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Trust in third parties

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ABSTRACT

Independent decision makers are appointed to promote trust by shielding investors from rent appropriation efforts of insiders. We conduct experiments to show how the appointment procedures for such third parties influence the trust of investors and the actual distributions of returns on investment. We find that when the third party is randomly assigned, investments significantly increase in response to positive returns on investment. Investments are similarly high when insiders select anonymous third parties. However, a simple one-sided reputation mechanism between the third party and the insider (but not the investor) diminishes trust and eliminates the benefits of a supposedly independent third party. In a second experiment we show that the trust of investors, evidenced by their investment level, surprisingly does not depend on whether the decision to delegate to an independent third party or not is taken by insiders themselves or exogenously imposed by a random device.

1. Introduction

A key claim in the corporate governance literature is that firms attract more investments and generate more rents if neutral institutions such as independent board members, auditors, or financial regulators restrict powerful insiders and guarantee property rights (e.g. Shleifer and Vishny, 1997; La Porta et al., 2000). For example, to ensure auditor independence, the European Union including Great Britain introduced new auditing rules in June 2016 that require companies to change their auditor after ten years. In the US, firms are required to rotate the engagement partner primarily responsible for a client's audits after five years. Similarly, entire economies may benefit from independent courts or other nonpartisan institutions like central banks (Schelling, 1960; North, 1981; Knack and Keefer, 1997; Acemoglu et al., 2001).[1] While the suggested

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[1] The World Bank's annual "Doing Business" project reflects this consensus, as do corporate governance codes in the US, the UK, Germany and other countries. The delegation of decision rights to independent institutions is only one of many potential strategies to facilitate trust and encourage specific investments. Fairness concerns (Hackett, 1994; Oosterbeek et al., 2003), promises/threats sending simple text messages (Ellingsen and Johannesson, 2004b, 2004a), and shared ownership rights (Fehr et al., 2008) may also cause individuals to make specific investments even in the absence of known reputations or repeated interactions.

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positive impact of such independent third parties on investments is compelling, it is still unclear what exactly constitutes an independent third party and when people trust a decision maker to be nonpartisan. Furthermore, even when the aggregate benefit of independent third parties is positive, it is unclear whether controlling stakeholders voluntarily delegate decisions to them.

Because we are interested in the underlying behavioral mechanisms, we take an experiment-based approach to addressing these questions. This approach is also warranted because two problems restrict an appropriate empirical identification in the field. First, the identification of independent third parties is difficult. Third party appointment and payment procedures can easily impair independence and may lead to a diffusion of responsibility and biased actions (Fershtman and Gneezy, 2001; Hamman et al., 2010). Powerful insiders have great incentives to tacitly compromise a third party's independence to improve their access to economic rents. A CFO promises a multi-year contract if an auditing firm provides favorable reports. A CEO recommends a person as a board member with whom she has officially no business relations but enjoys an unobserved close private contact. Membership in the same country club may not violate independence regulations, but it can still compromise a board member's independence (Gibson et al., 2013). These informal links also frustrate the efforts of empirical researchers, because they are usually unobservable (Schniter et al., 2013). The second problem is that the empirical identification of the effect of independent institutions on trust is complicated by endogeneity concerns. As institutions and trust are jointly determined, correlations are likely to be confounded by omitted variables.

This paper examines trust in third parties by conducting variations of the repeated investment or trust game established by Berg et al. (1995). In the standard investment game (which serves as a baseline treatment) the receiver represents the powerful insider. She gets the benefits from any investment and decides the size of the back transfer to the investor. In the three third-party treatments that we consider in the first experiment, a third party allocates the benefits between the investor and the receiver. The different treatments vary the appointment process for this third party, who receives a fixed fee for any appointment. We rule out reputation building between the investor and the receiver or third party by using a repeated stranger matching protocol and by not providing the investor any information about the selected third party.

In the first treatment, where the third party is truly independent, having been assigned by a random device, we find that investments significantly increase. In the second treatment, where the receiver selects the third party without having any information on the identity of the third party, investments are similarly high. Interestingly, the benefits of delegating the back transfer decision to a randomly assigned third party or to a selected but anonymous third party only materialize after a few rounds, which indicates that it takes time and positive experiences to establish trust. In the third treatment, where the receiver can select among third parties whose identifiers remain constant, investors invest no more than in the baseline treatment, where there is no delegation to a third party. Revealing the parties' identities to the receivers (but not the investors) activates one-sided reputation mechanisms between third parties and receivers, which decreases proportional back transfers and reduces trust in the third parties.

In a second experiment we endogenize the delegation decision to test how investors respond to deliberate decisions on whether to delegate the back transfer decision to a third party. At the beginning of each round, a receiver in the endogenous treatment has the choice to either determine the back transfer herself or delegate the back transfer decision to a randomly assigned third party. We compare the results with the outcome from an exogenous treatment in which a computer makes a random choice to either leave the back transfer decision with the receiver or delegate it to a randomly assigned third party. Unexpectedly, we find that a deliberate decision by the receiver to delegate does not lead to significantly higher investments than when delegation is exogenously imposed by the random device. Similarly, neither does endogenous non-delegation, the deliberate refusal of the receiver to delegate, significantly decrease investments compared to exogenous non-delegation by the random device. We therefore find no evidence for intention-based reciprocity (Falk and Fischbacher, 2006) between the investor and the receiver.

The paper is structured as follows. In Section 2 we establish the contribution of this paper to the literature. Sections 3–5 present the design, behavioral predictions, and results, respectively, of the first experiment. Sections 6 and 7 present the design and behavioral predictions, and results, respectively, of the second experiment. In Section 8 we discuss implications for theory and practice.

2. Contribution to the literature

Third parties influence both value creation and value appropriation. The strategic value of third parties for *value appropriation* has been analyzed by conducting variations of ultimatum games, dictator games, and punishment games. Fershtman and Gneezy (2001) show that the proposer's payoff in an ultimatum game is higher when the proposer uses a third party who can be incentivized to make unfair offers. This happens because people are reluctant to reject (unfair) offers when both the proposer and the third party suffer a loss. Lammers (2010) argues that principals hire a selfish rather than a fair agent when the benefits of aggressive sales bargaining outweigh the losses from aggressive wage bargaining. Hamman et al. (2010) find that recipients receive significantly less money in a dictator game when principals hire third parties to act on their behalf. Diffusion of responsibility explains this finding: The principals feel less responsible for the outcome when hiring third parties, and third parties feel that they are just following orders. Coffman (2011) and Bartling and Fischbacher (2012) show that delegation is beneficial to principals in allowing them to shift responsibility for unfair allocations. These authors have conducted dictator games with a delegation and punishment option, and find that selfish principals receive less severe punishment if a third party implements an unfair allocation on their behalf.

Table 1
Experimental design of the first experiment.

Treatment	Step 1: Third party assignment	Step 2: Investment	Step 3: Back transfer
BASE	No third party	Sender transfers $0 \leq I \leq 10$ points to receiver, receiver gets 3*I points	Receiver sends $0 \leq T \leq 3I$ points back to sender
IDENT	Receiver selects third party (fixed IDs)		Third party sends $0 \leq T \leq 3I$ points back to sender
UNIDENT	Receiver selects third party (changing IDs)		
RAND	Computer randomly selects third party		

This paper analyzes the influence of third parties for *value creation* by conducting variations of the investment or trust game (Berg et al., 1995) and is therefore related to Fershtman (2007) and Eisenkopf and Nüesch (2016). Fershtman (2007) investigates the effect of independent third parties in a one-shot investment game. Surprisingly, he finds that investors do not invest more when randomly selected third parties with a fixed payment decide on behalf of the receivers how much to return to the investors. Eisenkopf and Nüesch (2016) test the influence of third parties on specific investments with a repeated investment game. They show that when the receivers selected a third party based on cheap talk promises about the back transfer, investments were no higher than in the case with no third party. In a treatment where the third party's remuneration depended on the number of appointments, investments were even lower than in the case with no third party. Unlike the two studies described above, the present paper focuses on how third-party selection with and without a simple one-sided reputation mechanism between the receiver and the third party influences trust. We additionally contribute to the literature by analyzing both exogenously imposed *and* endogenously selected third-party delegation and its effect on trust and investments. In doing so, we can test for potential intention-based reciprocity (Falk and Fischbacher, 2006) in the response of the investor to the receiver performing an act of kindness in delegating the back transfer decision or performing an act of unkindness in refusing to delegate this decision.

3. The design of the first experiment

The experiment uses variations of the "investment game" (or trust game) of Berg et al. (1995). In the standard investment game, the first experiment's *baseline* treatment, *BASE*, participants were either investors or receivers. They kept this role during the entire experiment. Ahead of each of the 10 rounds, one investor and one receiver were anonymously paired according to a stranger matching protocol. At the beginning of the round, both players received 10 euros. The investor was asked to transfer a portion I of the endowment ($0 \leq I \leq 10$) to the receiver. This transfer measured the investor's investment. The experimenter tripled the transferred money so that $3I$ was passed to the receiver. Then the receiver could pass any portion T of the money received ($0 \leq T \leq 3I$) back to the investor.

The other three treatments of the first experiment involved another type of player, the third party. More specifically, one third of the participants acted as third parties who decided the portion T that was handed back to the investor (Table 1). The treatments varied in the extent to which the receiver controlled the appointment of the third party. In the *identified* treatment, *IDENT*, each third party had a specific numerical ID that remained constant over the ten periods. At the beginning of each round, the receiver chose one of the available third parties by stating her numerical ID. The investors did not learn the ID of the chosen third party. At the end of the round, both the investor and the receiver learned the size of the investment and the back transfer. Each third party received 5 euros per round. In each round she also obtained 5 additional euros for each actual back transfer decision. Hence, if three receivers chose the same specific third party in a particular round, this third party received 15 euros in this round on top of the 5-euro "base salary". The third party's payment is paid by the experimenter in all three third-party treatments to allow for a simple comparison between the different treatments (see also Fershtman and Gneezy (2001)). Otherwise, the introduction of a third party would reduce the pie to be divided between the investor and the receiver, independent of the investment. In the *identified* treatment, *IDENT*, a third party had the opportunity to establish a reputation with specific receivers (but not with the investors).

The *unidentified* treatment, *UNIDENT*, eliminated the possibility for one-sided reputation building. Again, the receiver could choose one of the available third parties by stating a numerical ID at the beginning of each round. However, the IDs were randomly assigned among the third parties in each round so that the IDs provided no relevant information to the receivers. The third party's remuneration remained the same: Each third party received a 5-euro base salary plus 5 euros for each assignment. Because the third party's remuneration increased with the number of selections, intention-based reciprocity (Rabin, 1993; Falk and Fischbacher, 2006) could still prompt the third party to provide relatively high benefits to the appointing receiver by lowering the back transfers.

The fourth treatment was designed to eliminate these reciprocal concerns. In the *random* treatment, *RAND*, the computer randomly assigned a third party in each round. Again, the third party's remuneration remained the same. *RAND* describes a situation in which the third party is completely independent from the receiver.

In the first experiment we conducted 14 sessions with a total of 370 subjects. The sessions took place in November and December 2012 and in the first half of 2015 at the *Lakelab* at the University of Konstanz.[2] All subjects were University of Konstanz students recruited through the software "ORSEE" (Greiner, 2015). The experiments were computerized with the software "z-Tree" (Fischbacher, 2007). Each subject participated in only one of the sessions. Upon arrival at the laboratory, subjects were randomly assigned the role of investor, receiver, or third party, and kept that role during the entire experiment (i.e. no role reversal). All subjects received written instructions and comprehension questions that they had to answer correctly before the experiment could start. An English translation of these instructions is included in Appendix I.[3]

As previously mentioned, we implemented a repeated stranger matching protocol for investors and receivers over 10 rounds in all treatments. The computer randomly (re-) matched investors and receivers in each round. Investors invested without knowing which receiver and/or third party was selected or assigned in that round. Within each matched group of investor, receiver (and third party), full feedback about investments and back transfers was given at the end of each round. All details of the game, such as the matching protocol, the payment schemes, and the feedback rules, were common knowledge. The sessions lasted approximately 50 min, and subjects earned 19.1 euros, on average.[4] To avoid wealth effects, one round was randomly selected to count for payment at the end of the experiment. All subjects were paid privately.

4. Behavioral predictions for the first experiment

In this section we describe our predictions for the behavior of the subjects in our first experiment. While our main interest lies in the investment decisions, these decisions depend on the investors' beliefs about the proportional back transfers in the different treatments. Thus, we focus on the back transfers first.

Our analysis assumes that people want to maximize their payoffs and have social preferences, in particular reciprocity and inequity aversion. Reciprocity implies that individuals reward acts of kindness and punish acts of unkindness (e.g. Rabin, 1993; Falk and Fischbacher, 2006). In our experiment, inequity aversion implies that individuals resist inequitable outcomes and try to minimize payoff differences between people. Therefore, we use a broader definition than Fehr and Schmidt (1999), who focus only on payoff differences between the decider and other relevant persons. In order to simplify the analysis, we initially assume that social preferences only matter if they do not affect the payoff of the decision maker. Later on, we will show that our hypotheses do not change qualitatively if we allow for a trade-off between social preferences and selfishness.

The experiment provides two behavioral benchmark treatments, the *BASE* and the *random* treatment, *RAND*. Due to our stranger matching protocol in *BASE*, receivers can maximize their payoffs by giving zero back transfers. In the *RAND* treatment, a randomly selected third party decides about the back transfer. This third party has no financial stakes in the game. In this context, inequity aversion (Fehr and Schmidt, 1999) predicts that the third party gives two thirds of the investment back to the investor in order to balance the payoffs between investor and receiver. Thus, the expected proportional back transfer in *RAND* will be higher than that expected in *BASE*.

Whereas a random device selects the third parties in *RAND*, the receivers select the third parties in the *UNIDENT* treatment. Although the receivers have no relevant third party information in the *UNIDENT* treatment, third parties can still perceive the appointment as an act of kindness by the appointing receiver because the appointment increases the payoff of the selected third party. Therefore, reciprocity concerns (Rabin, 1993; Falk and Fischbacher, 2006) imply a gratification to the receiver such that third parties in the *UNIDENT* treatment will return less money to the investors than the third parties in *RAND*.

Whereas the third parties remain completely anonymous in the *UNIDENT* treatment, the receivers (but not the investors) can identify the third parties in the *IDENT* treatment across the rounds. This variation activates a one-sided reputation mechanism between the appointed third party and the appointing receiver. We assume that the reappointment probability increases with the receiver's satisfaction with the preceding back transfer decision. An appointed third party can maximize the likelihood of reappointment in the next round if the back transfer reflects the preferences of the appointing receiver. Thus, the third party will choose the same back transfers on average as the receiver would do in the *BASE* treatment. We therefore expect the proportions returned to be the same in *BASE* and *IDENT*. Overall, this leads to the following rank order of the expected proportions returned:

Hypothesis 1 *(Experiment 1)*. The expected proportions returned are ordered as follows across the treatments: RAND > UNIDENT > (IDENT = BASE).

A risk-neutral investor with correct beliefs will transfer all 10 euros as long as the expected return proportion is at least one third. Otherwise, the rational investment is 0 euros. We consider such predictions as rather extreme and just assume that the share of investors who have beliefs above that threshold increases monotonically with the true distribution of proportional back transfers. This is in line with previous empirical results. Ashraf et al. (2006) show firstly that expectations

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[2] The results from the *BASE* and the *RAND* sessions in November and December 2012 are also included in Eisenkopf and Nüesch (2016). In the *RAND* treatment of Eisenkopf and Nüesch (2016), each third party was appointed exactly once in each round and therefore received a fixed payoff of 10 euros in each round. In the new *RAND* treatment the third parties received the same remuneration as in all other treatments, namely 5 euros base salary plus 5 euros per assignment, which averages also to 10 euros. We tested whether the slight difference in the third party's payment influenced decisions in any way, but did not find any significant difference. We therefore incorporated the *RAND* results from Eisenkopf and Nüesch (2016) to economize on the subject pool.

[3] The experiments were conducted in German. The instructions in Appendix I constitute a translation of the original instructions.

[4] In November 2012, 1 euro equaled about 1.30 USD. In the first half of 2015, 1 euro equaled about 1.08 USD.

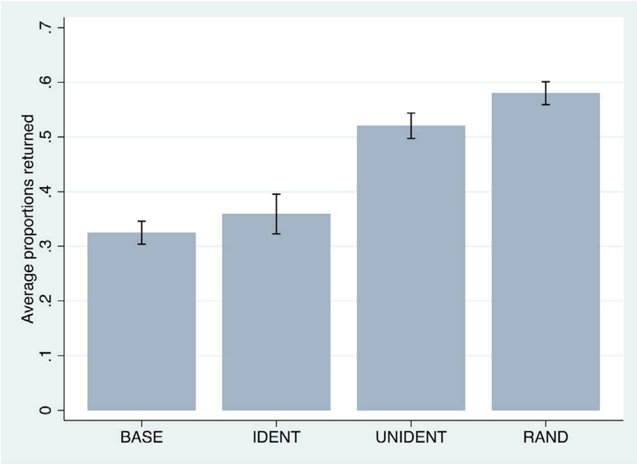


Fig. 1. Summary of average proportions returned per treatment.

of the proportional back transfer account for most of the variance in trust and secondly that investments significantly increase with the expected proportional back transfer. Even when investors' expectations about the back transfers are inaccurate in the first rounds, investors can learn about back transfers over time as they receive feedback about the back transfer at the end of each round.[5] We therefore expect investments between treatments to follow the expected back transfer differences between treatments.

Hypothesis 2 *(Experiment 1)*. The expected investments I are ordered as follows across the treatments: RAND > UNIDENT > (IDENT = BASE)

Both hypotheses rely on the assumption that social preferences only matter if they do not affect the payoff of the decision maker. Because many people give up money to achieve a more desirable social outcome, this assumption is helpful but unrealistic. However, our predictions would not change qualitatively if we allowed for a trade-off between selfishness and the social preferences inequality aversion (Fehr and Schmidt, 1999) and reciprocity (Rabin, 1993; Falk and Fischbacher, 2006) as long as one of the two social motives does not clearly dominate all other preferences. A very strong degree of inequality aversion, for example, would lead to identical back transfers (and investments) in all treatments.

Social preferences such as reciprocity cause receivers to make a back transfer in *BASE* even at the cost of reducing their own payoffs. Analyzing 162 replications of Berg et al.'s (1995) investment game (our BASE treatment), Johnson and Mislin (2011) conclude that receivers return around one third back to the investor on average. As a consequence, the third parties in *IDENT* also adapt their back transfer decisions, which just decreases the gap in proportional back transfers and investments between the treatments without changing the rank order of proportional back transfers and investments.

Regarding the investment decision, unconditional altruism (Andreoni and Miller, 2002) and/or efficiency concerns (Engelmann and Strobel, 2004) would imply high investments independent of the expected back transfer. As long as we assume that these social preferences do not clearly dominate over selfishness, both unconditional altruism and efficiency concerns also just decrease the size of investment differences between the treatments without changing the rank order of investments across treatments.

5. Results of the first experiment

In this section we first provide aggregate treatment comparisons regarding investments and average proportions returned (i.e. the return relative to the size of the transfer) and then study the intertemporal development of these variables and how they translate into payoffs for investors and receivers.

Fig. 1 illustrates average proportions returned per treatment and the corresponding 95% confidence intervals.[6] Because the receiver in the *BASE* or the third party in the *IDENT*, *UNIDENT*, and *RAND* treatments could only decide to return something if the investor had made a positive investment, we restrict the sample to observations with investments above 0. The average proportion returned is lowest in *BASE*, with 0.32, followed by 0.36 in *IDENT*, 0.52 in *UNIDENT* and 0.58 in *RAND*. Whereas the difference in return proportions between *BASE* and *IDENT* is not statistically significant, the average return proportion

[5] Learning about aggregate behavior is possible despite having a repeated stranger matching protocol that rules out reputation effects between the investor and the receiver or third party, respectively. Learning includes both an improved understanding of the game and updating priors concerning the expected behaviors of the other study participants (Muller et al., 2008)

[6] If there is any arbitrary correlation within a session, inference based on confidence intervals may be flawed. We therefore also tested all treatment effects using OLS regressions with robust standard errors clustered at the session level and found that the results do not change in any significant way.

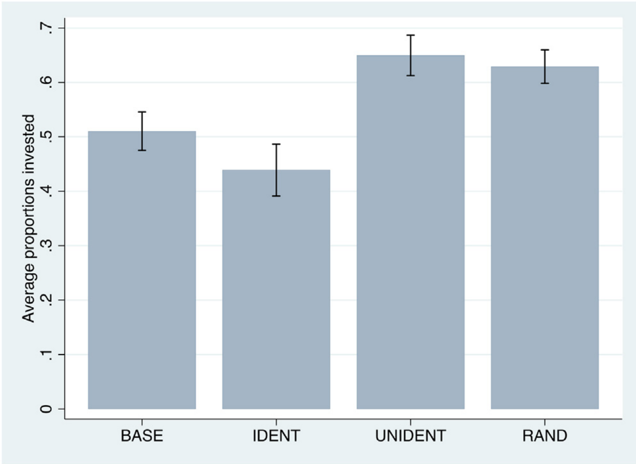


Fig. 2. Summary of average proportions invested per treatment.

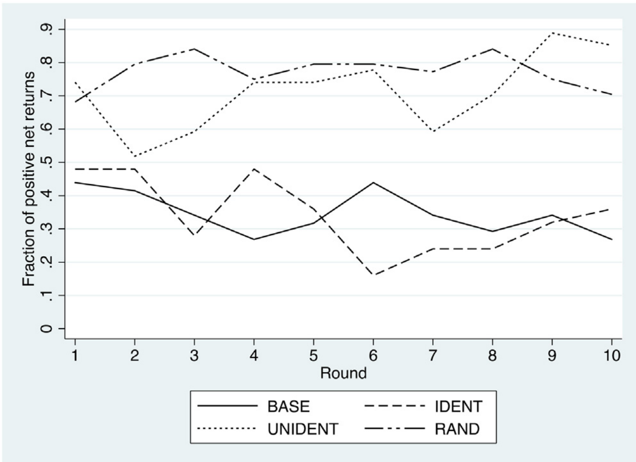


Fig. 3. Fractions of positive net returns per treatment and round.

is significantly higher in *UNIDENT* than in *IDENT* and in *RAND* than in *UNIDENT*. The order of back transfers is exactly as predicted in Hypothesis 1: *RAND > UNIDENT > (IDENT = BASE).*

Result 1: In comparison to the benchmark of entirely independent third parties, simple selection mechanisms significantly decrease proportional back transfers. When the receivers are permitted to select their third party based on previous back transfer decisions, proportional back transfers decrease further and are no longer statistically higher than in the baseline treatment without a third party delegation.

Fig. 2 shows the average proportions invested per treatment and the corresponding 95% confidence intervals. The average proportion invested is 0.51 in *BASE*, 0.44 in *IDENT*, 0.65 in *UNIDENT* und 0.63 in *RAND*. As predicted in Hypothesis 2 investments in *IDENT* are not statistically different from the investments in *BASE* and investments in *UNIDENT* and *RAND* are significantly higher than in *BASE*. However, contrary to the prediction in Hypothesis 2, investments are not lower in *UNIDENT* than in *RAND*. Thus, the data only partly confirms Hypothesis 2.

Result 2: Third-party delegation only increases investments when third parties are randomly assigned or when the third party's identity is not revealed to the receiver who selects the third party. When the third party's identity is revealed to the receivers (but not to the investors), investors invest no more than when the receivers themselves decide the size of the back transfer. Unexpectedly, selection of an anonymous third party by the receiver does not result in lower investments than random assignment of the third party.

Fig. 3 shows the fraction of investors that experience a positive net return per treatment and round. An investor obtains a positive net return if she gets more than one third of the tripled investment as a back transfer. Whereas the fraction of

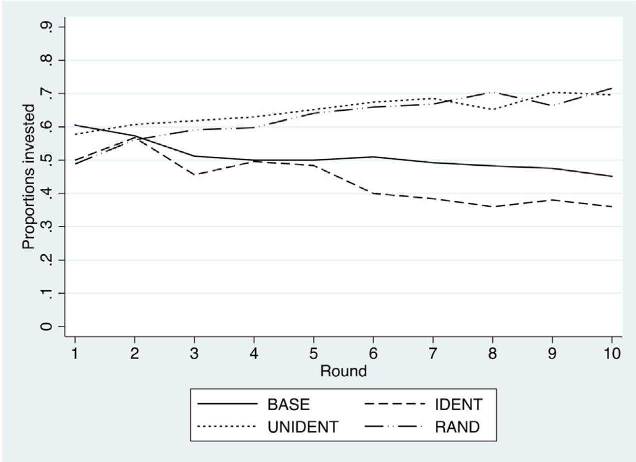


Fig. 4. Investments per treatment and round.

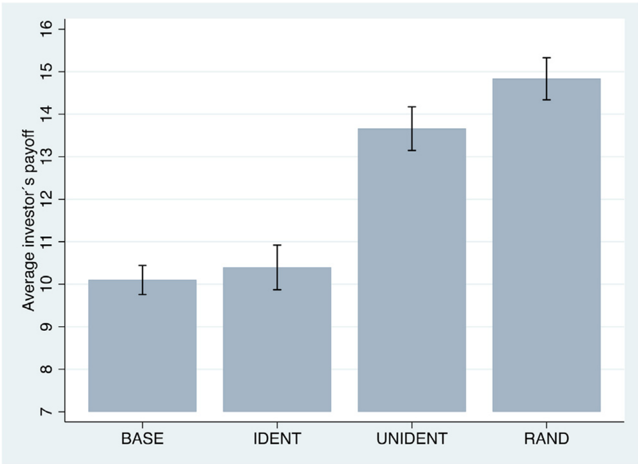


Fig. 5. Investor's payoff per treatment.

investors who experience a positive net return is always above 50% in both the *RAND* and *UNIDENT* treatments, it is always below 50% in *IDENT* and *BASE.*

Fig. 4 shows that the average investment per treatment changes considerably over time. In the first two rounds, investment levels are very similar but then they start to diverge. In *IDENT* and *BASE*, where the fraction of positive net returns is always below 50%, and thus investors on average lose money when investing, average investment decreases over time. In *UNIDENT* and *RAND*, where the fraction of positive net returns is always above 50%, and thus investors on average gain money when investing, average investment increases over time. These results show that institutional arrangements alone do not induce trust in independent third parties. It also takes time and positive experiences for investments to increase.

Result 3: Treatment effects on investments appear only in later rounds. Investors adapt their investments according to their observed net returns on investment.

Fig. 5 shows the average investor's payoff per treatment and the corresponding 95% confidence intervals. The payoff of the investor is 10 minus investment I plus back transfer T. The investor's payoff is significantly higher when the third party's identity is not revealed to the receiver *(UNIDENT)* or when the third party is randomly assigned to the receiver *(RAND)* than in *BASE*, when there is no third party. When the third party's identity is revealed to the receiver *(IDENT)*, the investor's payoff is not significantly different from the payoff in *BASE*.

Fig. 6 shows the average receiver's payoff per treatment and the corresponding 95% confidence intervals. The payoff of the receiver is 10 plus three times the investment I minus back transfer T. Fig. 6 shows that the average receiver's payoff is slightly—but not significantly—lower in *IDENT* and *UNIDENT* than in *BASE*, and that the average receiver's payoff is significantly lower in *RAND* than in *BASE*.

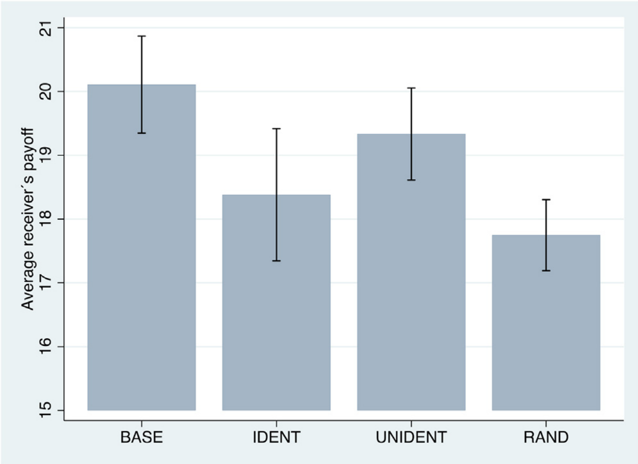


Fig. 6. Receiver's payoff per treatment.

Table 2
Experimental design of the second experiment.

	Step 1: Selection	Step 2: Delegation	Step 3: Investment	Step 4: Back transfer
Ex-Del	Computer randomly selects third party	Computer decides who makes the back transfer (receiver or third party)	Sender transfers $0 \leq I \leq 10$ points to receiver, receiver gets 3*I points	Third party sends $0 \leq T \leq 3^*I$ points back to sender
Ex-NoDel				Receiver sends $0 \leq T \leq 3^*I$ points back to sender
End-Del		Receiver decides who makes the back transfer (receiver or third party)		Third party sends $0 \leq T \leq 3^*I$ points back to sender
End-NoDel				Receiver sends $0 \leq T \leq 3^*I$ points back to sender

Result 4: The investor's payoff is significantly higher when an entirely independent third party or a selected third party whose identity is not revealed to the receiver decides on the back transfer. The receiver's payoff is lower in the third-party treatments than in the baseline treatment but the difference is statistically significant only when the third party is randomly assigned.

6. The design and behavioral predictions of the second experiment

In our first experiment the delegation treatments were exogenously imposed rather than endogenously selected. In the second experiment we study how an *endogenous* (non-) delegation of the back transfer decision to an independent third party affects investments. At the beginning of each of the 10 rounds in the second experiment, investors and receivers were randomly matched. The computer then randomly assigned a third party to each investor/receiver pair. In the *exogenous* treatment, *Ex*, the computer randomly decided at the very beginning of a round whether it was the receiver or the third party who would decide about the back transfer.[7] All three players learned that random outcome before they made any decision. In the *endogenous* treatment, *End*, each receiver could decide in each round whether to delegate the back transfer decision to a third party or not. The investor was informed about the receiver's delegation decision before making the investment decision. Again, each third party received 5 euros in each round and an additional 5 euros for each assignment by the computer in that round. The third party received the 5 euros per random assignment even when the back transfer decision was not delegated by the receiver (in *End*) or by the computer (in *Ex*). Table 2 summarizes the four potential decision contexts.

To derive our behavioral predictions, we again start with the expected back transfers and then continue with the expected investments. As in the first experiment, we expect the back transfers to be higher when randomly assigned third parties without financial incentives allocate them. Because the third parties are randomly assigned and because their payment is not affected by the delegation decision, third parties should have no intention-based reciprocity concerns. We therefore do

[7] In the *Ex* treatment the average delegation probability was programmed to be very similar to the average delegation likelihood in the *End* treatment, namely one third.

not expect differences in third-party back transfers between *Ex-Del*, where the computer decided to delegate, and *End-Del,* where the receiver decided to delegate.

If the receivers care only about their own payoffs, we should not expect any differences between *End-NoDel*, in which the receivers themselves decided not to delegate, and *Ex-NoDel,* in which a random device decided not to delegate. However, at this stage social preferences are critical. If some people are ready to give up money in order to address their social concerns (as the meta-analysis of Johnson and Mislin (2011) suggests), we should observe differences between *End-NoDel* and *Ex-NoDel*. In the endogenous case, receivers can delegate the back transfer decision to the third party to signal strong social preferences. In the exogenous case, they cannot do so. In *End-NoDel* we therefore expect to obtain a selective subsample of receivers who do not care much about social concerns.[8] This reasoning implies the following hypothesis:

Hypothesis 3 *(Experiment 2)*. The expected proportions returned are ordered as follows across the treatments: Ex-Del = End-Del > Ex-NoDel > End-NoDel

Again, we expect that investments significantly increase with the expected back transfer (as shown in Ashraf et al., 2006). Thus, investors will invest significantly more when the back transfer decision is delegated to the randomly assigned third party. Intention-based reciprocity (e.g. Falk and Fischbacher, 2006; Cox et al., 2007) additionally predicts that investors will invest significantly more when the receiver deliberately decides to delegate the back transfer decision to an independent third party than when the computer is responsible for the delegation decision. Active delegation is likely to be considered as an act of kindness that requires a kind response, which means higher investments in the *endogenous* delegation treatment (*End-Del*) than in the *exogenous* delegation treatment (*Ex-Del*). On the other hand, a receiver's refusal to delegate the back transfer decision to the third party may be considered as an act of unkindness, which may prompt the investor to invest less than when the computer does not delegate the back transfer decision to the third party.

Hypothesis 4 *(Experiment 2)*. The expected investments are ordered as follows across the treatments: End-Del > Ex-Del > Ex-NoDel > End-NoDel.

For the second experiment we conducted altogether 12 sessions with a total of 324 subjects. The sessions took place in the first half of 2015 at the *Lakelab* at the University of Konstanz. All subjects were University of Konstanz students recruited through the software "ORSEE" (Greiner, 2015). The experiments were computerized with the software "z-Tree" (Fischbacher, 2007). Upon arrival at the laboratory, subjects were randomly assigned the role of investor, receiver, or third party and kept that role during the entire experiment (i.e. no role reversal). All subjects received written instructions and comprehension questions that they had to answer correctly before the experiment could start. An English translation of the instructions is included in Appendix II.[9]

As in the first experiment, we also implemented a repeated stranger matching protocol for investors and receivers over 10 rounds in all treatments. The computer randomly matched investors and receivers in each round. Investors invested without knowing which receiver and/or third party was assigned in that round. Within each matched group of investor, receiver (and third party), full feedback about investments and back transfers was given at the end of each round. All details of the game, such as the matching protocol, the payment schemes, and the feedback rules, were common knowledge. Each session lasted approximately 45 min, and subjects earned 13.2 euros, on average.[10] To avoid wealth effects, one round was randomly selected to count for payment at the end of the experiment. All subjects were paid privately.

7. Results of the second experiment

Fig. 7 shows the average proportions returned per treatment. As predicted in Hypothesis 3, the average proportions returned are significantly higher when the back transfer decision is delegated to an independent third party regardless of whether the delegation decision is exogenously imposed or endogenously selected. Also as predicted, the difference in average return proportions between *End-Del* und *Ex-Del* is not statistically significant.

However, contrary to the prediction in Hypothesis 3, the proportions returned are not significantly lower when the receiver deliberately decides not to delegate the back transfer decision (*End-NoDel*) than when the random device decides not to delegate the back transfer decision (*Ex-NoDel*). Thus, Hypothesis 3 is only partly confirmed.

> *Result 5: The proportions returned are significantly higher when the back transfer decision is delegated to a randomly assigned third party, independent of whether the receiver or a random device decided about the delegation. Receivers who take the back transfer decision themselves by choosing not to delegate are not considered less trustworthy than receivers who have the back transfer decision imposed on them by a random device.*

Fig. 8 shows the effects of endogenous and exogenous delegation on investments. When the back transfer decision is randomly or deliberately delegated to a third party, investors invest significantly more than in the two non-delegation

[8] Our argument focuses on the back transfer decision *after* a receiver has decided against delegation. It does not rule out that receivers with pure payoff concerns also delegate their back transfer decision to the third party because the benefits from increased investments outweigh the loss from a more egalitarian distribution. In this case we should not have any observations in *End-NoDel* at all.

[9] The experiments were conducted in German. The instructions in Appendix II constitute a translation of the original instructions.

[10] At the time of the experiment, 1 euro equaled about 1.08 USD.

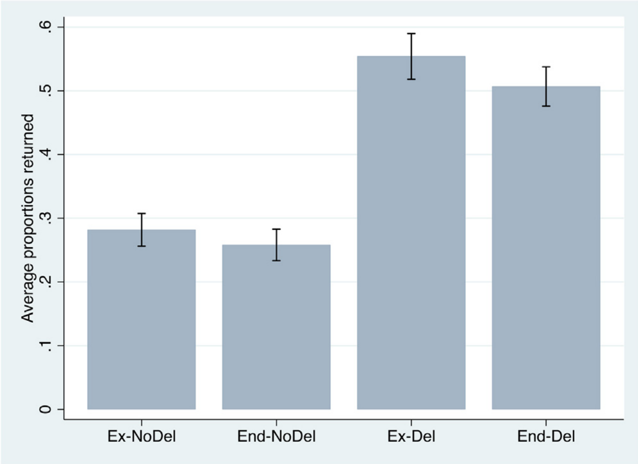


Fig. 7. Average proportions returned under exogenous and endogenous (non-)delegation.

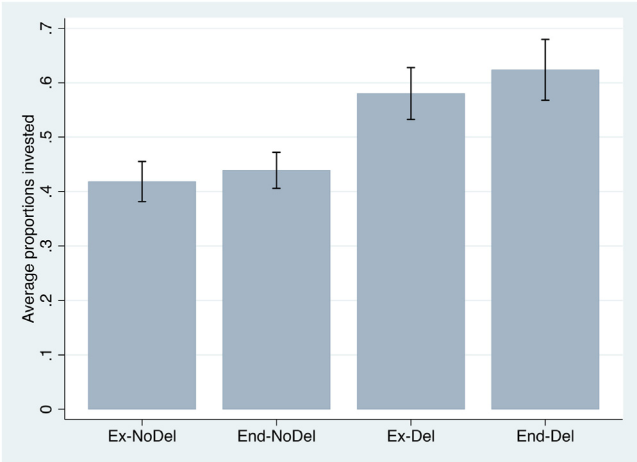


Fig. 8. Average proportions invested under exogenous and endogenous (non-)delegation.

treatments. However, contrary to the predictions of Hypothesis 4, investors do not invest significantly more when the receiver deliberately decides to delegate the back transfer decision (*End-Del*) than when the computer is responsible for the delegation decision (*Ex-Del*). Similarly, a deliberate decision to not delegate does not induce lower investments than when the non-delegation occurs randomly. Thus, investors do not seem to consider the receivers' delegation decisions to be acts of kindness or unkindness that demand reciprocation. Rather, investors make their decisions on the basis of the expected proportions returned, which are similar in the two treatments.

Result 6: The investor invests significantly more when the back transfer decision is delegated to an independent third party than when the receiver decides about the back transfer. Whether the computer or the receiver decides about the delegation has no influence on investments, neither under delegation nor under non-delegation.

The analysis of endogenous delegation reveals that the share of receivers who decide to delegate the back transfer decision to an independent third party is about one third in all rounds. The receiver's decision on whether to delegate the back transfer decision is likely to be influenced by previous experiences. Table 3 shows the results of logistic regressions that explain switching from non-delegation to delegation and from delegation to non-delegation with the receiver's payoff in the previous round. Table 3 reveals that receivers are more likely to repeat the decision of the previous round if the payoff was high in the previous round. The receiver's payoff in the previous round decreases both the switching likelihoods from non-delegation to delegation and from delegation to non-delegation. However, only the latter effect is statistically significant, which is plausible given that in the non-delegation case the receiver herself and not the third party is responsible for low previous payoffs. If we additionally control for round effects, the coefficients barely change. The significantly negative coefficients of the control variable *round* reveals that receivers are less likely to switch in later rounds, by which time they have accumulated more information than in earlier rounds. The average receiver's payoff is very similar under both

Table 3
Logistic regression of switching from non-delegation to delegation or vice versa.

Dependent variable	Switching from non-delegation to delegation		Switching from delegation to non-delegation	
Sample	Rounds 2 until 10		Rounds 2 until 10	
	(1)	(2)	(1)	(2)
Receiver's payoff in the previous round	−0.02	−0.03	−0.05***	−0.05***
	(0.03)	(0.02)	(0.02)	(0.02)
Round		−0.11***		−0.08**
		(0.04)		(0.04)
Constant	−1.21***	−0.49	−0.93***	−0.40
	(0.38)	(0.47)	(0.33)	(0.37)
Number of observations	486	486	486	486
Number of subjects	54	54	54	54
R^2	0.00	0.02	0.02	0.02

Notes: This table displays coefficients of a logistic regression with White robust standard errors clustered at the person level in parentheses. Significance levels are denoted by *** 1%, ** 5%, * 10% (two-tailed tests).

delegation and under non-delegation and the difference is not statistically significant ($p = 0.65$), which may also explain why the average delegation probability of around one third remains constant over time.

8. Discussion

The experimental evidence presented in this paper shows that truly independent third parties indeed increase trust. Our results also indicate that simple one-sided reputation mechanisms between insiders and third parties eliminate the benefits of supposedly independent third parties. When insiders are able to select the third parties based on their previous decisions, investors trust these third parties no more than they trust the insiders themselves. A comparison of experimental treatments in which delegation was either exogenously imposed or endogenously selected reveals that insiders are surprisingly not considered less trustworthy when they deliberately refuse the involvement of a truly independent third party than when non-delegation is imposed on them.

Our paper shows that delegating the back transfer decision to a randomly assigned third party or to a selected but anonymous third party induces the most trust. Our results have, for example, specific implications for the ongoing controversial debate about mandatory audit rotation (for an overview see Casterella and Johnston (2013)). Our results imply that trust in auditors increases if these auditors are either randomly assigned or selected each year from a pool of auditors with which the firm has no past business relationships. Long-term engagements allow an auditor to build up a reputation of kindness towards the specific firm, which undermines the auditor's independence and the trust of investors in the auditor's impartiality. The high concentration in the audit market, however, makes a requirement for no past business relationships between firm and auditor infeasible in practice, so policy makers may have to settle for mandatory rotation of the lead partner. Kaplan and Mauldin (2008), however, show experimentally that audit *partner* rotation does not lead to a lower perceived independence than audit *firm* rotation. Of course, the advantages of truly independent auditors in terms of higher trust and investments have to be weighed against the potential costs of such a mandatory rotation policy, for example, due to the lack of firm-specific knowledge.

Although random selection seems infeasible in business, it was an important element in demarchy, a form of political governance used in ancient Athens and in the medieval republics of Northern Italy. Even today, random selection is often used to form juries in trial courts or, for example, to elect the Coptic pope. Recently, the random selection of candidates from a pre-selected and properly qualified pool has been suggested as a procedure for nominating board members (Zeitoun et al., 2014) and for increasing the number of women in senior positions (Goodall and Osterloh, 2017).

We also find that treatment effects need a few rounds to become significant. Investments increase over time in treatments in which most investors experience positive net returns, and investments decrease over time in treatments in which most investors experience negative net returns. Our results indicate that governance reforms strengthening independent agents do not lead to a sudden jump in investments, in particular when the appointment procedures are opaque. On the one hand, trust has to be developed, while on the other hand, even agents with a misalignment of incentives (such as the receivers or the appointed third parties in our experiment) still exhibit a certain degree of trustworthiness. Interestingly, this last insight is also reflected in the discussion about the merits of biased mediators in conflict resolution processes (Favretto, 2009; Eisenkopf and Bächtiger, 2013).

Because the receiver's payoff is lower or at least not higher in all third-party treatments, receivers tend not to voluntarily delegate the back transfer decision to a third party. In the endogenous treatment, in which delegation was voluntary, only one third of the receivers delegated the back transfer decision to an independent third party, even though such a decision would substantially increase investments and thus aggregate welfare. This insight suggests that firms will not establish independent oversight on their own and may require carrots and sticks to do so.

Acknowledgements

We are grateful to Urs Fischbacher and the research group at the Thurgau Institute of Economics for their intellectual and administrative support in this project, in particular regarding the access to the Lakelab. We also thank two anonymous referees and seminar participants in Konstanz, Münster, Lüneburg and Strasbourg for their stimulating and helpful comments. All errors remain our own.

Appendix I. Instructions.

> General instructions for the participants
>
> *(Note: This is an English translation of the German instructions of the baseline treatment BASE. We integrated control questions about the experiment into the z-tree file.)*

We would like to welcome you to this economic experiment.

Your decisions and, if applicable, the decisions of the other participants in this experiment can influence your payment. It is important that you carefully read these instructions. If you have any questions, please ask **before** the experiment starts. All participants receive the same instructions.

During the experiment it is not allowed to talk with other participants. Disregard of this rule will lead to exclusion from the experiment and the payment.

During the experiment we do not talk about euros. We talk about points instead. Your payment will be first calculated in points. The total number of points you will achieve in this experiment will be converted into euros at the end with a conversion rate of:

1 point = 1 euro

We will pay out the payment in cash at the end of today's experiment. You will be paid according to the points achieved in a randomly chosen round. On the following pages we explain the detailed procedure of this experiment.

Structure of the experiment

In this experiment you are always a group of two. In this pairing there is always a **participant A** and a **participant B**. At the beginning of the experiment the computer randomly determines if you are a participant A or B. You will keep the same role during the whole experiment.

The experiment lasts for ten rounds. **In each round a new pairing will be formed at random.** We explain the procedure of one round. All ten rounds have the same procedure. You will be paid according to the points achieved in a randomly chosen round.

Participant A and participant B are each endowed with 10 points. Participant A can send between 0 and 10 points to participant B. The amount sent is tripled by the experimenter and given to B. Participant B can now decide how many of the received points to return back to participant A. This back transfer is not tripled.

The participants will receive the following payment if the computer randomly selects this round for the payment:

- Participant A: 10 points – amount sent by participant A + back transfer
- Participant B: 10 points + 3 × (amount sent by participant A) – back transfer

At the end of a round the participants will be informed about the points they earned in that round.

Sequence of decisions:

A round proceeds on the screen as follows. Firstly, participant A decides how many points to transfer to B by entering a number between 0 and 10 and reports the size of back transfer he expects to receive back from B. In parallel, participant B reports how many points he expects to be sent by participant A.

Participant B then learns how many points A has sent and how many points B accordingly has received. Then participant B decides on the back transfer by entering the corresponding amount.

> General instructions for the participants
>
> *(Note: This is an English translation of the German instructions of the treatment IDENT. We integrated control questions about the experiment into the z-tree file.)*

Structure of the experiment

In this experiment you are always a group of three. In this triad there is always a participant A, a participant B, and a participant C. At the beginning of the experiment the computer randomly determines if you are a participant A, B, or C. You will keep the same role during the whole experiment.

The experiment lasts for ten rounds. We now explain the structure of one round. All ten rounds have the same structure. You will be paid according to the points achieved in a randomly chosen round.

Participant A and participant B are each endowed with 10 points. Participant A can send between 0 and 10 points to participant B. The amount sent is tripled by the experimenter and given to B. **Participant B selects a participant C** who decides how many of the received points to return back to participant A. This back transfer is not tripled. C cannot return more than B received from A. The 10 points that B received from the experimenter remain with B in any case.

In each round a participant A is randomly assigned to a participant B. Participant B selects a participant C in each round. Participants C have a constant identification number that identifies participant C across all rounds while keeping anonymity. Participant A is not informed which participant C participant B selected.

Participant C receives 5 points from the experimenter and an additional 5 points for each selection. The payment of participant C is therefore independent of participant C's decision on the back transfer and depends only on how many participants B select participant C; i.e. if a participant C is selected twice in a particular round, that participant C receives a total of 15 points in that round.

The participants will receive the following payment if the computer randomly selects this round for the payment:

- Participant A: 10 points – amount sent by participant A + back transfer
- Participant B: 10 points + 3 × (amount sent by participant A) – back transfer
- Participant C: 5 points + 5 points × number of Bs selecting that C

All participants will be informed at the end of each round of the amount sent by participant A to participant B, the amount participant B received (= three times the amount sent by participant A), the back transfer, and the points earned in that round.

Sequence of decisions:

A round proceeds on the screen as follows.

1. A participant A and a participant B are matched.

2. Each participant B selects a participant C. Participants B can identify participants C based on an identification number, without removing their anonymity. The matched participant A is not informed which participant C was selected by participant B.

3. Participant A decides on the amount sent to participant B. A enters a number between 0 and 10. We simultaneously ask participant A to report the expected back transfer.

4. The selected participant C is informed of the amount sent by participant A and the amount received by participant B. The selected participant C decides on the back transfer by entering the specific amount. If a participant C has to decide multiple times, the decisions appear in a random order on his screen. In parallel, we ask each participant B the amount he or she expects participant C to back transfer.

5. At the end of each round participants are informed of the amount sent by participant A to participant B, the amount participant B received (= three times the amount sent by participant A), the back transfer, and the points earned in that round.

General instructions for the participants
(Note: This is an English translation of the German instructions of the treatment UNIDENT. We integrated control questions about the experiment into the z-tree file.)

Structure of the experiment

In this experiment you are always a group of three. In this triad there is always a participant A, a participant B, and a participant C. At the beginning of the experiment the computer randomly determines if you are a participant A, B, or C. You will keep the same role during the whole experiment.

The experiment lasts for ten rounds. We now explain the structure of one round. All ten rounds have the same structure. You will be paid according to the points achieved in a randomly chosen round.

Participant A and participant B are each endowed with 10 points. Participant A can send between 0 and 10 points to participant B. The amount sent is tripled by the experimenter and given to B. **Participant B selects a participant C** who decides how many of the received points to return back to participant A. This back transfer is not tripled. C cannot return more than B received from A. The 10 points that B received from the experimenter remain with B in any case.

In each round a participant A is randomly assigned to a participant B. Participant B selects a participant C in each round. Participants C receive a new identification number in each round. Thus, participants B cannot identify a particular participant C. Participant A is not informed which participant C participant B selected.

Participant C receives 5 points from the experimenter and an additional 5 points for each selection. The payment of participant C is therefore independent of participant C's decision on the back transfer and depends only on how many participants B select participant C; i.e. if a participant C is selected twice in a particular round, that participant C receives a total of 15 points in that round.

The participants will receive the following payment if the computer randomly selects this round for the payment:

- Participant A: 10 points – amount sent by participant A + back transfer
- Participant B: 10 points + 3 × (amount sent by participant A) – back transfer

– Participant C: 5 points + 5 points × number of Bs selecting that C

All participants will be informed at the end of each round of the amount sent by participant A to participant B, the amount participant B received (= three times the amount sent by participant A), the back transfer, and the points earned in that round.

Sequence of decisions:

A round proceeds on the screen as follows.

1. A participant A and a participant B are matched.

2. Each participant B selects a participant C. Each participant C receives a new identification number in each round. The matched participant A is not informed which participant C was selected by participant B.

3. Participant A decides on the amount sent to participant B. A enters a number between 0 and 10. We simultaneously ask participant A the expected size of the back transfer.

4. The selected participant C is informed of the amount sent by participant A and the amount received by participant B. The selected participant C decides on the back transfer by entering the specific amount. If a participant C has to decide multiple times, the decisions appear on his screen in a random order. In parallel, we ask the size of back transfer participant B expects participant C to allocate.

5. At the end of each round participants are informed of the amount sent by participant A to participant B, the amount participant B received (= three times the amount sent by participant A), the back transfer, and the points earned in that round.

General instructions for the participants

(Note: This is an English translation of the German instructions of the treatment RAND. We integrated control questions about the experiment into the z-tree file.)

Structure of the experiment

In this experiment you are always a group of three. In this triad there is always a participant A, a participant B, and a participant C. At the beginning of the experiment the computer randomly determines if you are a participant A, B, or C. You will keep the same role during the whole experiment.

The experiment lasts for ten rounds. We now explain the structure of one round. All ten rounds have the same structure. You will be paid according to the points achieved in a randomly chosen round.

Participant A and participant B are each endowed with 10 points. Participant A can send between 0 and 10 points to participant B. The amount sent is tripled by the experimenter and given to B. **A randomly assigned participant C** decides how many of the received points to return back to participant A. This back transfer is not tripled. C cannot return more than B received from A. The 10 points that B received from the experimenter remain with B in any case.

In each round the triad will be newly formed at random. Participant A is not informed which participant C is assigned.

Participant C receives 5 points from the experimenter and an additional 5 points for each selection. The payment of participant C is therefore independent of participant C's decision on the back transfer and depends only on how many participants B select the participant C; i.e. if a participant C is selected twice in a particular round, this participant C receives a total of 15 points in that round.

The participants will receive the following payment if the computer randomly selects this round for the payment:

– Participant A: 10 points – amount sent by participant A + back transfer
– Participant B: 10 points + 3 × (amount sent by participant A) – back transfer
– Participant C: 5 points + 5 points × number of Bs selecting that C

All participants will be informed at the end of each round of the amount sent by participant A to participant B, the amount participant B received (= three times the amount sent by participant A), the back transfer, and the points earned in that round.

Sequence of decisions:

A round proceeds on the screen as follows.

1. Participants A, B and C are randomly assigned.

2. Participant A is not informed which participant C was assigned by the computer.

3. Participant A decides on the amount sent to participant B. A enters a number between 0 and 10. We simultaneously ask participant A the expected size of the back transfer.

4. The selected participant C is informed of the amount sent by participant A and the amount received by participant B. The assigned participant C decides on the back transfer by entering the specific amount. If a participant C has to decide multiple times, the decisions appear on his screen in a random order. In parallel, we ask the size of back transfer participant B expects participant C to allocate.

5. At the end of each round participants are informed of the amount sent by participant A to participant B, the amount participant B received (= three times the amount sent by participant A), the back transfer, and the points earned in that round.

Appendix II. Instructions.

General instructions for the participants

(Note: This is an English translation of the German instructions of the treatment Ex. We integrated control questions about the experiment into the z-tree file.)

Structure of the experiment

In this experiment you are always a group of three. In this triad there is always a participant A, a participant B, and a participant C. At the beginning of the experiment the computer randomly determines if you are a participant A, B, or C. You will keep the same role during the whole experiment.

The experiment lasts for ten rounds. In each round a participant A is randomly matched with a participant B. Moreover, the computer assigns a participant C in each round at random. Participants A and B are not informed which participant C was assigned by the computer. The number of assignments for any particular participant C in any particular round can be zero, one or multiple. You will be paid according to the points achieved in a randomly chosen round.

We now explain the structure of one round. All ten rounds have the same structure. Participant A and participant B are each endowed with 10 points. Participant A can send between 0 and 10 points to participant B. The amount sent is tripled by the experimenter and given to B. Afterwards the decision is taken on how many points are returned from participant B to participant A. This back transfer is not tripled. The maximum back transfer is the full amount B received from A. The 10 points that B received from the experimenter remain with B in any case.

Before participant A decides on the amount sent to participant B, the computer decides who is going to decide on the back transfer. The computer can leave the decision with participant B (likelihood 2/3) or the computer can delegate the back transfer decision to a randomly assigned participant C (likelihood 1/3). All participants are informed of the computer's selection.

Participant C receives 5 points from the experimenter and an additional 5 points for each selection. The payment of participant C is therefore independent of participant C's decision on the back transfer and depends only on the number of random assignments.

The participants will receive the following payment if the computer randomly selects this round for the payment:

- Participant A: 10 points – amount sent by participant A + back transfer
- Participant B: 10 points + 3 × (amount sent by participant A) – back transfer
- Participant C: 5 points + 5 points × number random assignments

All participants will be informed at the end of each round of the amount sent by participant A to participant B, the amount participant B received (= three times the amount sent by participant A), the back transfer, and the points earned in that round.

Sequence of decisions:

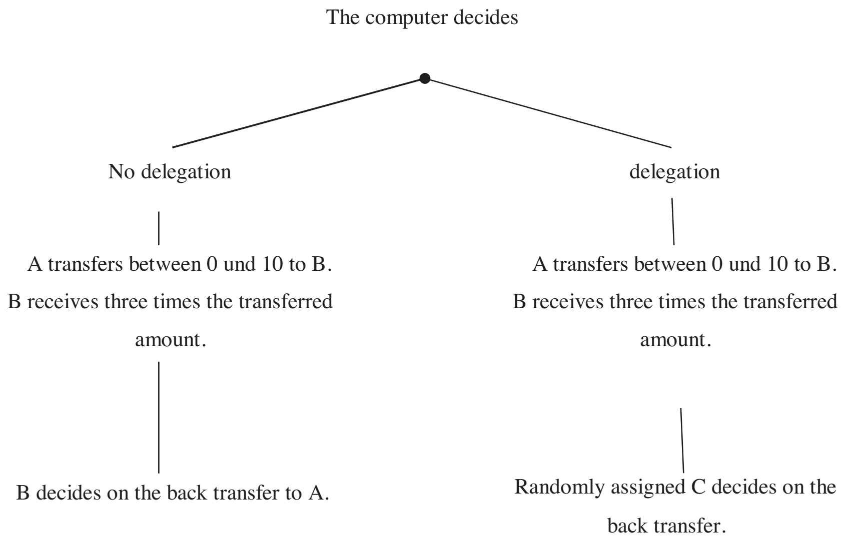
A round proceeds on the screen as follows.

1. Participants A, B and C are randomly assigned.
2. The computer decides whether the back transfer decision is left with participant B or delegated to participant C.
3. All participants are informed whether the computer delegated the back transfer decision.
4. Participant A decides on the amount sent to participant B. A enters a number between 0 and 10. We simultaneously ask participant A the expected size of the back transfer.
5. Decision about the back transfer:

- No delegation: If the computer did not delegate the back transfer decision, B is informed how many points A has sent and how many points B thus receives. B decides on the back transfer by entering the specific amount.
- Delegation: If the computer delegated the back transfer decision, C is informed how many points A has sent and how many points B thus receives. C decides on the back transfer by entering the specific amount. In parallel, we ask each participant B how many points B expects participant C to transfer back to A.

6. At the end of each round participants are informed of the amount sent by participant A to participant B, the amount participant B received (= three times the amount sent by participant A), the back transfer, and the points earned in that round.

Decision tree



General instructions for the participants

(Note: This is an English translation of the German instructions of the treatment End. We integrated control questions about the experiment into the z-tree file.)

Structure of the experiment

In this experiment you are always a group of three. In this triad there is always a participant A, a participant B, and a participant C. At the beginning of the experiment the computer randomly determines if you are a participant A, B, or C. You will keep the same role during the whole experiment.

The experiment lasts for ten rounds. In each round a participant A is randomly matched with a participant B. Moreover, the computer assigns a participant C in each round at random. Participants A and B are not informed which participant C was assigned by the computer. The number of assignments for any particular C in any particular round can be zero, one or multiple. You will be paid according to the points achieved in a randomly chosen round.

We now explain the structure of one round. All ten rounds have the same structure. Participant A and participant B are each endowed with 10 points. Participant A can send between 0 and 10 points to participant B. The amount sent is tripled by the experimenter and given to B. Afterwards the decision is taken on how many points are returned from participant B to participant A. This back transfer is not tripled. The maximum back transfer is the full amount B received from A. The 10 points that B received from the experimenter remain with B in any case.

Before participant A decides on the amount sent to participant B, participant B decides who is going to decide on the back transfer. Participants B can take the back transfer decision themselves or they can delegate the back transfer decision to a randomly assigned Participant C. Participants A and C are then informed whether or not participant B decided to delegate the back transfer decision.

Participant C receives 5 points from the experimenter and an additional 5 points for each selection. The payment of participant C is therefore independent of participant C's decision on the back transfer and depends only on the number of random assignments.

The participants will receive the following payment, if the computer randomly selects this round for the payment:

- Participant A: 10 points − amount sent by participant A + back transfer
- Participant B: 10 points + 3 × (amount sent by participant A) − back transfer
- Participant C: 5 points + 5 points × number random assignments

All participants will be informed at the end of each round of the amount sent by participant A to participant B, the amount participant B received (=three times the amount sent by participant A), the back transfer, and the points earned in that round.

Sequence of decisions:

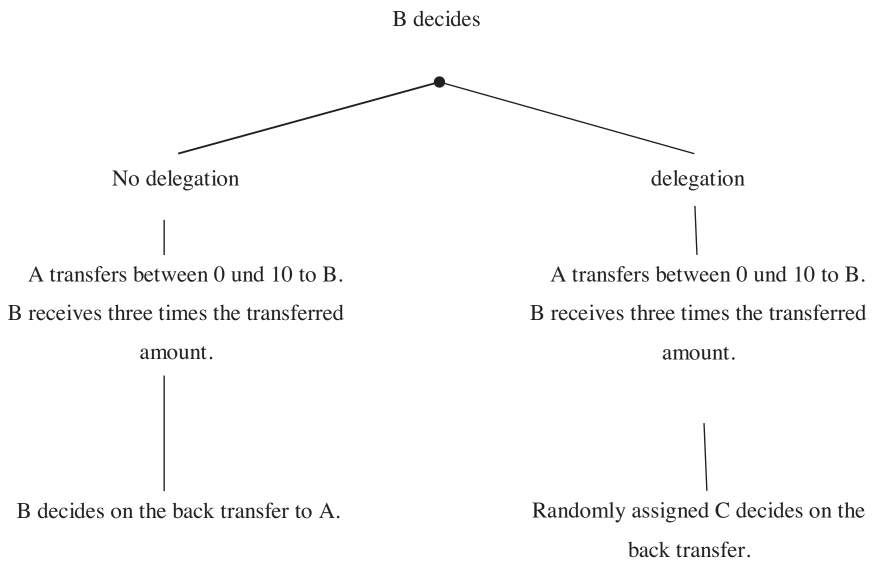
A round proceeds on the screen as follows.

1. Participants A, B and C are randomly assigned.
2. B decides whether to delegate the back transfer decision to participant C or not.
3. Participants A and C are informed whether B delegated the back transfer decision.
4. Participant A decides on the amount sent to participant B. A enters a number between 0 and 10. We simultaneously ask participant A the expected size of the back transfer.
5. Decision about the back transfer:

– No delegation: If B did not delegate the back transfer decision, B is informed how many points A has sent and how many points B thus receives. B decides on the back transfer by entering the specific amount.
– Delegation: If B delegated the back transfer decision, C is informed how many points A has sent and how many points B thus receives. C decides on the back transfer by entering the specific amount. In parallel, we ask each participant B how many points B expects participant C to transfer back to A.

6. At the end of each round participants are informed of the amount sent by participant A to participant B, the amount participant B received (=three times the amount sent by participant A), the back transfer and the points earned in that round.

Decision tree



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