



# **Greed: Taking a Deadly Sin to the Lab.**

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**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

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# 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

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# 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.<sup>1</sup> 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.

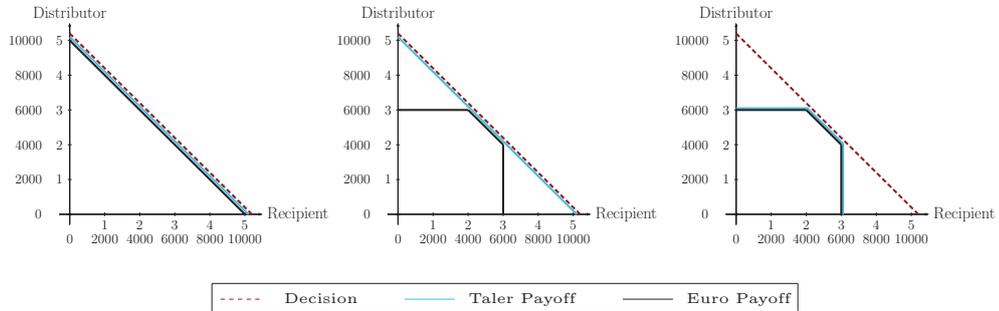


Figure 1: Left: Classic dictator game. Center: Greed Game. Right: Spite Game. The dashed red line depicts the splitting decision of the distributor. The corresponding Taler and Euro payoffs are represented by the points on the blue (Taler) and black (Euro) line with the minimal distance to the distributor’s 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-

<sup>1</sup>In 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 <sup>X</sup>	$[5,000, 6,000]$	$[5,000, 6,000]$
Equal sharing	$5,000$	$5,000$
Altruism <sup>Y</sup>	$[4,000, 5,000]$	$[4,000, 5,000]$

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

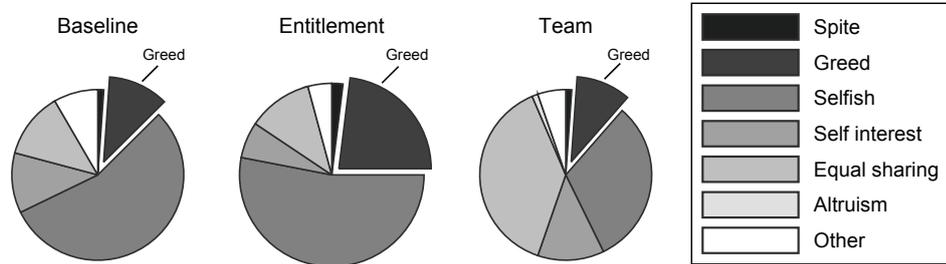


Figure 2: Proportions of behavioral motives in each treatment.

*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 ( $p = 0.8171$ ,  $N = 192$ ).<sup>2</sup> 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.

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<sup>2</sup>To 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.

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## 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.<sup>3</sup> 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)
$\alpha$	-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.

<sup>3</sup>The 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.

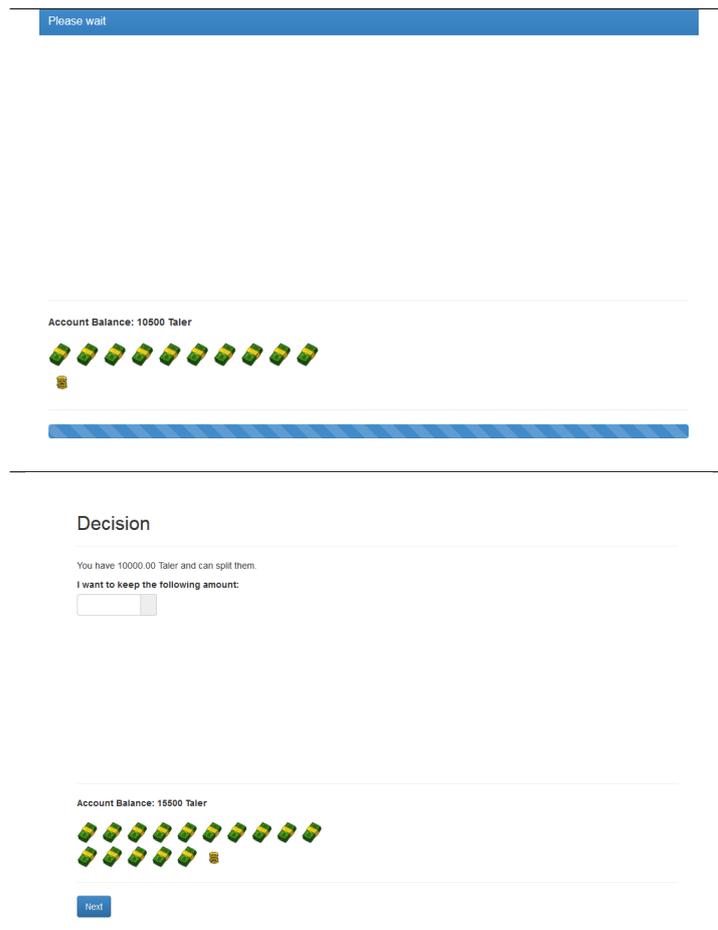


Figure A1: Examples of waiting and decision screens.

### **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 \_.

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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)