101.870	77.677	71.880	276.452	61.622	233.638
Prob > $\chi2$	0.000	0.000	0.000	0.000	0.000	0.000

Dep. variable: $RISK$, percentage risky asset	(7) TBASE	(8) TRANK	(9) TTOUR
α	77.035***	68.265***	72.965***
	(5.518)	(5.689)	(6.170)
RET_PF_{t-1}	-0.459***	-0.269***	-0.228***
	(0.069)	(0.074)	(0.072)
RET_ASSET_{t-1}	-0.008	-0.099	-0.207*
	(0.083)	(0.093)	(0.121)
$PROFESSIONALS$	23.446***	25.728***	7.067
	(6.953)	(6.749)	(7.342)
RET_PF_{t-1}*$PROFESSIONALS$	0.052	-0.145	-0.038
	(0.096)	(0.112)	(0.115)
RET_ASSET_{t-1}*$PROFESSIONALS$	-0.109	0.031	-0.286
	(0.153)	(0.160)	(0.206)
$RANK_{t-1}$	-0.986	2.977***	9.671***
	(1.058)	(1.022)	(1.285)
N	1554	1722	1512
R^2	0.121	0.099	0.103
$\chi2$	103.542	86.691	131.361
Prob > $\chi2$	0.000	0.000	0.000

Table IAXIV
Ranks and Risk-Taking in Treatments TRANK, TRANK^{LOT}, and TRANK^{FAM} in the Professional Sample

This table presents results of random-effects panel regressions with an AR(1) disturbance that test for rank-driven behavior in treatments TRANK, TRANK^{LOT}, and TRANK^{FAM}. RET_PF_{t-1} is the log-return of participant i's portfolio since the start of the experiment and RET_ASSET_{t-1} is the preceding period's asset return. TRANK and TRANK^{LOT} are dummy variables for the treatment with rank incentives and the treatment with rank incentives in an abstract lottery frame, respectively. TRANK^{FAM}, the treatment with rank incentives when investing for a family member, serves as the reference category. In Column 1 treatment differences in risk-taking for the entire data set are displayed. In Columns 2 and 3 the data set is split into a sample of outperformers in each period (Column 2—HIGH) and a sample of underperformers in each period (Column 3—LOW). Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $RISK$, percentage risky asset	ALL	HIGH	LOW
α	113.564***	100.668***	115.399***
	(7.484)	(8.669)	(8.225)
RET_PF_{t-1}	-0.404***	-0.285***	-0.378***
	(0.051)	(0.097)	(0.062)
RET_ASSET_{t-1}	-0.067	-0.096	-0.069
	(0.082)	(0.126)	(0.108)
TRANK	-9.378	-8.511	-1.777
	(9.116)	(10.567)	(9.885)
TRANK^{LOT}	-15.491	-19.521	2.613
	(10.257)	(11.946)	(11.254)
N	1428	714	714
R^2	0.134	0.006	0.268
$\chi 2$	83.701	14.434	51.594
Prob $> \chi 2$	0.000	0.013	0.000

Appendix II. Survey Evidence on Preferences for Relative Performance, Competitiveness, and Risk

Our findings raise questions about the characteristics that may help explain observed differences in rank-dependent behavior between professionals and students. It is unclear, however, which group—professionals or students—is special with respect to these characteristics, and to what extent. To shed more light on the role that professionals' and students' individual characteristics may play, we elicited preferences for relative performance and social status and investigated their relation to observed behavior in the investment game of the PROF and STUD experiments.

Given the performance-oriented business culture in the financial industry and the possibility that highly competitive individuals self-select into and are also shaped by this sector, financial professionals may differ from other groups in their preferences for relative performance and competitiveness. Moreover, they may also have different risk attitudes and loss tolerance, both of which could explain risk-taking in the investment task in general. Thus, in addition to our experimental tasks on risk attitudes and loss aversion, we administered a slightly modified version of the classical CRT of Frederick (2005, see Internet Appendix VI), survey questions eliciting the Big Five personality traits following Rammstedt and John (2007), survey questions eliciting the Dark Triad personality traits following Jonason and Webster (2010), survey questions measuring risk attitudes according to the German SOEP (Dohmen et al. (2011)), and survey questions capturing attitudes toward social status, financial success, and relative performance as in Cohn et al. (2014). Regarding the latter, we asked:

Q1 (Social Status): How important is it for you what others think about you? (1: not important; 7: very important)

Q2 (Financial Success): Social status is primarily defined by financial success. (1: completely disagree; 7: fully agree)

Q3 (Relative Performance): How important is it for you to be the best at what you do? (1: not important; 7: very important)

Figure IA3 and Table IAXV present descriptive results from experiments PROF and STUD. In this section we only use data from these two experiments because, except for stake sizes, they are identical in all tasks.[2] We observe no differences between professionals and students in the average importance of financial success, but highly significant differences with regard to social status and relative performance. Social status is significantly more important for professionals than for students, and relative performance is the most important trait.[3] These results support

[2]For instance, in the online experiment we had to skip some of the additional tasks due to time constraints.

[3]All participants answered the questions on social status (Q1) and financial success (Q2). After collecting some observations, we additionally asked the question on relative performance (Q3). For analyses regarding the latter, we therefore use the corresponding subsample with N=342.

the view that subject-pool-specific differences in attitudes about relative performance can explain differences in rank-dependent risk-taking between professionals and students. Indeed, economics and management students are closer to professionals in some of their attitudes than to students pursuing other majors (e.g., natural sciences, life sciences, humanities). When we split the student sample along these lines, we find that economics and management students consider social status and relative performance significantly more important than do other students. It therefore seems that status-seeking behavior and relative performance preferences are already present to some extent before entering the finance industry.

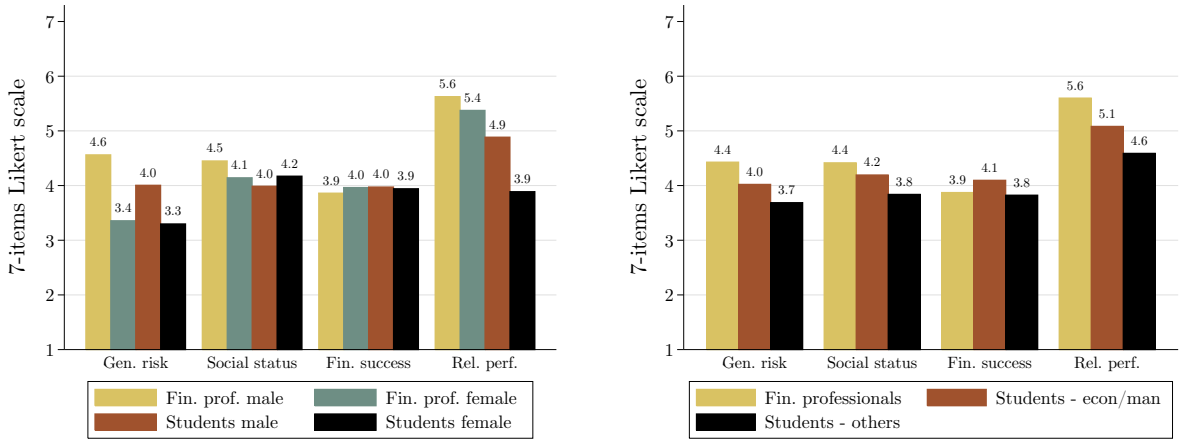

Figure IA3. Preferences for status, financial success, relative performance, and risk-taking, by gender (left panel) and field of study (right panel). This figure shows average post-experimental survey responses on a seven-point Likert scale, with higher values indicate stronger preferences, for the following variables: *GENERAL_RISK*, *SOCIAL_STATUS*, *FINANCIAL_SUCCESS*, and *RELATIVE_PERFORMANCE*. *Students—econ/man* refers to economics and management students. Data from the PROF and STUD experiments are split by subject pool and gender (left) and by field of studies for the student sample (right panel).

Table IAXV
Univariate Analysis of Preferences for Status, Financial Success, Relative Performance, and Cognitive Reflection Test Scores

This table presents results of univariate analyses of post-experimental responses separated by subject pool, gender and field of study (for the student sample). *SOCIAL_STATUS*, *FINANCIAL_SUCCESS*, and *RELATIVE_PERFORMANCE* indicate participant's answers to corresponding survey questions (seven-point Likert scale; higher values indicate stronger preferences). *GENERAL_RISK* is a participant's self-reported willingness to take risks (seven-point Likert scale; higher values indicate stronger preferences). *RISK_TOLERANCE* is a lottery-based measure of risk attitudes (normalized from zero to one; lower values indicate higher risk aversion; a value of 0.50 denotes risk neutrality). *LOSS_TOLERANCE* is a lottery-based measure of loss attitudes (normalized from zero to one; higher values indicate lower loss aversion). *CRT_SCORE* is the score on a slightly modified version of the CRT by Frederick (2005) ranging from 0 (no correct answer) to 3 (all answers correct). *Econ/Man* and *Stud E/M* refer to economics and management students. ***, **, and * indicate significant at the 1%, 5%, and 10% level for double-sided Mann-Whitney U-tests. The data come from experiments PROF and STUD.

	Professionals		
Variable	ALL	Male	Female
SOCIAL_STATUS (7 items)	4.42	4.45	4.14
FINANCIAL_SUCCESS (7 items)	3.87	3.86	3.96
RELATIVE_PERFORMANCE (7 items)	5.60	5.63	5.38
GENERAL_RISK (7 items)	4.43	4.56	3.36
RISK_TOLERANCE (lottery-based)	0.43	0.43	0.43
LOSS_TOLERANCE (lottery-based)	0.49	0.49	0.49
CRT_SCORE (from 0 to 3)	1.81	1.84	1.54
N	252	224	28
Percentage *FEMALE*	11.11		

	Students				
Variable	ALL	Male	Female	Econ/Man	Others
SOCIAL_STATUS (7 items)	4.03	4.17	4.00	4.19	3.84
FINANCIAL_SUCCESS (7 items)	3.97	3.94	3.97	4.10	3.82
RELATIVE_PERFORMANCE (7 items)	4.84	4.89	3.89	5.08	4.59
GENERAL_RISK (7 items)	3.86	4.01	3.30	4.02	3.69
RISK_TOLERANCE (lottery-based)	0.41	0.41	0.39	0.41	0.41
LOSS_TOLERANCE (lottery-based)	0.35	0.36	0.31	0.34	0.36
CRT_SCORE (from 0 to 3)	1.69	1.81	1.21	1.67	1.71
N	432	345	87	227	205
Percentage *FEMALE*	20.14				

	MW-U tests (|Z-values|)			
Variable	Prof v Stud	Prof Male v Prof Fem	Stud Male v Stud Fem	Stud E/M v Stud Others
SOCIAL_STATUS (7 items)	3.338***	0.996	1.066	2.437**
FINANCIAL_SUCCESS (7 items)	0.838	0.061	0.256	1.731*
RELATIVE_PERFORMANCE (7 items)	5.289***	0.216	1.391	2.703***
GENERAL_RISK (7 items)	4.548***	3.686***	4.060***	2.500**
RISK_TOLERANCE (lottery-based)	2.767***	0.171	1.419	0.181
LOSS_TOLERANCE (lottery-based)	8.682***	0.011	1.940	0.845
CRT_SCORE (from 0 to 3)	1.374	1.574	4.594***	0.336

In Table IAXV we also report differences between the two subject pools regarding preferences for risk and loss. Univariate analyses show that professionals are less risk-averse than students in both the self-reported willingness to take risks in real life (German SOEP question) and the lottery task. Moreover, professionals have a significantly higher tolerance for losses than students.[4] All differences are significant at the 1% level. By splitting the student sample, we find that economics and management students exhibit significantly higher levels of self-reported risk-taking compared to their peers from other fields (German SOEP question), but we find no differences in the lottery-based experiments on risk aversion and loss aversion. Regarding CRT, we find no differences across subject pools: both populations show relatively high values—1.81 (professionals) and 1.69 (students)—compared to extant scores in the literature (Frederick (2005)). We also test for differences in the Big Five and Dark Triad personality traits, but do not find systematic differences across subject pools.

Another important aspect investigated in Table IAXV is whether male and female professionals differ in preferences for relative performance, social status, financial success, risk, and loss. Although the total sample size of professionals in the PROF experiment is large, the number of female professionals is low, and varying between 35 and 47 depending on the variable tested. The following results should therefore be treated with caution. Interestingly, we find that male and female professionals do not differ in the abstract lottery-based measures of risk aversion and loss aversion. This result holds when we rerun the tests in Table I with gender dummies, which show no clear or significant relationship with risk taken in the PROF experiment (see Table IAIV).[5] Female professionals, however, are significantly more risk-averse in their self-reported risk-taking as measured by the German SOEP question. It thus seems that while female professionals self-report higher levels of general risk aversion, they do not differ from their male colleagues when it comes to more specific lottery tasks and risk-taking in experimental investment decisions. For all other variables in Table IAXV, we do not find differences between male and female professionals. This also applies to the student population, with the only exception being that male students show significantly higher CRT scores than their female counterparts.

We next investigate whether professionals' concerns for relative performance and social status influence their behavior in the investment experiment. To do so, we use the data from the PROF and STUD experiments to run OLS regressions with a participant's average risk taken over all eight periods ($\overline{RISK}$) as the dependent variable and the answers to the social status (Q1), financial success (Q2), and relative performance (Q3) questions as independent variables. We add loss aversion and general risk attitudes as additional controls and cluster standard

[4]The difference of 0.14 for the normalized loss aversion measure is very pronounced. Professionals accept 49% of the mixed gambles, while students only accept 35% of the mixed gambles. Professionals are nevertheless slightly averse to losses as, on average, they switch to rejecting the lottery when potential losses are between 9 and 12 euro (for an equally probable gain of 15 euro).

[5]See Table IAVIII for corresponding regressions with gender dummies in the student sample. For robustness, we rerun the tests in Tables I and II with the male subsample only and find very similar results (see Tables IAIII and IAVII).

errors at the group level. For loss aversion we include the normalized sum of accepted lotteries, $LOSS\_TOLERANCE$, which takes values from zero (rejects all gambles—highly loss averse) to one (accepts all gambles—loss seeking). For risk attitude we use the answer to the German SOEP survey question, with higher values indicating more self-reported risk-taking in real life. Faced with a choice between alternative risk measurements, we find that the SOEP measure has less multicollinearity and more explanatory power.[6]

Table IAXVI
Individual Preferences and Investments in the Risky Asset

This table presents results of OLS regressions of participants' average amount invested in the risky asset, $\overline{RISK}$. *SOCIAL_STATUS*, *FINANCIAL_SUCCESS*, and *RELATIVE_PERFORMANCE* capture the answers to the corresponding survey questions (seven-point Likert scale; higher values indicate stronger preferences). *LOSS_TOLERANCE* is a measure of loss attitude (from 0 to 1; higher values indicate lower loss aversion) and *GENERAL_RISK* is the self-reported willingness to take risks (seven-point Likert scale). Standard errors are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively. The data come from the PROF and STUD experiments.

Dep. variable: $\overline{RISK}$, mean percentage invested in risky asset	PROF	STUD
α	14.910	35.814*
	(24.114)	(17.958)
$SOCIAL\_STATUS$	-3.242	-2.800
	(3.162)	(2.286)
$FINANCIAL\_SUCCESS$	-1.554	0.905
	(2.986)	(2.449)
$RELATIVE\_PERFORMANCE$	9.886***	-1.271
	(2.179)	(2.981)
$GENERAL\_RISK$	8.312***	14.083***
	(2.449)	(1.680)
$LOSS\_TOLERANCE$	38.677*	52.210***
	(20.100)	(17.943)
N	150	192
Clusters	25	32
R^2	0.149	0.227
F	7.956	29.978
Prob > F	0.000	0.000

Table IAXVI reports results for the subsample with nonmissing answers to the question on relative performance (Q3).[7] Remarkably, we find that attitudes toward relative performance ($RELATIVE\_PERFORMANCE$) predict professionals' risk-taking in experiment PROF.[8]

[6]In the PROF experiment, the pairwise correlation between the lottery risk measure and loss aversion is 0.30, while the pairwise correlation between the SOEP risk measure and loss aversion is 0.17. The explanatory power (measured with R^2) of all reported regressions is higher when using the SOEP measure for risk attitude. The results for the three questions on social status, financial success, and relative performance remain similar if we include the lottery measure of risk aversion (see Table IAXVIII).

[7]Table IAXVII reports more extensive regressions results for both the subsample and the full sample.

[8]This also holds per treatment when we run the same regressions with PROF and the SOEP risk measure (see Table IAXVIII).

Professionals who consider relative performance important invest significantly more in the risky asset (probably in the hope of obtaining a high rank) than those who consider it less important, even after controlling for risk aversion and loss aversion. Interestingly, and in line with earlier results on missing rank effects in the student sample, individual preferences for relative performance fail to predict the risk-taking behavior of students, as shown in the regression of the STUD experiment in Table IAXVI and, per treatment, in Table IAXVIII. Turning to possible other explanatory variables, we do not observe a consistent or statistically significant pattern in the effects of self-reported attitudes toward social status and financial success. In line with intuition, participants who are more tolerant of losses and of risk in general take more risks in the investment experiment. This applies to both professionals and students.[9] Note that the results at the treatment level in Table IAXVIII should be treated with caution because of the relatively low sample size in most treatments. However, the aggregated results per experiment show strong support for the impact of preferences for relative performance on risk-taking among professionals.

[9]The reported results remain similar when controlling for CRT_SCORE and personality traits (BIG_FIVE and $DARK\_TRIAD$)—see Table IAXVII.

Table IAXVII
Preferences for Relative Performance, Status, Financial Success, and Risk-Taking

This table presents results of OLS regressions of participants' average amount invested in the risky asset, $\overline{RISK}$. *SOCIAL_STATUS*, *FINANCIAL_SUCCESS*, and *RELATIVE_PERFORMANCE* capture the answers to the corresponding survey questions (seven-point Likert scale; higher values indicate stronger preferences). *LOSS_TOLERANCE* is a measure of loss attitude (from 0 to 1; higher values indicate lower loss aversion) and *GENERAL_RISK* is the self-reported willingness to take risks (seven-point Likert scale). Model 1 (Model 4) corresponds to the full sample, Model 2 (Model 5) corresponds to the subsample with nonmissing Q3, and Model 3 (Model 6) adds controls for *CRT_SCORE*, *BIG_FIVE*, and *DARK_TRIAD* in the subsample. Standard errors are clustered at the group level and are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively.

Dep. variable: $\overline{RISK}$, mean	Experiment PROF		
percentage risky asset	(1)	(2)	(3)
α	47.680***	14.910	13.457
	(16.036)	(24.114)	(54.484)
SOCIAL_STATUS	-3.141	-3.242	-2.114
	(2.377)	(3.162)	(3.127)
FINANCIAL_SUCCESS	-0.524	-1.554	-0.553
	(2.203)	(2.986)	(3.211)
GENERAL_RISK	11.398***	8.312***	9.530***
	(1.862)	(2.449)	(2.595)
LOSS_TOLERANCE	38.783**	38.677*	34.036
	(14.563)	(20.100)	(20.894)
RELATIVE_PERFORMANCE		9.886***	9.366***
		(2.179)	(2.739)
CRT_SCORE			7.490
			(4.595)
BIG_FIVE	no	no	yes
DARK_TRIAD	no	no	yes
N	252	150	150
Clusters	42	25	25
R^2	0.163	0.149	0.202
F	16.774	7.956	4.954
Prob > F	0.000	0.000	0.000

Dep. variable: $\overline{RISK}$, mean	Experiment STUD		
percentage invested in risky asset	(4)	(5)	(6)
α	21.236**	35.814*	31.309
	(9.099)	(17.958)	(52.421)
SOCIAL_STATUS	-1.298	-2.800	-1.698
	(1.695)	(2.286)	(2.685)
FINANCIAL_SUCCESS	0.814	0.905	0.920
	(1.483)	(2.449)	(2.605)
GENERAL_RISK	12.454***	14.083***	14.415***
	(1.586)	(1.680)	(1.981)
LOSS_TOLERANCE	50.328***	52.210***	51.253***
	(15.866)	(17.943)	(18.102)
RELATIVE_PERFORMANCE		-1.271	0.472
		(2.981)	(3.098)
CRT_SCORE			2.186
			(4.058)
BIG_FIVE	no	no	yes
DARK_TRIAD	no	no	yes
N	432	192	192
Clusters	72	32	32
R^2	0.184	0.227	0.269
F	21.959	29.978	14.497
Prob > F	0.000	0.000	0.000

Table IAXVIII
Preferences for Relative Performance, Status, Financial Success, and Risk-Taking (Self-Reported) per Treatment

This table presents results of OLS regressions of participants' average amount invested in the risky asset, $\overline{RISK}$. *SOCIAL_STATUS*, *FINANCIAL_SUCCESS*, and *RELATIVE_PERFORMANCE* capture the answers to the corresponding survey questions (seven-point Likert scale; higher values indicate stronger preferences). *LOSS_TOLERANCE* is a measure of loss attitude (from 0 to 1; higher values indicate lower loss aversion) and *GENERAL_RISK* is the self-reported willingness to take risks (seven-point Likert scale). Standard errors are clustered at the group level and are provided in parentheses. ***, **, and * indicate significant at the 1%, 5%, and 10% level, respectively. The data come from the PROF and STUD experiments.

Dep. variable: $\overline{RISK}$, mean	Experiment PROF		
percentage risky asset	TBASE	TRANK	TTOUR
α	-35.723	50.676	-24.346
	(57.580)	(32.770)	(37.497)
SOCIAL_STATUS	1.855	-6.735	-1.616
	(4.928)	(5.335)	(4.837)
FINANCIAL_SUCCESS	-8.715	2.032	-2.021
	(5.639)	(4.727)	(5.209)
RELATIVE_PERFORMANCE	17.783**	6.966**	13.853**
	(5.261)	(2.904)	(5.532)
GENERAL_RISK	4.372	7.709	8.859**
	(4.228)	(5.230)	(3.350)
LOSS_TOLERANCE	90.931**	-5.397	64.417*
	(22.679)	(21.161)	(30.549)
N	30	48	72
Clusters	5	8	12
R^2	0.394	0.142	0.167
F	.	3.982	4.967
Prob > F	.	0.050	0.013

Dep. variable: $\overline{RISK}$, mean	Experiment STUD		
percentage invested in risky asset	TBASE	TRANK	TTOUR
α	12.197	21.447	40.042**
	(26.741)	(41.177)	(18.981)
SOCIAL_STATUS	3.413	-11.306	-2.698
	(4.280)	(4.964)	(2.783)
FINANCIAL_SUCCESS	-1.347	13.038*	0.335
	(4.982)	(5.457)	(2.649)
RELATIVE_PERFORMANCE	-5.575*	-3.735	0.824
	(2.240)	(13.860)	(3.312)
GENERAL_RISK	7.431	18.109*	13.805***
	(5.158)	(7.679)	(1.833)
LOSS_TOLERANCE	97.612	-7.630	45.172**
	(44.486)	(97.097)	(19.016)
N	24	24	144
Clusters	4	4	24
R^2	0.461	0.311	0.230
F	.	.	19.568
Prob > F	.	.	0.000

References

Cohn, Alain, Ernst Fehr, and Michel André Maréchal, 2014, Business culture and dishonesty in the banking industry, *Nature* 516, 86–89.

Dohmen, Thomas J., Armin Falk, David Huffman, Juergen Schupp, Uwe Sunde, and Gert Wagner, 2011, Individual risk attitudes: Measurement, determinants, and behavioral consequences, *Journal of the European Economic Association* 9, 522–550.

Frederick, Shane, 2005, Cognitive reflection and decision making, *Journal of Economic Perspectives* 19, 25–42.

Jonason, Peter K., and Gregory D. Webster, 2010, The dirty dozen: A concise measure of the dark triad, *Psychological Assessment* 22, 420–432.

Rammstedt, Beatrice, and Oliver P. John, 2007, Measuring personality in one minute or less: A 10-item short version of the big five inventory in English and German, *Journal of Research in Personality* 41, 203–212.

Appendix III. Instructions for Experiments PROF and STUD

Welcome to the experiment and thank you for your participation![10]

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

General Information

In this experiment we study economic decision-making. The whole experiment consists of two independent parts, where you can earn money independently. For your punctual attendance and participation you will receive a participation fee of 18 euro in addition to the income you can earn in both parts of the experiment. 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 about the instructions or during the experiment, please raise your hand. One of the experimenters will then come to you and answer your questions privately.

PART 1

Task

In Part 1 you have to make investment decisions in a financial market. At the beginning of the experiment, you start with a wealth of 90 euro. You have to decide in each of eight periods (half-years), what percentage of your wealth you want to invest at a risk-free rate of 1.5% and the percentage you wish to invest in a stock index. The development of the stock index reflects the price development of a basket of shares and is based on actual historical data. In the last 20 years, this development is characterized by price fluctuations. In this period, the index earned a half-year return (semi-annual compounding) of 3.6% and had a standard deviation of the semi-annual price returns of 15.9%.

Here are some examples on the likelihood of various price fluctuations:

In 50 out of 100 cases, the semi-annual return lies between −7.1% and 14.3%.

In 90 out of 100 cases, the semi-annual return lies between −22.6% and 29.8%.

In 95 out of 100 cases, the semi-annual return lies between −27.6% and 34.7%.

At the beginning of the first period, you have to draw 30 times from this distribution (at your laptop) with a mean of 3.6% and a standard deviation of 15.9%. The draws are independent for each participant. After each draw the last drawn return is indicated on the screen with a yellow box together with the display of return (see Figure IA4).

[10] Instructions are for the TBASE treatment in the PROF experiment. Additional text for treatments TRANK and TTOUR of the PROF experiment are in *italics*. The relevant parts on the payout in treatment TTOUR are in `teletype`. Note that instructions for all three treatments in experiment STUD were identical except for stake sizes. This means that the participation fee was set to 6 euro and initial wealth in the investment experiment was 30 euro. Consequently, both examples of the instructions were rescaled accordingly. Original instructions for each treatment can be provided upon request.

The previous return draws are shown with red boxes. Every time you click on the "Draw return" button, a new return is drawn from the distribution and displayed on the screen. Together, the draws give you a feeling for the index changes from period to period. The draws are independent of the random draws during the experiment, but the distribution is identical. Below you see an example of the screen (see Figure IA4):

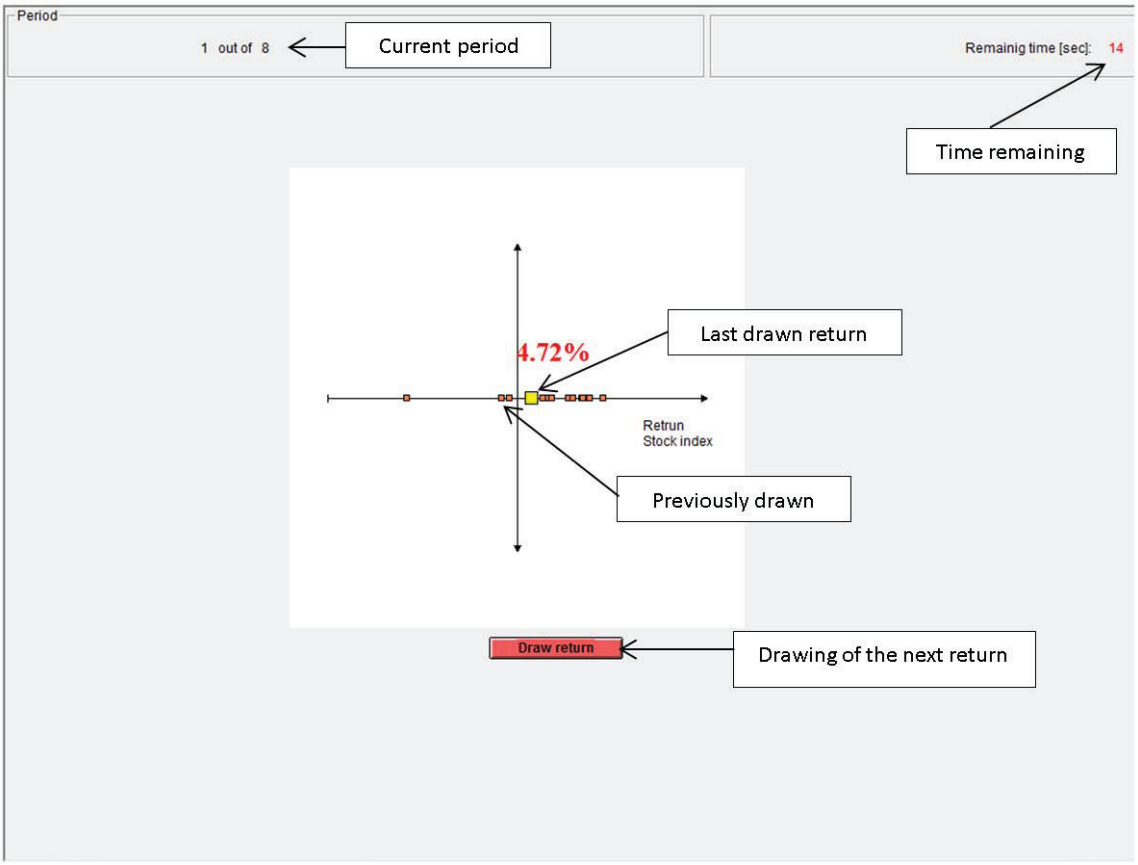

Figure IA4. Return screen in Period 1.

In each period you can invest between 0 and 200% of your current wealth in the stock index. If you invest more than 100% of your wealth, then the fraction which exceeds 100% is borrowed at the risk-free rate of 1.5%. If you are investing less than 100% of your wealth in the stock index, the amount not invested in the stock index is invested at the risk-free rate of 1.5%. You will be selected into a group of 6 participants at the beginning of the experiment and you will remain in the same group for the duration of the experiment (8 periods).

At the end of each period the actual return of the stock index is randomly determined from the distribution described above and your wealth will be calculated according to your investment in the stock index and in the risk-free rate. Note that the stock index return is identical for all group members.

Examples:

1. Let's assume your wealth is 90 euro and you decide to invest 50% of it in the stock index. Thus, the remaining 50% will be invested at the risk-free rate. If the index in this period yields a return of +10.0%, then your wealth in the next period will be as follows: Profit/loss from the stock index: (50% Investment $*$ 90 euro) $*$ 10% Return = 4.5 euro. Profit from investing in the risk-free interest rate: (50% Investment $*$ 90 euro) $*$ 1.5% Interest = 0.68 euro. Wealth in the next period: 90 (previous periods wealth) + 4.5 + 0.68 = 95.18 euro.

2. Let's assume your wealth is 90 euro and you decide to invest 150% of it in the stock index. Thus, you borrow 50% at the risk-free interest rate. If the index in this period yields a return of +10.0%, then your wealth in the next period will be as follows: Profit/loss from the stock index: (150% Investment $*$ 90 euro) $*$ 10% Return = 13.5 euro. Cost of borrowing 50% at the risk-free rate: ($-$50% Loan $*$ 90 euro) $*$ 1.5% Interest = $-$0.68 euro. Wealth in the next period: 90 (previous periods wealth) + 13.5 $-$ 0.68 = 102.82 euro.

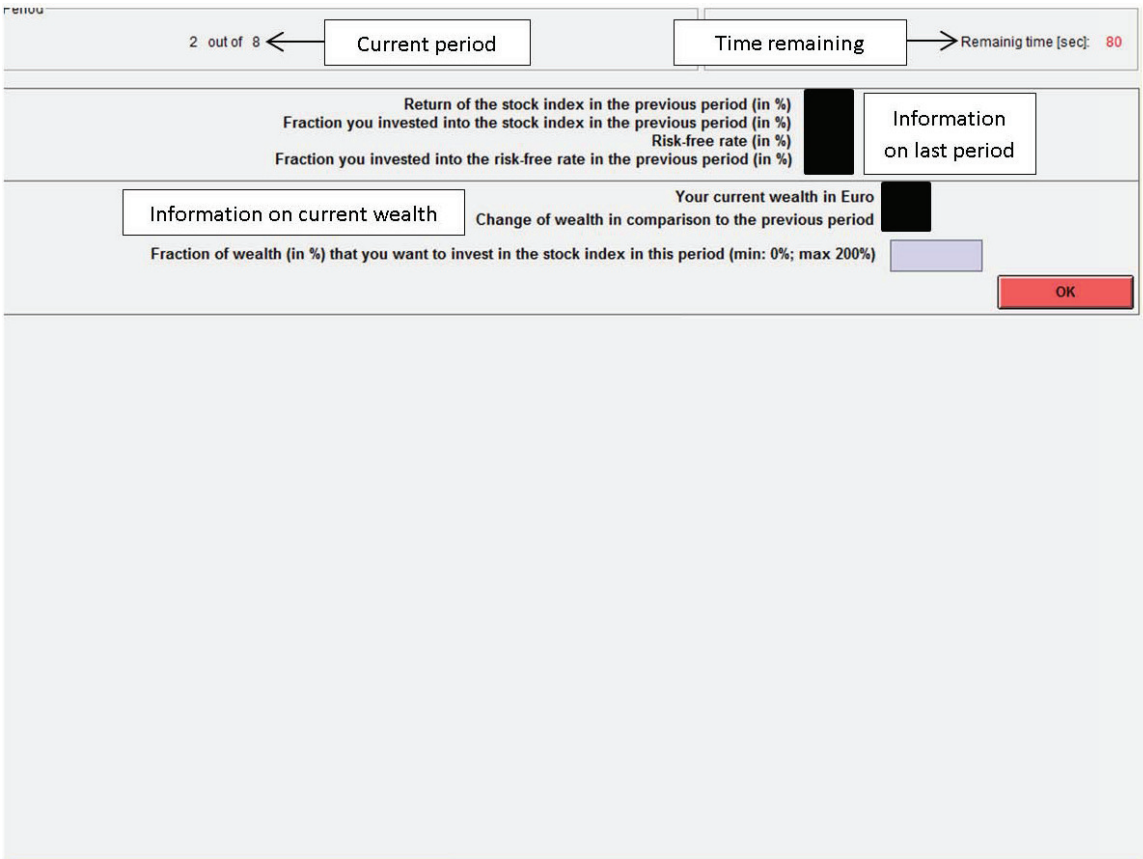

Figure IA5. Decision screen in each period (note that this screen is only shown in the TBASE treatment).

The decision screen in each period will show your current wealth, the wealth change compared to the previous period, the return of the stock index in the previous period, your invested fraction in the stock index in the previous period, the risk-free rate and your invested fraction in the risk-free asset in the previous period (see Figure IA5).[11]

The decision screen in all 8 periods looks as follows:

[11] See Figure IA6 for treatments TRANK and TTOUR.

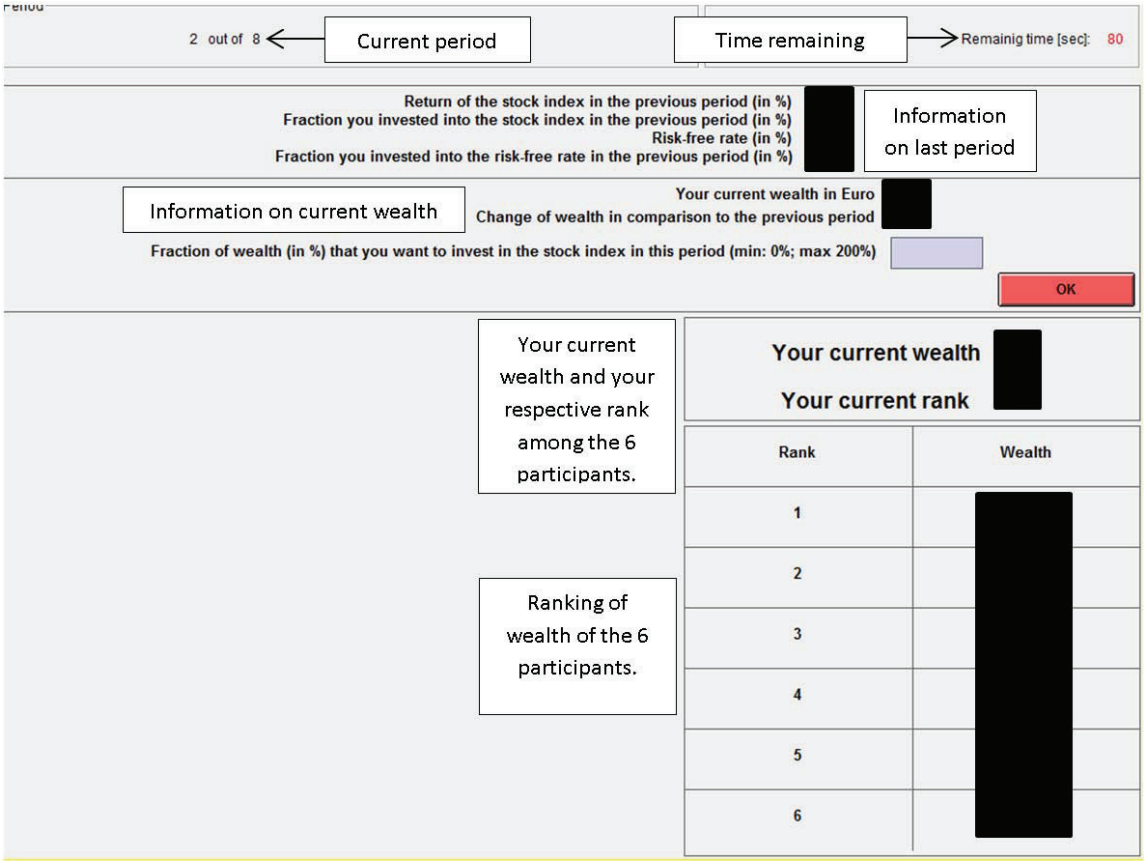

Figure IA6. Decision screen in each period (note that this screen is only shown in the TRANK and TTOUR treatments).

[Begin additional text for treatments TRANK and TTOUR]

Beginning with Period 2, you will be informed in a league table which rank in your group of 6 you currently have based on the current wealth of the participants. You also get information about the current wealth and rank of the other participants in your group. This table appears for 20 seconds at the beginning of each period (see Figure IA7) and is also displayed at the bottom of the decision screen (see Figure IA6).

[End additional text for treatments TRANK and TTOUR]

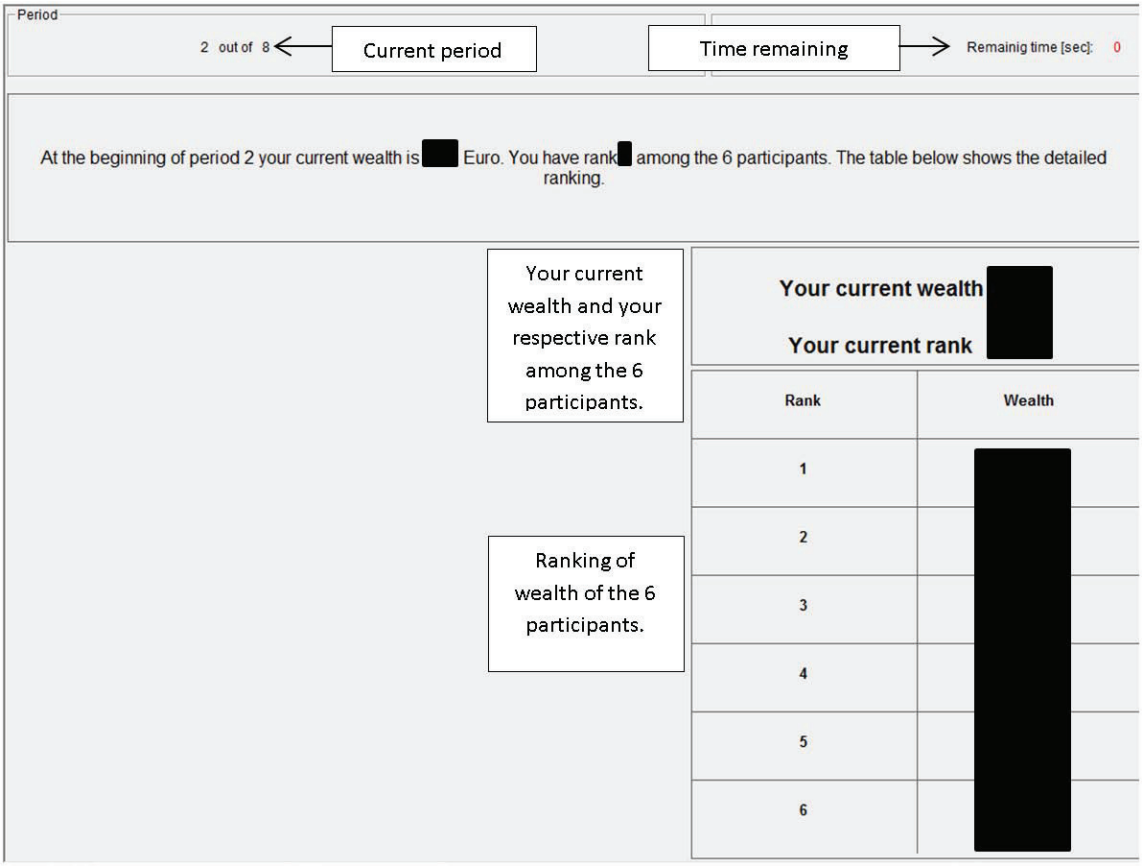

Figure IA7. Screen on your ranking and the current wealth of the other participants at the beginning of each period. This table is shown from period 2 onward (note that this screen is only shown in the TRANK and TTOUR treatments).

Payment

[Begin text for treatments TBASE and TRANK]

At the end of the experiment, your final wealth (your wealth at the end of period 8) will be paid out to you with a probability of 20%. A random generator determines for each participant separately whether he or she receives the payment. If you are not drawn randomly, you will not receive payment for the first part of the experiment.

[End text for treatments TBASE and TRANK]

[Begin text for treatment TTOUR]

At the end of the experiment the wealth of all 6 participants in your group will be summed up and distributed according to your ranking as follows: the participant with rank 1 receives 50%, rank 2 receives 33.3%, rank 3 receives 16.7%, and the ranks 4, 5, and 6 receive 0%. Your calculated final wealth will be paid out with a probability of 20%. A random generator determines for each participant separately whether he

or she receives the payment. If you are not drawn randomly, you will not receive payment for the first part of the experiment.

[End text for treatment TTOUR]

Welcome to the experiment and thank you for your participation![12]

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

General Information

In this experiment we study economic decision-making. The whole experiment consists of two independent parts, where you can earn money in both independently. For your punctual attendance and participation, you will receive a participation fee of 18 euro in addition to the income you can earn in both parts of the experiment. 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 about the instructions or during the experiment, please raise your hand. One of the experimenters will then come to you and answer your questions privately.

PART 1

Task

In Part 1 you have to make several decisions. At the beginning of the experiment, you start with 90 Points. You have to decide in each of eight periods how many of your Points you allocate to Alternative A and how many to Alternative B. Alternative A provides you with a fixed payout of +1.5% of your amount allocated. Alternative B gives you a payout which is randomly drawn from the computer from a distribution of numbers with a mean of 3.6% and a standard deviation of 15.9%.

Here are some examples on the distribution:

In 50 out of 100 cases, the randomly drawn number lies between −7.1% and 14.3%.

In 90 out of 100 cases, the randomly drawn number lies between −22.6% and 29.8%.

In 95 out of 100 cases, the randomly drawn number lies between −27.6% and 34.7%.

At the beginning of the first period of the experiment, you have to draw 30 times from the distribution of Alternative B (at your laptop) with a mean of 3.6% and a standard deviation of 15.9%. The draws are independent for each participant. After each draw the last drawn number is indicated on the screen with a yellow box together with the display of the previously drawn numbers (see Figure IA8).

The previously drawn numbers are shown with red boxes. Every time you click on the "Draw number" button, a new number is drawn from the distribution and displayed on the screen. The draws are independent of the random draws during the experiment, but the distribution is identical. Below you see an example of the screen (see Figure IA8):

In each period you can allocate between 0 and 200% of your current Points in Alternative B. If you allocate more than 100% of your Points to Alternative B, then you incur a cost of 1.5% for the amount of Points exceeding 100%. If you allocate less than 100% of your Points to

[12] Instructions are those for treatment TRANK^{LOT}.

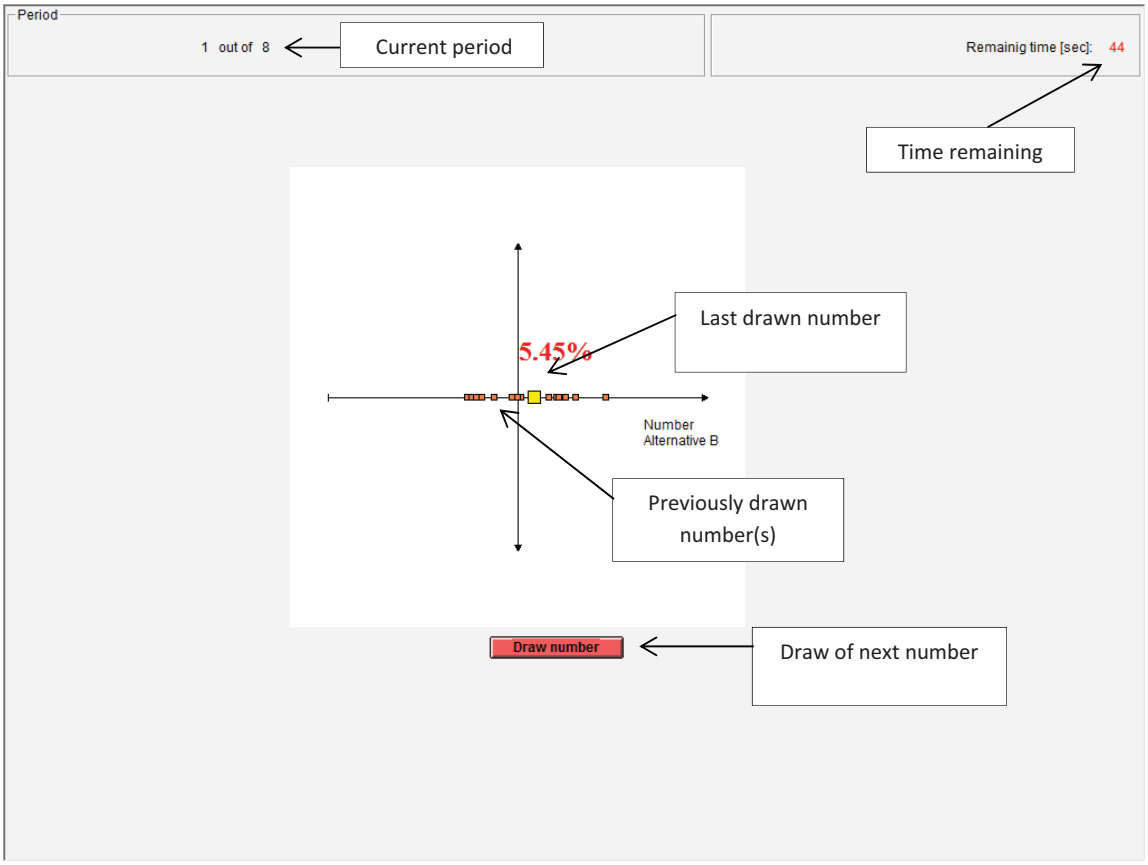

Figure IA8. Return screen in Period 1.

Alternative B, the amount not allocated is automatically allocated to Alternative A. You will be selected into a group of 6 participants at the beginning of the experiment and you will remain in the same group for the duration of the experiment (8 periods).

At the end of each period the payout of Alternative B is randomly drawn and your Points will be calculated accordingly.

Examples:

1. Let's assume your Points are 90 and you decide to allocate a fraction of 50% to Alternative B. Thus, the remaining 50% will be allocated to Alternative A. If Alternative B provides a random number of +10.0%, then your Points in the next period will be as follows: Points from Alternative B: (50% allocation $*$ 90 Points) $*$ 10% random number = 4.5 Points Points from Alternative A: (50% allocation $*$ 90 Points) $*$ 1.5% fixed payout = 0.68 Points Points in the subsequent period: 90 (previous period's Points) + 4.5 + 0.68 = 95.18 Points

2. Let's assume your Points are 90 and you decide to allocate a fraction of 150% to Alternative B. Thus, you have to pay a cost of 1.5% for the amount exceeding 100%. If Alternative B provides a random number of +10.0%, then your Points in the next period will be as follows: Points from Alternative B: (150% allocation $*$ 90 Points) $*$ 10% random number = 13.5 Points Fee for the amount exceeding 100%-allocation: ($-$50% $*$ 90 Points) $*$ 1.5% costs = $-$0.68 Points Points in the subsequent period: 90 (previous period's Points) + 13.5 $-$ 0.68 = 102.82 Points

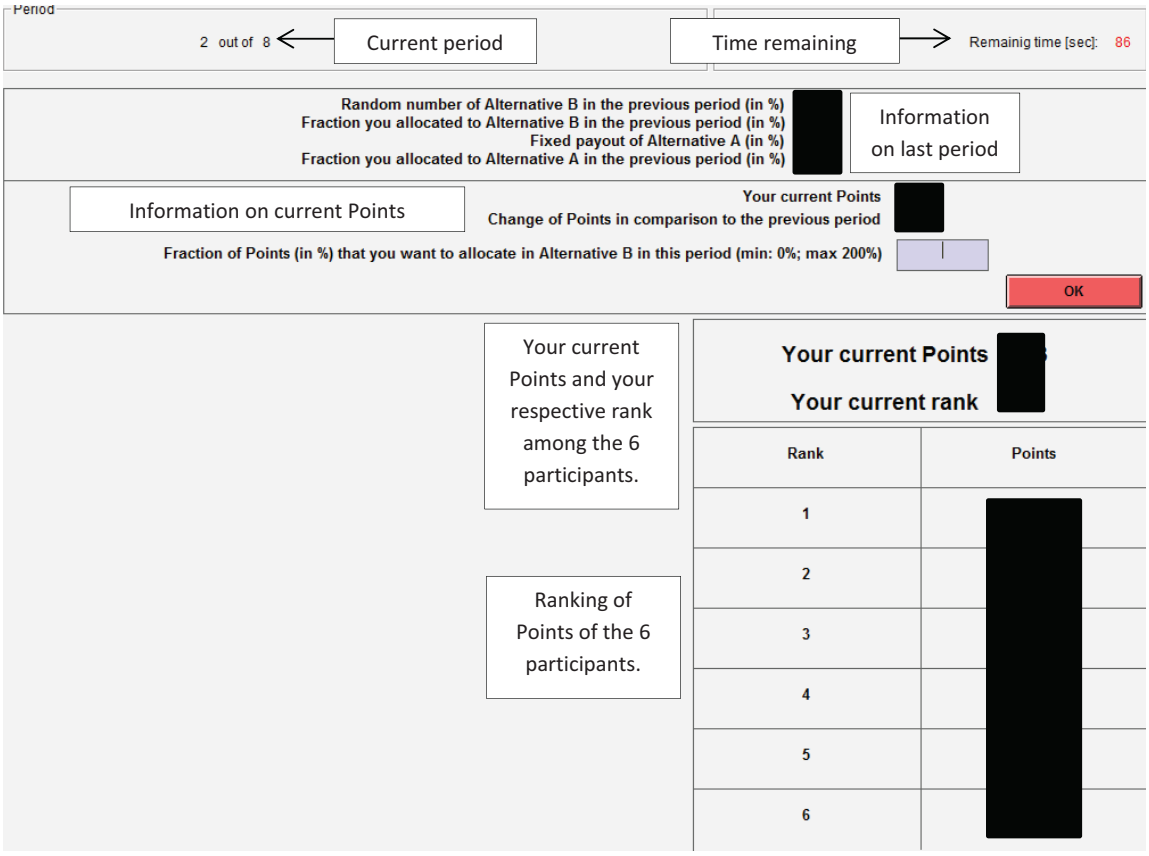

Figure IA9. Decision screen in each period.

The decision screen in each period will show your current Points, the change in Points to the previous period, the random number of Alternative B in the previous period, your allocated fraction into Alternative B in the previous period, and the allocated fraction into Alternative A in the previous period (see Figure IA9).

The decision screen in all 8 periods looks as follows:

Beginning with Period 2, you will be informed which rank in your group of 6 you currently

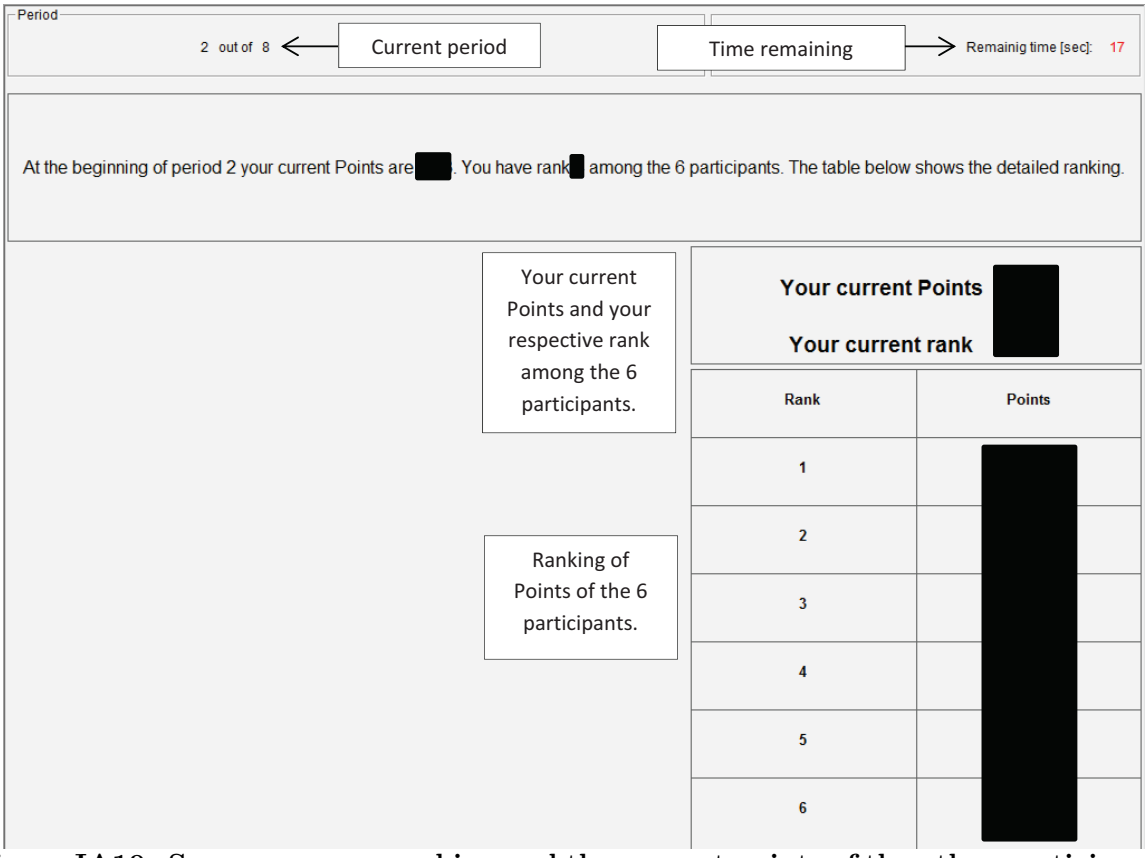

Figure IA10. Screen on your ranking and the current points of the other participants at the beginning of each period. This table is shown from period 2 onward.

have based on the current Points of the participants. You also get information about the current Points and rank of the other participants in your group. This information appears for 20 seconds at the beginning of each period (see Figure IA10) and is also displayed at the bottom of the decision screen (see Figure IA9).

Payment

At the end of the experiment, your final Points (your Points at the end of period 8) will be paid out to you with a probability of 20%. A random generator determines for each participant separately whether he or she receives the payment. In this case your Points are translated into euro (ratio of 1:1). If you are not drawn randomly, you will not receive payment for the first part of the experiment.

Welcome to the experiment and thank you for your participation![13]

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

General Information

In this experiment we study economic decision-making. The whole experiment consists of two independent parts, where you can earn money in both independently. For your punctual attendance and participation you will receive a participation fee of 18 euro in addition to the income you can earn in both parts of the experiment. 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 about the instructions or during the experiment, please raise your hand. One of the experimenters will then come to you and answer your questions privately.

PART 1

Task

In Part 1 you have to make investment decisions in a financial market. The decisions you make are payout-relevant for you and for one member of your family. At the beginning of the experiment you will be able to choose—on a separate screen—a family member (grandmother, grandfather, mother, father, wife, husband, partner, daughter, son, sister, brother). At the end of the experiment we will pay out your proceeds of your investment decisions directly to you in private and in cash. Your family member's proceeds from your investment decisions will be paid within a couple of days (see details below).

At the beginning of the experiment, we endow you and your family member with a wealth of 90 euro each. For the sake of simplicity the instructions and the investment interface focus on the investment decision for your family member. At the end of the experiment you receive the same payment as your family member.

In each of 8 periods (half-years) you have to decide what percentage of your family member's wealth you want to invest at a risk-free rate of 1.5% and the percentage you wish to invest in a stock index. The development of the stock index reflects the price development of a basket of shares and is based on actual historical data. In the last 20 years, this development is characterized by price fluctuations. In this period, the index earned a half-year return (semi-annual compounding) of 3.6% and had a standard deviation of the semi-annual price volatility of 15.9%.

Here are some examples on the likelihood of various price fluctuations:

In 50 out of 100 cases, the semi-annual return lies between −7.1% and 14.3%.

In 90 out of 100 cases, the semi-annual return lies between −22.6% and 29.8%.

In 95 out of 100 cases, the semi-annual return lies between −27.6% and 34.7%.

[13] Instructions are those for treatment $\text{TRANK}^{\text{FAM}}$.

At the beginning of the first period of the experiment, you have to draw 30 times from this distribution (at your laptop) with a mean of 3.6% and a standard deviation of 15.9%. The draws are independent for each participant. After each draw the last drawn return is indicated on the screen with a yellow box together with the display of the return (see Figure IA11).

The previous return draws are shown with red boxes. Every time you click on the "Draw return" button, a new return is drawn from the distribution and displayed on the screen. Together, the draws give you a feeling for the index changes from period to period. The draws are independent of the random draws during the experiment, but the distribution is identical. Below you see an example of the screen (see Figure IA11):

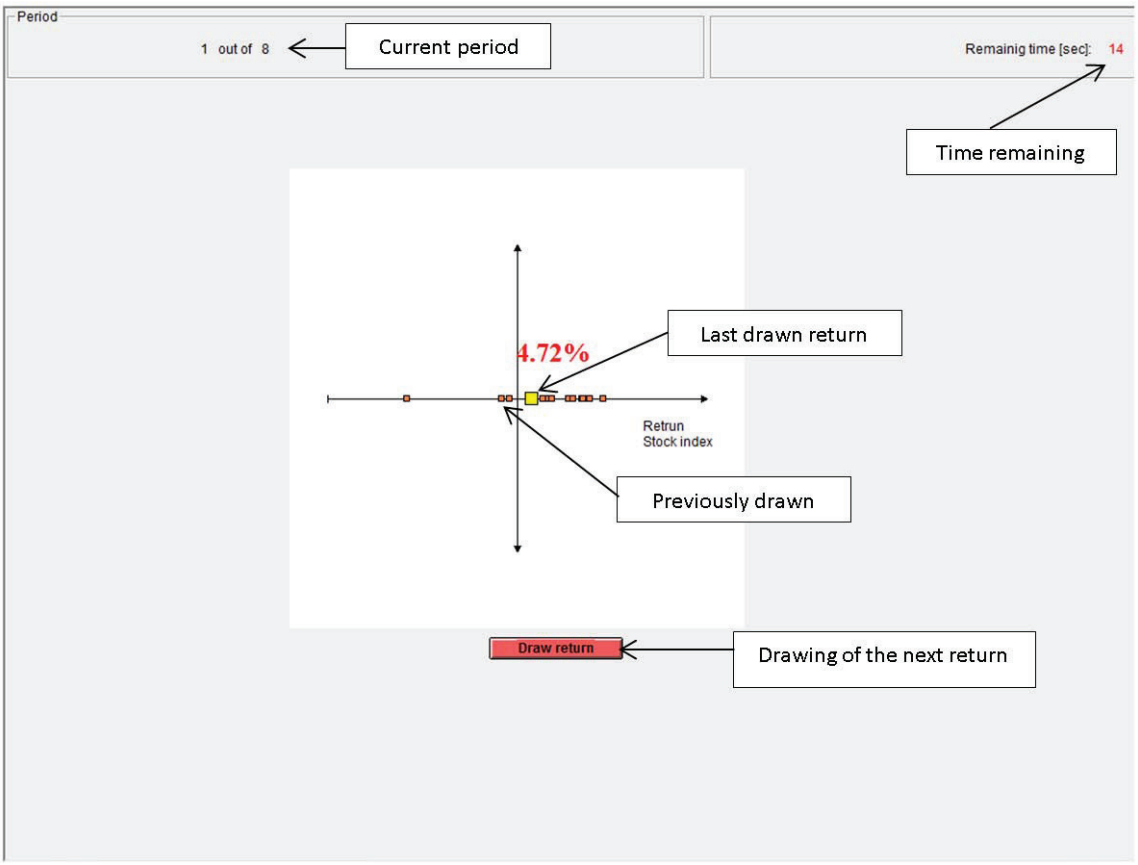

Figure IA11. Return screen in Period 1.

In each period you can invest between 0 and 200% of your family member's current wealth in the stock index. If you invest more than 100% of your family member's wealth, then the fraction which exceeds 100% is borrowed at the risk-free rate of 1.5%. If you are investing less than 100% of your family member's wealth in the stock index, the amount not invested in the stock index is invested at the risk-free rate of 1.5%. You will be selected into a group of 6 participants at the beginning of the experiment and you will remain in the same group for the duration of the

experiment (8 periods).

At the end of each period the actual return of the stock index is randomly determined from the distribution described above and your family member's wealth will be calculated according to your investment in the stock index and in the risk-free rate.

Examples:

1. Let's assume your family member's wealth is 90 euro and you decide to invest 50% of it in the stock index. Thus, the remaining 50% will be invested at the risk-free rate. If the index in this period yields a return of +10.0%, then your family member's wealth in the next period will be as follows: Profit / loss from the stock index: (50% Investment $*$ 90 euro) $*$ 10% Return = 4.5 euro Profit from investing in the risk-free interest rate: (50% Investment $*$ 90 euro) $*$ 1.5% Interest = 0.68 euro Your family member's wealth in the subsequent period: 90 (previous periods wealth) + 4.5 + 0.68 = 95.18 euro

2. Let's assume your family member's wealth is 90 euro and you decide to invest 150% of it in the stock index. Thus, you borrow 50% at the risk-free rate. If the index in this period yields a return of +10.0%, then your family member's wealth in the next period will be as follows: Profit / loss from the stock index: (150% Investment $*$ 90 euro) $*$ 10% Return = 13.5 euro Cost of borrowing 50% at the risk-free rate: ($-$50% Loan $*$ 90 euro) $*$ 1.5% Interest = $-$0.68 euro Your family member's wealth in the subsequent period: 90 (previous periods wealth) + 13.5 $-$ 0.68 = 102.82 euro

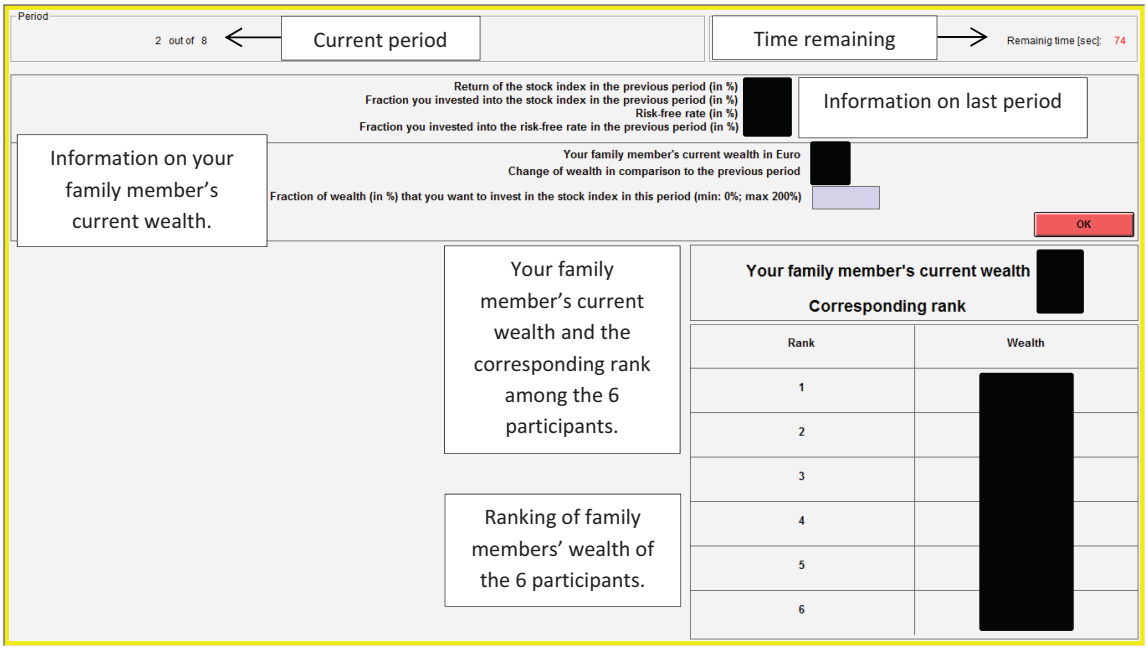

Figure IA12. Decision screen in each period.

The decision screen in each period will show your family member's current wealth, the wealth change to the previous period, the return of the stock index in the previous period, your invested fraction into the stock index in the previous period, the risk-free rate and your invested fraction in the risk-free asset in the previous period (see Figure IA12).

The decision screen in all 8 periods looks as follows:

Beginning with Period 2, a league-table is displayed which shows your rank in your group of

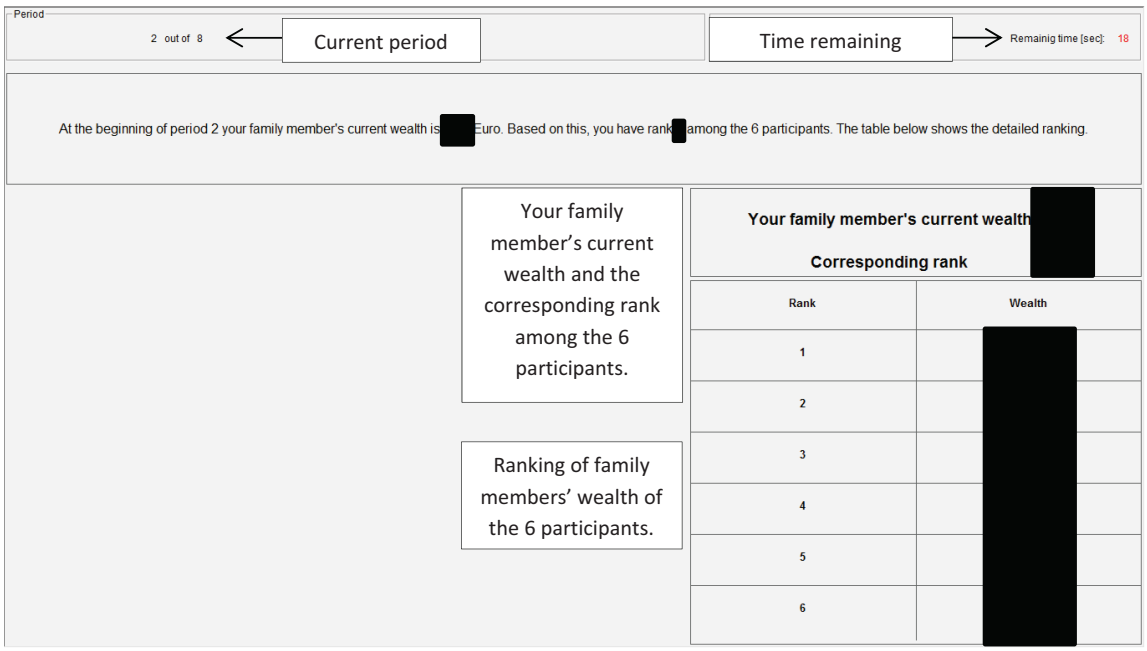

Figure IA13. Screen on your ranking and the family member's current wealth of the other participants at the beginning of each period. This table is shown from period 2 onward.

six, based on your family member's current wealth. You also get information about the current wealth and rank of the other participants' family members in your group. This table appears for 20 seconds at the beginning of each period (see Figure IA13) and is also displayed at the bottom of the decision screen (see Figure IA12).

Payment

The procedure of payment to you and your family member works as follows. At the beginning of the experiment you will be able to choose a family member (grandmother, grandfather, mother, father, wife, husband, partner, daughter, son, sister, brother) on a separate screen.

At the beginning of the experiment we also ask you to answer the following questions about your family member:

- What do you think will the chosen family member do with the money?
- How many hours per week do you spend time with the selected family member on average?
- How do you see your selected family: Is he/she willing to take risks or try to avoid risks? 1, not at all willing to take risks; 7, very willing to take risks

At the end of the experiment, your family member's final wealth (the wealth at the end of period 8) will be paid out to him/her with a probability of 20%. A random generator determines for each participant separately whether the proceeds of their investment decisions will be paid out. You will receive the same payment as your family member. If you are not drawn randomly, you and your family member will not receive payment for the first part of the experiment.

If you are drawn for payout in this part of the experiment, at the end of the experiment, we will ask you to provide us with the address details of the selected family member for payment. We will then contact him/her, explain that you invested for him/her and ask for payment details. If you selected a family member who is a minor, please provide us with an alternative address (not yours) of somebody close to the minor with whom we can organize the payment. You receive your part of the payment privately in cash in an envelope.

PART 2[14]

Below are the instructions for Part 2 of this experiment.

Remember: You get 18 euro for participating in this experiment. In Part 2, you can earn (and lose) in addition to this participation fee. Part 1 and Part 2 are independent in the decisions and in payment.

Part 2 consists of two sections that are played one after the other. For each of the two sections, your potential payment will be calculated individually and independently. At the end of Part 2 one of the two sections will be randomly selected for your payment for Part 2 (for details on payment, see below).

Section 1

In Section 1, you are asked to make 7 decisions (decision pairs). For each decision pair, you have the choice between Option A and Option B:

OPTION A: A payment with 100% probability (certainty) is realized. This option is available in all seven decision pairs.

OPTION B: A payment that is risky—either 0 euro with 50% probability or 24 euro with 50% probability.

For your payment, ONE out of the 7 decision pairs will be randomly selected and used for payment according to your decision.

Section 2

In the 6 questions of Section 2 you have to decide whether you want to participate in a lottery where you can win or lose money. If you choose the lottery, the computer flips a coin. If the coin shows heads, you get 15 euro in addition to your participation fee. If the coin shows tails, you lose a certain amount of your participation fee. If you do not choose the lottery, you will receive 0 euro in addition to your participation fees.

For your payment, ONE out of the 6 decision pairs will be randomly selected and used for payment according to your decision.

In Part 2, one of the two sections will be randomly selected and paid out at the end of the experiment; in addition to the participation fee and in addition to the payment of Part 1. Please note: In Part 2, next to playing out a possible lottery, there is a maximum of two random drawings. The first random draw is used to select which section is relevant for your payment. In a second step, one of the decision pairs will be randomly chosen from the relevant section. Your decision (lottery or fixed payment) is then played out to determine your payment.

[14] Instructions for part 2 are identical for all treatments in the PROF experiment and for treatments $\text{TRANK}^{\text{LOT}}$ and $\text{TRANK}^{\text{FAM}}$. Instructions for the STUD experiment were identical except for the stake sizes which were one-third, of those in the PROF experiment.

Questionnaire

Following Part 2 you will be asked to answer some general questions and provide us with some anonymous demographic details.

Thank you for your participation!

Appendix IV. Questions on Personality Traits

10-items BIG_FIVE personality traits

On this screen you see a list of statements. Beside each statement there is a 5-point scale. This scale ranges from 1 (Disagree strongly) to 5 (Agree strongly). How well do the following statements describe your personality?

I see myself as someone who ...

- ... is reserved.
- ... is generally trusting.
- ... tends to be lazy.
- ... is relaxed, handles stress well.
- ... has few artistic interests.
- ... is outgoing, sociable.
- ... tends to find fault with others.
- ... does a thorough job.
- ... gets nervous easily.
- ... has an active imagination.

12-items $DARK\_TRIAD$ personality traits

On this screen you see a list of statements. Beside each statement there is a 5-point scale. This scale ranges from 1 (Disagree strongly) to 5 (Agree strongly). How well do the following statements describe your personality?

- I tend to manipulate others to get my way.
- I tend to lack remorse.
- I tend to want others to admire me.
- I have used deceit or lied to get my way.
- I tend to not be too concerned with morality or the morality of my actions.
- I tend to want others to pay attention to me.
- I have used flattery to get my way.
- I tend to be callous or insensitive.
- I tend to seek prestige or status.
- I tend to exploit others towards my own end.
- I tend to be cynical.
- I tend to expect special favors from others.

Appendix V. Instructions of the Online Experiment PROF^{ONLINE}

[WELCOME SCREEN]
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! 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 SCREENS—randomization into treatments]
[A: 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.
- 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?

[B: PRIVATE PRIME]

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

- What is your favorite leisure activity? Please describe your answer in two to three sentences.
- Which three opportunities for leisure activities would you most like in your area?
- How many hours per week on average do you watch TV?
- Where did you spend your last vacation?
- Which three things did you like most about your last vacation?
- Are you actively involved or have you ever been involved in a club?
- Which three leisure activities do you enjoy most with your friends or family?

[INVESTMENT TASK—SCREEN 1][15]
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.

[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—DECISION SCREENS (see next pages)]

[15]The following instructions pertain to the TRANK^{FIN} treatment. Instructions for TRANK^{PRIV} were identical except that "financial sector" was replaced by "general population." Instructions can be provided upon request.

ROUND 1:
Your initial wealth: **$40.50**
Your initial position: **4th Place**

Ranking in your group:

Place	*Player*	*Wealth*	*Function*	*Exp. in yrs*	*Characteristic #1*
1st	other	$54	Financial Advisor	38	Analytical
2nd	other	$49.50	Trading	38	Discipline
3rd	other	$45	Financial advisor	10	Social
4th	**YOU**	**$40.50**	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 IA14. Decision screen in the TRANK^{FIN} treatment.

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:

Place	*Player*	*Wealth*	*Function*	*Exp. in yrs*	*Characteristic #1*
1st	other	$58.50	Trading	38	Discipline
2nd	other	$56.25	Financial Advisor	38	Analytical
3rd	**YOU**	**$49.50**	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 IA15. Results screen in the TRANK^{FIN} treatment.

[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: ..ouse – House

..ock

.at

..oker

.oney

Th.n.

B.nd

[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
Loss of $3 with 50% probability or **gain of $15** with 50% probability.	○	○
Loss of $6 with 50% probability or **gain of $15** with 50% probability.	○	○
Loss of $9 with 50% probability or **gain of $15** with 50% probability.	○	○
Loss of $12 with 50% probability or **gain of $15** with 50% probability.	○	○
Loss of $15 with 50% probability or **gain of $15** with 50% probability.	○	○
Loss of $18 with 50% probability or **gain of $15** with 50% probability.	○	○

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 IA16. Loss aversion task in both treatments.

Appendix VI. Modified CRT Questions

- A football shoe and a ball cost 110 euro together. The shoe costs 70 euro more than the ball. How much costs the ball?
- 5 machines need 5 minutes to produce 5 keyboards. How long would 80 machines need for 80 keyboards?
- An IT company offers you storage space. Every day your volume of data doubles. If it would need 20 days to max out the provided space, how long would it take to max out half of the space?

Appendix VII. Photos of the Experimental Laboratories

Figure IA17. Mobile laboratory and Innsbruck EconLab. Top: Mobile laboratory in the conference room of a financial institution. Bottom: Innsbruck EconLab.