



Greed: Taking a Deadly Sin to the Lab.

Michael Razen, Matthias Stefan

Working Papers in Economics and Statistics

2016-27

University of Innsbruck
Working Papers in Economics and Statistics

The series is jointly edited and published by

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

Contact address of the editor:
Research platform "Empirical and Experimental Economics"
University of Innsbruck
Universitaetsstrasse 15
A-6020 Innsbruck
Austria
Tel: + 43 512 507 7171
Fax: + 43 512 507 2970
E-mail: eeecon@uibk.ac.at

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

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

Greed: Taking a Deadly Sin to the Lab.

Michael Razen* and Matthias Stefan†

Abstract

The term greed has become very popular in the public debate. It is regularly argued, for instance, that greed is one of the deep rooted reasons for the financial crisis, numerous incidents of fraud and growing inequalities in wealth. Despite its prominent role in the current debates, however, empirical research on greed is rather sparse. We argue that the major impediment for empirical studies is the difficulty to separate greed from selfishness. To overcome this methodological problem, we propose a modified version of the classic dictator game which allows us to unambiguously distinguish greed from other forms of self-centered behavior in an experimental environment. Building on the notion of greed as a selfish and excessive desire for more than is needed, we introduce an artificial point of material satiation. We find that greed is indeed observable under laboratory conditions and that it is even one of the predominant behavioral motives. We also find that feelings of entitlement significantly increase the frequency of greedy behavior. Further, our results indicate that feelings of social obligation have no impact on the proportion of greedy behavior, but result in equal sharing being the predominant choice.

Keywords: Experimental economics; greed; entitlement

JEL classification: D630; D910; Z130

*University of Innsbruck, Department of Banking and Finance, Universitätsstrasse 15, 6020 Innsbruck, Austria. E-mail: michael.razen@uibk.ac.at.

†University of Innsbruck, Department of Banking and Finance, Universitätsstrasse 15, 6020 Innsbruck, Austria. E-mail: matthias.stefan@uibk.ac.at.

1 Motivation and literature

Human concern with the phenomenon of greed and its ramifications for society is well-documented throughout history. Theoretical discourses, especially in philosophy and theology, go back at least as far as Ancient Greece (Balot, 2001). Scholars of the major religions have been concurring with the philosophers' negative judgment of greed (Seuntjens et al., 2015). In the Catholic Catechism, for instance, greed is considered one of the Seven Deadly Sins since the early Middle Ages. Lately, the term greed has gained center stage during the recent financial crisis and its aftermath. Bonus payments in companies bailed out by the public irritated politicians and taxpayers alike. Numerous incidents of fraud scandals and large-scale tax evasion have been reported within the past few years. At the same time, wealth gaps keep increasing on both global and national levels. These developments have been linked to executive excess and greed (Wang and Murnighan, 2011), which are considered a growing threat to social harmony and economic stability (Ariely and Grüneisen, 2013).

Literature defines greed as a *selfish and excessive desire for more than is needed* (Seuntjens et al., 2014; Haynes et al., 2014). As selfishness is understood as the *desire to maximize one's own (material) payoff* (Kerschbamer, 2015), it becomes clear that greed is essentially a subset of selfishness, characterized by its excessiveness or insatiability – which is the major challenge of studying greed empirically. How can researchers decide whether a certain behavior is *excessively* selfish rather than 'just' selfish (Haynes et al., 2014)?

Nonetheless, there have been attempts to capture greed in field studies. Haynes et al. (2014), e.g., introduce various proxies for CEO overpayment, while Krekels and Pandelaere (2015) and Seuntjens et al. (2015) develop a dispositional greed scale. In experimental economics literature, greed is often linked to the amount of money kept by decision makers in laboratory experiments such as dictator games or public good games (see e.g. Poppe and Utens (1986), Ahn et al. (2001), Wang and Murnighan (2011)). Accordingly, subjects who keep higher shares to themselves are considered 'greedier' than others who keep less to themselves. It is unclear, however, if such a classification scheme captures the essence of greed as excessive selfishness, since in these experimental settings it is difficult to draw the line that demarcates excessiveness and insatiability.

Studying greed in an experimental environment is of more than only academic interest. It can provide insights into one of the most disputed drivers of human behavior. Rendering greedy behavior observable in the laboratory also creates the opportunity to identify and study both its possible causes as well as its ramifications. Such insights are of major importance to assess the effects of greed objectively and suggest potential policy interventions. One aim of this paper is to contribute to the discussion by addressing the question whether it is possible to isolate behavior that can be identified as greedy under laboratory conditions. In two additional treatments we also study dynamics which we expect to encourage and discourage, respectively, greedy behavior. First, as economic disparities are often justified by the individual level of contribution, we analyze whether feelings of entitlement increase the propensity to act greedily in a competitive environment. Second, we study whether joint achievements have the opposite effect by inducing feelings of social obligation.

2 Experimental design

According to the above definition, traditional experiments are inapt to distinguish selfish payout maximization from actual greed, i.e. the excessive desire for *more than is needed*. Consider, for instance, the dictator game, a very simple and widely used experimental paradigm to elicit social preferences. In the classic dictator game, there are two roles: one distributor and one recipient. The distributor receives a certain amount of money and can decide how the money shall be split between himself and the recipient. In this classic set-up, it is impossible for the experimenter to determine whether distributors keep truly ‘more than is needed’ to themselves as the individual point of material satiation is unobservable. To overcome this issue, we let distributors decide how they wish to split a certain amount of a *fictional* currency (Taler) which is subsequently converted to real money (Euros). By *capping the maximum amount* of the fictional currency that is converted to real money, we introduce an artificial point of material satiation.

In our modified version of the dictator game, which we call the Greed Game, the distributor receives 10,000 Taler to split between himself and a randomly

assigned recipient. All Taler payoffs are transferred to the subject’s fictional Taler account, which is displayed graphically and numerically throughout the experiment (see Appendix for details). However, only up to 6,000 Taler are converted to Euros.¹ Thus, if a distributor keeps more than 6,000 Taler, he sacrifices real money for the recipient in exchange for a higher figure on his fictional Taler account. This modification creates a clear-cut point of material satiation at 6,000 Taler. In real life, this point reflects a level of monetary wealth above which additional earnings would serve no more economic purpose (purchase of goods, reserves, etc.) but mere possession.

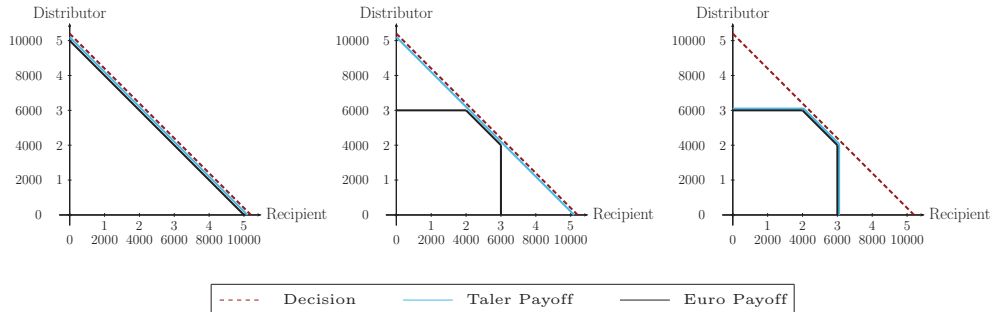


Figure 1: Left: Classic dictator game. Center: Greed Game. Right: Spite Game. The dashed red line depicts the splitting decision of the distributor. The corresponding Taler and Euro payoffs are represented by the points on the blue (Taler) and black (Euro) line with the minimal distance to the distributor’s decision. The scale ranging from 0 to 10,000 corresponds to the Taler payoff, the scale ranging from 0 to 5 corresponds to the Euro payoff.

There is, however, another possible motive that would lead subjects to keep more than 6,000 Taler in the Greed Game. If a distributor is spiteful, i.e. if he benefits from harming others, he has an incentive to keep more than 6,000 Taler in order to reduce the Euro payoff of the recipient (Levine, 1998; Kimbrough and Reiss, 2012). To control for this behavioral motive, we include a second decision task in our experiment, which we call the Spite Game. The setting is almost identical to the Greed Game with the only difference that Taler amounts above 6,000 forfeit, i.e. they are neither transferred to the account nor converted to Euros. In a within-subject design, these two games allow for a simple classifi-

¹In a meta study, Engel (2011) shows that, on average, distributors keep 72% of the total cake size. Therefore, a reasonable threshold for the conversion of Taler to Euros should be well below this amount, or else it will likely not affect the decision of a substantial fraction of the subjects. Similarly, thresholds below 50% would impede a reasonable classification of behavioral motives. We hence deem 60% a sensible choice.

cation rule: if a subject keeps more than 6,000 Taler in the Greed Game out of spite, he will also keep more than 6,000 Taler in the Spite Game. If a subject keeps more than 6,000 Taler in the Greed Game out of greed, he will keep exactly 6,000 Taler in the Spite Game as he has an excessively selfish desire for more than is needed, but does not benefit from harming others. Figure 1 shows the payoff schemes for the classic dictator game as well as the Greed Game and the Spite Game.

While we focus on greedy behavior, our setting allows for a wider range of (consistent) classification of behavioral motives. Table 1 gives an overview of revealed behavioral motives depending on the choices in the Greed Game and Spite Game. Although other action choices can be explained by various behavioral theories, we believe that our classification contains the most straightforward behavioral motives.

Motive	Amount kept in Greed Game	Amount kept in Spite Game
Spite	$> 6,000$	$> 6,000$
Greed	$> 6,000$	$= 6,000$
Selfishness	$= 6,000$	$= 6,000$
Self-Interest ^X	$[5,000, 6,000]$	$[5,000, 6,000]$
Equal sharing	$5,000$	$5,000$
Altruism ^Y	$[4,000, 5,000]$	$[4,000, 5,000]$

Table 1: Behavioral motives and corresponding action choices in the Greed Game and the Spite Game. ^X: excluding (5,000, 5,000) and (6,000, 6,000). ^Y: excluding (5,000, 5,000).

Note that our design is a markedly conservative approach to render greed observable. For one, the point of material satiation is sharp and utterly obvious to the participants. Keeping more than 6,000 Taler to oneself comes with no additional benefit other than the extra Taler on the fictional account. While this clear-cut threshold might discourage some subjects from keeping more than 6,000 Taler who would do so under a less strict conversion regime (e.g. with a decreasing exchange rate), we consciously choose this design to make it unquestionable whether the level of (material) satiation is exceeded or not. This is a substantial methodical advantage compared to field studies in general, but also to experimental studies relying on the classic dictator game since it allows us to undoubtedly identify greedy behavior. Furthermore, we choose our design such

that greed has the single and obvious negative side effect of depriving the counterpart of real money. Even though some authors concede also positive effects to greed (Seuntjens et al., 2015), we consciously do not incorporate possible positive effects to rule out any behavioral motives other than greed.

3 Treatments and Experiment

The experiment was conducted in the EconLab at the University of Innsbruck using oTree (Chen et al., 2016). In total, 768 subjects (bachelor and master students of all disciplines) participated in the study. Subjects were recruited via Hroot (Bock et al., 2012). All instructions were displayed on-screen. In the beginning, participants received a show-up fee of 8,000 Taler on their accounts which would be converted 2,000:1 to Euros.

We conducted three different treatments. In each treatment, the Greed Game was followed by the Spite Game. Groups were always assigned anonymously and randomly and were fixed throughout the experiment. In the baseline treatment, subjects were assigned the roles of distributor and recipient randomly. In the entitlement treatment, subjects could earn the role of the distributor by outperforming their counterpart in a calculation task, where they had to add as many sets of three two-digit numbers as possible within two minutes. We expect this to establish a feeling of entitlement to the Taler amount to be split (Cherry et al., 2002; Campbell et al., 2004). This treatment is motivated twofold: First, questionnaire evidence on dispositional greed scales shows that self-reported greed is associated with feelings of entitlement (Seuntjens et al., 2015; Krekels and Pandelaere, 2015). Second, prior individual achievements might serve as a justification for subsequent greedy behavior. We expect this treatment to generate a higher frequency of greedy behavior compared to the baseline treatment. In the team treatment, subjects were assigned in teams of two and faced an opposing team in the calculation task. The winning team earned the right to proceed to the Greed Game and the Spite Game, while the members of the losing team had no more possibility to increase their payoff. After the calculation task, roles were assigned randomly within the winning team. We expect this treatment to generate a feeling of group identity and team

obligation (Allen and Wilder, 1975; Akerlof and Kranton, 2005). Since greed is regarded as an antisocial trait (Seuntjens et al., 2014), we conjecture that the induced social feelings lead to a lower frequency of greedy behavior compared to the baseline treatment.

Instructions and conversion rules for the Greed Game and the Spite Game were displayed prior to the respective decision to make them as salient as possible. In the entitlement treatment, subjects were informed prior to the calculation task that the winner would earn the role of the distributor in the subsequent stages. In the team treatment, subjects were informed prior to the calculation task that there would be a certain amount of Taler to be distributed within the winning team only. Timing and simplicity of the instructions should avoid any confusion about the rules of the games (see Appendix for full instructions). Sessions lasted approximately 20 minutes (including payment) with an average payoff of 7.63 Euros.

4 Results

Table 2 and Figure 2 summarize the observed behavior in each of the treatments according to the classification scheme presented in Table 1. We find four dominating behavioral motives (greed, selfishness, self-interest and equal sharing) that account for more than 90% of the observed behavior. Moreover, 94.10% of the observed actions can be attributed to one of the behavioral motives presented above.

Motive	Baseline	Entitlement	Team
Spite	1.04%	2.08%	1.04%
Greed	11.46%	22.92%	10.42%
Selfishness	55.21%	53.13%	31.25%
Self-Interest	11.46%	6.25%	12.50%
Equal sharing	12.50%	11.46%	38.54%
Altruism	0.00%	0.00%	1.04%
TOTAL	91.67%	95.84%	94.79%

Table 2: Frequency of the behavioral motives in each of the treatments in percent (N = 96 in each treatment).

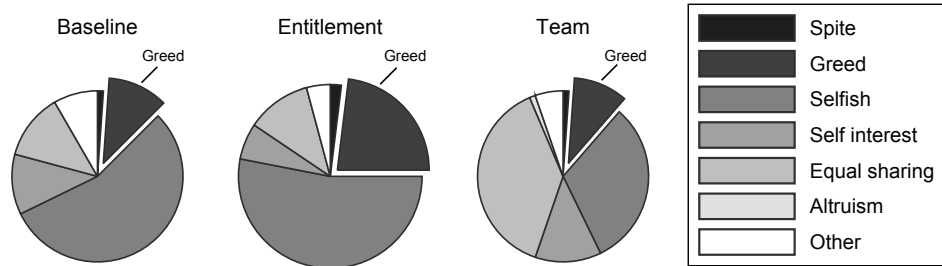


Figure 2: Proportions of behavioral motives in each treatment.

Result 1: greedy behavior is observable under laboratory conditions. Support: in the baseline treatment we find that 11.46% of the subjects act greedily. This is a substantial fraction given our conservative experimental design with its clear-cut point of material (real money) satiation. One out of nine subjects is willing to deprive real money from his counterpart merely for a higher figure on his fictional money account. Remarkably, greed is one of the four dominating behavioral motives even in the baseline treatment.

Result 2: feelings of entitlement can increase the tendency towards greedy behavior. Support: in the entitlement treatment, twice as many subjects (22.92%) as in the baseline treatment act greedily. These fractions are significantly higher at the 5%-level of a two-sided proportion test ($p = 0.0354$, $N = 192$). We deem this our second key finding as it indicates that greed is related to feelings of entitlement. While in the baseline treatment the roles were assigned randomly, subjects now have earned the role of the distributor and thus might feel entitled to the Taler amount to be split. When it comes to distributing money, this appears to affect some subjects' inclination to act greedily. This is even more remarkable as subjects' performance in the calculation task has no impact on the total cake size – rather, subsequent greedy behavior diminishes total real monetary welfare: in the Greed Game, only a maximum of 6,000 Taler per subject is converted at a rate of 2,000:1 to Euros. Thus, the maximum Euro payoff per pair (distributor and recipient) of 5 Euros is only obtained if the distributor chooses to keep an amount between 4,000 and 6,000 Taler. Any other choice decreases the Euro payoff per pair.

Result 3: feelings of joint achievement do not reduce the proportion of greedy

behavior. Support: in the team treatment, 10.42% of the subjects act greedily. This fraction is not significantly different from the one observed in the baseline treatment at the 5%-level of a two-sided proportion test ($p = 0.8171$, $N = 192$).² The proportion of greedy behavior in the team treatment is, however, significantly lower than in the entitlement treatment ($p = 0.0201$, $N = 192$). We hypothesized that the joint achievement, encouraging feelings of group identity and team obligation, would lower subjects' inclination to act greedily. Our experimental results do not support this hypothesis. This finding does not mean, however, that the treatment design has no impact on the subjects in general. Although joint achievements do not discourage subjects from showing greedy behavior, a substantial proportion of subjects do consider the previous joint achievement of this treatment in their decision-making. In the team treatment, 38.54% of the subjects keep exactly 5,000 Taler in both games, thereby choosing an equal split between themselves and their teammate. This fraction is significantly different from the 12.50% in the baseline treatment and the 11.46% in the entitlement treatment ($p = 0.0000$, $N = 192$ for both tests). In contrast to the baseline and the entitlement treatments, where selfishness is the most frequent behavioral motive, equal sharing becomes the dominant behavior in the team treatment.

5 Discussion

Greed describes a type of behavior that is characterized by a selfish and excessive desire for more than is needed. While the term is often used in public debates, it is difficult to objectively decide whether a certain behavior in real life actually satisfies this characterization. Controlled laboratory conditions, however, provide the possibility to isolate behavior that can be labeled as greedy according to the above definition. Studying greed in an experimental environment can provide the means to better understand one of the most disputed drivers of human behavior. Such insights are vital for assessing the causes and effects of greed and suggest potential policy interventions.

²To further test the reported treatment effects (Results 2 and 3), we also ran a probit regression including additional explanatory variables. The regression results confirm our findings. See the Appendix for details.

To unambiguously separate greed from other forms of selfishness, we propose a modification of the classic dictator game with a clear-cut point of material satiation at 60 per cent of the total amount that is to be distributed between the distributor and the recipient. To our surprise, we find that even in the baseline treatment more than eleven per cent of the subjects act greedily. In other words, in one out of nine cases total welfare is reduced by greedy behavior, with no material benefit for the distributor. This finding suggests that greed should be taken seriously as a behavioral motive by policy makers and researchers alike. As possessing more than is needed seems to bear some form of immaterial benefit to greedy individuals, possible interventions have to offer incentives that counterbalance this immaterial benefit.

In the team treatment, we analyze whether feelings of group identity and social obligation can provide the necessary incentives to reduce greedy behavior. While our results show that these feelings significantly increase the frequency of equal sharing, they have no impact on the frequency of greedy behavior. This result suggests that calls for more social solidarity might not suffice to reduce greedy behavior in real life. In the other treatment variation, however, we find that feelings of entitlement following a competition for the role of the distributor significantly increase the frequency of greedy behavior. Consequently, policies targeting greed should mitigate situations where feelings of entitlement can grow excessive and lead to undesirable behavior. This raises the question how the results of competitive outcomes – which are vital for a prospering market economy – might be reinterpreted to prevent subsequent claims from being excessive and possibly welfare-reducing. Given the importance of the topic, we hope that our results encourage further research.

6 Acknowledgements

We thank Felix Holzmeister, Jürgen Huber, Rudolf Kerschbamer, Michael Kirchner and Matthias Sutter as well as seminar participants at the University of Innsbruck. Financial support by the University of Innsbruck (Research Grant of the Innsbruck School of Management) and the Austrian Science Fund (START-grant Y617-G11) is gratefully acknowledged. The study was approved by the Board for Ethical Questions in Science of the University of Innsbruck.

References

- Ahn, T.K., Elinor Ostrom, David Schmidt, Robert Shupp, James Walker. 2001. Cooperation in pd games: Fear, greed and history of play. *Public Choice* **106**(1) 137–155.
- Akerlof, George, Rachel Kranton. 2005. Identity and the economics of organizations. *Journal of Economic Perspectives* **19** 9–32.
- Allen, Vernon L., David A. Wilder. 1975. Categorization, belief similarity, and intergroup discrimination. *Journal of Personality and Social Psychology* **32**(6) 971–977.
- Ariely, Dan, Aline Grüneisen. 2013. Greed: How economic selfishness harms us all. *Scientific American* **24** 40–42.
- Balot, Ryan K. 2001. Greed and injustice in classical athens. *Princeton University Press* .
- Bock, Olaf, Andreas Nicklisch, Ingmar Baetge. 2012. hroot: Hamburg recruitment and organization online tool. *Working Paper* .
- Campbell, W. Keith, Angelica M. Bonacci, Jeremy Shelton, Julie J. Exline, Brad J. Bushman. 2004. Psychological entitlement: Interpersonal consequences and validation of a self-report measure. *Journal of Personality Assessment* **83**(1) 29–45.
- Chen, Daniel L., Martin Schonger, Chris Wickens. 2016. otree - an open-source

- platform for laboratory, online, and field experiments. *Journal of Behavioral and Experimental Finance* **9** 88–97.
- Cherry, Todd L., Peter Frykblom, Jason F. Shogren. 2002. Hardnose the dictator. *American Economic Review* **92**(4) 1218–1221.
- Engel, Christoph. 2011. Dictator games: a meta study. *Experimental Economics* **14**(4) 583–610.
- Haynes, Katalin, Joanna Campbell, Michael Hitt. 2014. When more is not enough: Executive greed and its influence on shareholder wealth. *Journal of Management* **20** 1–30.
- Kerschbamer, Rudolf. 2015. The geometry of distributional preferences and a non-parametric identification approach. *European Economic Review* **74** 225–230.
- Kimbrough, Erik, Philipp Reiss. 2012. Measuring the distribution of spitefulness. *PLoS ONE* **7**.
- Krekels, Goedeke, Mario Pandelaere. 2015. Dispositional greed. *Personality and Individual Differences* **74** 225–230.
- Levine, David K. 1998. Modeling altruism and spitefulness in experiments. *Review of Economic Dynamics* **1**(3) 593–622.
- Poppe, Matthijs, Lisbeth Utens. 1986. Effects of greed and fear of being gypped in a social dilemma situation with changing pool size. *Journal of Economic Psychology* **7** 61–73.
- Seuntjens, Terri, Marcel Zeelenberg, Seger Breugelmans, Niels van de Ven. 2014. Defining greed. *British Journal of Psychology* **106** 505–525.
- Seuntjens, Terri, Marcel Zeelenberg, Seger Breugelmans, Niels van de Ven. 2015. Dispositional greed. *Journal of Personality and Social Psychology* **108**(6) 917–933.
- Wang, Long, Keith Murnighan. 2011. On greed. *The Academy of Management Annals* **5** 279–316.

7 Appendix

7.1 Robustness Check

To further test the reported treatment effect, we conduct a probit regression with the the binary variable GREEDY (1 = subject shows greedy behavior, 0 = subject does not show greedy behavior) as dependent variable. The results of this regression are presented in Table A1.³ Explanatory variables are treatment dummies (ENTITLEMENT; TEAM; baseline category: BASELINE), age (AGE), a dummy for gender (FEMALE), and self reported risk tolerance on a 10-item Likert-scale (RISK). Including these explanatory variables, we find a significant effect for the treatment dummy ENTITLEMENT, confirming the findings reported in the paper. As Seuntjens et al. (2015), we do not find a significant effect of risk aversion on greed. In contrast to our results, however, they report a significant gender effect.

	GREEDY
ENTITLEMENT	0.4685** (0.2271)
TEAM	-0.0900 (0.2441)
AGE	0.0021 (0.0278)
FEMALE	-0.0364 (0.1963)
RISK	0.0698 (0.0477)
α	-1.6039** (0.7472)
N	276
p -value of F -test	0.0838

Table A1: Probit regression for greedy behavior. Standard Errors are provided in parenthesis. *, ** and *** represent the 10%, 5% and the 1% significance levels.

³The regression was run with 276 instead of 288 observations due to a server problem in one of the sessions during the final questionnaire.

7.2 Account

Subjects' fictional accounts were displayed in a numerical and graphical fashion throughout the experiment, including possible waiting screens as shown in Figure A1.

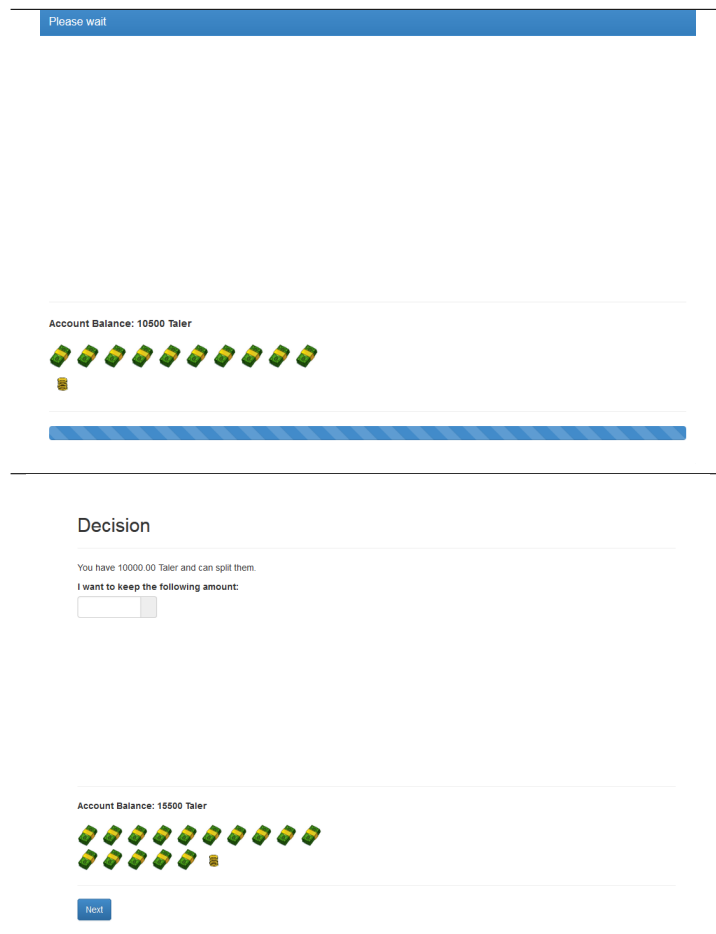


Figure A1: Examples of waiting and decision screens.

7.3 Instructions

Instructions were displayed stage-by-stage on screen during the experiment. The experiment was conducted in German. In the following section we provide a translation of the instructions for each of the three treatments (BASELINE, ENTITLEMENT and TEAM). The entitlement treatment and the team treatment contained an effort task before the role assignment. In the following translation the numbering of the various parts of the experiments for these two treatments is provided in square brackets. German and English versions for all treatments are available on request.

General Instructions

Welcome to the experiment. From now on, please refrain from talking to other participants. If you have any questions about the procedure or the instructions, please raise your hand. Your question will be answered in private.

This experiment consists of 2 [3] parts and a questionnaire. The whole experiment is conducted anonymously.

During the experiment, you can earn Taler which will be added to your account. Your account will be shown in all parts of the experiment. Details on the particular rules of conversion of Taler to Euros will be shown in the instructions before the respective decisions.

Instructions Account

You receive 8000 Taler as participation fee which are now added to your account. The conversion rate for the participation fee is 2000:1 from Taler to Euros.

Instructions Roles - Treatment BASELINE

You are now randomly matched with another participant. This matching is conducted anonymously and remains the same for the whole experiment.

In parts 1 and 2 there will be two roles: one distributor and one recipient.

The role assignment is random, too, and remains the same for both parts of the experiment. The distributor will receive a certain amount of Taler at the beginning of each of the parts 1 and 2, which he can split between himself and the assigned recipient as he wishes. The recipient will have no such choice. You will receive further information in the instructions for parts 1 and 2.

Instructions Role Assignment - Treatment ENTITLEMENT

Now follows part 1:

You are now randomly matched with another participant. This matching is conducted anonymously and remains the same for the whole experiment.

In part 1 you can earn your role for the succeeding parts 2 and 3. In parts 2 and 3 there will be two roles: one distributor and one recipient. The distributor will receive a certain amount of Taler at the beginning of each of the parts 2 and 3, which he can split between himself and the assigned recipient as he wishes. The recipient will have no such choice. You will receive further information in the instructions for parts 2 and 3.

In the subsequent part 1 you can earn your role for parts 2 and 3 as follows:

You have two minutes to solve as many calculations as possible. In each calculation you have to compute the sum of three random numbers. You are not allowed to use a calculator, but you can use the provided piece of paper. If you solve more calculations than your counterpart, you have won the role of the distributor. The loser will be assigned the role of the recipient. If you have solved the same number of calculations as your counterpart, then the participant who has submitted the last correct answer earlier is the winner.

Instructions Role Assignment - Treatment TEAM

Now follows part 1:

You are now randomly matched with another participant with whom you form a team of two. This matching is conducted anonymously and remains the same for the whole experiment.

In part 1 together with your teammate you compete against another team of two. In each of the parts 2 and 3 there will be a certain amount of Taler available for the winning team to be distributed within the team. One randomly drawn participant of the winning team can then decide on the distribution. You will receive further information in the instructions of parts 2 and 3. There will be no such Taler amount available for the losing team.

In the subsequent part 1, you have two minutes to solve as many calculations as possible. In each calculation you have to compute the sum of three random numbers. You are not allowed to use a calculator, but you can use the provided piece of paper. If you and your teammate have solved more calculations than the competing team, then your team is the winner. In case of a tie the team who solved the last calculation earlier wins.

Role Assignment - Treatment BASELINE

You have been assigned the role of the distributor/recipient for the following parts.

Role Assignment - Treatment ENTITLEMENT

You have won/lost against your counterpart. Therefore, you are assigned the role of the distributor/recipient for the following parts.

Role Assignment - Treatment TEAM

(Winning team:) Your team has won. In the following parts there is a certain amount of Taler available to be distributed within your team.

In your team there will be two roles for parts 2 and 3: one distributor and

one recipient. The distributor will receive a certain amount of Taler at the beginning of each of the parts 2 and 3, which he can split between himself and his teammate as he wishes. The recipient will have no such choice. You will receive further information in the instructions for parts 2 and 3.

You have been assigned the role of the distributor/recipient for the following parts.

(Losing team:) Your team has lost. Therefore, you have no more choices to make. We ask you for your patience until parts 2 and 3 are finished. Please press “Next”

Instruction Greed Game - Treatments BASELINE and ENTITLEMENT

Now follows part 1 [2]:

The distributor now receives 10000 Taler, which he can split between himself and the assigned recipient as he wishes. On the following screen he can enter which amount – any integer from 0 to 10000 – he wishes to keep for himself.

The Taler earnings for the distributor is the amount he chose to keep, the Taler earnings for the recipient is the remaining amount (10000 Taler minus the amount the distributor has kept for himself).

Your Taler earnings are added to your account directly after the distributor’s decision. In part 1 [2], Taler earnings are converted into Euro earnings at a conversion rate of 2000:1, but for each participant only a maximum of 6000 Taler of his Taler earnings in part 1 [2] are converted to Euros.

Instruction Greed Game - Treatment TEAM

Now follows part 2:

The distributor now receives 10000 Taler, which he can split between himself and his teammate as he wishes. On the following screen he can enter which

amount – any integer from 0 to 10000 – he wishes to keep for himself.

The Taler earnings for the distributor is the amount he chose to keep, the Taler earnings for his teammate is the remaining amount (10000 Taler minus the amount the distributor has kept for himself).

Your Taler earnings are added to your account directly after the distributor's decision. In part 1 [2], Taler earnings are converted into Euro earnings at a conversion rate of 2000:1, but for each participant only a maximum of 6000 Taler of his Taler earnings in part 1 [2] are converted to Euros.

Results Greed Game

(Distributor:) You have chosen to keep _ Taler.

(Recipient:) You have received _ Taler.

Your Taler earnings thus are _ and your Euro earnings are _.

Instruction Spite Game - Treatments BASELINE and ENTITLEMENT

Now follows part 2 [3]:

The distributor again receives 10000 Taler, which he again can split between himself and the assigned recipient as he wishes. On the following screen he can enter which amount – any integer from 0 to 10000 – he wishes to keep for himself.

Regardless of the chosen distribution, each participant's Taler earnings are limited to 6000 Taler in part 2 [3]. Any amount above forfeits. Thus, the distributor's Taler earnings is the amount he chose to keep, as long as this amount does not exceed 6000 Taler. The recipient's Taler earnings is again the remaining amount (10000 Taler minus the amount the distributor kept for himself), as long as this remaining amount does not exceed 6000 Taler.

Your Taler earnings will be added to your account directly after the distrib-

utor's decision. In part 2 [3], the Taler earnings are converted to Euro earnings at a conversion rate of 2000:1

Instruction Spite Game - Treatment TEAM

Now follows part 2 [3]:

The distributor again receives 10000 Taler, which he again can split them between himself and his teammate as he wishes. On the following screen he can enter which amount – any integer from 0 to 10000 – he wishes to keep for himself.

Regardless of the chosen distribution, each participant's Taler earnings are limited to 6000 Taler in part 2 [3]. Any amount above forfeits. Thus, the distributor's Taler earnings is the amount he chose to keep, as long as this amount does not exceed 6000 Taler. His teammate's Taler earnings is again the remaining amount (10000 Taler minus the amount the distributor kept for himself), as long as this remaining amount does not exceed 6000 Taler.

Your Taler earnings will be added to your account directly after the distributor's decision. In part 2 [3], the Taler earnings are converted to Euro earnings at a conversion rate of 2000:1

Results Spite Game

(Distributor:) You have chosen to keep _ Taler.

(Recipient:) You have received _ Taler.

Your Taler earnings are thus _ and your Euro earnings are _.

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

<http://eeecon.uibk.ac.at/wopec/>

- 2016-27 **Michael Razen, Matthias Stefan:** Greed: Taking a deadly sin to the lab
- 2016-26 **Florian Wickelmaier, Achim Zeileis:** Using recursive partitioning to account for parameter heterogeneity in multinomial processing tree models
- 2016-25 **Michel Philipp, Carolin Strobl, Jimmy de la Torre, Achim Zeileis:** On the estimation of standard errors in cognitive diagnosis models
- 2016-24 **Florian Lindner, Julia Rose:** No need for more time: Intertemporal allocation decisions under time pressure
- 2016-23 **Christoph Eder, Martin Halla:** The long-lasting shadow of the allied occupation of Austria on its spatial equilibrium
- 2016-22 **Christoph Eder:** Missing men: World War II casualties and structural change
- 2016-21 **Reto Stauffer, Jakob Messner, Georg J. Mayr, Nikolaus Umlauf, Achim Zeileis:** Ensemble post-processing of daily precipitation sums over complex terrain using censored high-resolution standardized anomalies *published in Monthly Weather Review*
- 2016-20 **Christina Bannier, Eberhard Feess, Natalie Packham, Markus Walzl:** Incentive schemes, private information and the double-edged role of competition for agents
- 2016-19 **Martin Geiger, Richard Hule:** Correlation and coordination risk
- 2016-18 **Yola Engler, Rudolf Kerschbamer, Lionel Page:** Why did he do that? Using counterfactuals to study the effect of intentions in extensive form games
- 2016-17 **Yola Engler, Rudolf Kerschbamer, Lionel Page:** Guilt-averse or reciprocal? Looking at behavioural motivations in the trust game
- 2016-16 **Esther Blanco, Tobias Haller, James M. Walker:** Provision of public goods: Unconditional and conditional donations from outsiders
- 2016-15 **Achim Zeileis, Christoph Leitner, Kurt Hornik:** Predictive bookmaker consensus model for the UEFA Euro 2016

- 2016-14 **Martin Halla, Harald Mayr, Gerald J. Pruckner, Pilar García-Gómez:** Cutting fertility? The effect of Cesarean deliveries on subsequent fertility and maternal labor supply
- 2016-13 **Wolfgang Frimmel, Martin Halla, Rudolf Winter-Ebmer:** How does parental divorce affect children's long-term outcomes?
- 2016-12 **Michael Kirchler, Stefan Palan:** Immaterial and monetary gifts in economic transactions. Evidence from the field
- 2016-11 **Michel Philipp, Achim Zeileis, Carolin Strobl:** A toolkit for stability assessment of tree-based learners
- 2016-10 **Loukas Balafoutas, Brent J. Davis, Matthias Sutter:** Affirmative action or just discrimination? A study on the endogenous emergence of quotas *published in Journal of Economic Behavior and Organization*
- 2016-09 **Loukas Balafoutas, Helena Fornwagner:** The limits of guilt
- 2016-08 **Markus Dabernig, Georg J. Mayr, Jakob W. Messner, Achim Zeileis:** Spatial ensemble post-processing with standardized anomalies
- 2016-07 **Reto Stauffer, Jakob W. Messner, Georg J. Mayr, Nikolaus Umlauf, Achim Zeileis:** Spatio-temporal precipitation climatology over complex terrain using a censored additive regression model
- 2016-06 **Michael Razen, Jürgen Huber, Michael Kirchler:** Cash inflow and trading horizon in asset markets
- 2016-05 **Ting Wang, Carolin Strobl, Achim Zeileis, Edgar C. Merkle:** Score-based tests of differential item functioning in the two-parameter model
- 2016-04 **Jakob W. Messner, Georg J. Mayr, Achim Zeileis:** Non-homogeneous boosting for predictor selection in ensemble post-processing
- 2016-03 **Dietmar Fehr, Matthias Sutter:** Gossip and the efficiency of interactions
- 2016-02 **Michael Kirchler, Florian Lindner, Utz Weitzel:** Rankings and risk-taking in the finance industry
- 2016-01 **Sibylle Puntischer, Janette Walde, Gottfried Tappeiner:** Do methodical traps lead to wrong development strategies for welfare? A multilevel approach considering heterogeneity across industrialized and developing countries
- 2015-16 **Niall Flynn, Christopher Kah, Rudolf Kerschbamer:** Vickrey Auction vs BDM: Difference in bidding behaviour and the impact of other-regarding motives

- 2015-15 **Christopher Kah, Markus Walzl:** Stochastic stability in a learning dynamic with best response to noisy play
- 2015-14 **Matthias Siller, Christoph Hauser, Janette Walde, Gottfried Tappeiner:** Measuring regional innovation in one dimension: More lost than gained?
- 2015-13 **Christoph Hauser, Gottfried Tappeiner, Janette Walde:** The roots of regional trust
- 2015-12 **Christoph Hauser:** Effects of employee social capital on wage satisfaction, job satisfaction and organizational commitment
- 2015-11 **Thomas Stöckl:** Dishonest or professional behavior? Can we tell? A comment on: Cohn et al. 2014, Nature 516, 86-89, "Business culture and dishonesty in the banking industry"
- 2015-10 **Marjolein Fokkema, Niels Smits, Achim Zeileis, Torsten Hothorn, Henk Kelderman:** Detecting treatment-subgroup interactions in clustered data with generalized linear mixed-effects model trees
- 2015-09 **Michael Kirchler, Florian Lindner, Utz Weitzel:** The cost-effectiveness of developmental screenings: Evidence from a nationwide programme
- 2015-08 **Lorenz B. Fischer, Michael Pfaffermayr:** The more the merrier? Migration and convergence among European regions
- 2015-07 **Silvia Angerer, Daniela Glätzle-Rützler, Philipp Lergetporer, Matthias Sutter:** Cooperation and discrimination within and across language borders: Evidence from children in a bilingual city
- 2015-06 **Martin Geiger, Wolfgang Luhan, Johann Scharler:** When do Fiscal Consolidations Lead to Consumption Booms? Lessons from a Laboratory Experiment
- 2015-05 **Alice Sanwald, Engelbert Theurl:** Out-of-pocket payments in the Austrian healthcare system - a distributional analysis
- 2015-04 **Rudolf Kerschbamer, Matthias Sutter, Uwe Dulleck:** How social preferences shape incentives in (experimental) markets for credence goods
- 2016-03 **Kenneth Harttgen, Stefan Lang, Judith Santer:** Multilevel modelling of child mortality in Africa
- 2015-02 **Helene Roth, Stefan Lang, Helga Wagner:** Random intercept selection in structured additive regression models
- 2015-01 **Alice Sanwald, Engelbert Theurl:** Out-of-pocket expenditures for pharmaceuticals: Lessons from the Austrian household budget survey

University of Innsbruck

Working Papers in Economics and Statistics

2016-02

Michael Kirchler, Florian Lindner, Utz Weitzel

Rankings and risk-taking in the finance industry

Abstract

Rankings and Risk-Taking in the Finance Industry Abstract: Rankings are omnipresent in the finance industry, yet there is no research how they impact financial professionals' behavior. We run lab-in-the-field experiments with 657 professionals and lab experiments with 432 students to investigate how rank incentives affect investment decisions. We find that both rankings and tournament incentives increase risk-taking among underperforming professionals, but rankings do not affect students. We show that the 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).

ISSN 1993-4378 (Print)

ISSN 1993-6885 (Online)